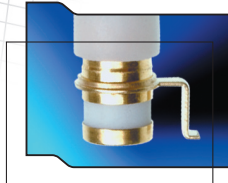




FAMILY OWNED AND OPERATED SINCE 1945, JOHANSON MANUFACTURING HAS SPECIALIZED IN PRECISION MECHANICAL PRODUCTS FOR THE ELECTRONICS INDUSTRY. JOHANSON HAS LONG BEEN RECOGNIZED AS A WORLD LEADER IN RF AND MICROWAVE TUNING APPLICATIONS. THE TRADITION CONTINUES...



# JOHANSON

**A WORLDWIDE LEADER  
IN RF AND MICROWAVE TUNING APPLICATIONS**

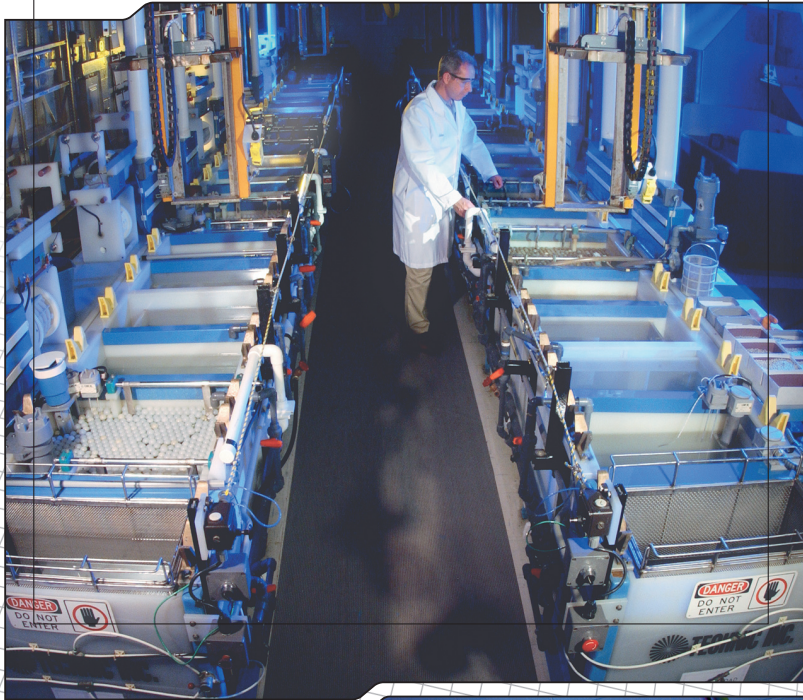
JOHANSON'S FACILITIES ARE LOCATED IN THE UNITED STATES, THE DOMINICAN REPUBLIC AND ASIA. STATE OF THE ART TECHNOLOGY AND EQUIPMENT ENABLE JOHANSON TO CONTROL THE PRODUCT FROM DESIGN THROUGH MANUFACTURING. OUR EXTENSIVE CAPABILITIES ALLOW VERTICAL INTEGRATION, THUS MINIMIZING THE NEED FOR OUTSOURCING OF COMPONENT PARTS. THIS RESULTS IN CUSTOMER SERVICE THAT IS RESPONSIVE AND AGILE.

## A PHILOSOPHY OF EXCELLENCE

JOHANSON'S PHILOSOPHY OF EXCELLENCE IS REFLECTED IN OUR TEAM OF HIGHLY SKILLED INDIVIDUALS WHOSE FIRST PRIORITY IS THE CUSTOMER. OUR CONTINUING FOCUS IS TO PROVIDE TOTAL CUSTOMER SATISFACTION.



JOHANSON ESTABLISHED WORLD CLASS SCREW MACHINING CAPABILITIES TO ASSURE THE MECHANICAL PRECISION AND QUALITY OF OUR TRIMMER CAPACITORS AND TUNING ELEMENTS. IN OUR BOONTON FACILITY, OUR FULLY AUTOMATED MACHINING CENTERS TURN HIGH-VOLUME PARTS WITH PRECISION TOLERANCES WITHIN .0001". JOHANSON'S INTRICATE PRODUCTION ASSEMBLY TOOLING IS SUPPORTED BY PROGRAMMABLE HIGH RESOLUTION WIRE EDM MACHINES.



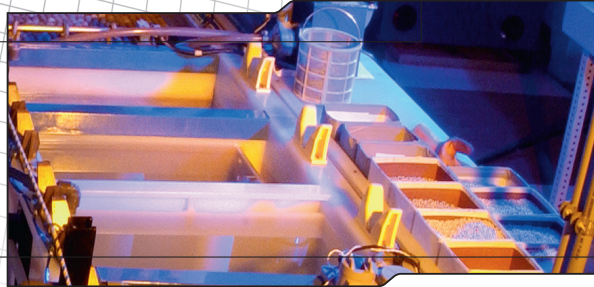
WITH OVER 50 YEARS OF PLATING EXPERIENCE, JOHANSON OFFERS SUPERIOR ON-SITE ELECTROPLATING WHERE THICKNESS IS CONTROLLED WITHIN A MICRON. THESE TECHNOLOGIES ARE THE FOUNDATION FOR THE ELECTRONIC ACCURACY OF OUR TRIMMER CAPACITORS AS WELL AS OUR MICROWAVE TUNING ELEMENTS. WE ALSO PRODUCE PRECISION METALLIC COMPONENTS FOR OTHER APPLICATIONS SUCH AS AUTOMOTIVE, MEDICAL AND AEROSPACE.



JOHANSON'S HIGH PRECISION COMPETENCIES  
EXTEND TO CERAMIC COMPONENTS. OUR ABILITY  
TO PRESS, SINTER, AND MACHINE CERAMIC  
COMPONENTS TO TIGHTLY CONTROLLED  
MECHANICAL TOLERANCES IS CRITICAL TO THE  
QUALITY OF OUR SINGLE-TURN CAPACITORS.  
JOHANSON'S PROPRIETARY PRECISION  
METALLIZATION KNOW-HOW IS EMPLOYED

IN THE MANUFACTURE OF CERAMIC PARTS  
USED IN JOHANSON'S SINGLE TURN AND AIR  
DIELECTRIC CAPACITORS. THESE STRENGTHS  
IN THE FABRICATION AND METALLIZATION OF  
CERAMIC MATERIALS ENABLE JOHANSON TO  
DESIGN AND PRODUCE CERAMIC PRODUCTS FOR  
NEW APPLICATIONS IN OTHER FIELDS AS WELL.

## HIGH PRECISION MANUFACTURING



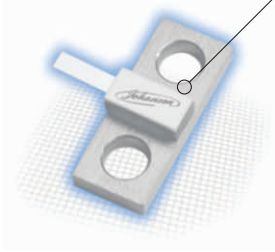
JOHANSON'S NEW PRODUCT DEVELOPMENT TEAM INCLUDES MECHANICAL, ELECTRICAL, CHEMICAL, MATERIAL, RF, PROCESS AND  
MANUFACTURING ENGINEERING. WE WELCOME THE OPPORTUNITY TO TAKE YOUR MOST CHALLENGING REQUIREMENTS FROM DESIGN  
TO PROTOTYPE TO FULL PRODUCTION.



# RESISTIVE

PRODUCTS

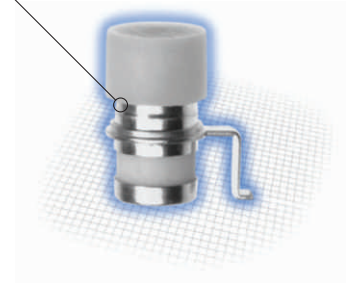
P.6



# GIGA-

TRIM

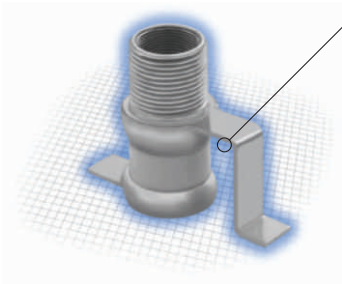
P.27



# AIR

CAPACITORS

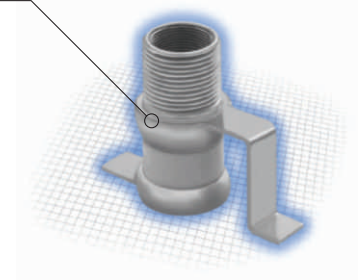
P.31



# NON-MAGNETIC

CAPACITORS

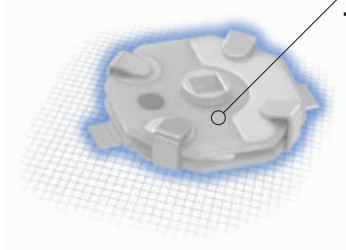
P.35



# THIN-

TRIM

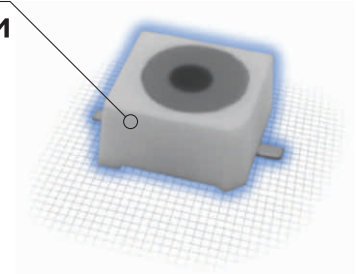
P.39



# CERA-

TRIM

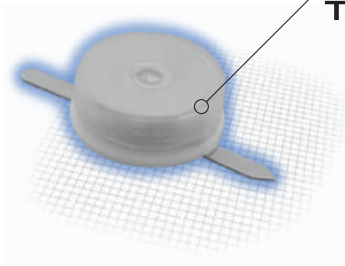
P.41



# SEAL-

TRIM

P.43



VALUE PRICED

# CERAMIC TRIMMERS

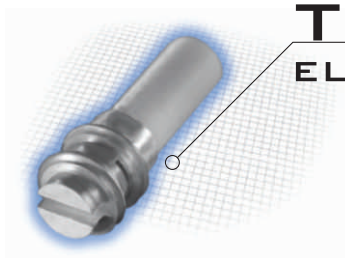
P.45



# TUNING

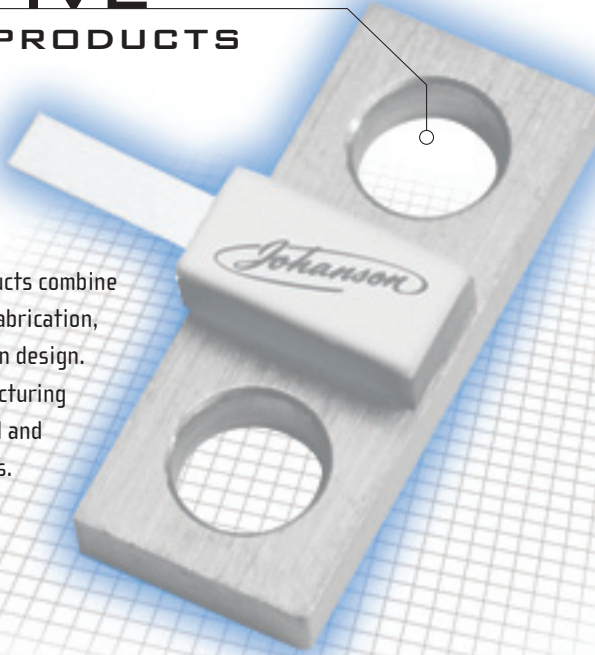
ELEMENTS

P.49



# RESISTIVE PRODUCTS

Johanson High Power Resistive Products combine over 60 years of precision metal fabrication, ceramic processing, and assembly with proven design. Johanson offers complete design to manufacturing capabilities to provide standard and custom solutions to meet your needs.



## PRODUCT TYPES

- Resistors
- Terminations

## PRODUCT STYLES

- Surface Mount
- High Power Flangeless
- High Power Flanged
- Coaxial

## PROCESS

- Thick Film (Standard)
- Thin Film

## ELEMENT

- Proprietary Thick Film
- Nitride Tantalum

## SUBSTRATE

- AlN
- BeO
- Al<sub>2</sub>O<sub>3</sub>

## POWER

- Up to 1000 W

## FREQUENCY

- DC to 12 GHz

## APPLICATIONS

- Power Amplifiers
- Circulators
- Isolators
- Power Dividers / Combiners
- Couplers

## HIGH POWER RESISTORS

PACKAGE	MATERIAL	POWER (MAX)	CAPACITANCE (PF)	MAXIMUM FREQUENCY (GHZ)	VSWR (MAX)
SMD RS SERIES	ALN	30	.3 to 2.0	3	1.25:1
	BeO	30	.3 to 2.0	3	1.25:1
FLANGELESS RL SERIES	ALN	800	.9 to 4.2	6	1.5:1
	BeO	1000	.25 to 3.5	6	1.5:1
FLANGED RF SERIES	ALN	500	.9 to 4.2	6	1.5:1
	BeO	800	.75 to 9	6	1.5:1

## HIGH POWER TERMINATIONS

PACKAGE	MATERIAL	POWER (MAX)	CAPACITANCE (PF)	MAXIMUM FREQUENCY (GHZ)	VSWR (MAX)
SMD TS SERIES	ALN	30	.3 to 2.0	3	1.25:1
	BeO	30	.3 to 2.0	3	1.25:1
FLANGELESS TL SERIES	ALN	800	.9 to 4.2	4	1.25:1
	BeO	1000	.25 to 3.5	6	1.25:1
FLANGED TF SERIES	ALN	500	.9 to 4.2	4	1.25:1
	BeO	800	.75 to 9	12	1.25:1
COAXIAL TC SERIES	ALN	500	—	12	1.35:1
	BeO	800	—	12	1.35:1

# GENERAL SPECIFICATIONS

## ELECTRICAL

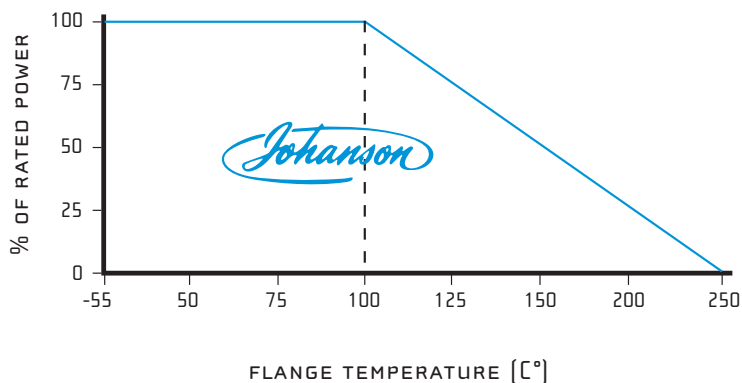
<b>Resistance</b>	25Ω, 50Ω, 75Ω, 100Ω, 150Ω, 200Ω and 250Ω are standard (custom values available)
<b>Resistance Tolerance</b>	±5% (1% and 2% Available)
<b>Power Rating</b>	100% at -55°C to +100°C, derated to 0% at 250°
<b>Temperature Coefficient</b>	±100 ppm/°C from -55°C to +150°C
<b>Operating Temperature</b>	-55°C to +100°C (Base plate)

## MECHANICAL

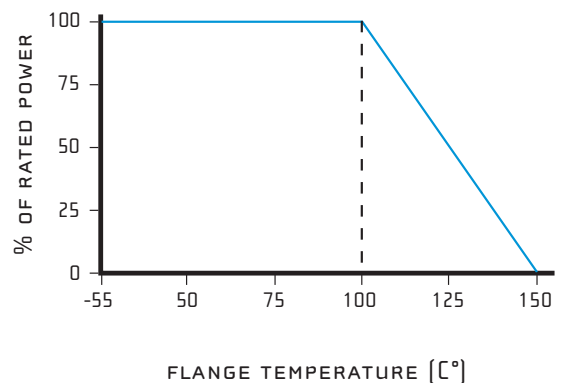
<b>Package</b>	SMD, Flangeless, Flanged, and Coaxial
<b>Substrate</b>	Aluminum Nitride (AlN), Beryllium Oxide (BeO), or Alumina (Al <sub>2</sub> O <sub>3</sub> )
<b>Process</b>	Thick Film (Standard), Thin Film (Available)
<b>Resistive Film</b>	Proprietary Thick Film (Standard) or Tantalum-Nitride
<b>Terminals</b>	99.99% Silver (Custom Terminals Available)
<b>Mounting flange</b>	Nickel plated copper (Standard), Copper Tungsten available
<b>Mechanical Tolerance</b>	± 0.01" Typical
<b>Cover</b>	Alumina (96% Al <sub>2</sub> O <sub>3v</sub> )

## POWER DERATING COMPARISON

JOHANSON PRODUCTS

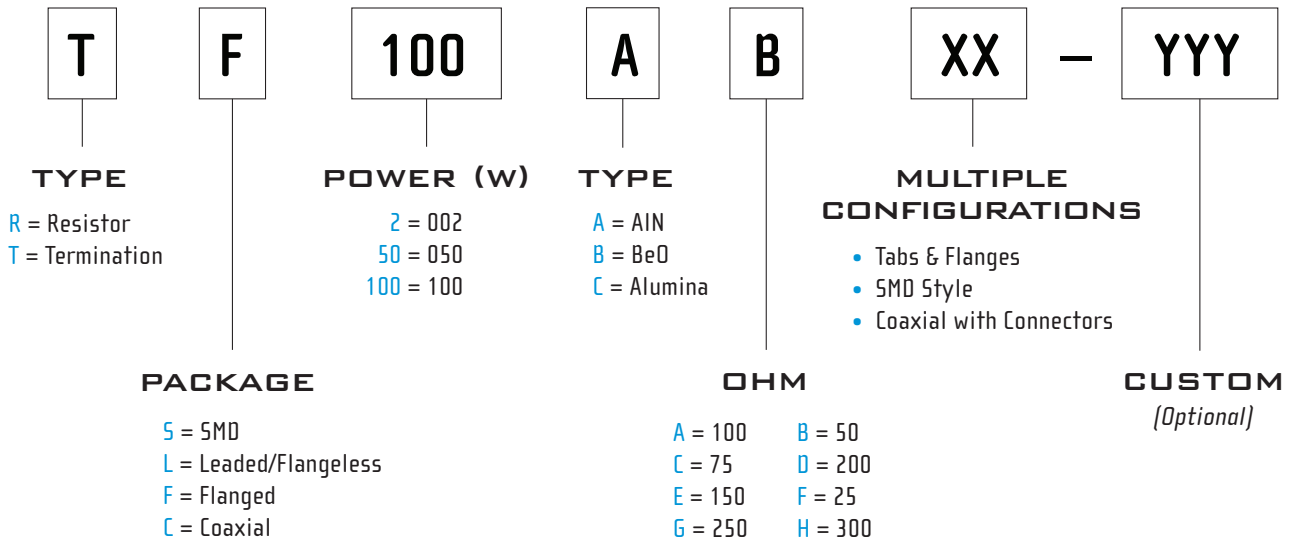


INDUSTRY STANDARD





# PART NUMBER

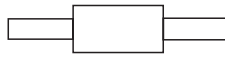


## TYPICAL CONFIGURATIONS

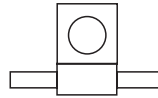
### RESISTORS



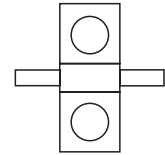
**SMD**  
RS Series



**FLANGELESS**  
RL Series



**HALF FLANGE**  
RF Series

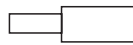


**FULL FLANGE**  
RF Series

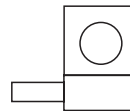
### POWER TERMINATIONS



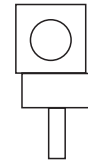
**SMD**  
TS Series



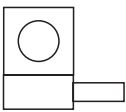
**FLANGELESS**  
TL Series



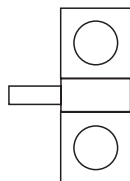
**HALF FLANGE**  
TF Series



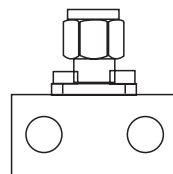
**HALF FLANGE**  
TF Series



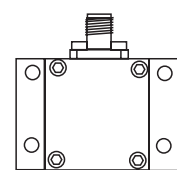
**HALF FLANGE**  
TF Series



**FULL FLANGE**  
TF Series



**COAXIAL**  
TC Series



**COAXIAL**  
TC Series

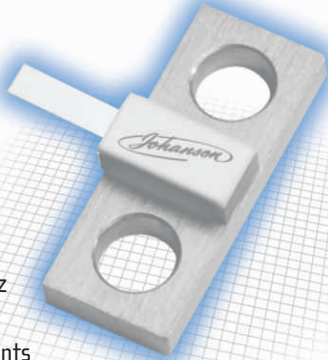


# RESISTIVE PRODUCTS

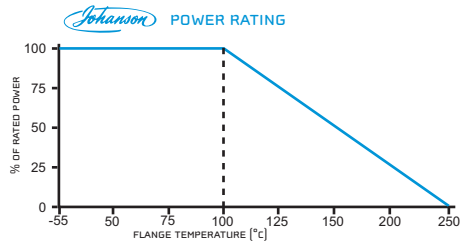
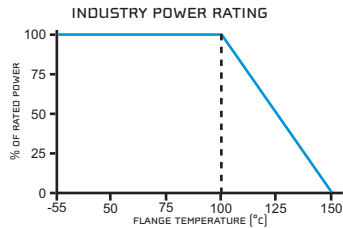
RESISTORS • TERMINATIONS • ATTENUATORS

Johanson HIGH POWER RESISTIVE PRODUCTS combine over 60 years of precision metal fabrication, ceramic processing, and assembly with proven design. Johanson offers complete design to manufacturing capabilities to provide standard and custom solutions to meet your needs.

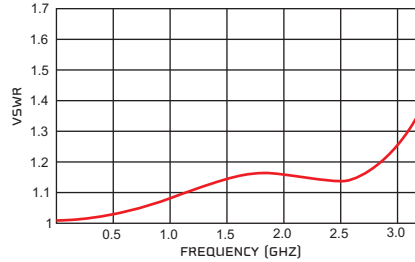
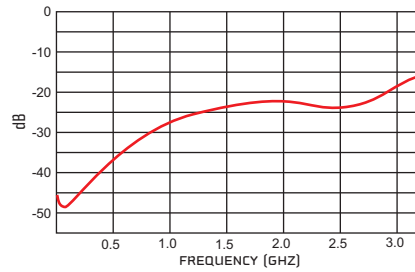
- SMD
- Flanged
- Flangeless
- Coaxial
- Power: 2 to 800W
- Frequency: DC to 12 GHz
- Standard to High Temperature Attachments
- AlN, BeO, Alumina



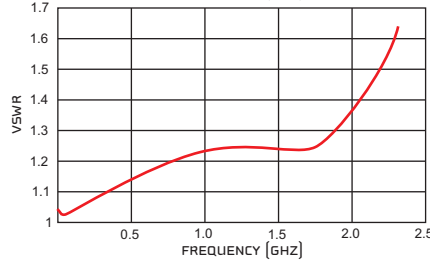
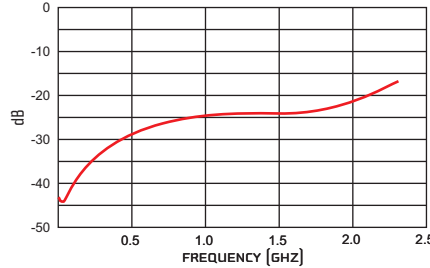
## Johanson POWER RATING



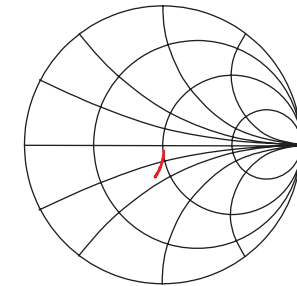
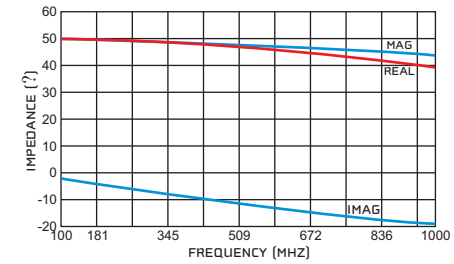
Johanson TERMINATION: 250W 50 Ω AlN



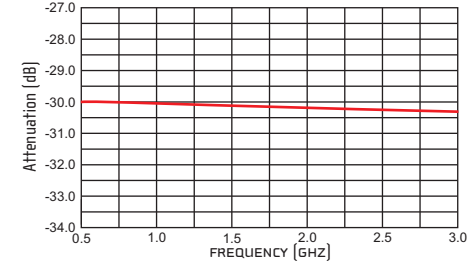
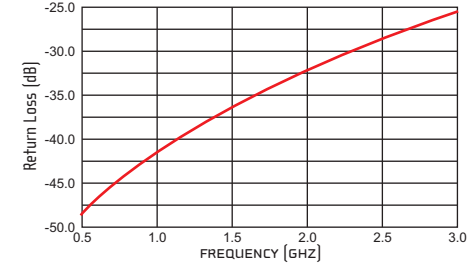
Johanson TERMINATION: 500W 50 Ω BeO



Johanson RESISTOR: 500W 50 Ω BeO



Johanson ATTENUATOR: 30dB 150 Ω AlN



FROM VARIABLE CAPACITORS TO RESISTIVE PRODUCTS: STANDARD TO CUSTOM MATCHED DESIGNS TO MEET YOUR REQUIREMENTS.





## NEW PRODUCT RELEASE

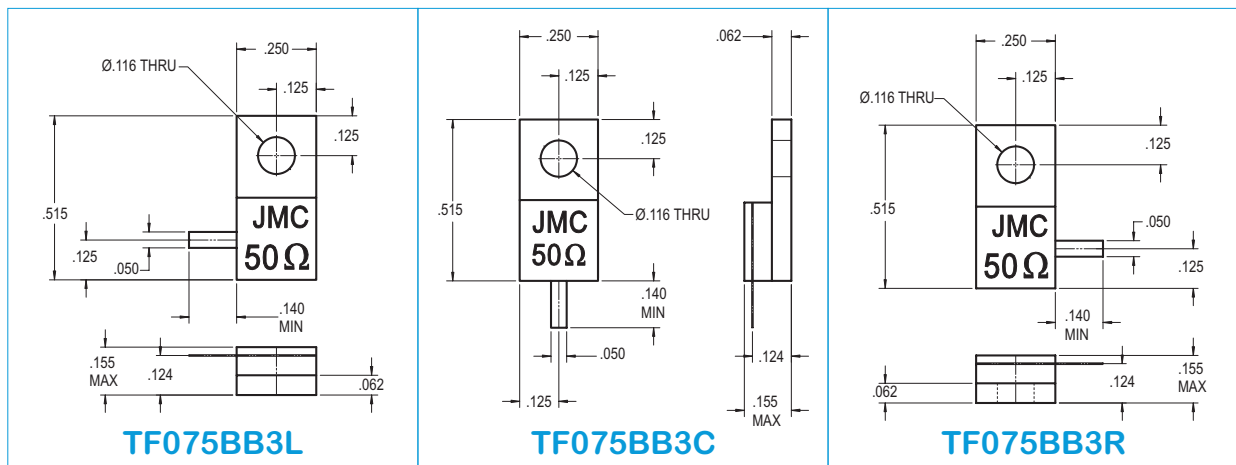
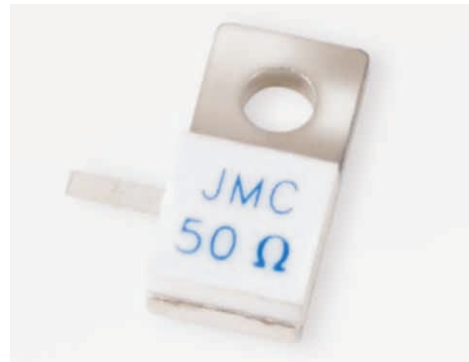
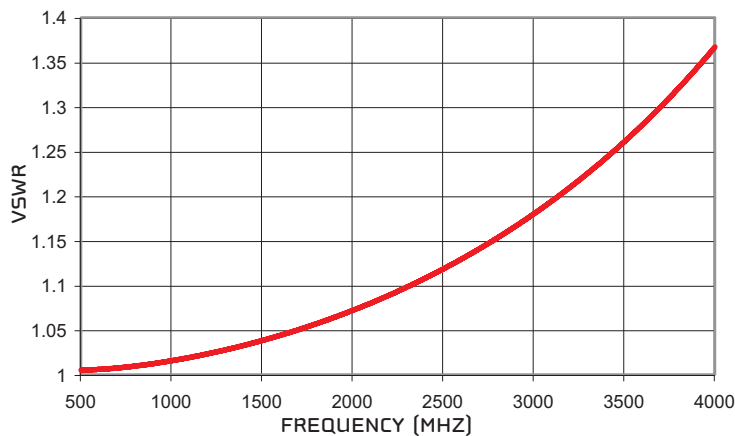
# 100 Watt “BeO” Termination DC – 4.0 GHz

### Model: TF075BB3R, L, C

Johanson Manufacturing has released a newly designed “BeO” Termination, which surpasses the industry standards. This High Power component operates to 4.0 GHz. Compare to the industry standard of 2.7 GHz. New, unique on-chip matching provides extended bandwidth and extensive power handling. There are three lead configurations: Left, Right, and Center.

VSWR..... <1.10 From DC - 2.25 GHz  
<1.25 From 2.25 - 3.5 GHz  
<1.40 From 3.50 - 4.0 GHz

Power.....100 Watts Max. (75 Watts Typical) @ 100 °C Flange Temperature



For detailed information regarding this product or sample request contact Johanson Sales





## NEW PRODUCT RELEASE

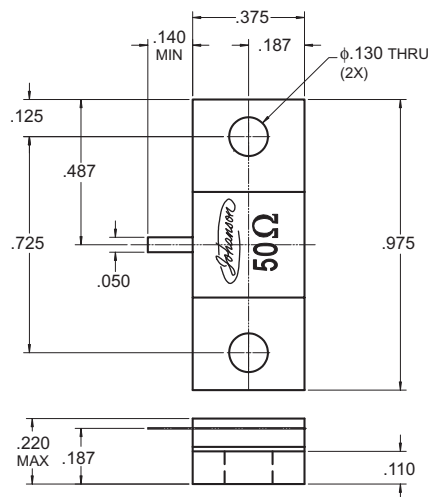
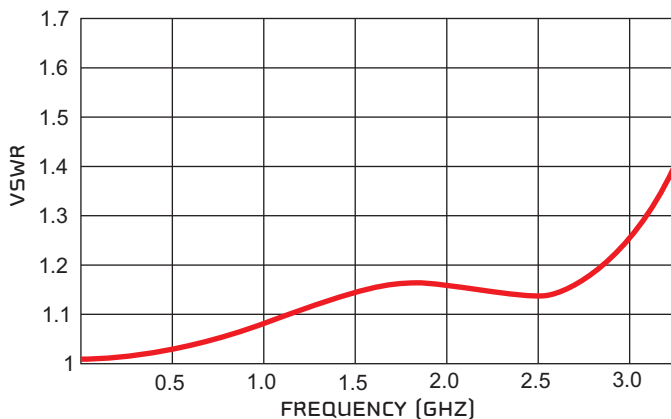
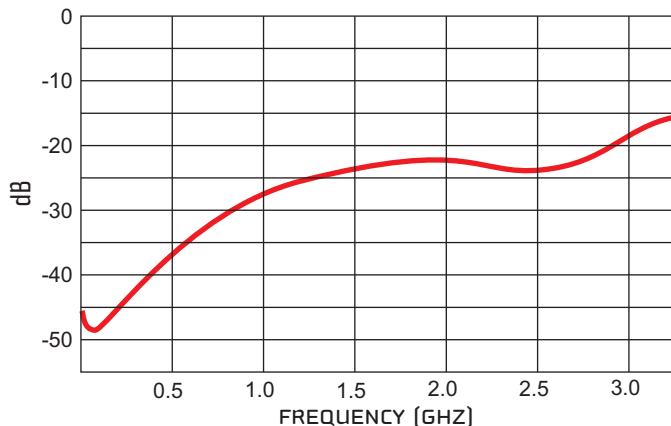
# 300 Watt “AIN” Termination DC – 3.5 GHz INDUSTRIES LOWEST VSWR & HIGHEST POWER

**Model: TF250AB12**

Johanson Manufacturing has released a newly designed “AIN” Termination, which surpasses the industry standards. This High Power component operates to 3.5 GHz. Compare to the industry standard of 2.7 GHz. New, unique on-chip matching provides extended bandwidth.

VSWR..... <1.10 From DC - 1.0 GHz  
<1.20 From 1.0 - 2.5 GHz  
<1.40 From 2.5 – 3.5 GHz

Power.....300 Watts Max. (250 Watts Typical) @ 100 °C Flange Temperature



For detailed information regarding this product or sample request contact Johanson Sales





## NEW PRODUCT RELEASE

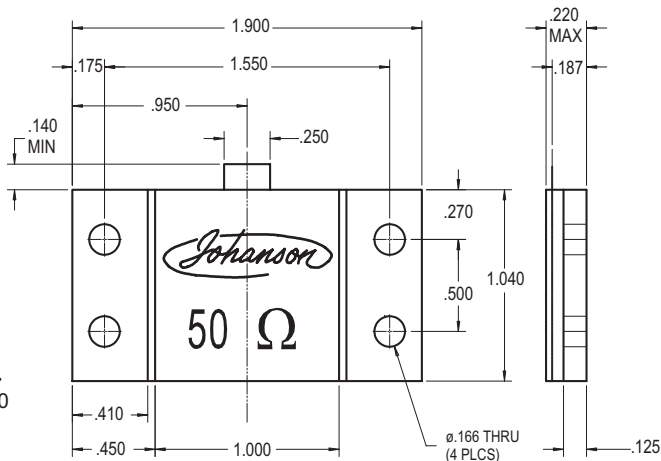
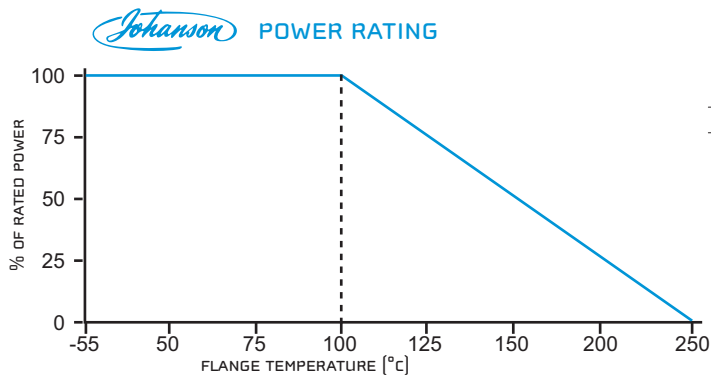
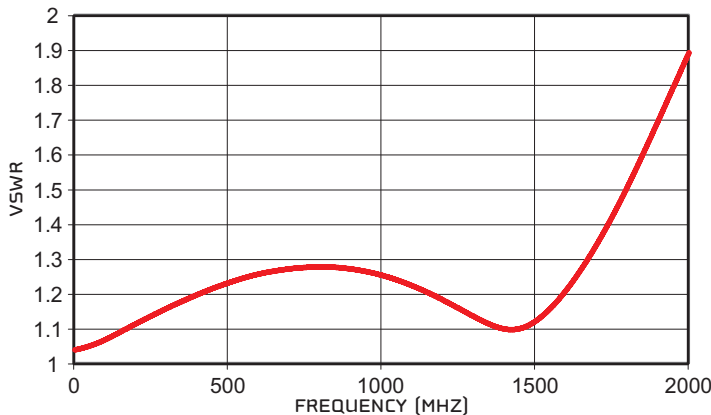
# 1000 Watt “BeO” Termination DC – 2.0 GHz INDUSTRIES LOWEST VSWR & HIGHEST POWER

Model: TF800BB14

Johanson Manufacturing has released a newly designed “BeO” Termination, which surpasses the industry standards. This High Power component operates to 2.0 GHz. Compare to the industry standard of 500 Mhz. New, unique on-chip matching provides extended bandwidth.

VSWR..... <1.25 From DC - 500 MHz  
<1.28 From 500 - 1000 MHz  
<1.40 From 1000 – 1750 MHz  
<1.90 From 1750 – 2000 MHz

Power.....1000 watts Max. (800 Watts Typical) @ 100 °C Flange Temperature



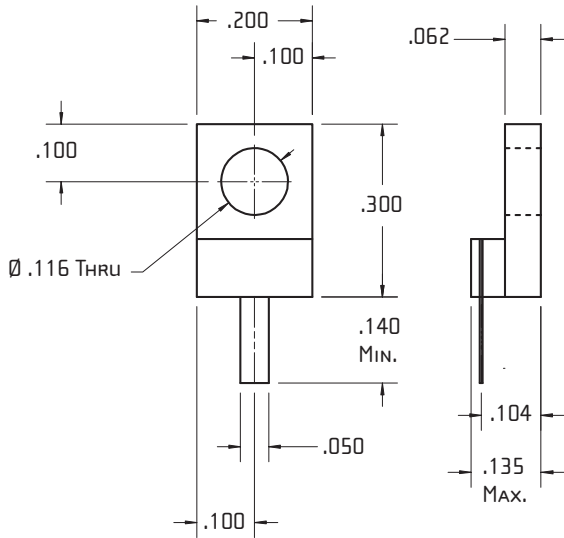
For detailed information regarding this product or sample request contact Johanson Sales



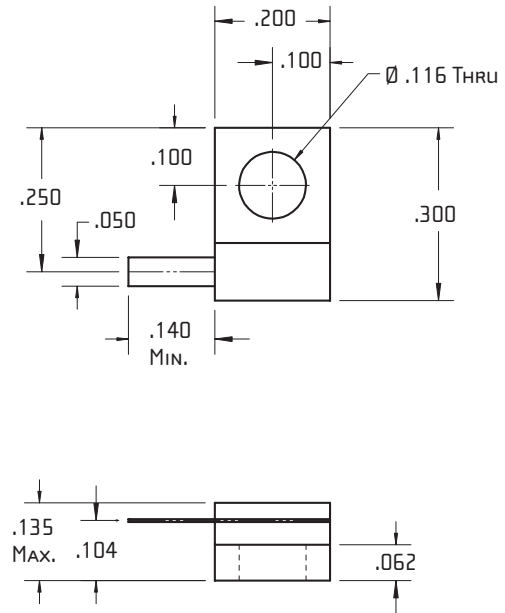


# FLANGE TERMINATION OUTLINE DRAWINGS

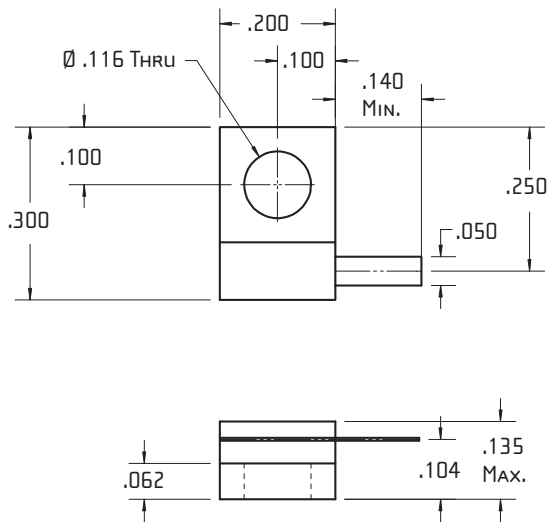
1C



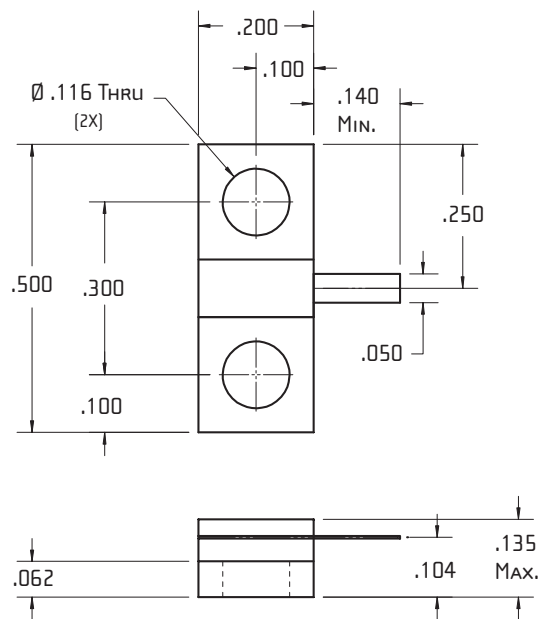
1L



1R

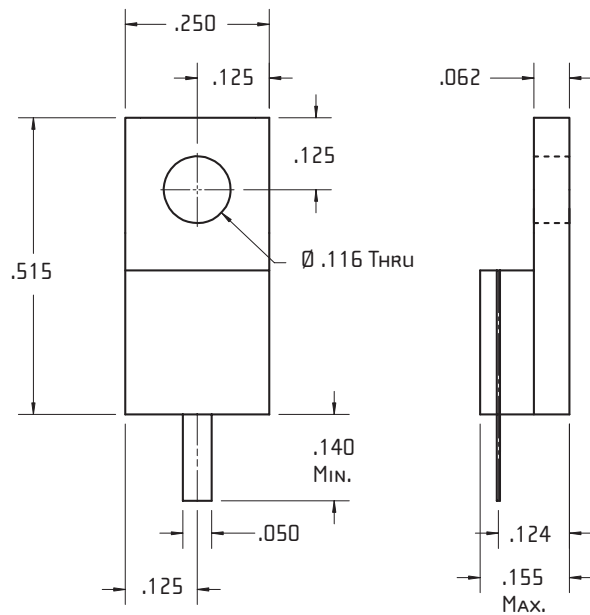


02

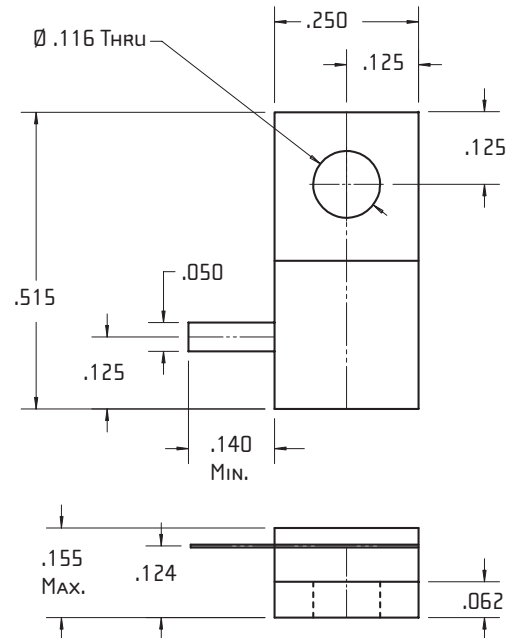


# FLANGE TERMINATION OUTLINE DRAWINGS

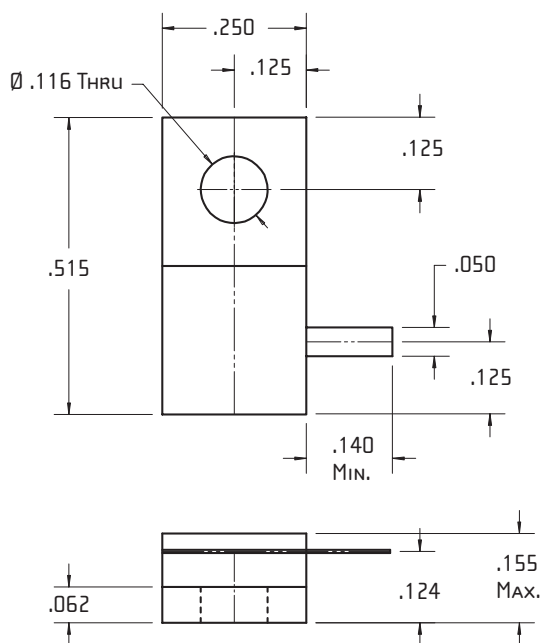
## 3C



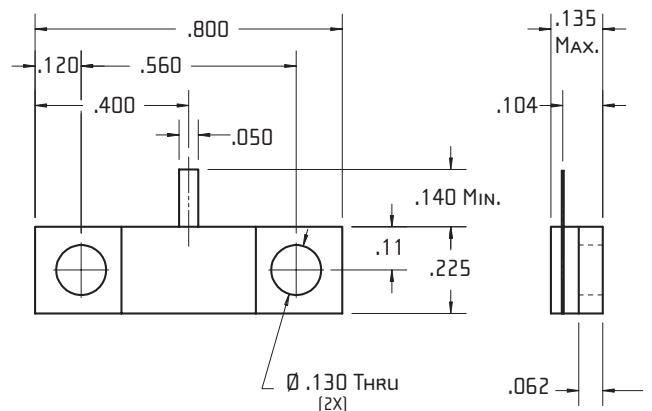
## 3L



## 3R



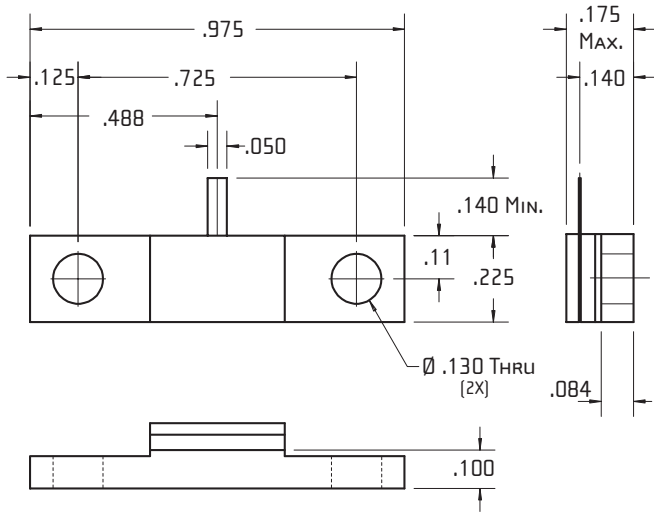
## 04



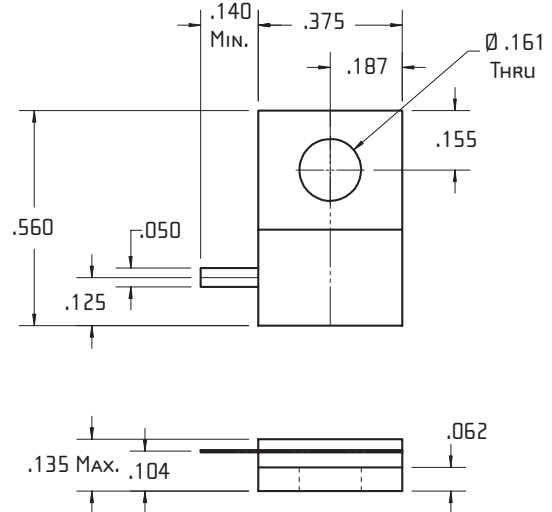


# FLANGE TERMINATION OUTLINE DRAWINGS

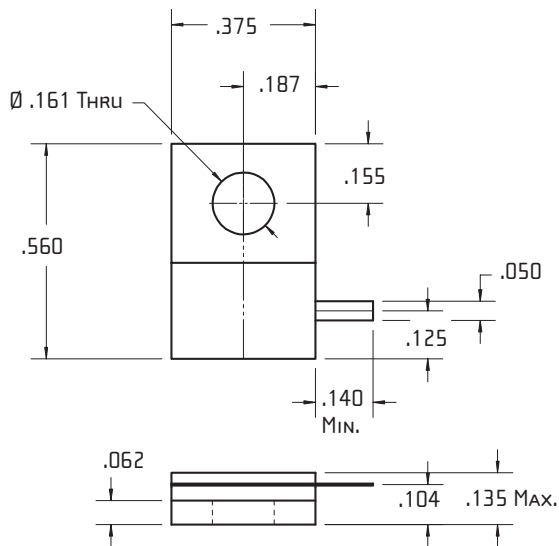
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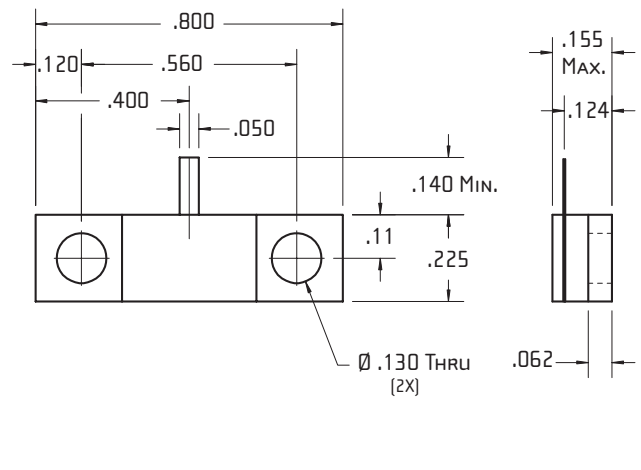
## 6L



## 6R

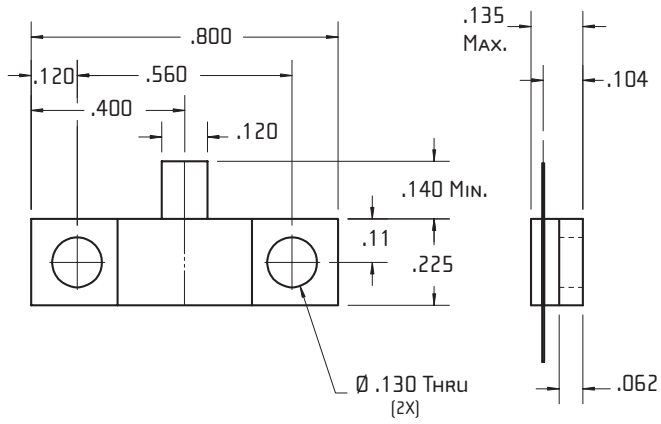


## 08

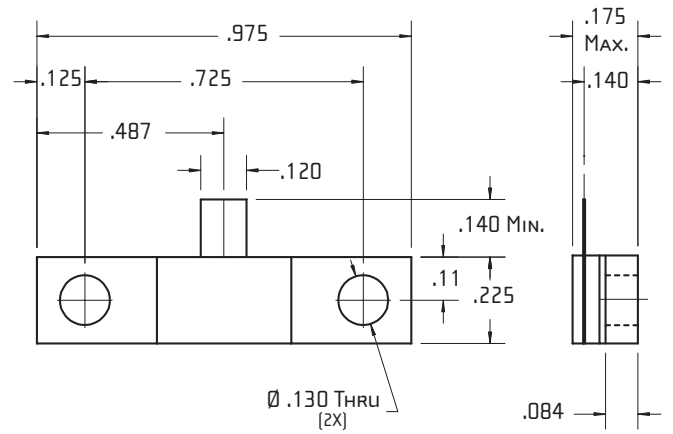


# FLANGE TERMINATION OUTLINE DRAWINGS

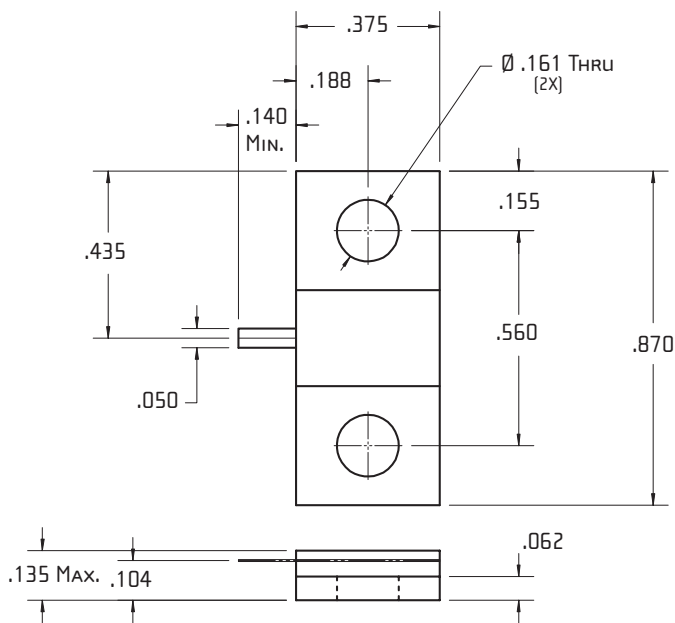
## 09



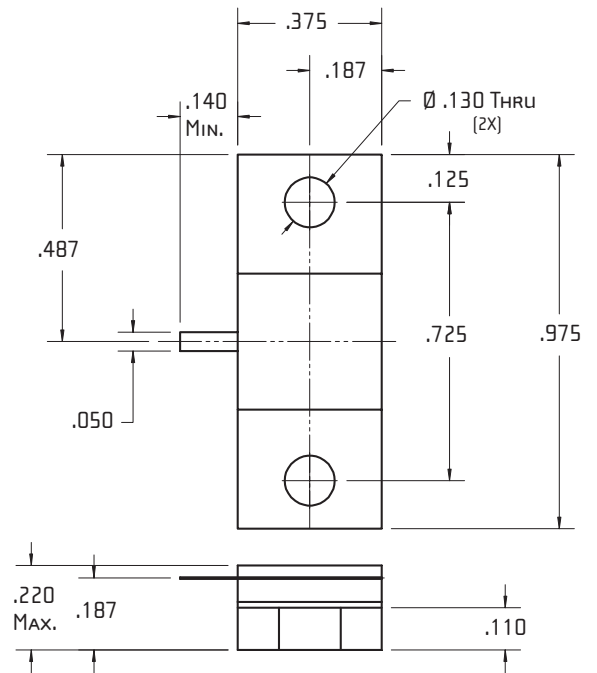
## 10



## 11

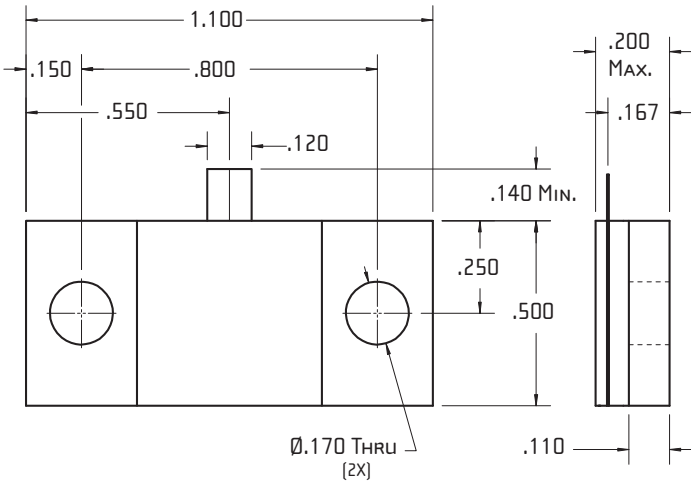


## 12

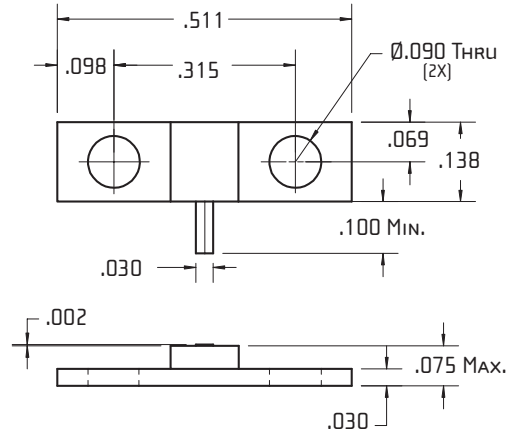


# FLANGE TERMINATION OUTLINE DRAWINGS

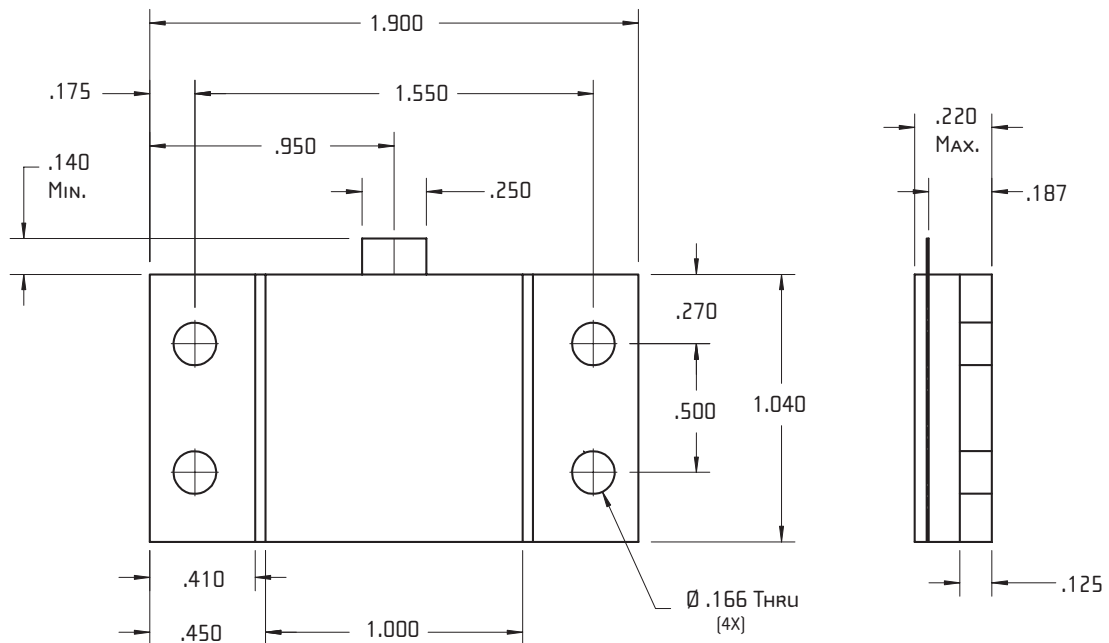
## 13



## 22



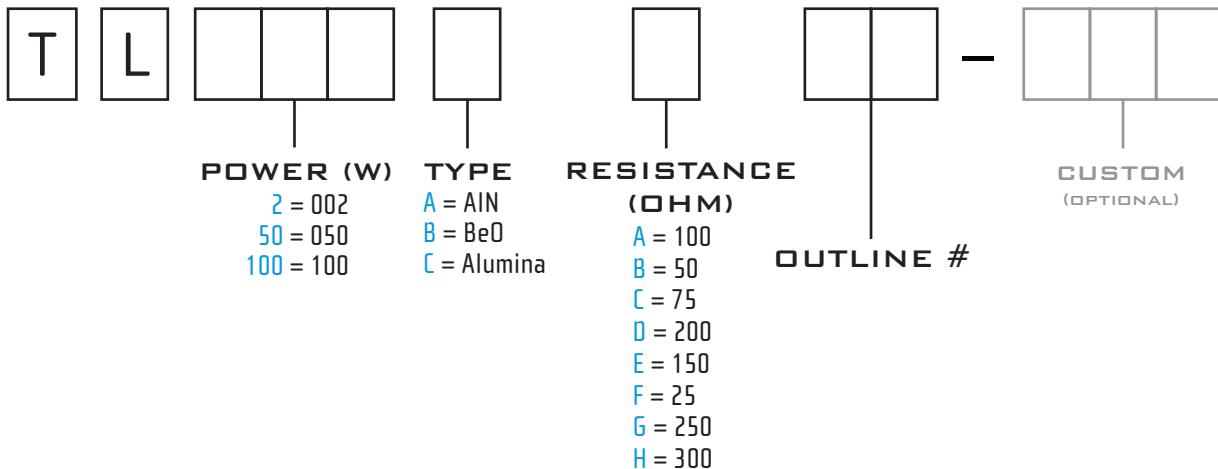
## 14



# FLANGELESS TERMINATION

ALUMINUM NITRIDE (AlN) P/N	OUTLINE	POWER (WATTS, CW)	BERYLLIUM OXIDE (BeO) P/N	OUTLINE
TL030AA16	16	30	TL030BA16	16
TL030AB16	16		TL030BB16	16
TL030AA0C	0C		TL030BA0C	0C
TL030AB0C	0C		TL030BB0C	0C
TL040AA17	17	40	TL040BA17	17
TL040AB17	17		TL040BB17	17
TL100AA18	18	100		
TL100AB18	18			
TL125AA19	19	125	TL125BA18	18
TL125AB19	19		TL125BB18	18
TL150AA20	20	150	TL150BA19	19
TL150AB20	20		TL150BB19	19
TL200AA21	21	200	TL200BA20	20
TL200AB21	21		TL200BB20	20
TL250AA21	21	250		
TL250AB21	21			
TL300AA21	21	300	TL300BA21	21
TL300AB21	21		TL300BB21	21

## ORDERING INFORMATION

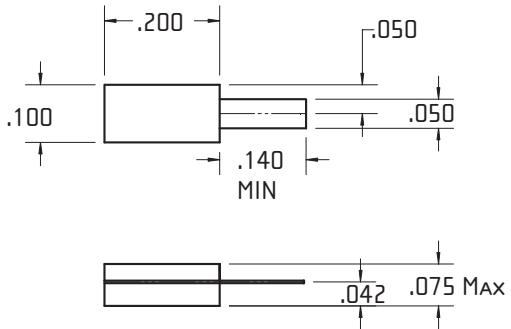


CUSTOMS AVAILABLE UPON REQUEST. (POWER, RESISTANCE, AND CONFIGURATION)  
 CONTACT SALES FOR DETAIL.

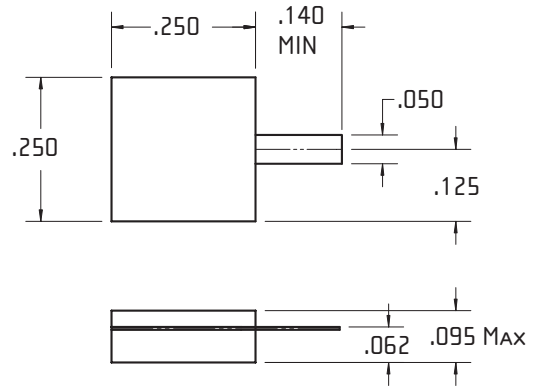


# FLANGELESS TERMINATION OUTLINE DRAWINGS

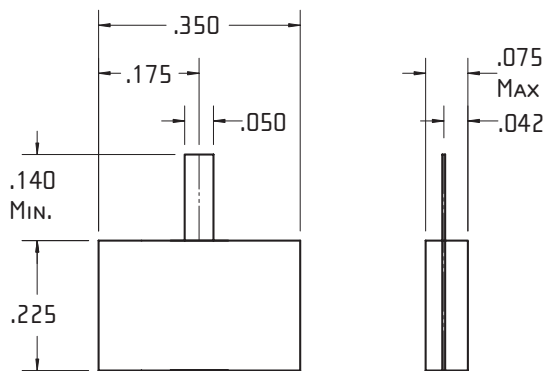
16



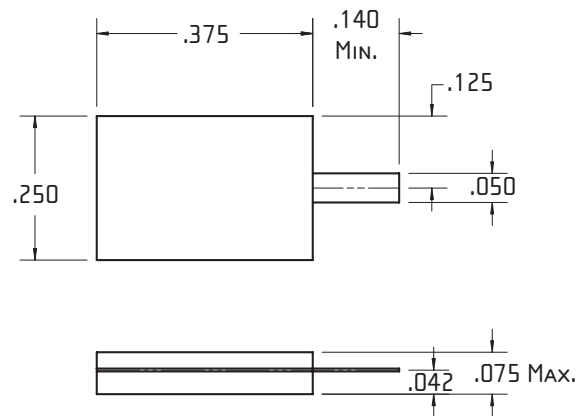
17



18

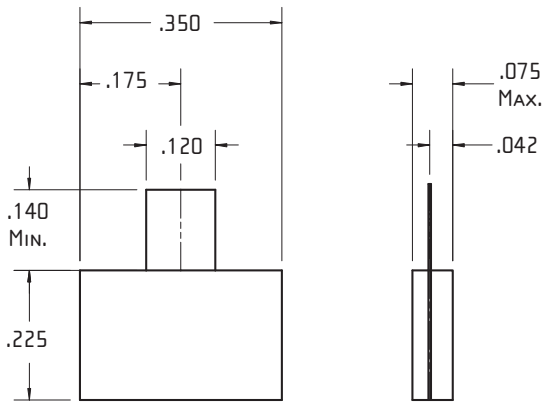


19

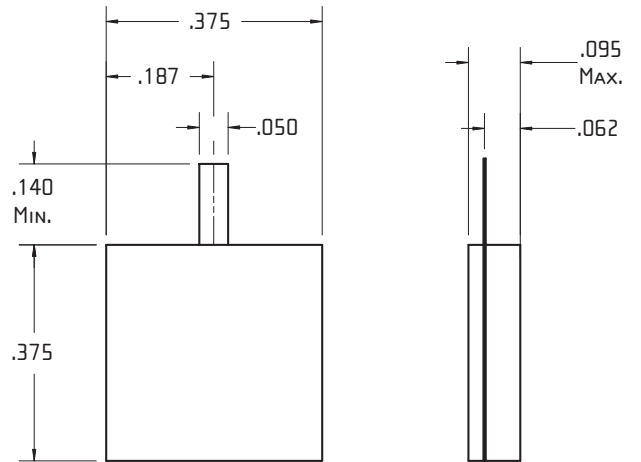


# FLANGELESS TERMINATION OUTLINE DRAWINGS

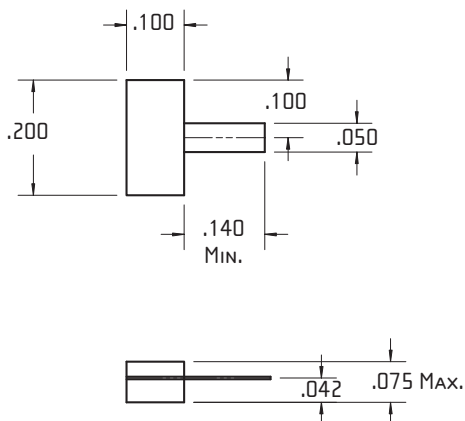
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21



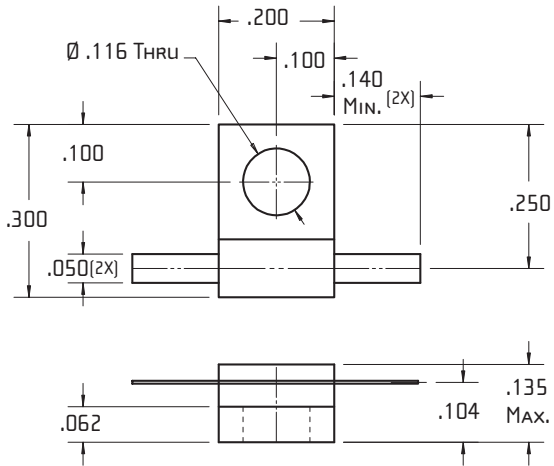
OC



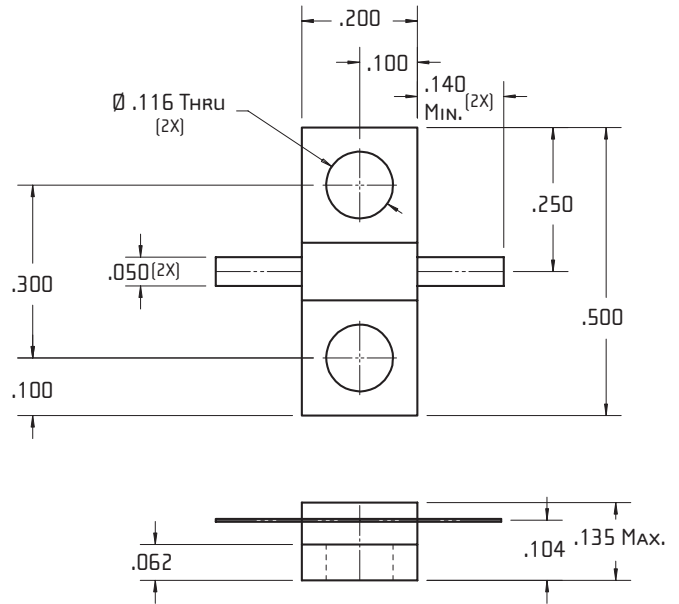


# FLANGE RESISTOR OUTLINE DRAWINGS

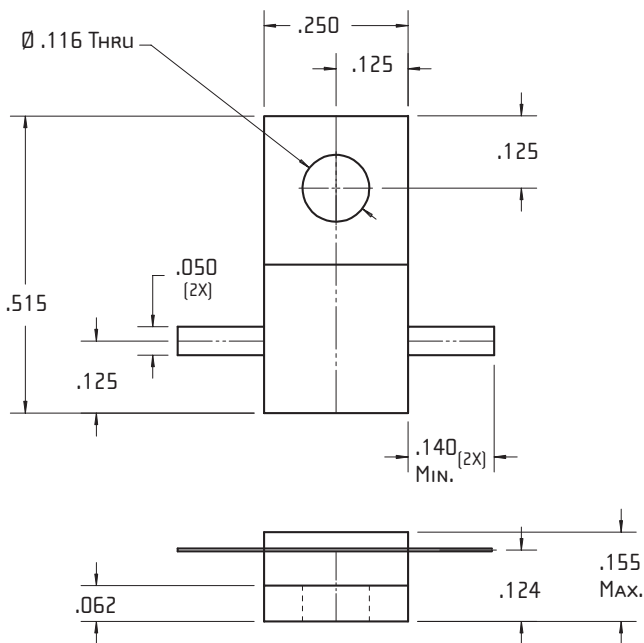
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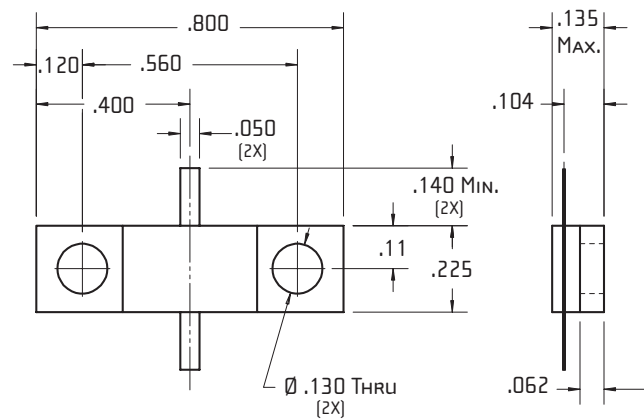
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## 03



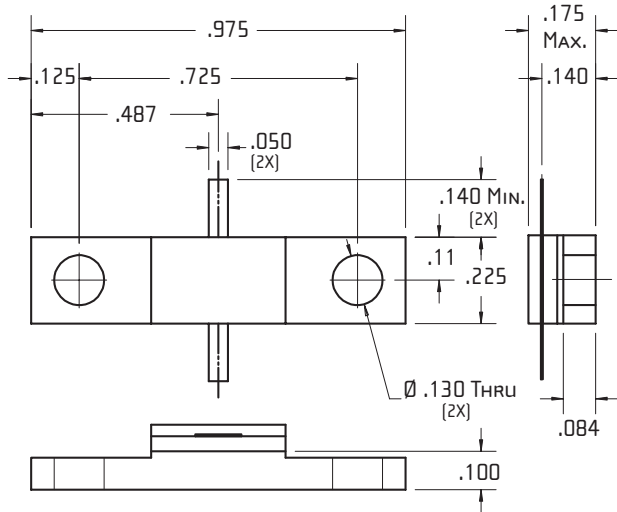
## 04



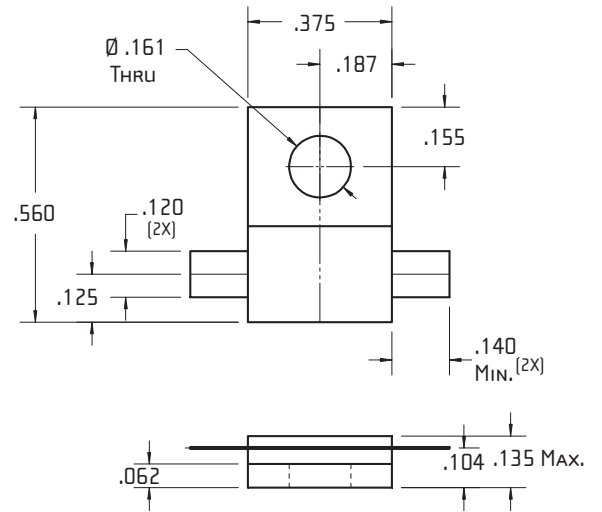


# FLANGE RESISTOR OUTLINE DRAWINGS

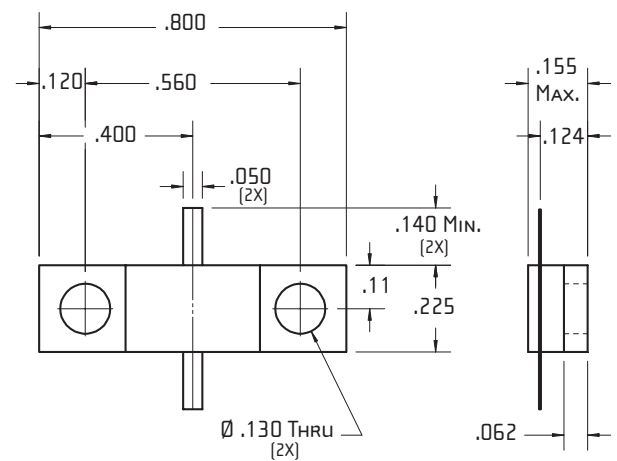
05



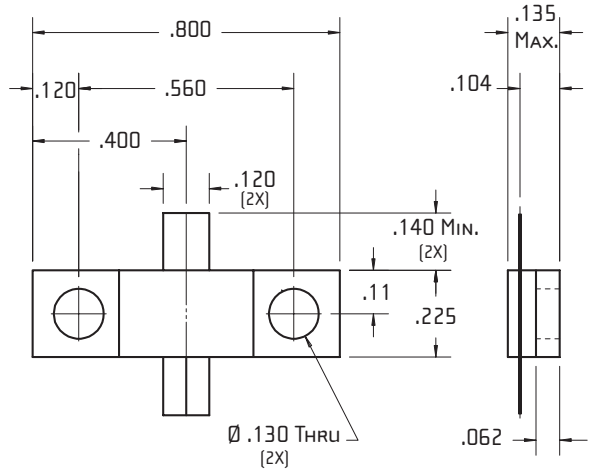
06



08

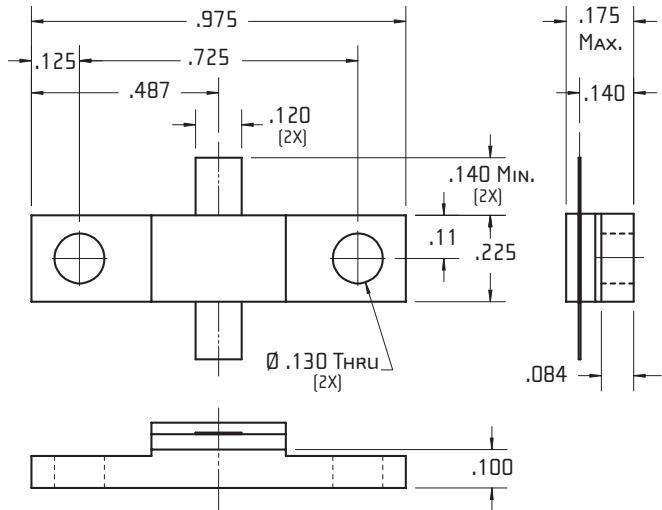


09

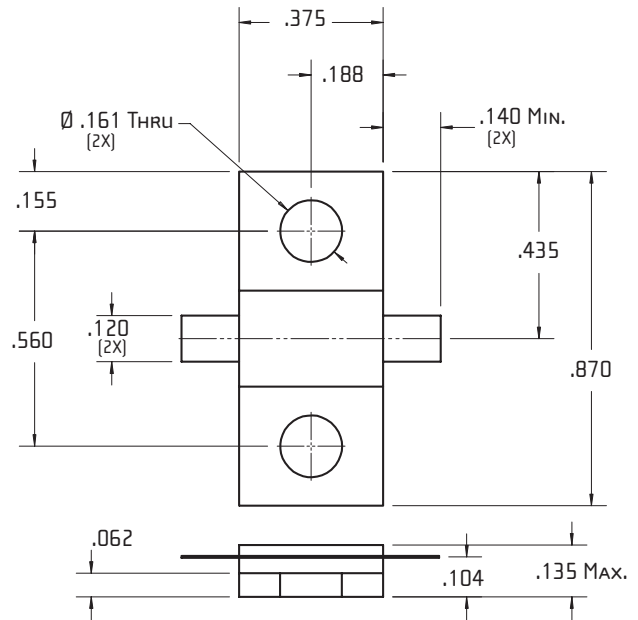


# FLANGE RESISTOR OUTLINE DRAWINGS

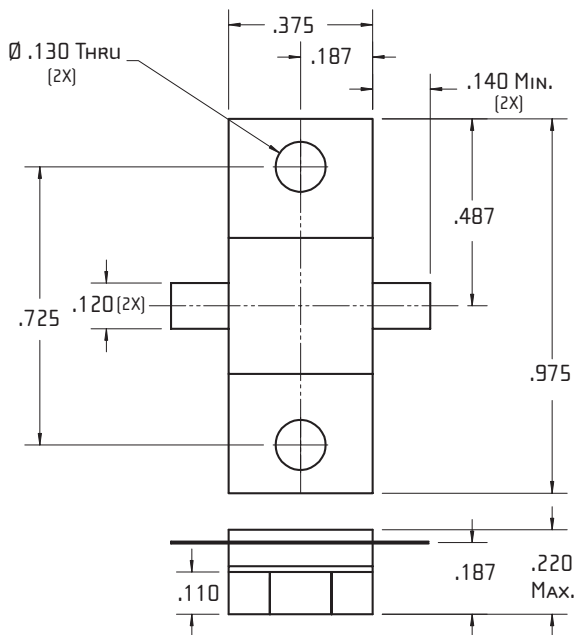
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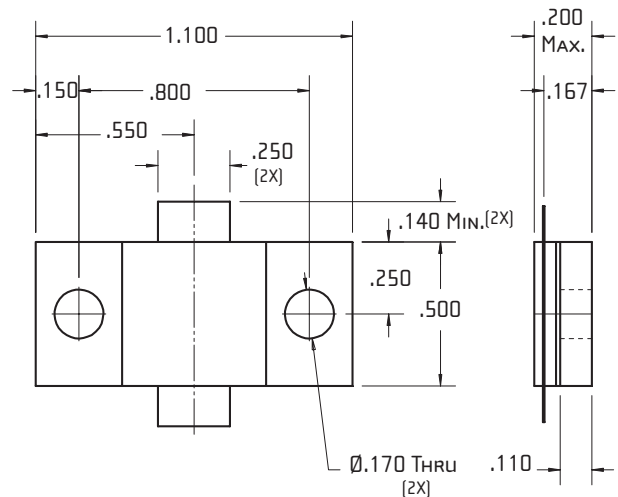
## 11



## 12

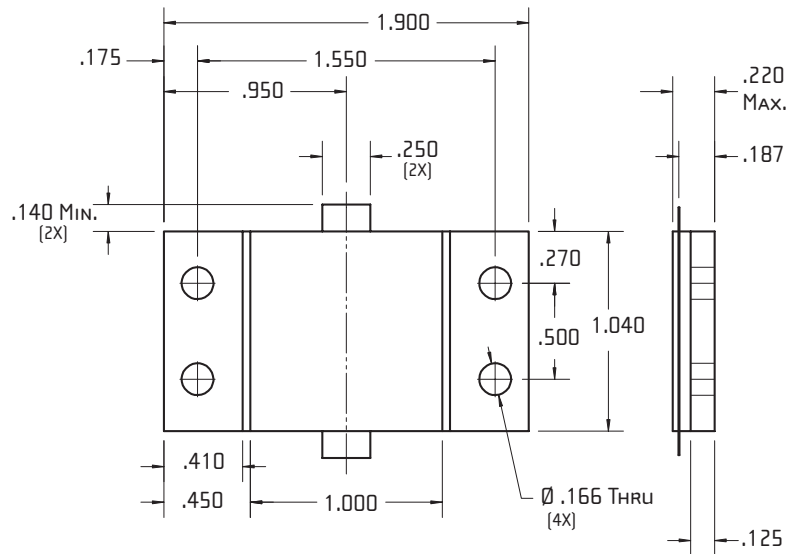


## 13

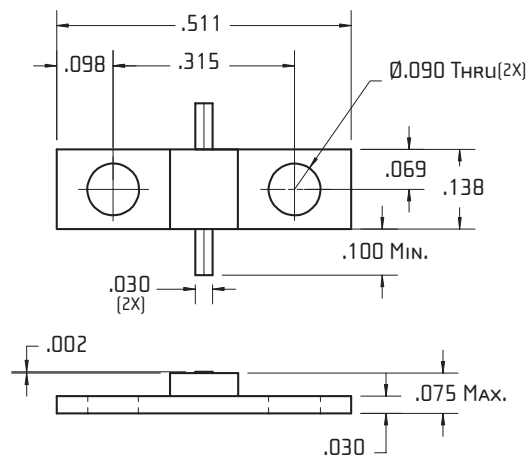


# FLANGE RESISTOR OUTLINE DRAWINGS

## 14



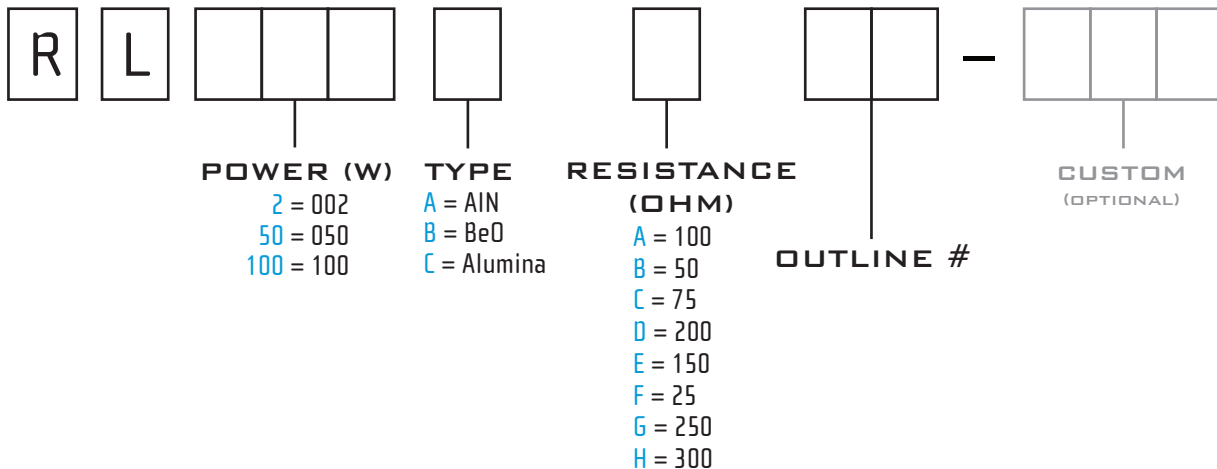
## 22



# FLANGELESS RESISTOR

ALUMINUM NITRIDE (AlN) P/N	OUTLINE	POWER (WATTS, CW)	BERYLLIUM OXIDE (BeO) P/N	OUTLINE
RL030AA16	16	30	RL030BA16	16
RL030AB16	16		RL030BB16	16
RL040AA17	17	40	RL040BA17	17
RL040AB17	17		RL040BB17	17
RL100AA18	18	100		
RL100AB18	18			
RL125AA19	19	125	RL125BA18	18
RL125AB19	19		RL125BB18	18
RL150AA20	20	150	RL150BA19	19
RL150AB20	20		RL150BB19	19
RL200AA21	21	200	RL200BA20	20
RL200AB21	21		RL200BB20	20
RL250AA21	21	250		
RL250AB21	21			
RL300AA21	21	300	RL300BA21	21
RL300AB21	21		RL300BB21	21

## ORDERING INFORMATION

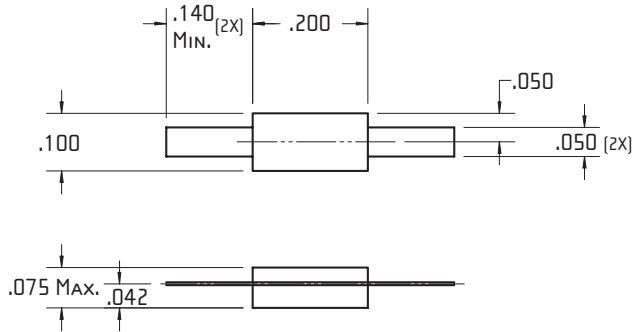


CUSTOMS AVAILABLE UPON REQUEST. (POWER, RESISTANCE, AND CONFIGURATION)  
CONTACT SALES FOR DETAIL.

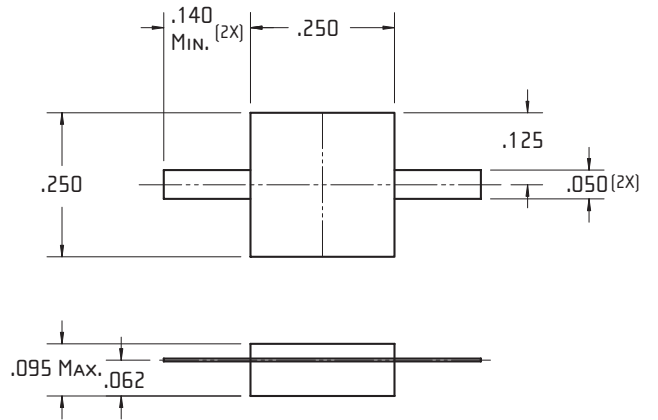


# FLANGELESS RESISTOR OUTLINE DRAWINGS

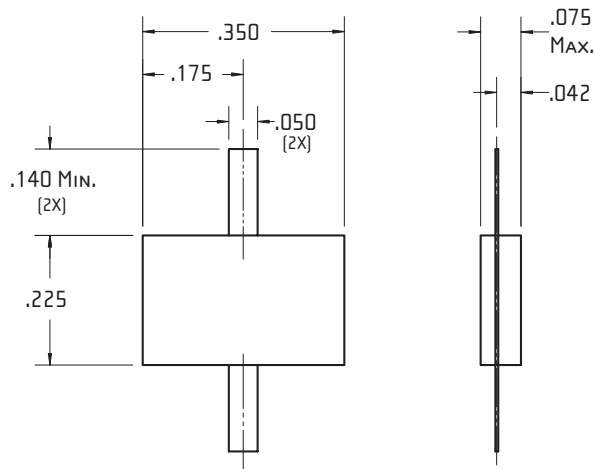
16



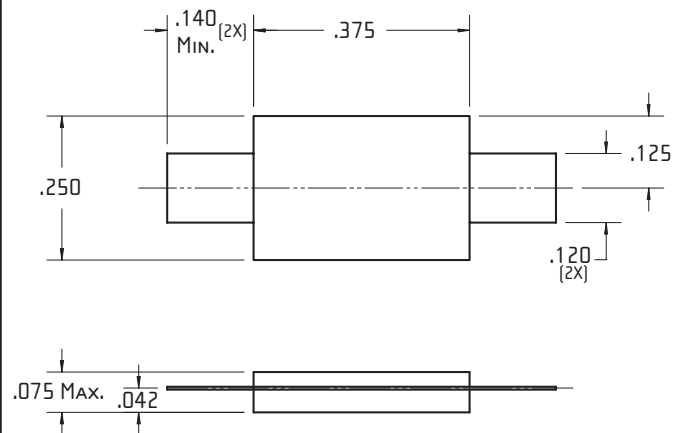
17



18

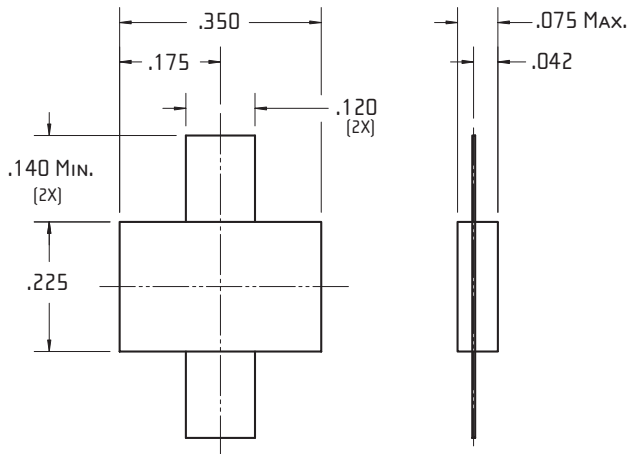


19

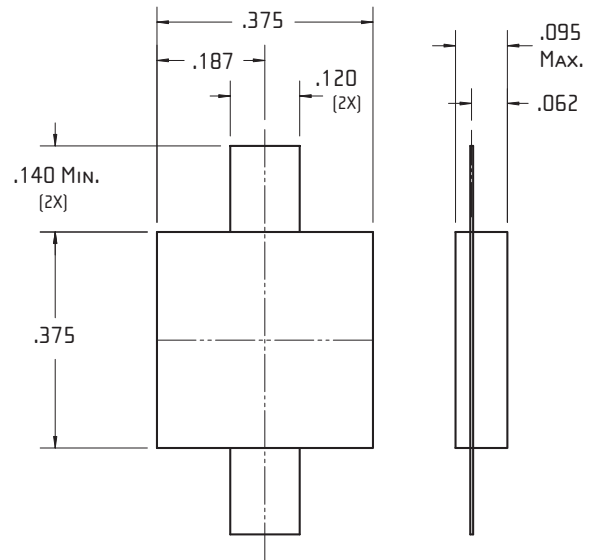


# FLANGELESS RESISTOR OUTLINE DRAWINGS

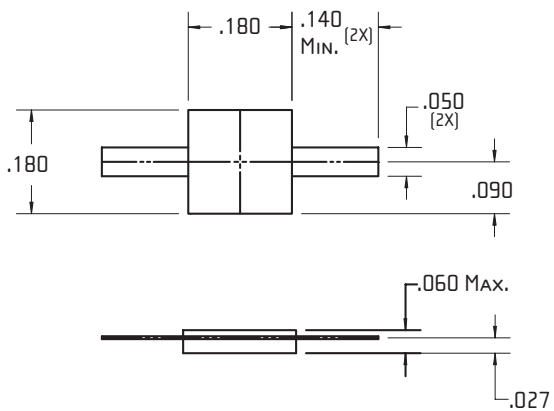
20



21



23

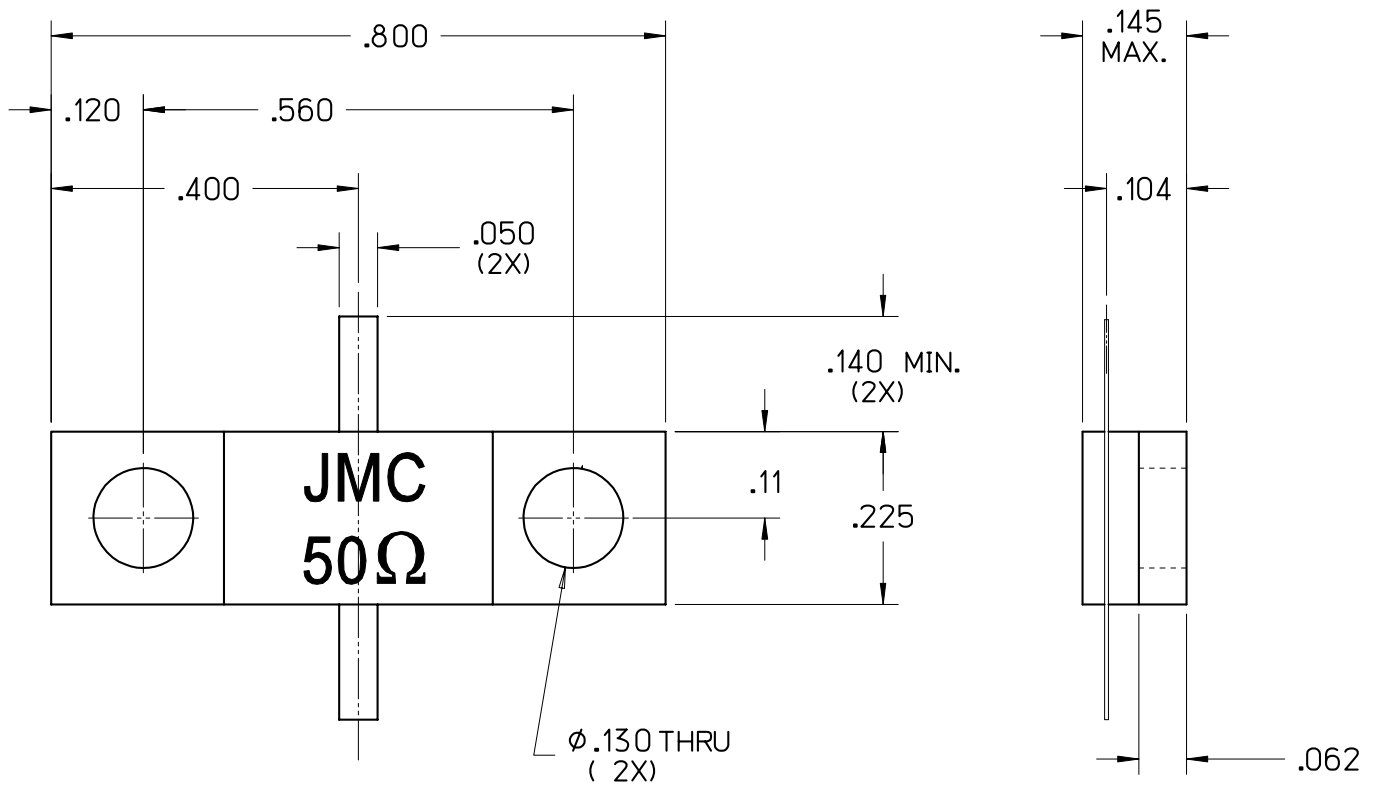




# RF100AB04

## AlN Flanged Resistor

**Power:** 100 Watts (CW)  
**Resistance:**  $50 \Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



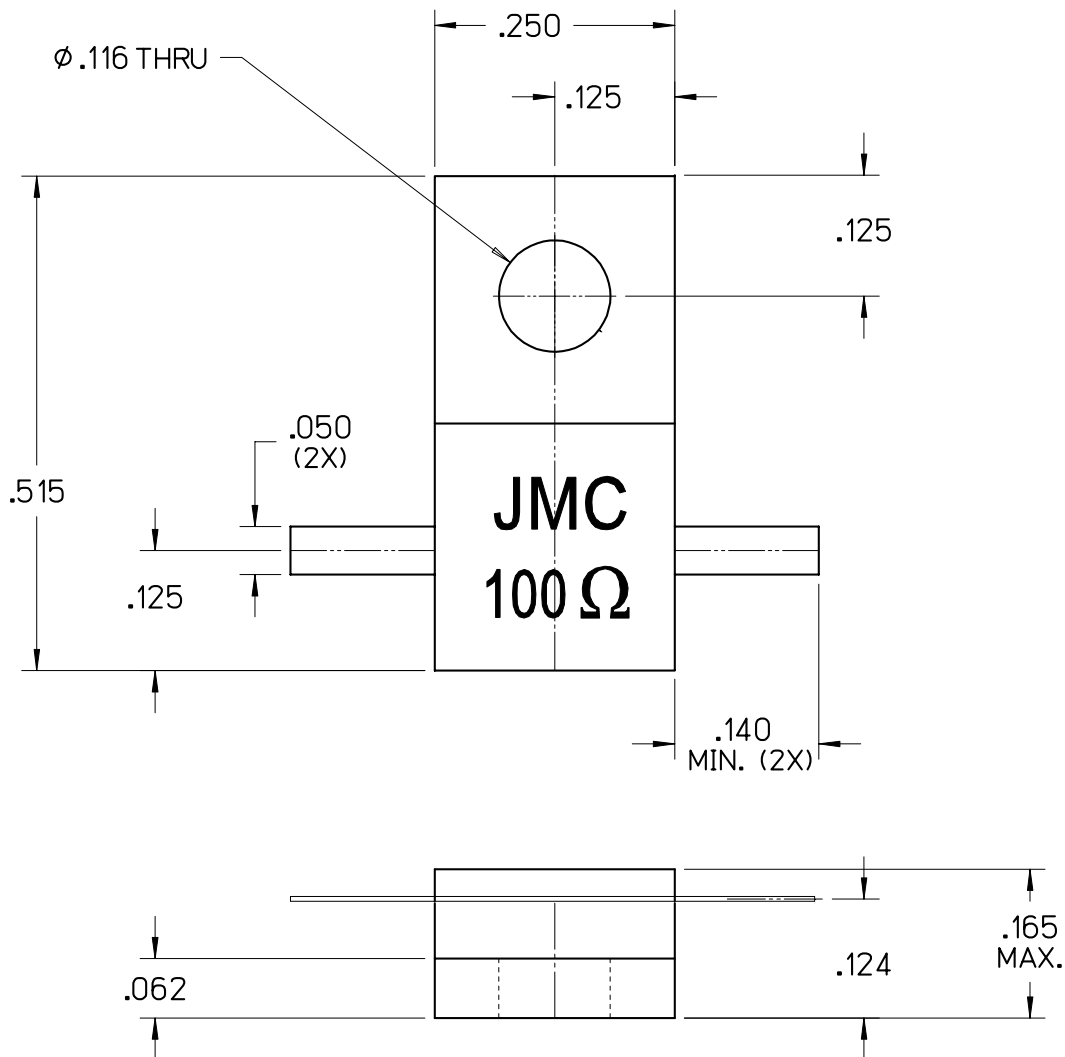
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# RF060AA03

## AlN Flanged Resistor

**Power:** 60 Watts (CW)  
**Resistance:** 100  $\Omega$   $\pm$  5%  
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales







# RF050BA06

BeO Flanged Resistor

Power: 50 Watts (CW)

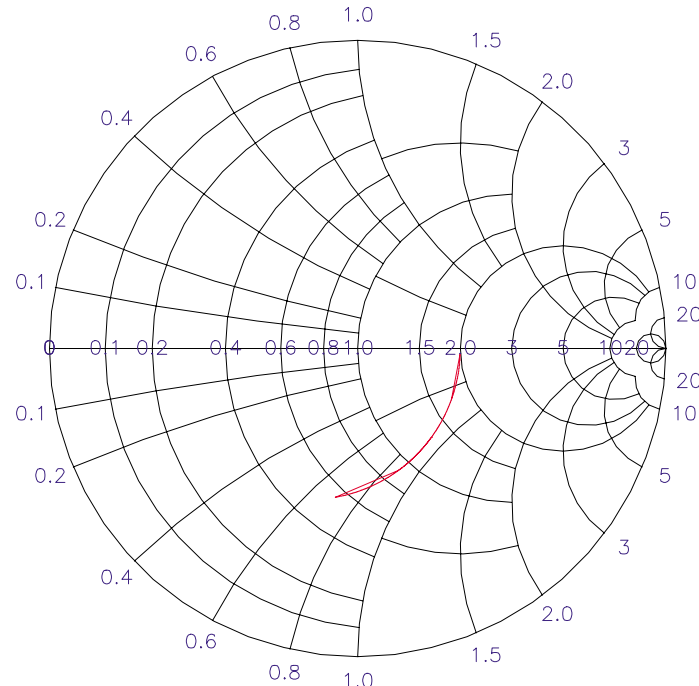
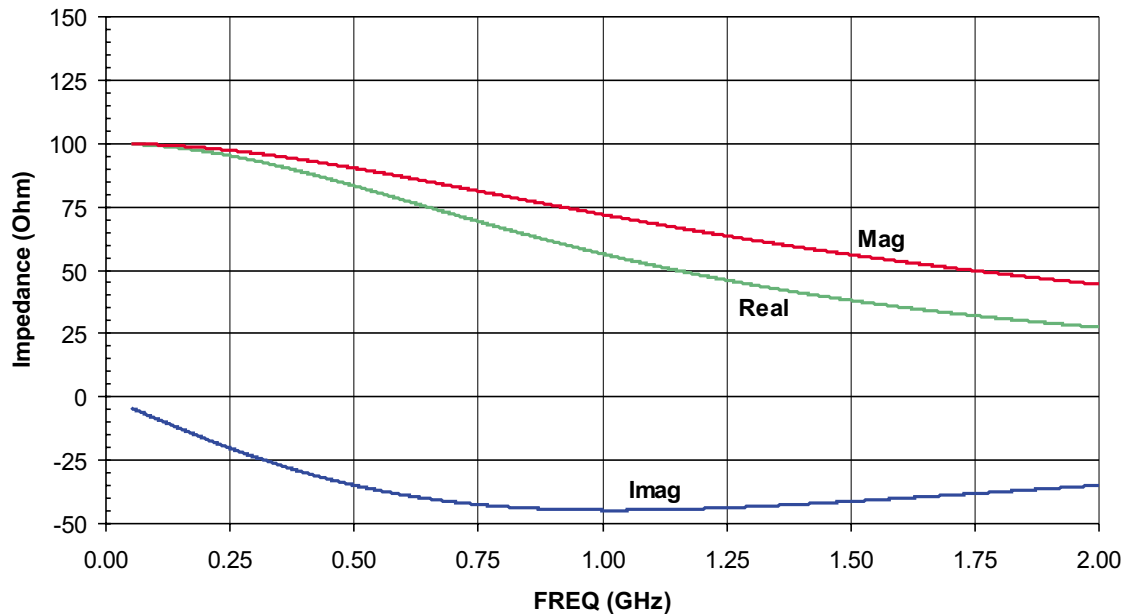
Resistance:  $100 \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

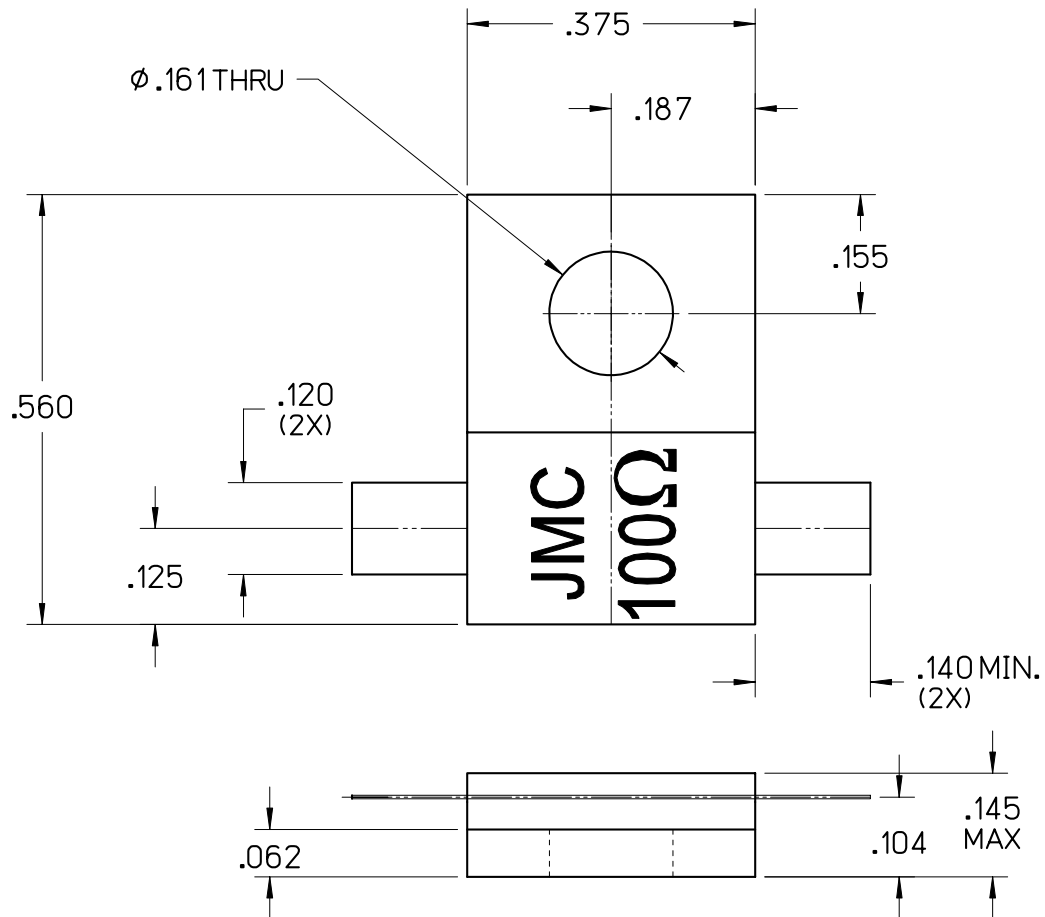


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# RF050BA06

## BeO Flanged Resistor



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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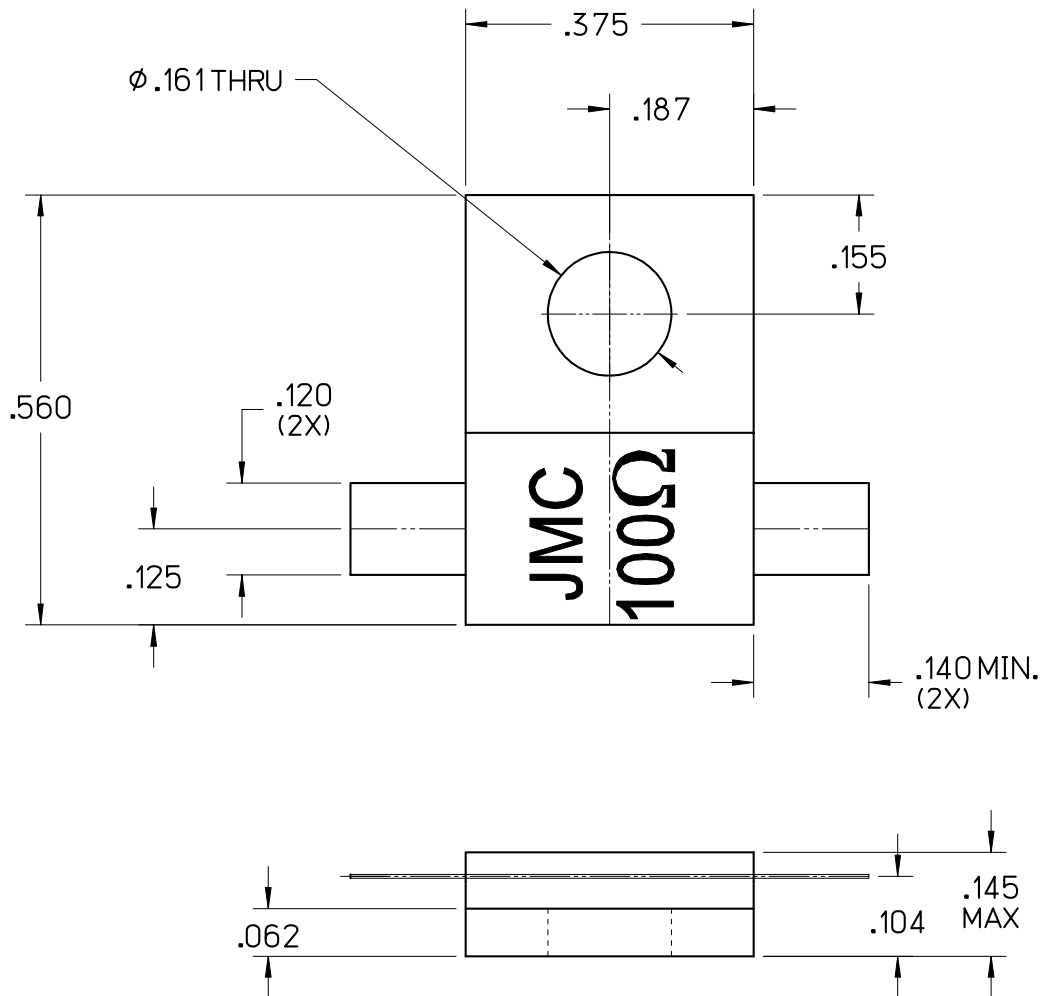
OCT 08



# RF050AA06

## AlN Flanged Resistor

**Power:** 50 Watts (CW)  
**Resistance:** 100  $\Omega \pm 5\%$   
**Substrate:** AlN



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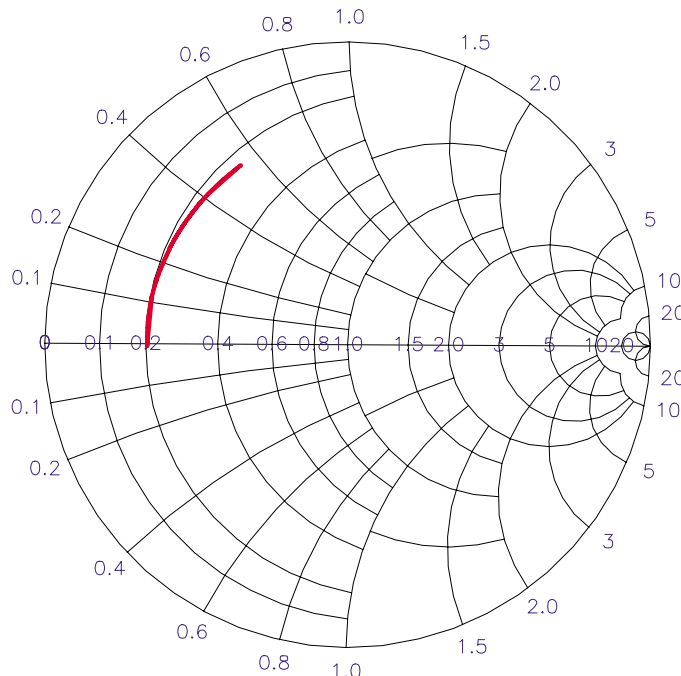
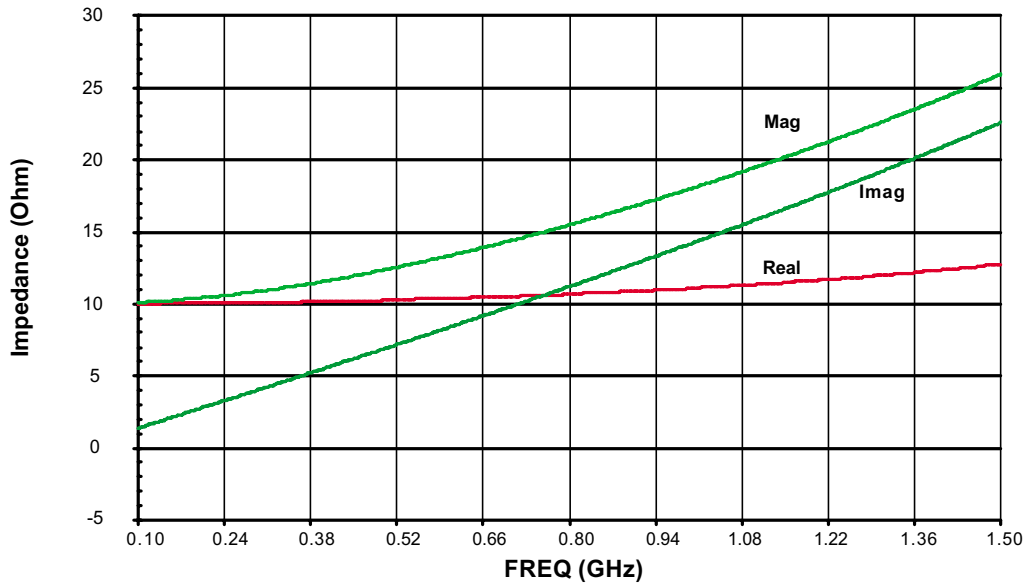
# RF040BI03

## BeO Flanged Resistor

**Power:** 40 Watts (CW)  
**Resistance:**  $10 \Omega \pm 5\%$   
**Frequency Range:** DC to 1.5 GHz  
**Substrate:** BeO



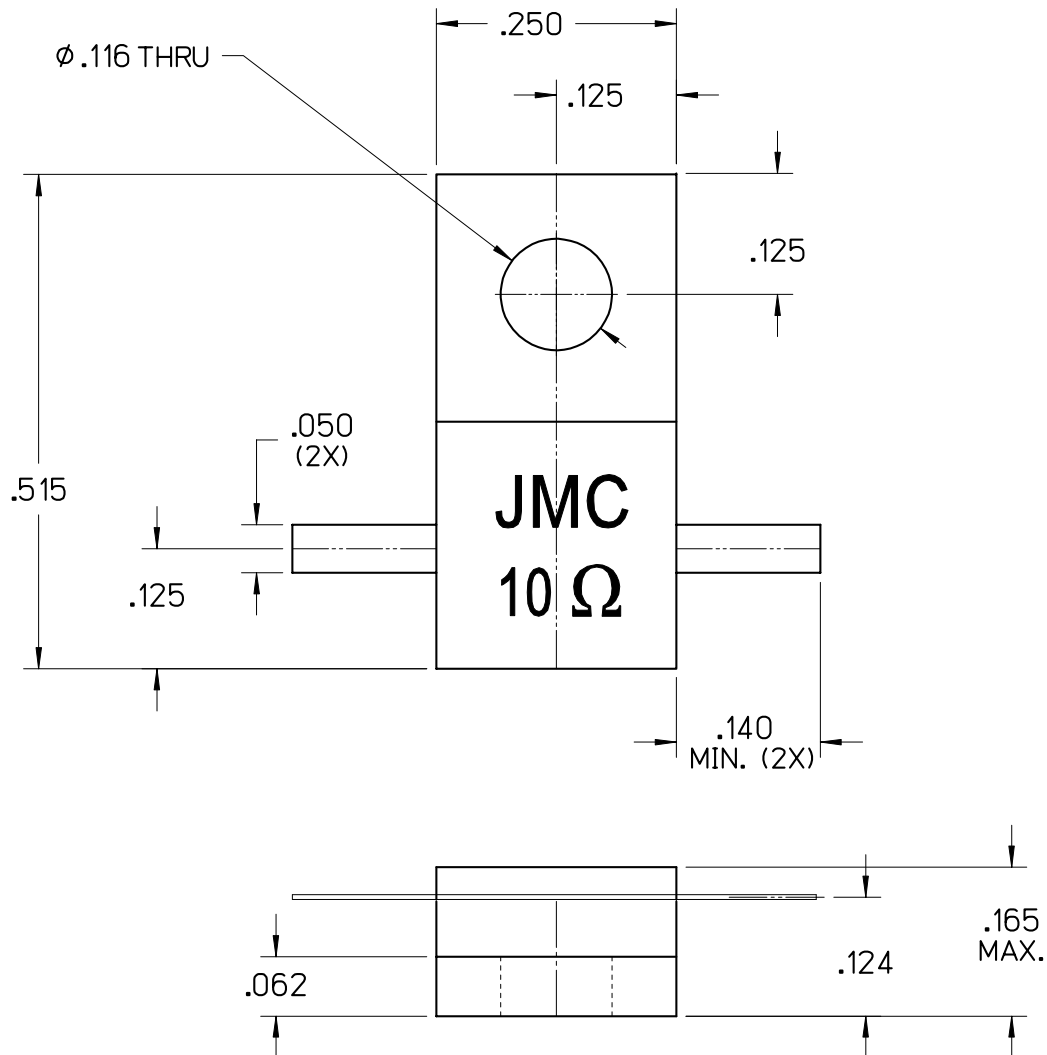
### TYPICAL PERFORMANCE



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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



# RF040BB03

BeO Flanged Resistor

Power: 40 Watts (CW)

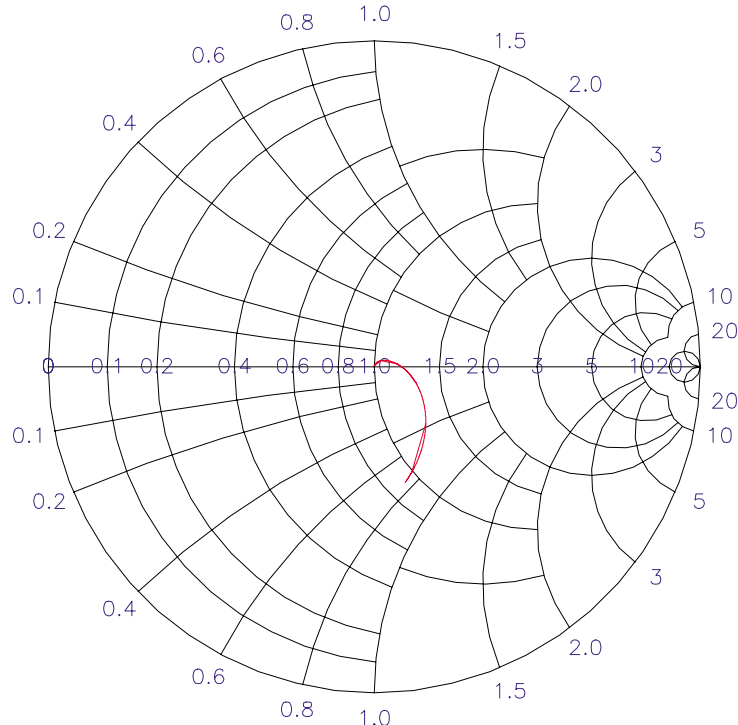
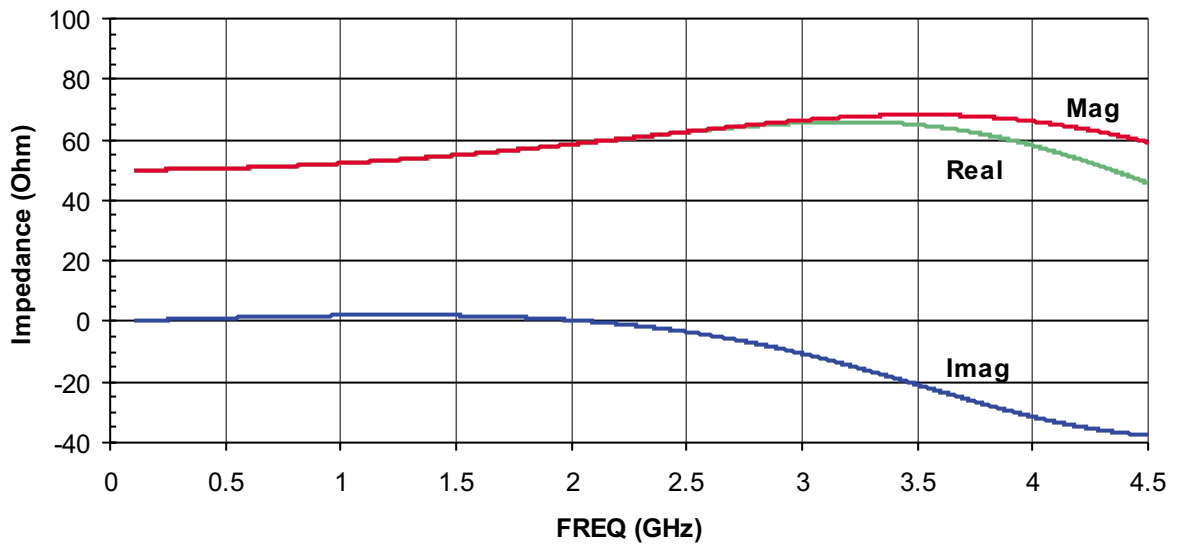
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 4 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

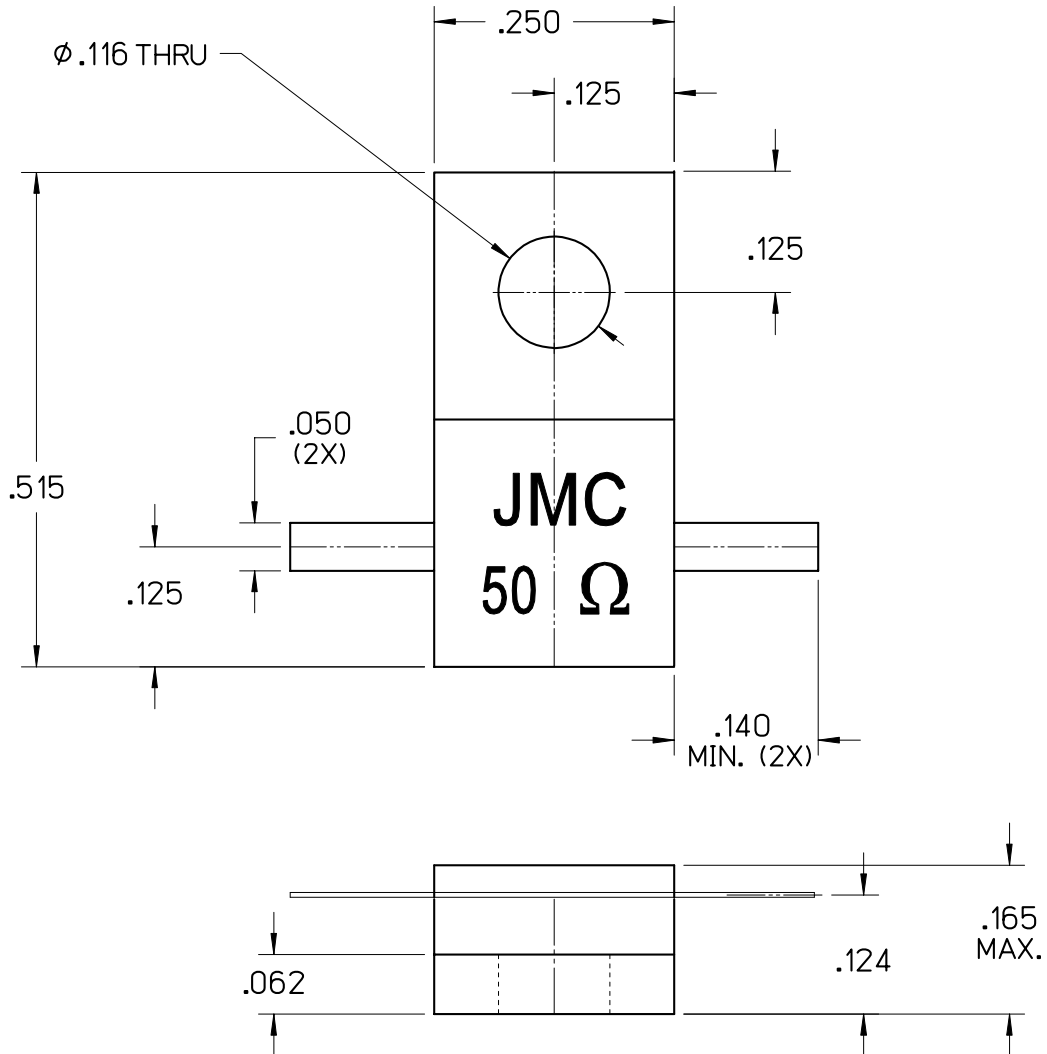


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# RF040BB03

## BeO Flanged Resistor



### CAUTION

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# RF040BA04

## BeO Flanged Resistor

**Power:** 40 Watts (CW)

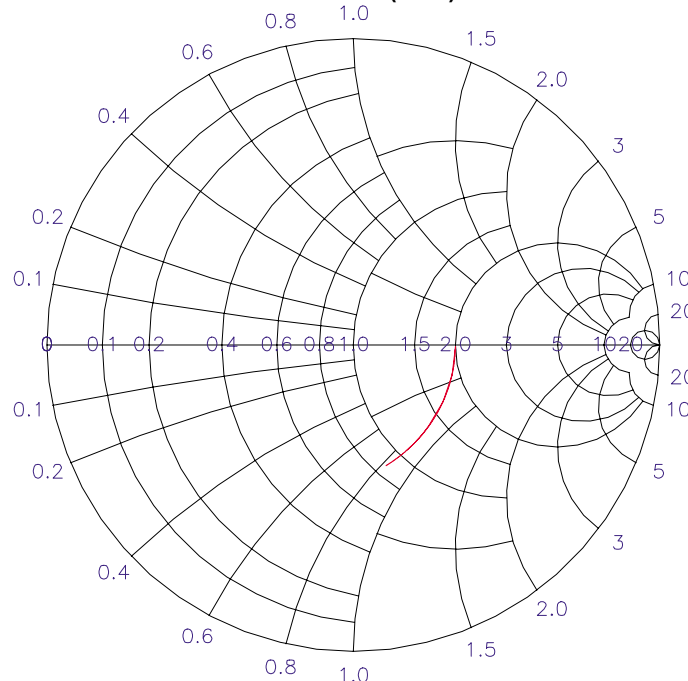
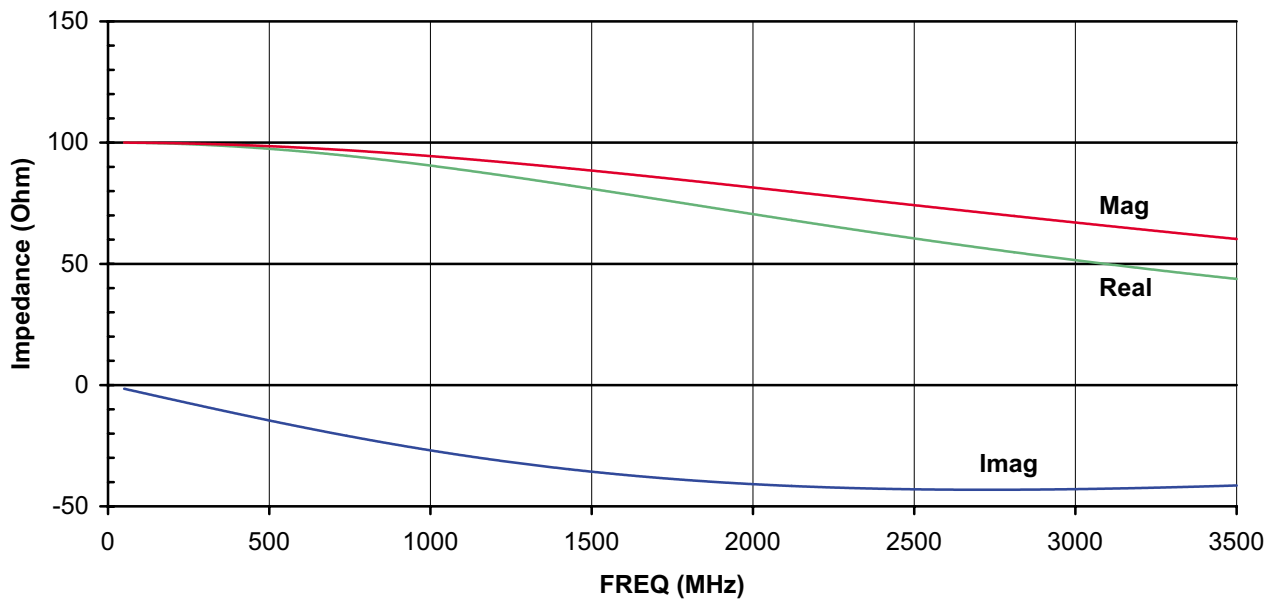
**Resistance:** 100  $\Omega \pm 5\%$

**Frequency Range:** DC to 3 GHz

**Substrate:** BeO



### TYPICAL PERFORMANCE

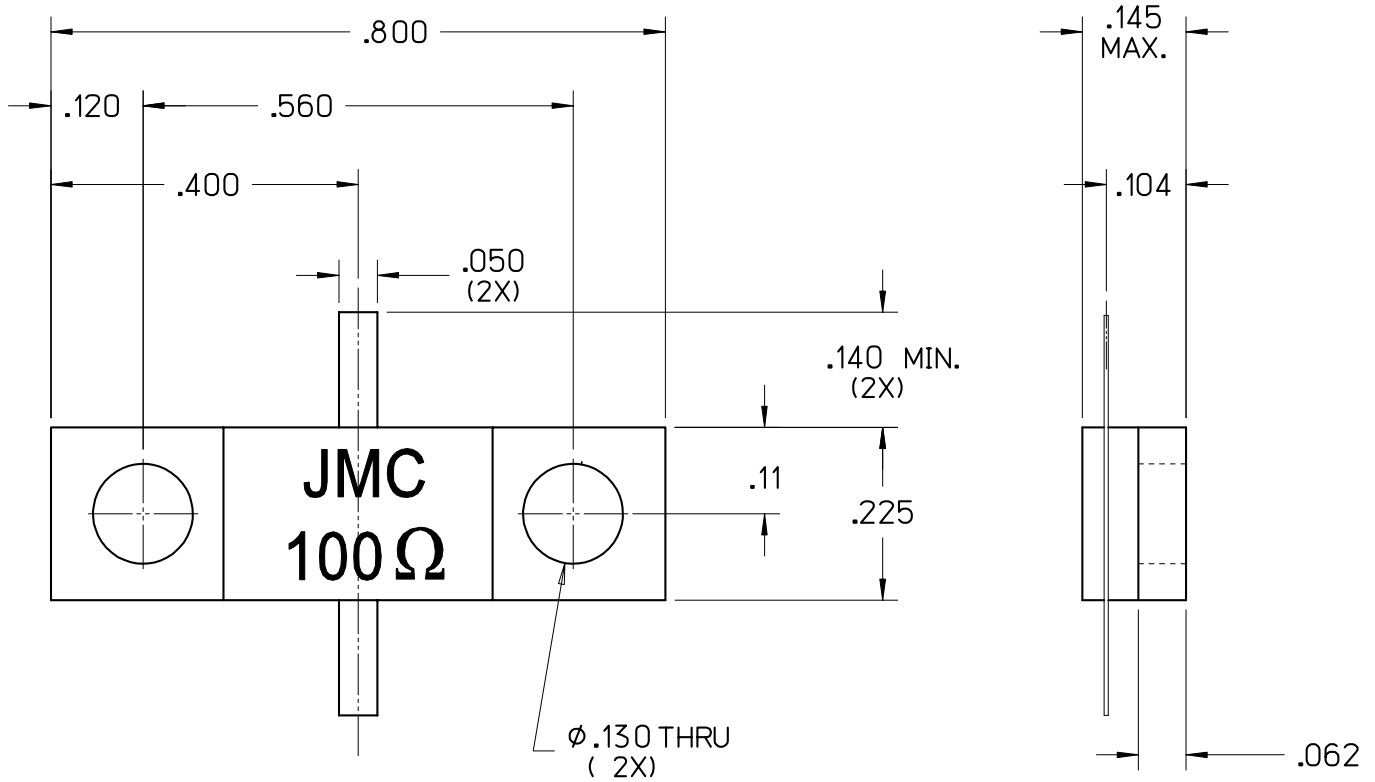


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### CAUTION

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USE CARE WHEN HANDLING.  
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TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



# RF040BA03

BeO Flanged Resistor

Power: 40 Watts (CW)

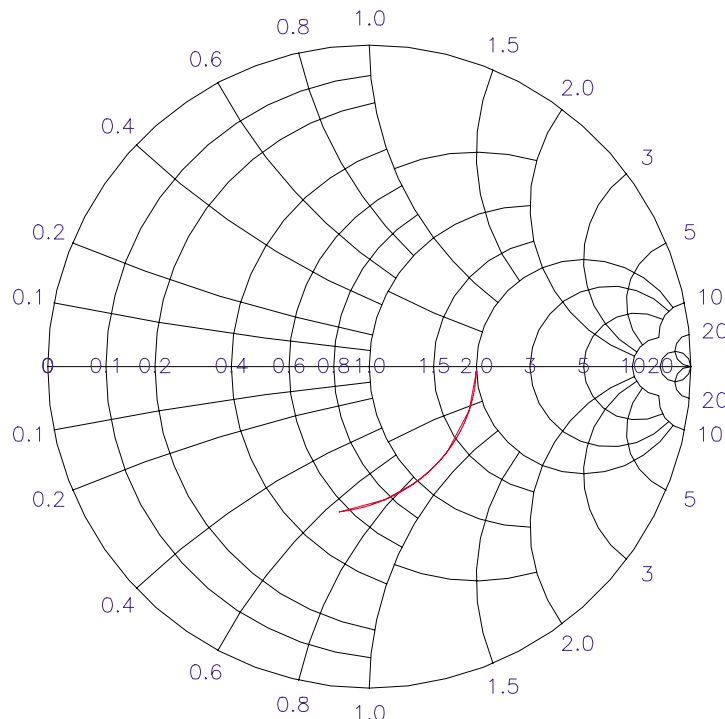
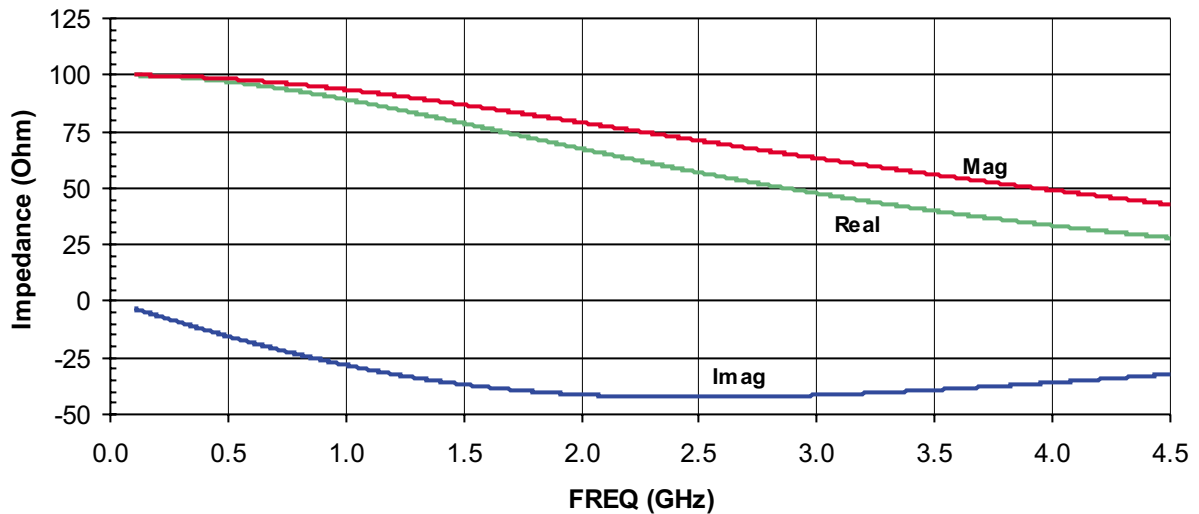
Resistance: 100  $\Omega \pm 5\%$

Frequency Range: DC to 4 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

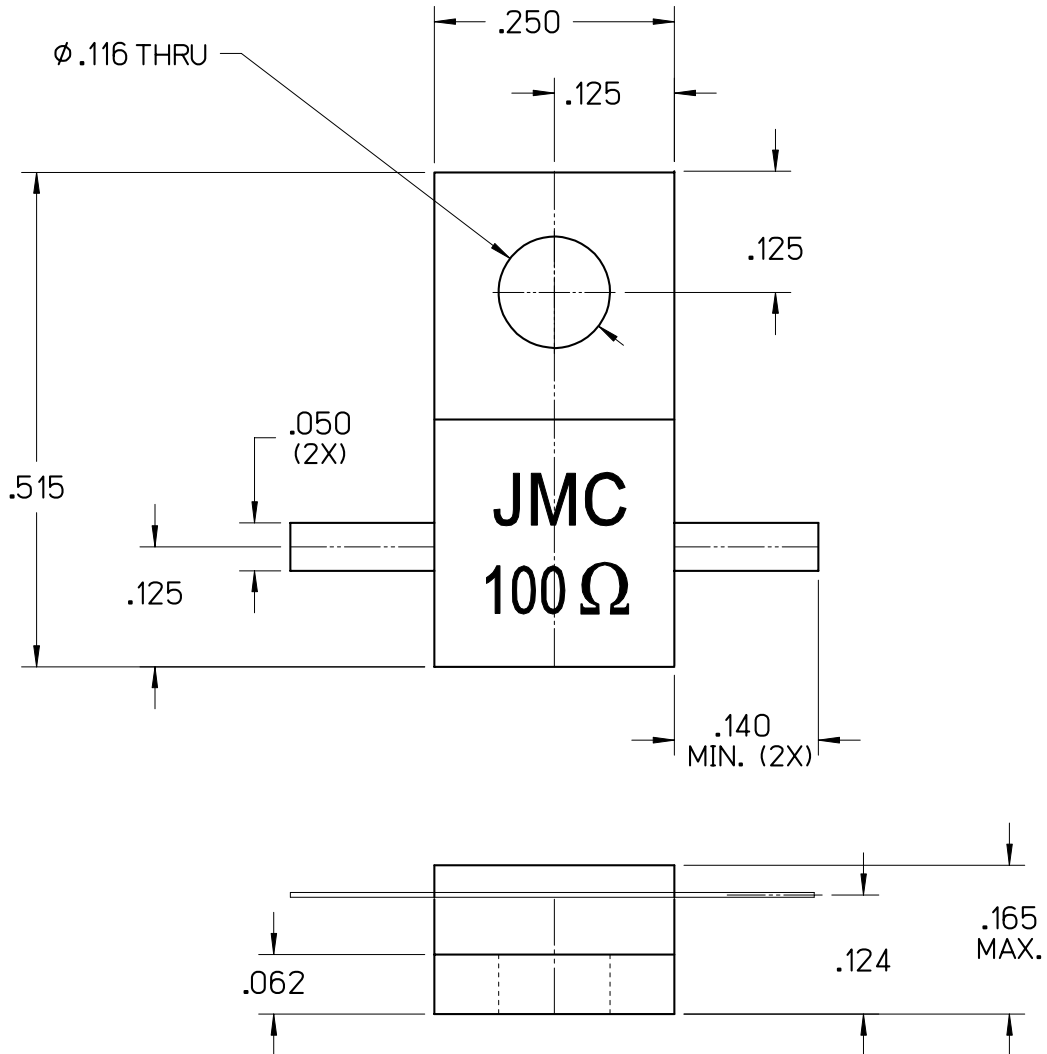


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# RF040BA03

## BeO Flanged Resistor



### CAUTION

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# RF030BA03

BeO Flanged Resistor

Power: 30 Watts (CW)

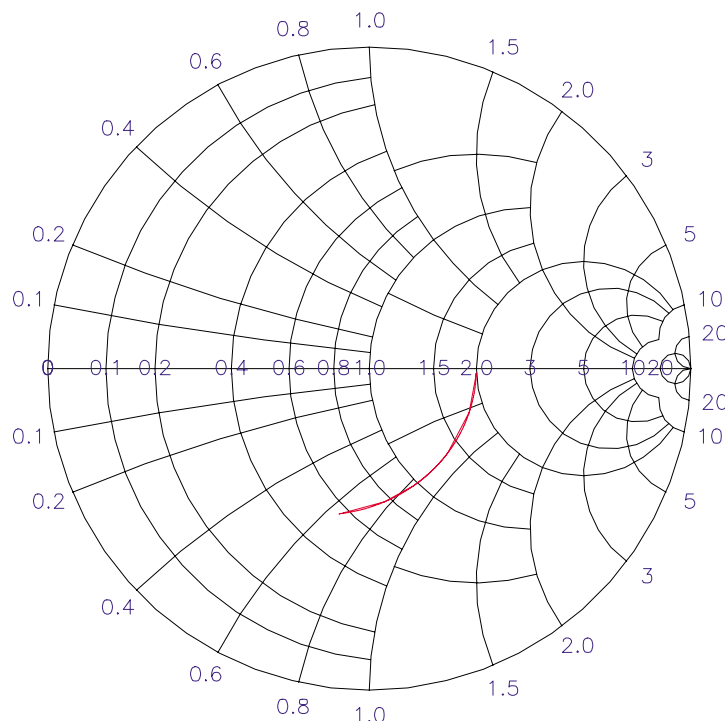
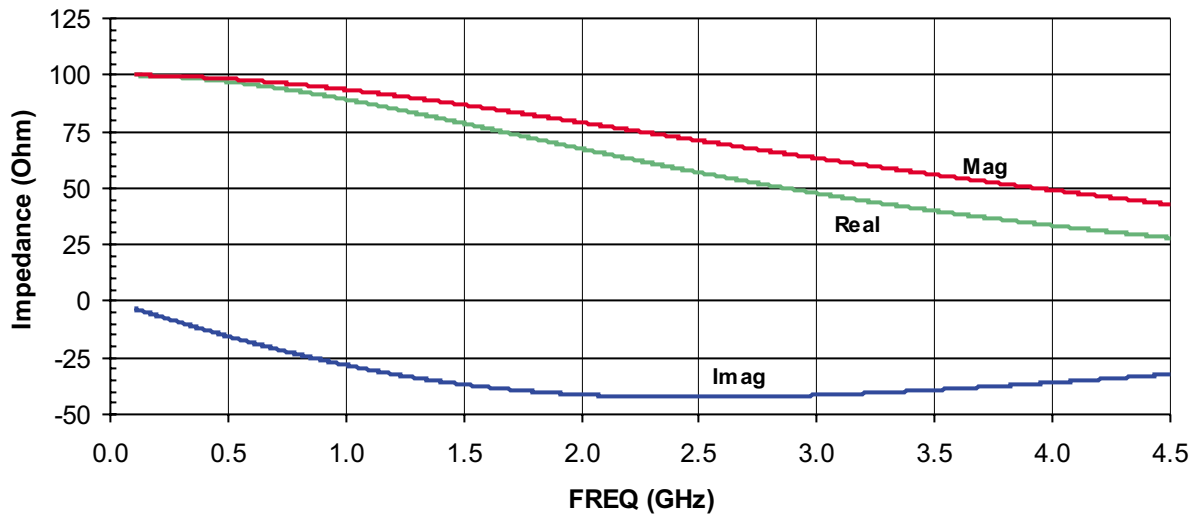
Resistance:  $100 \Omega \pm 5\%$

Frequency Range: DC to 4 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

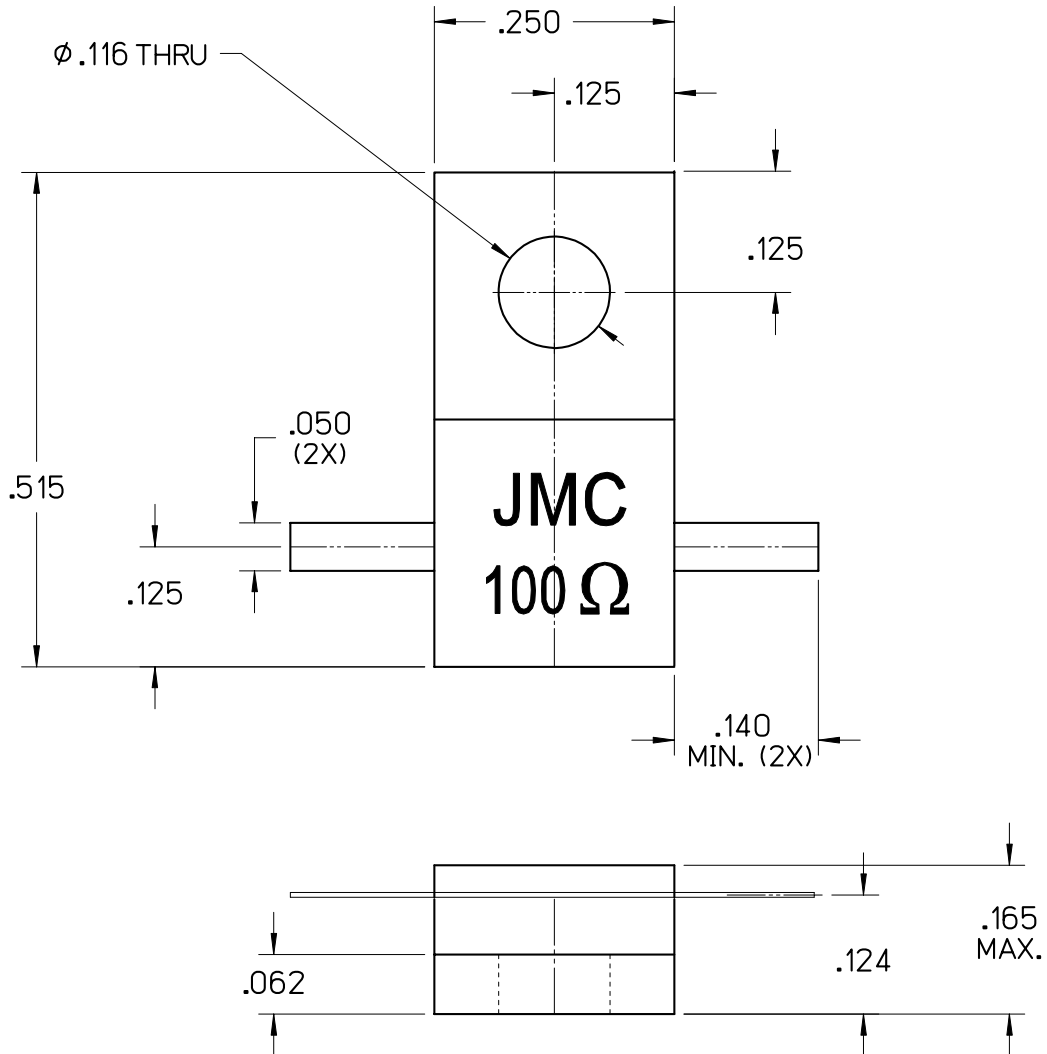


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# RF030BA03

## BeO Flanged Resistor



### CAUTION

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# RF025AB01

## AIN Flanged Resistor

**Power:** 25 Watts (CW)

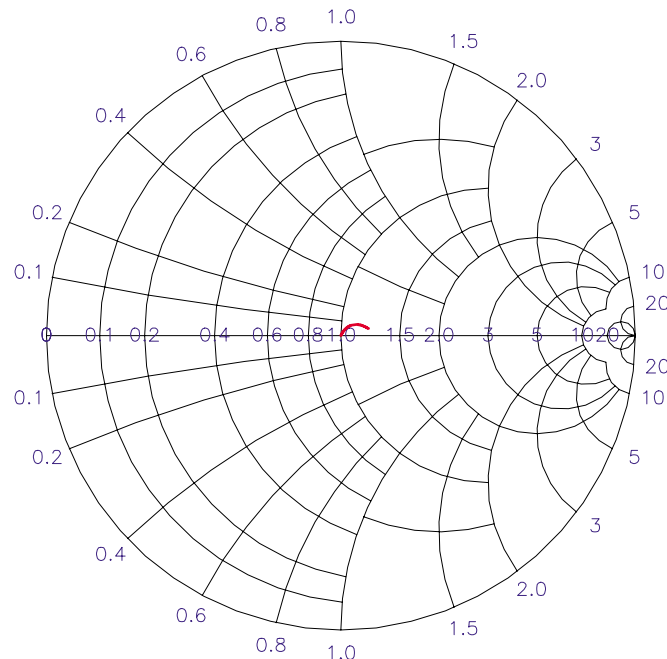
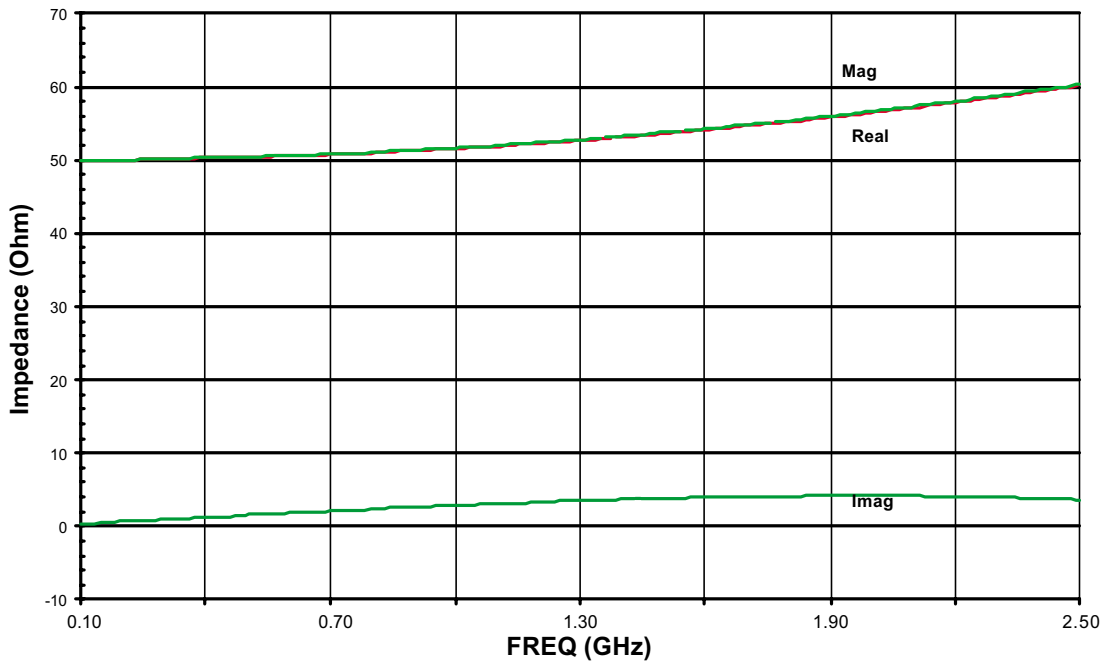
**Resistance:** 50  $\Omega \pm 5\%$

**Frequency Range:** DC to 2.5 GHz

**Substrate:** AIN



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

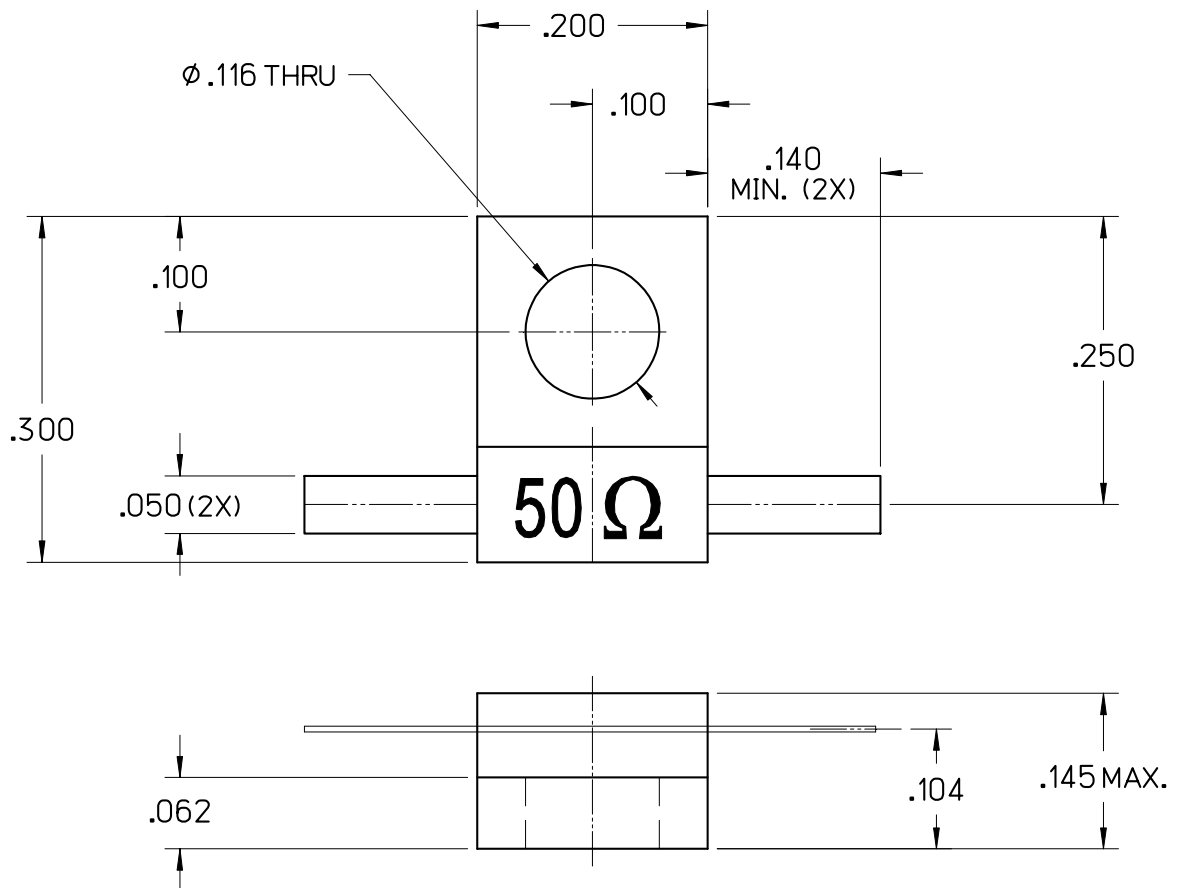


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# RF025AB01

## AIN Flanged Resistor



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Oct 08



# RF020BI03

## BeO Flanged Resistor

Power: 20 Watts (CW)

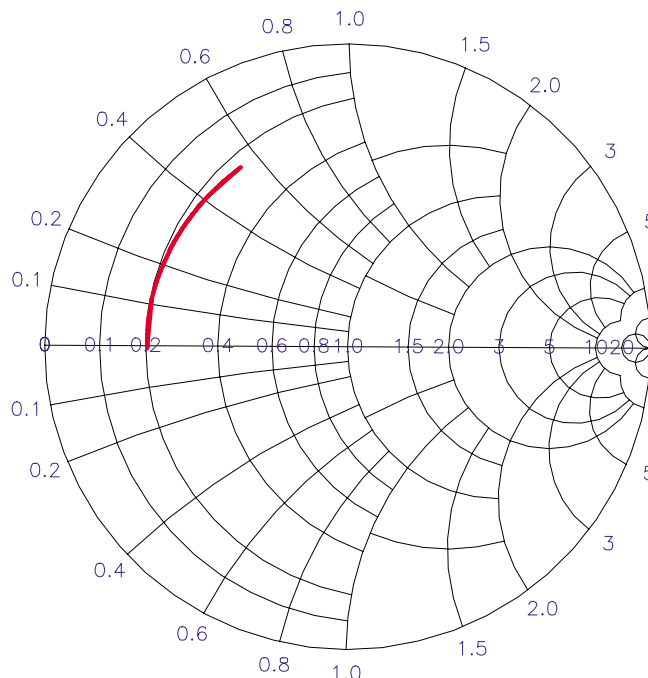
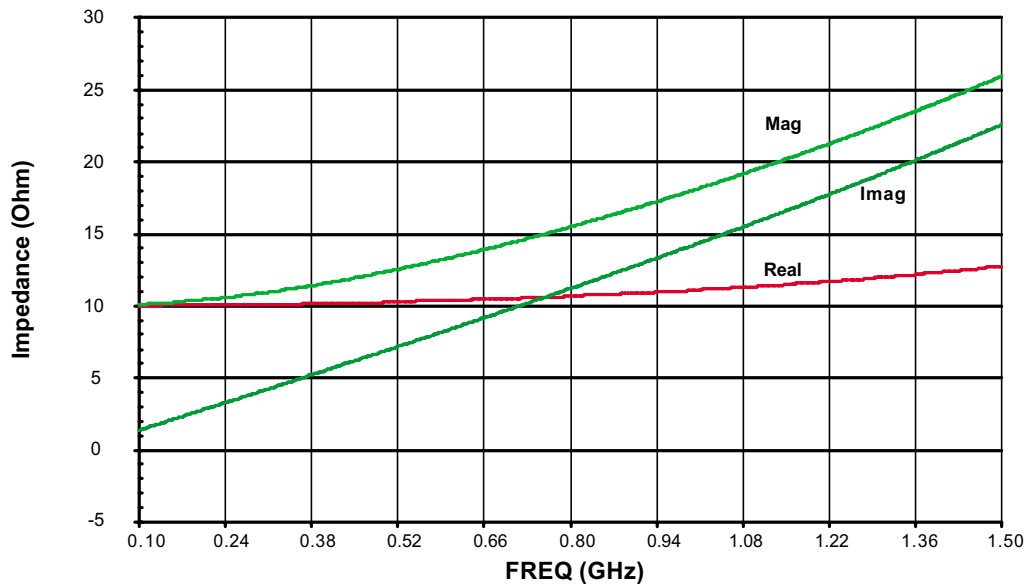
Resistance:  $10 \Omega \pm 5\%$

Frequency Range: DC to 1.5 GHz

Substrate: BeO



### TYPICAL PERFORMANCE

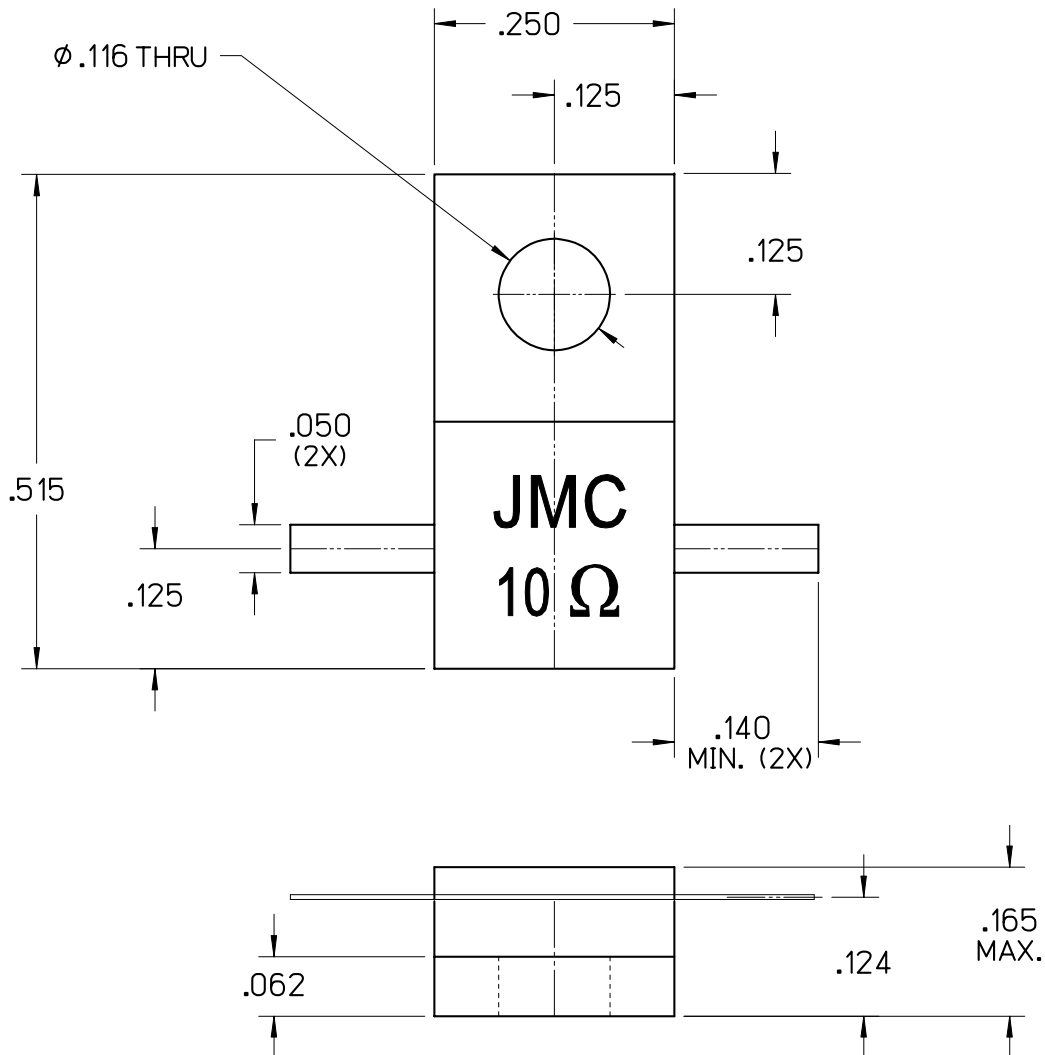


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales





# RF020BB03

BeO Flanged Resistor

Power: 20 Watts (CW)

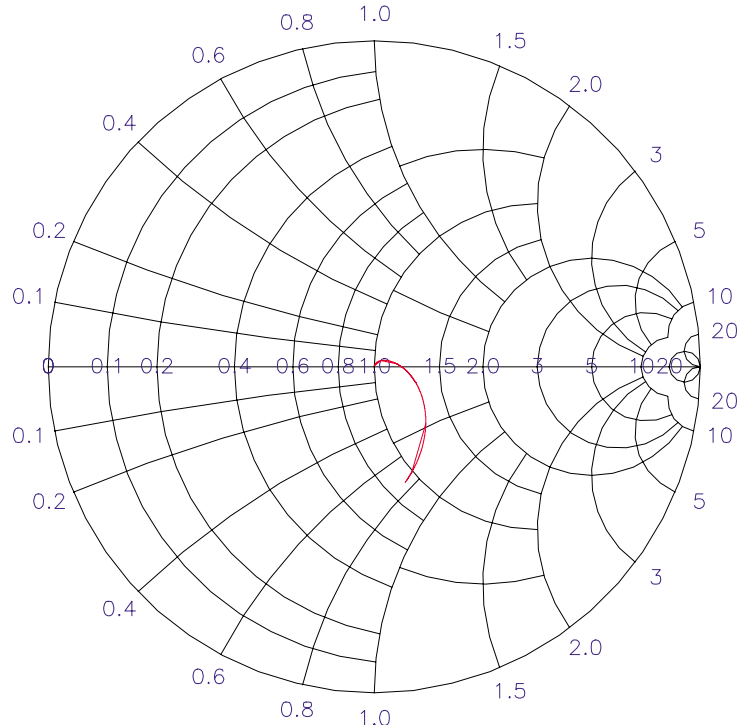
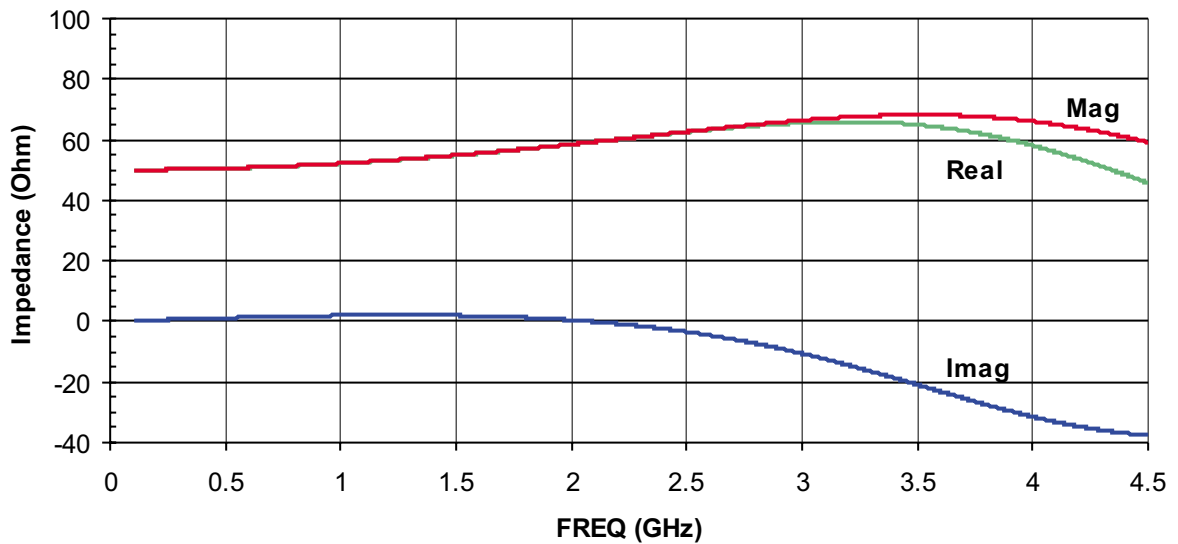
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 4 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

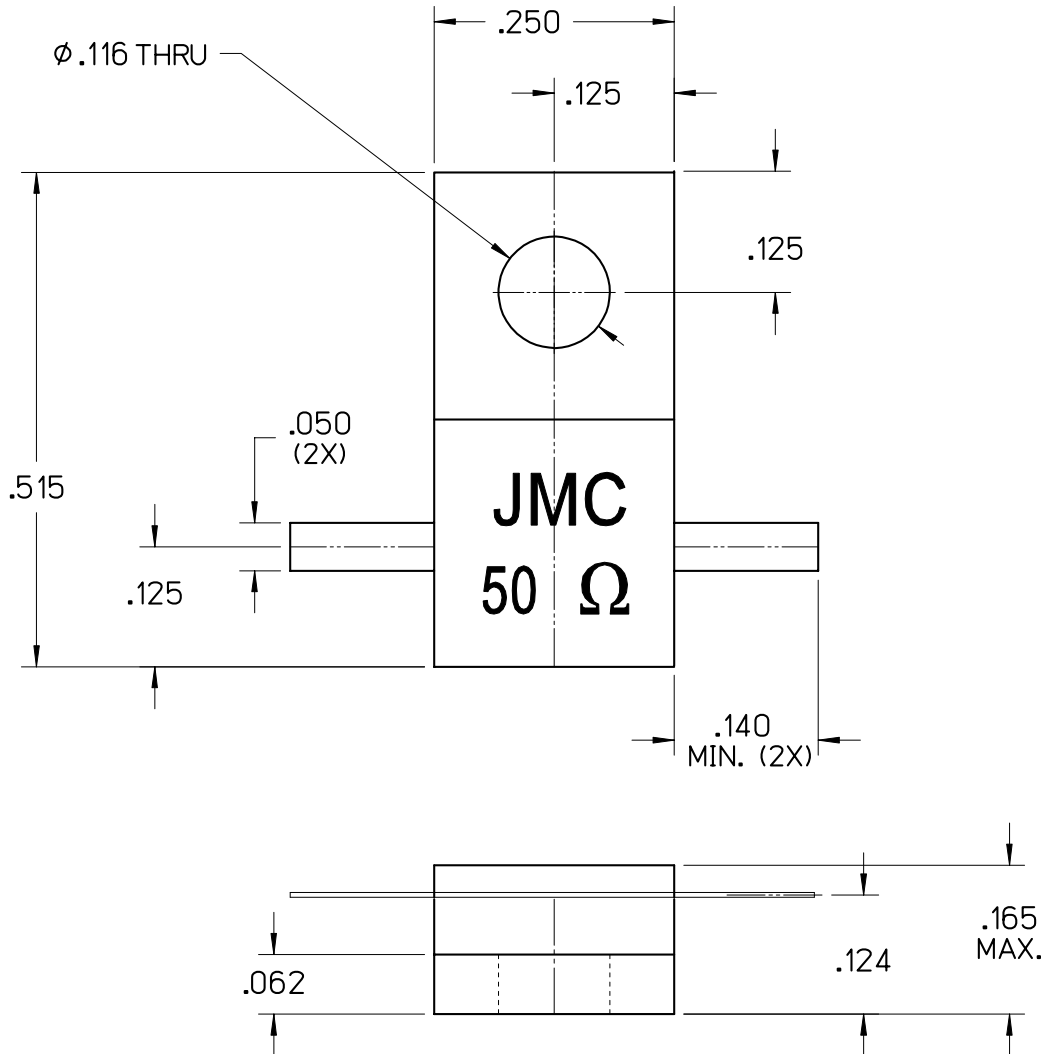


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# RF020BB03

## BeO Flanged Resistor



### CAUTION

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# RF020BA03

## BeO Flanged Resistor

Power: 20 Watts (CW)

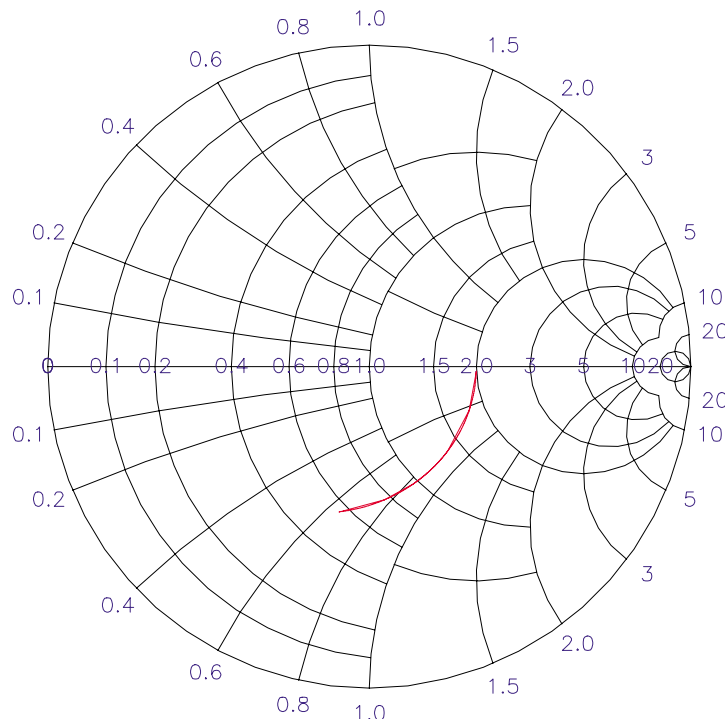
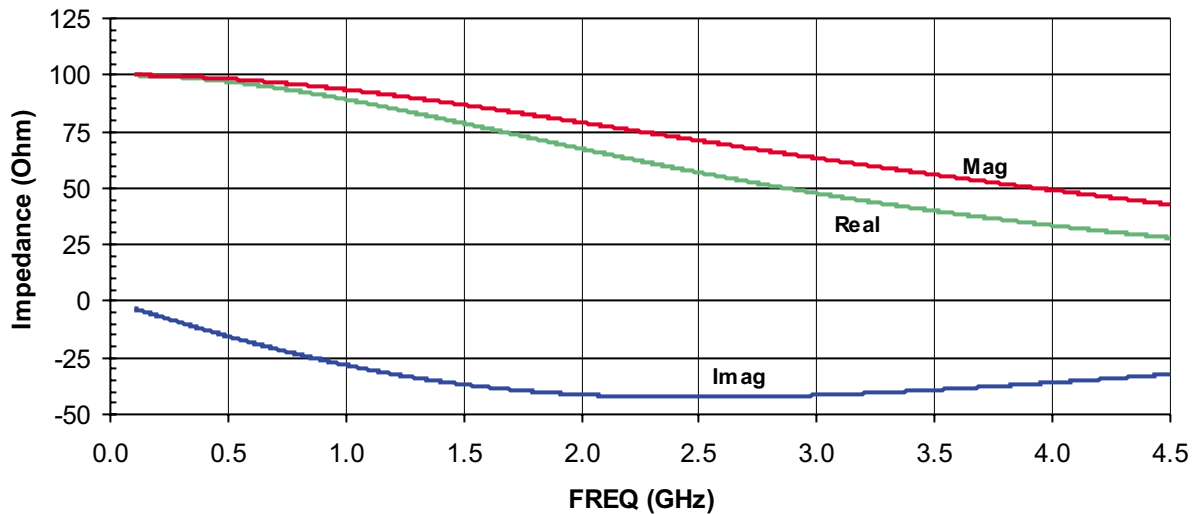
Resistance: 100  $\Omega \pm 5\%$

Frequency Range: DC to 4 GHz

Substrate: BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

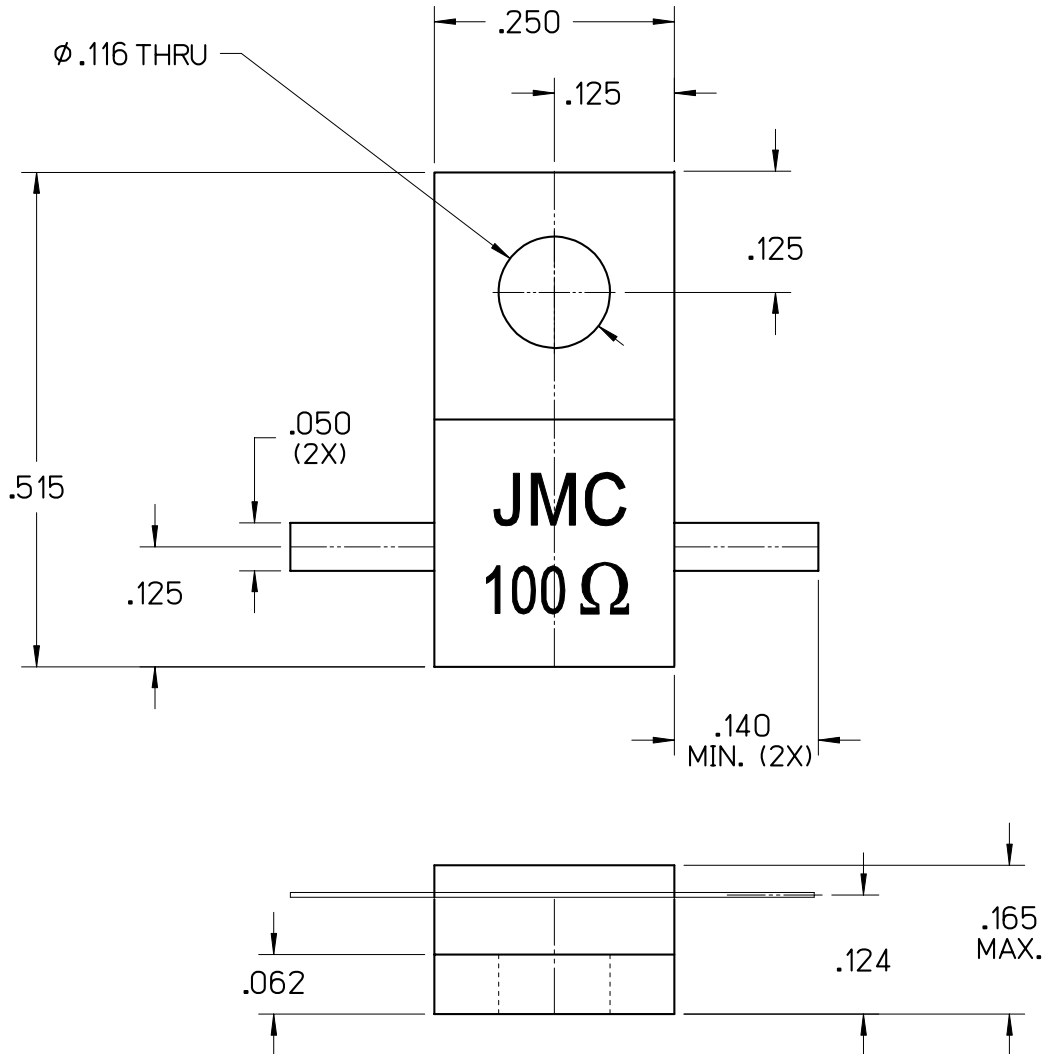


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# RF020BA03

## BeO Flanged Resistor



### CAUTION

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# RF020AA01

## AlN Flanged Resistor

**Power:** 20 Watts (CW)

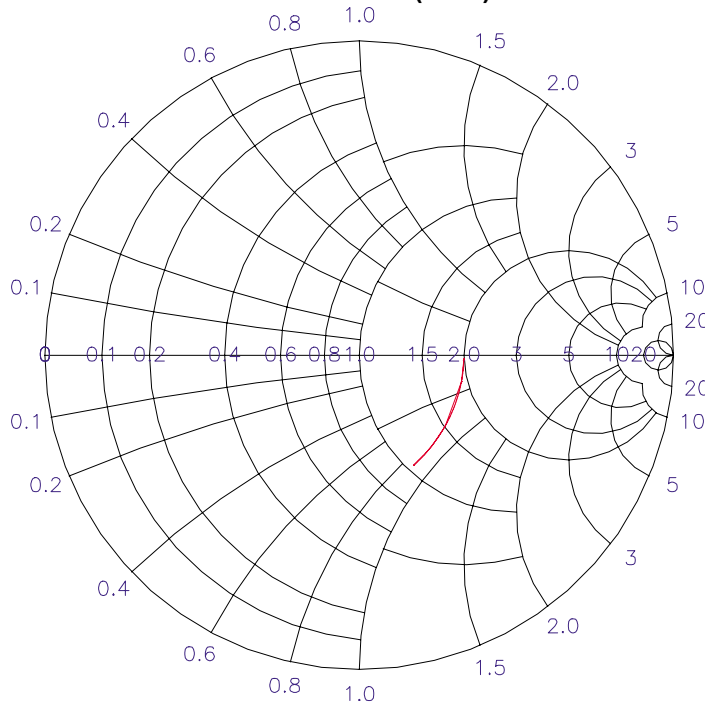
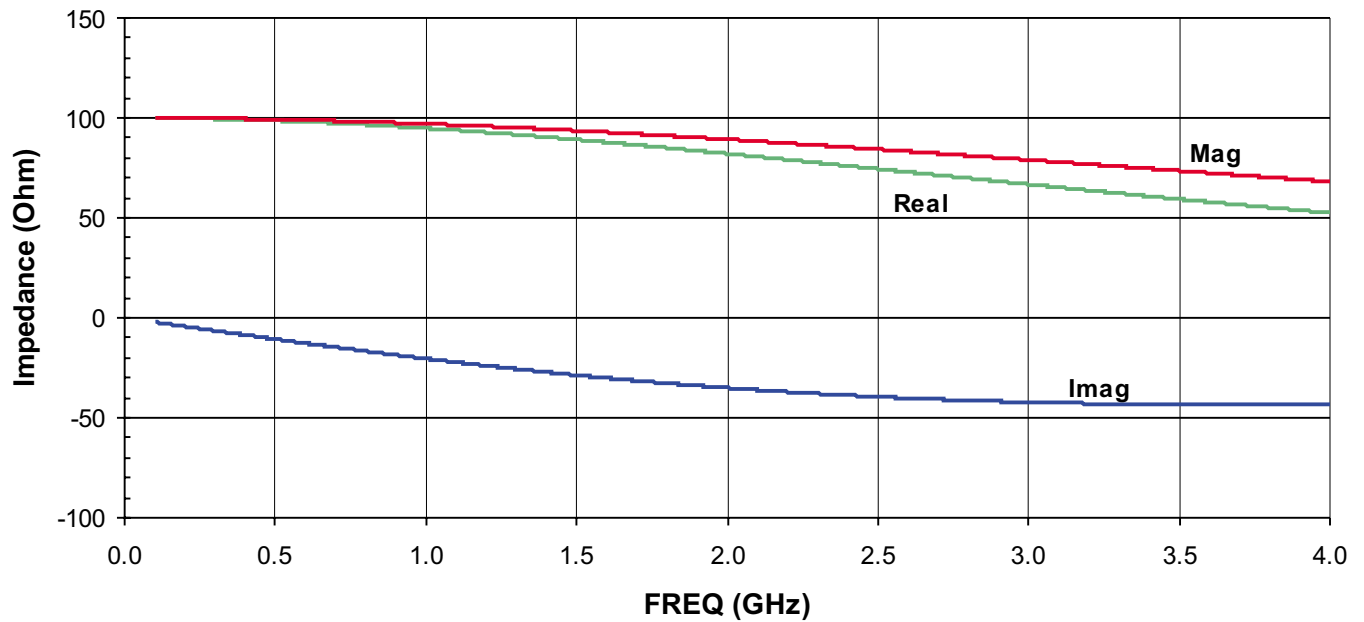
**Resistance:**  $100 \Omega \pm 5\%$

**Frequency Range:** DC to 4 GHz

**Substrate:** AlN



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales



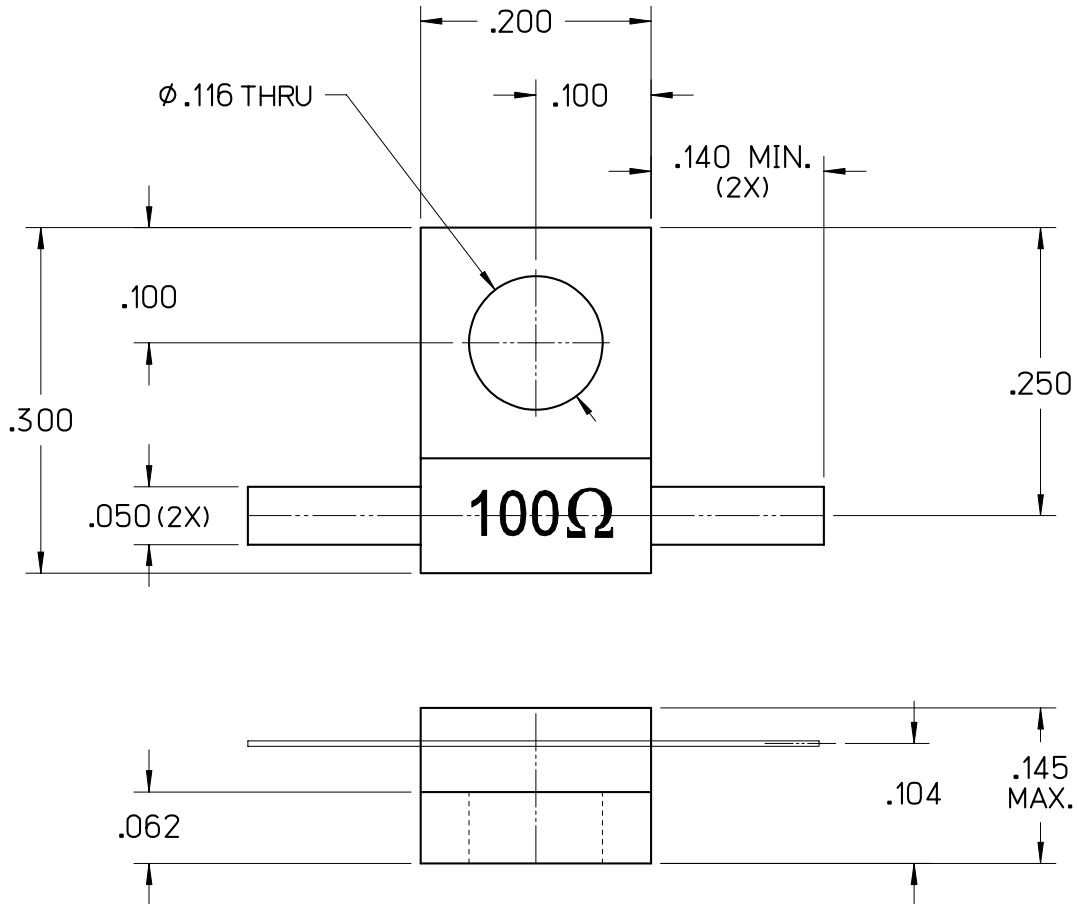
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RF020AA01

AlN Flanged Resistor



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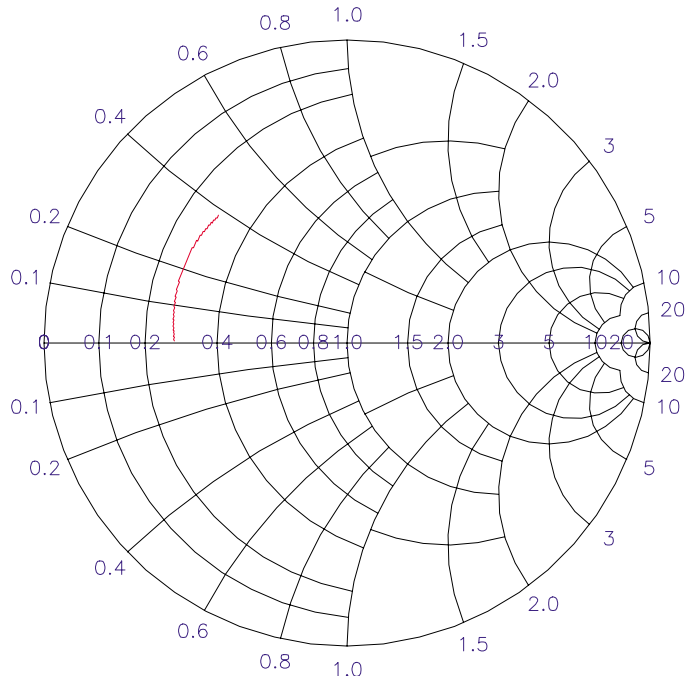
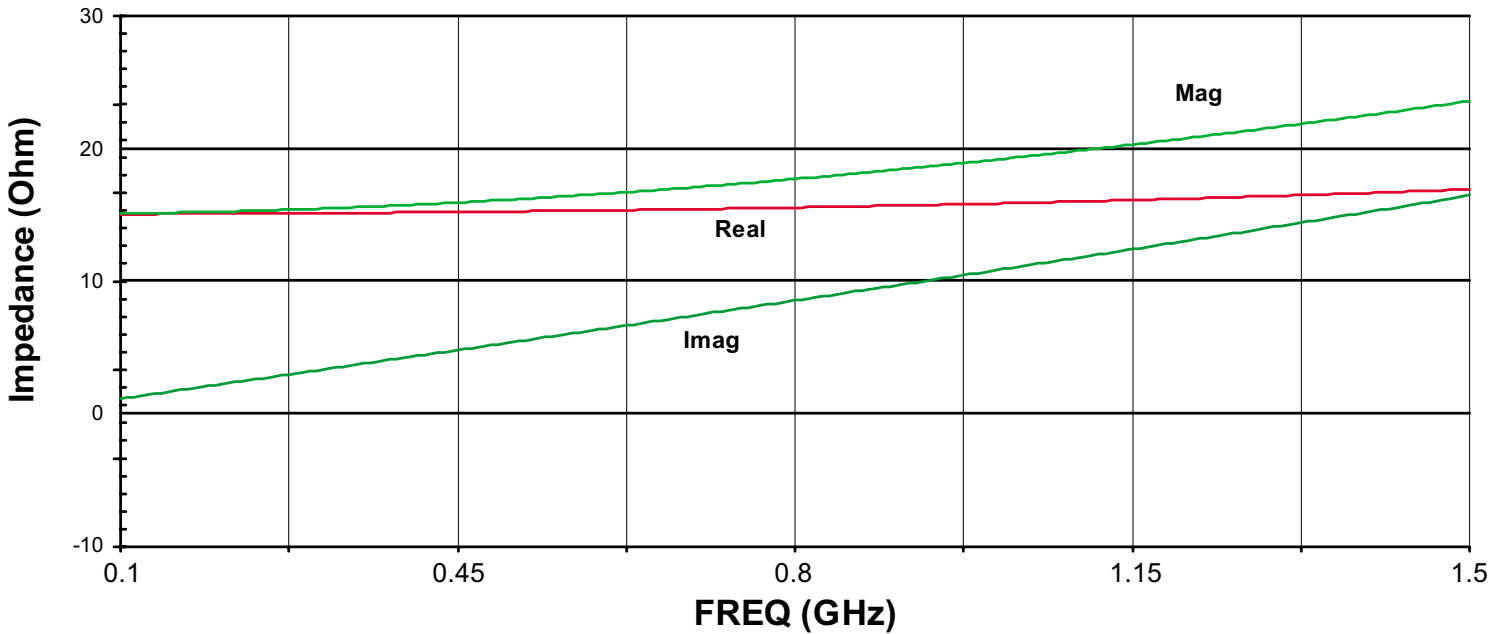
RF010BJ01

BeO Flanged Resistor

Power: 10 Watts (CW)  
Resistance:  $15 \Omega \pm 5\%$   
Frequency Range: DC to 1.5 GHz  
Substrate: BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

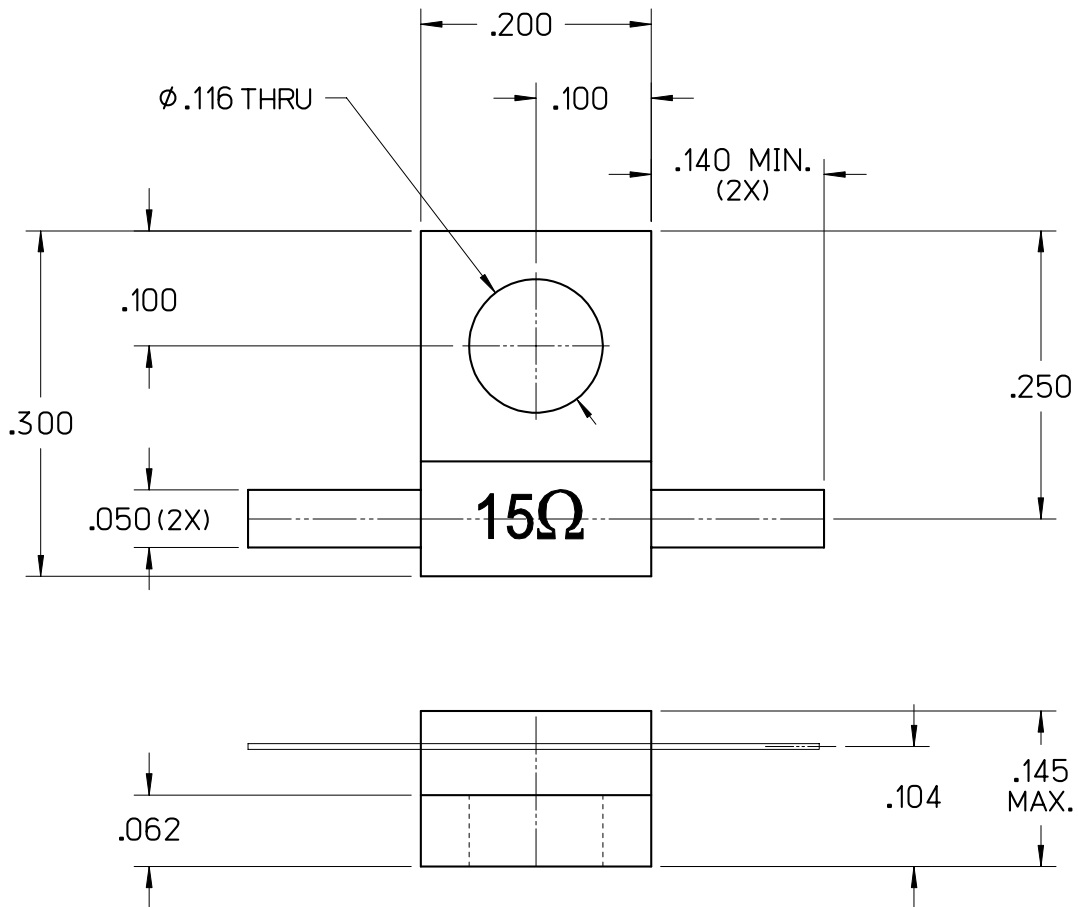


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# RF010BJ01

## BeO Flanged Resistor



### CAUTION

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# RF010BF01

## BeO Flanged Resistor

**Power:** 10 Watts (CW)

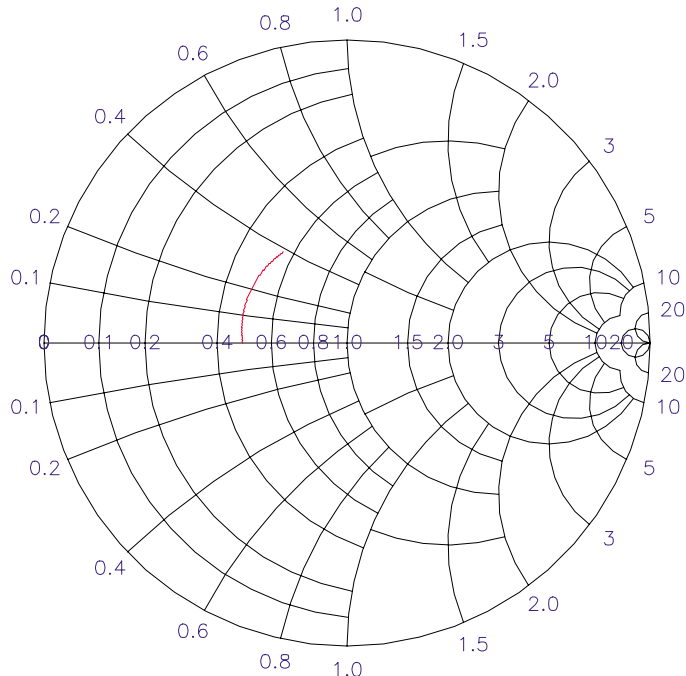
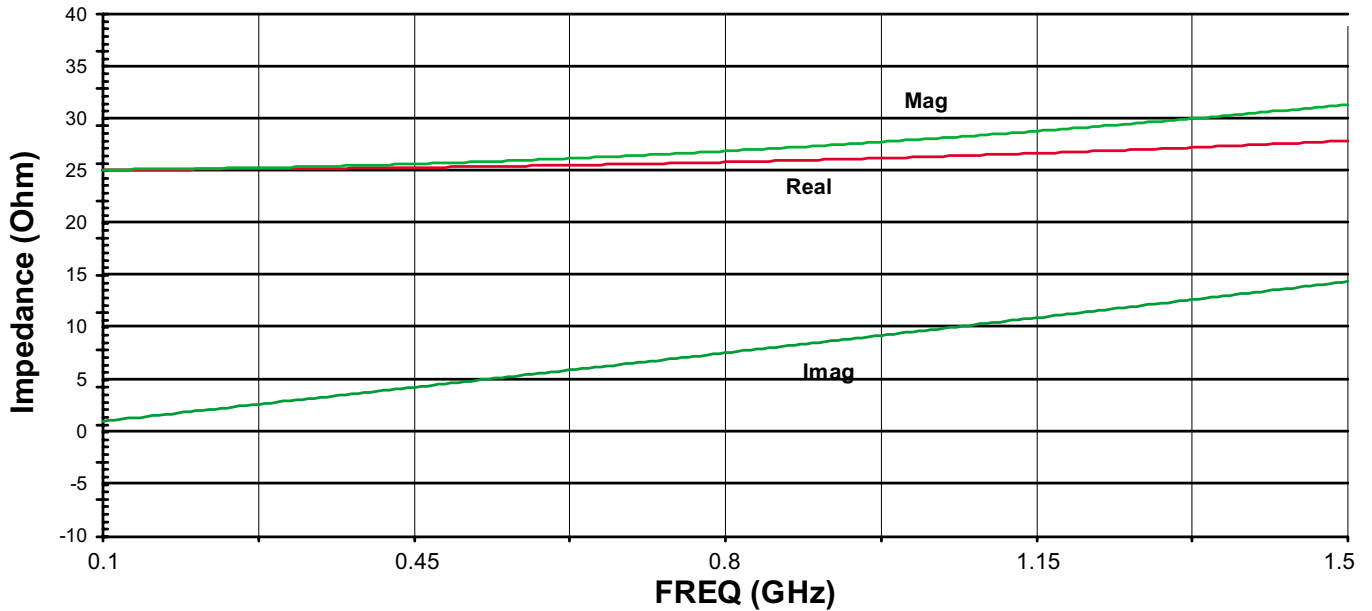
**Resistance:**  $25 \Omega \pm 5\%$

**Frequency Range:** DC to 1.5 GHz

**Substrate:** BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

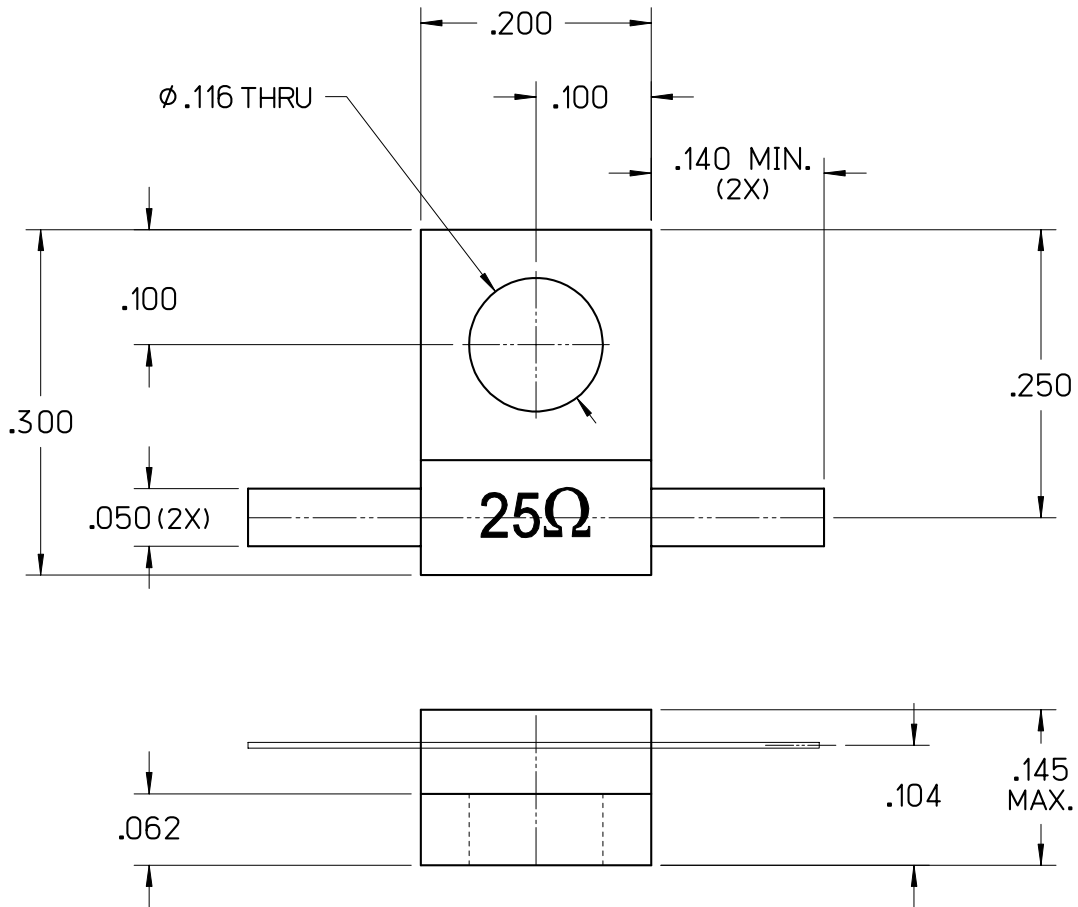


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RF010BF01

BeO Flanged Resistor



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# RF010BB01

BeO Flanged Resistor

Power: 10 Watts (CW)

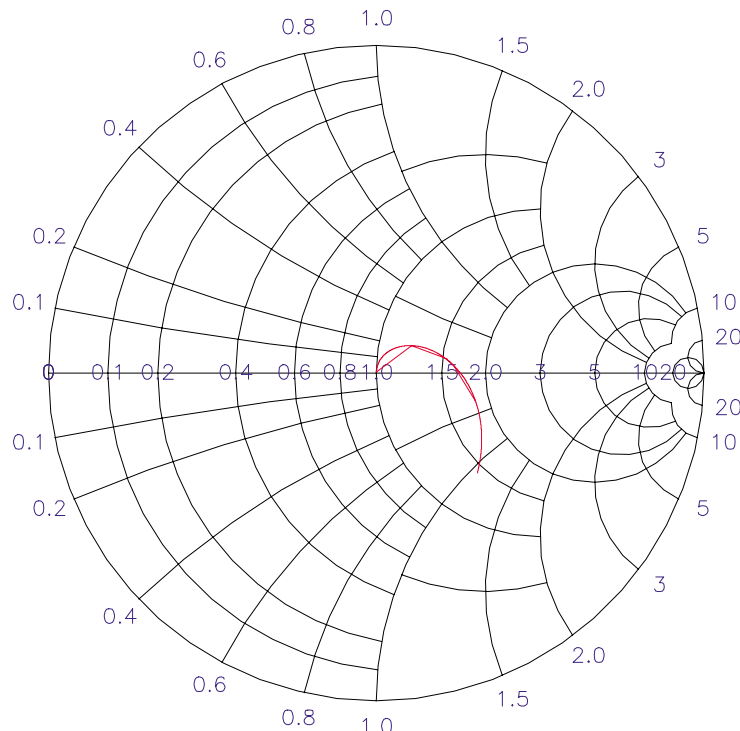
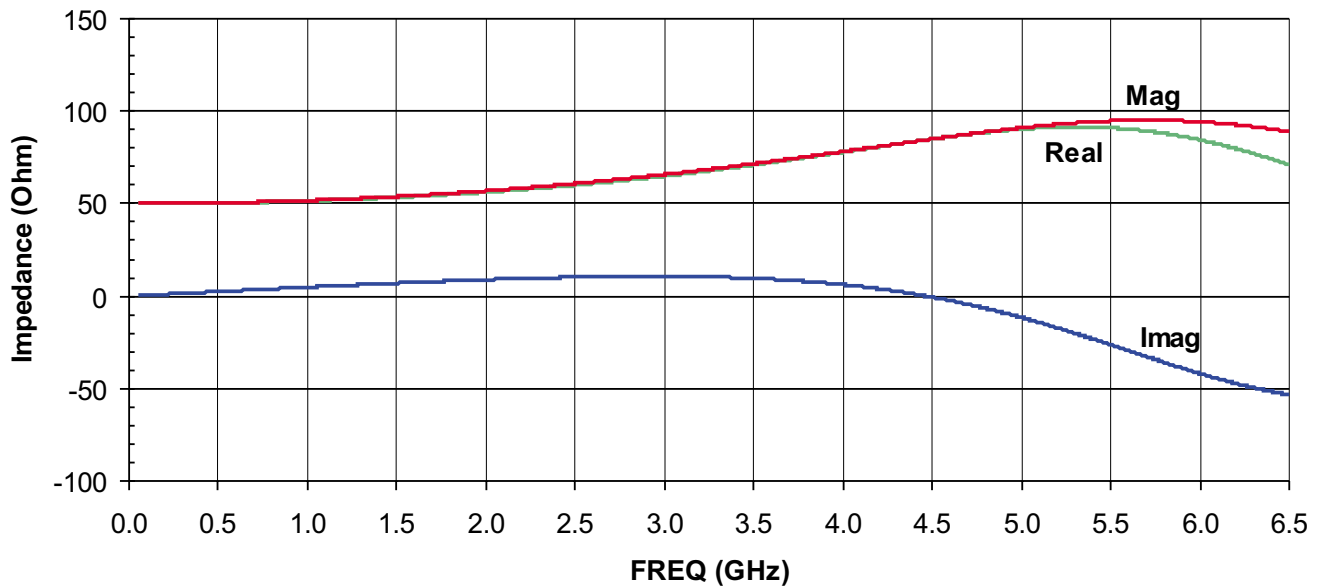
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 6 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

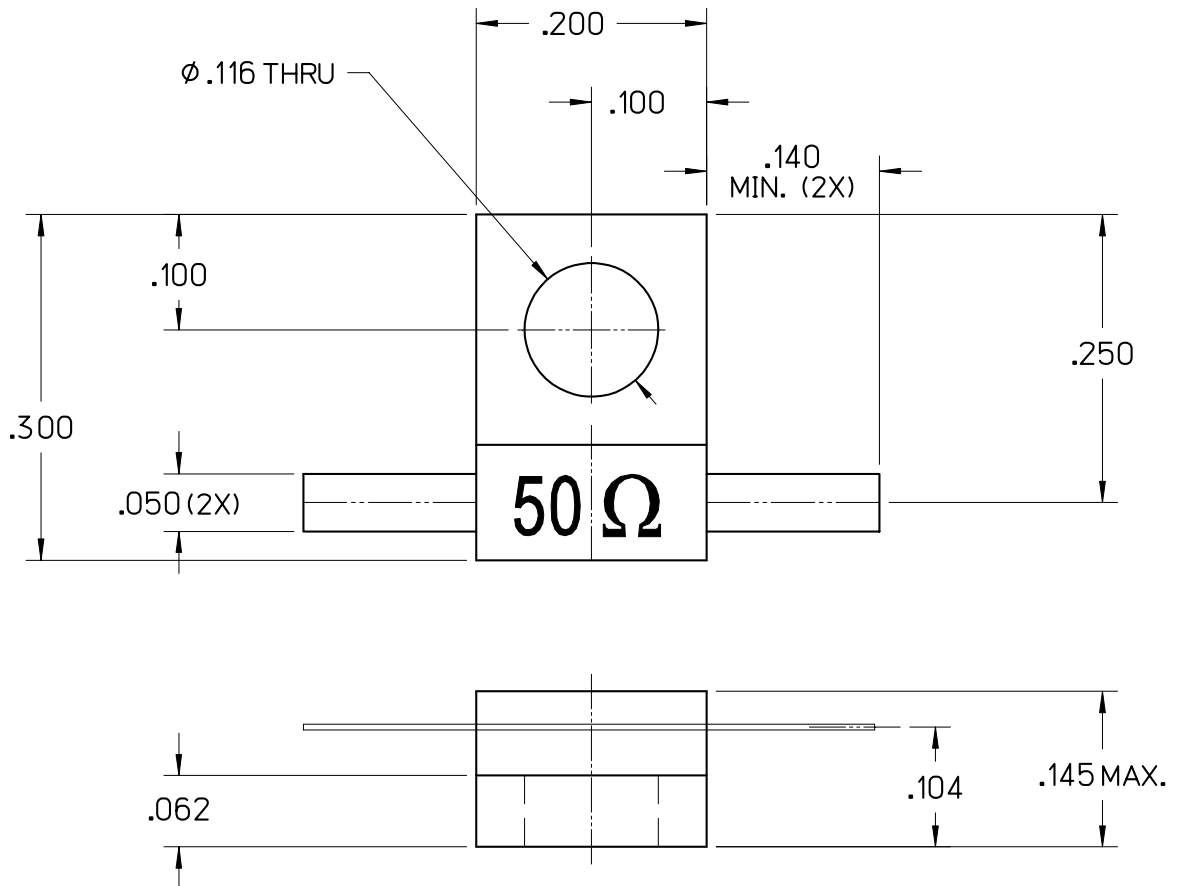


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# RF010BB01

## BeO Flanged Resistor



### CAUTION

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# RF010BA01

BeO Flanged Resistor

Power: 10 Watts (CW)

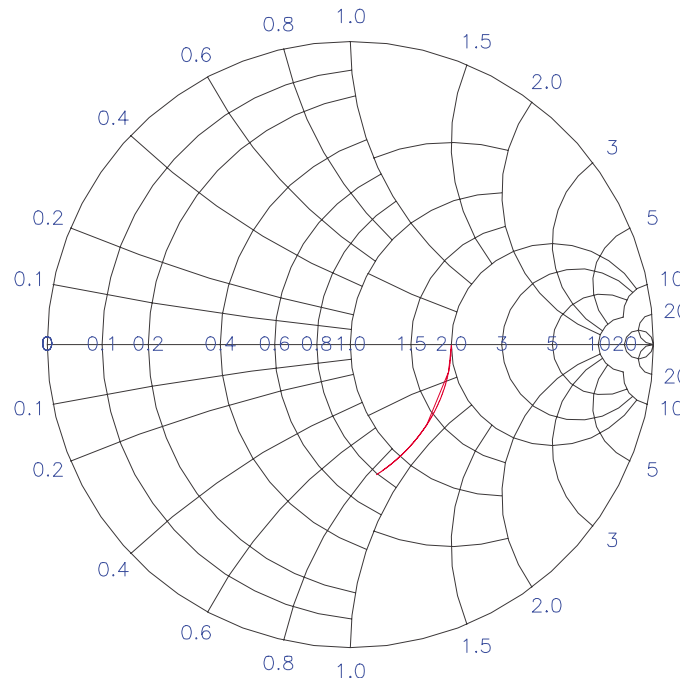
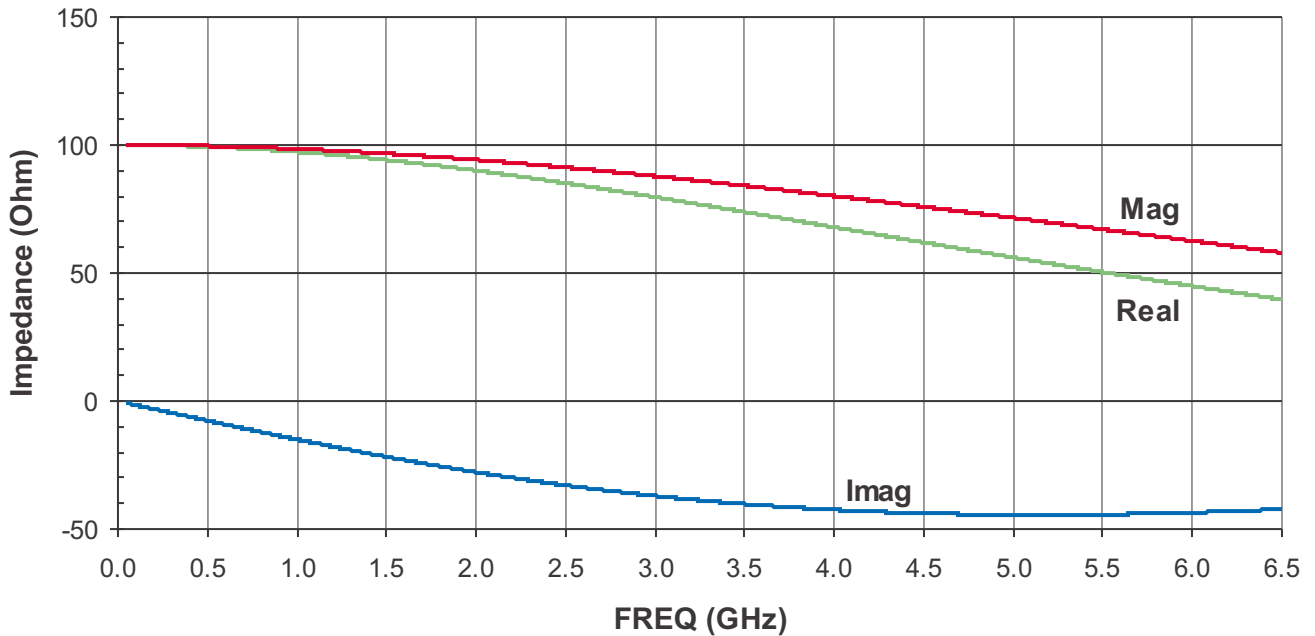
Resistance: 100  $\Omega$   $\pm$ 5%

Frequency Range: DC to 6 GHz

Substrate: BeO



## TYPICAL PERFORMANCE

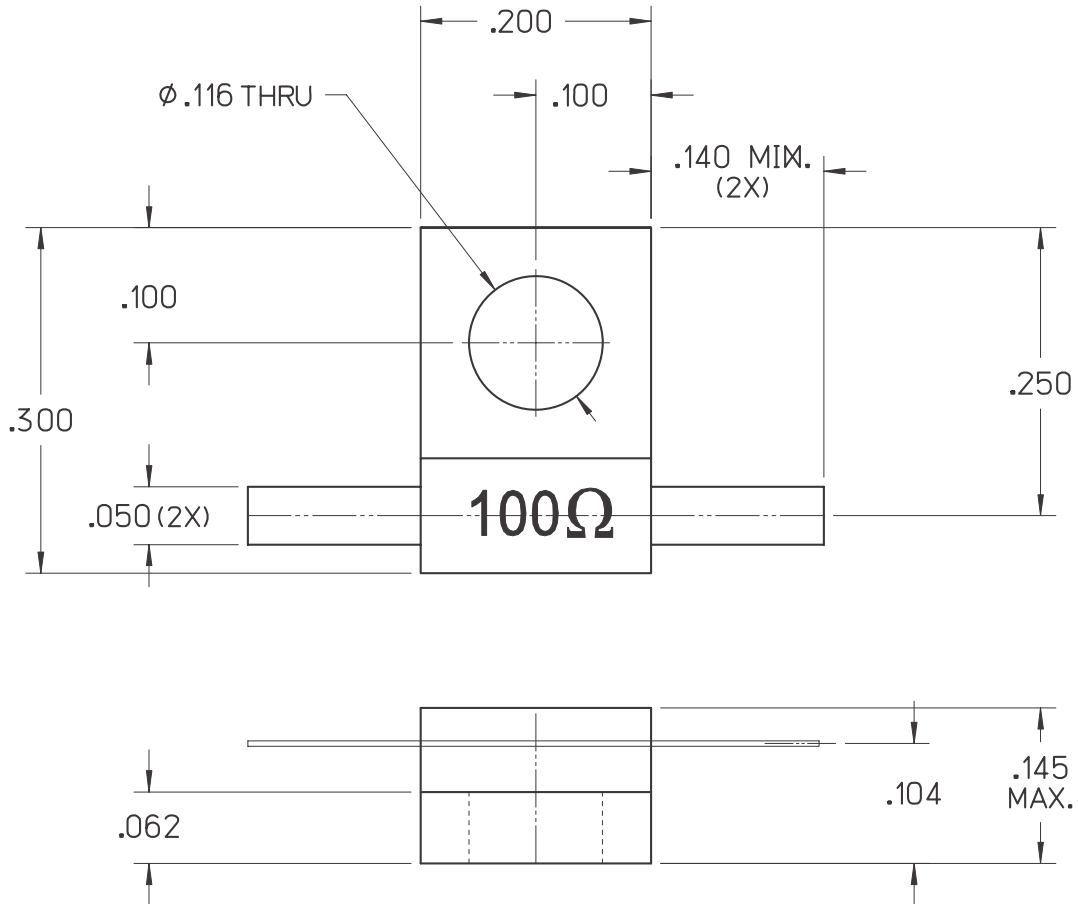


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### CAUTION

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 TRIM IN OPEN AREA.

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# RF010AB01

## AIN Flanged Resistor

**Power:** 10 Watts (CW)

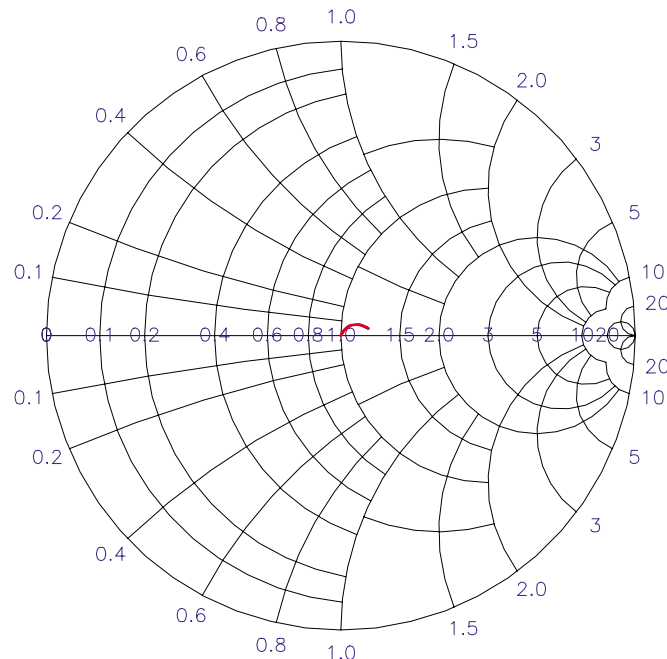
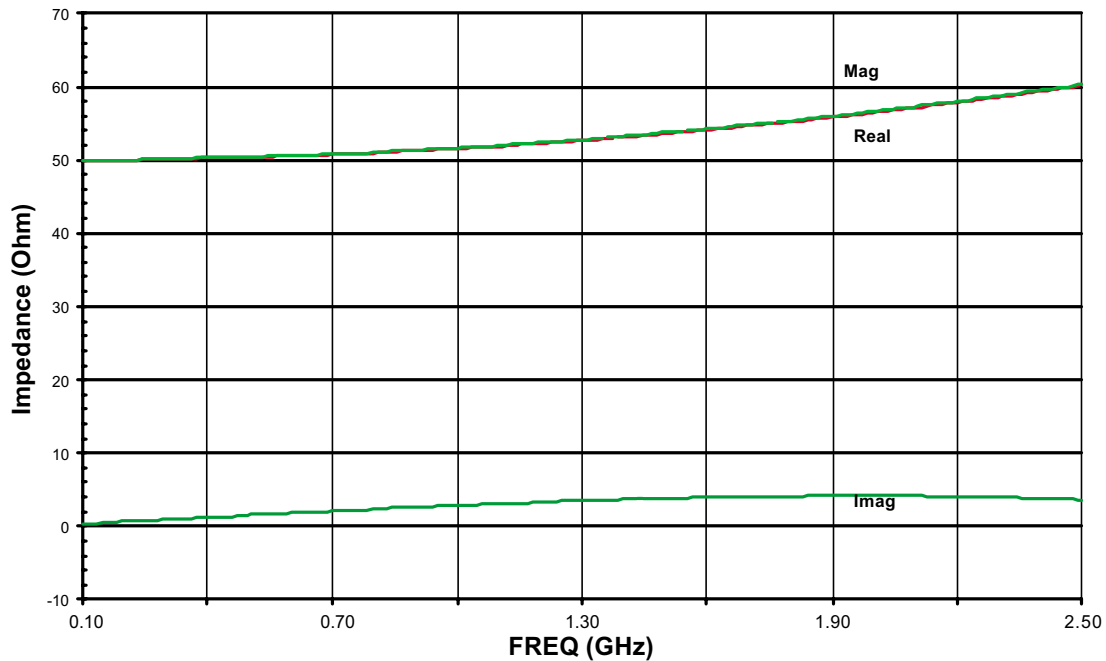
**Resistance:**  $50 \Omega \pm 5\%$

**Frequency Range:** DC to 2.5 GHz

**Substrate:** AIN



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

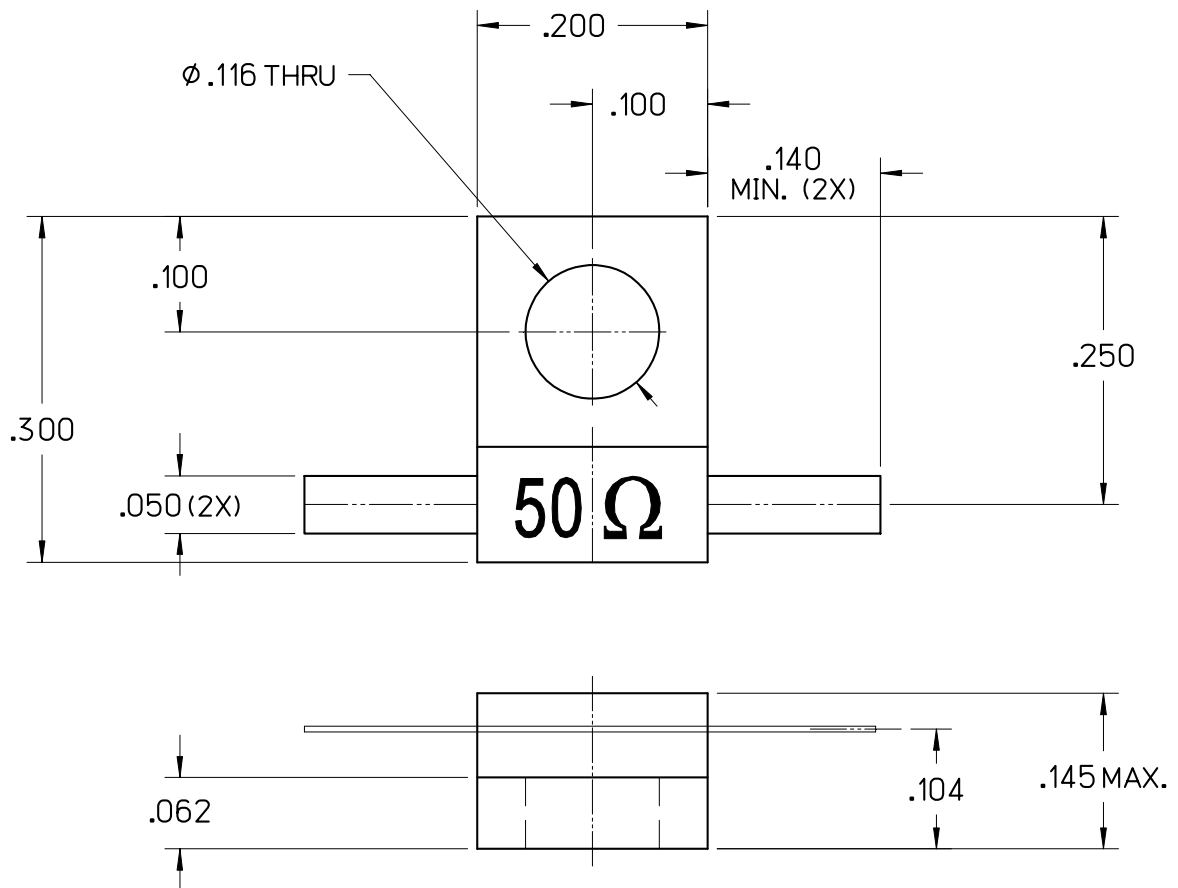


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# RF010AB01

## AIN Flanged Resistor



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Oct 08



# RF010AA01

## AlN Flanged Resistor

**Power:** 10 Watts (CW)

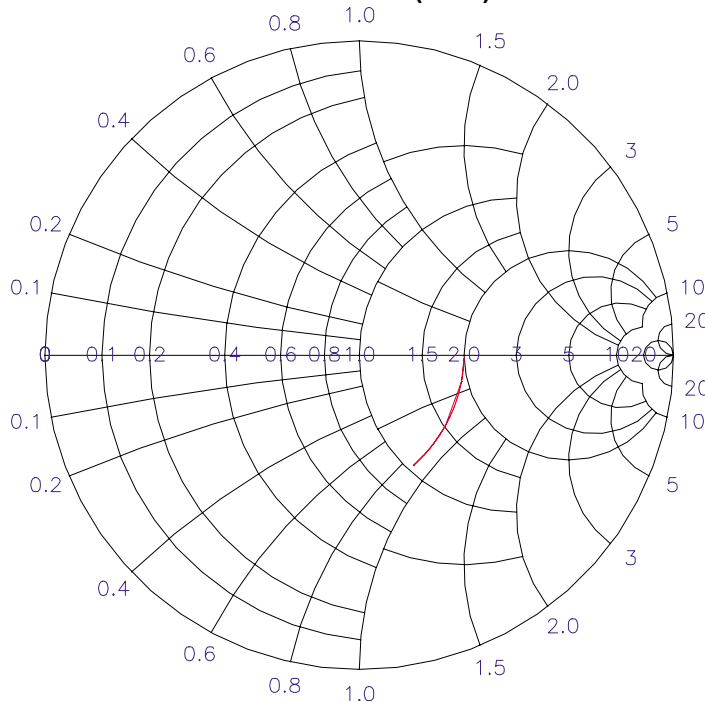
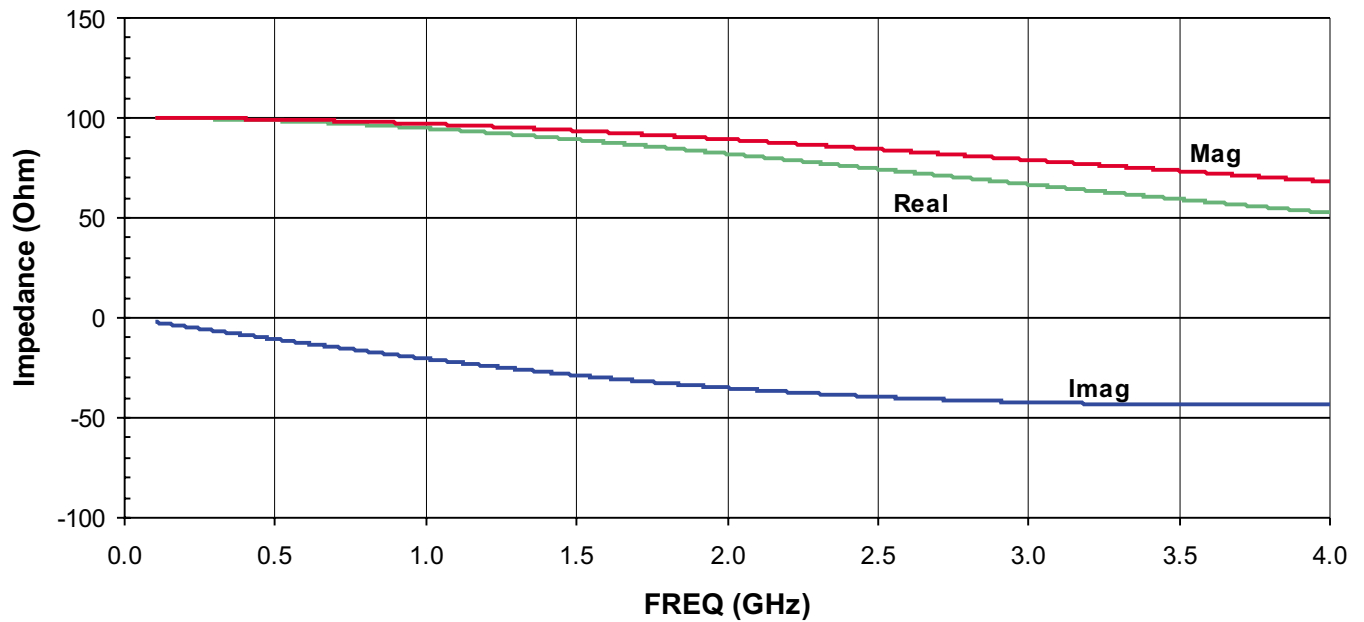
**Resistance:** 100  $\Omega \pm 5\%$

**Frequency Range:** DC to 4 GHz

**Substrate:** AlN



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

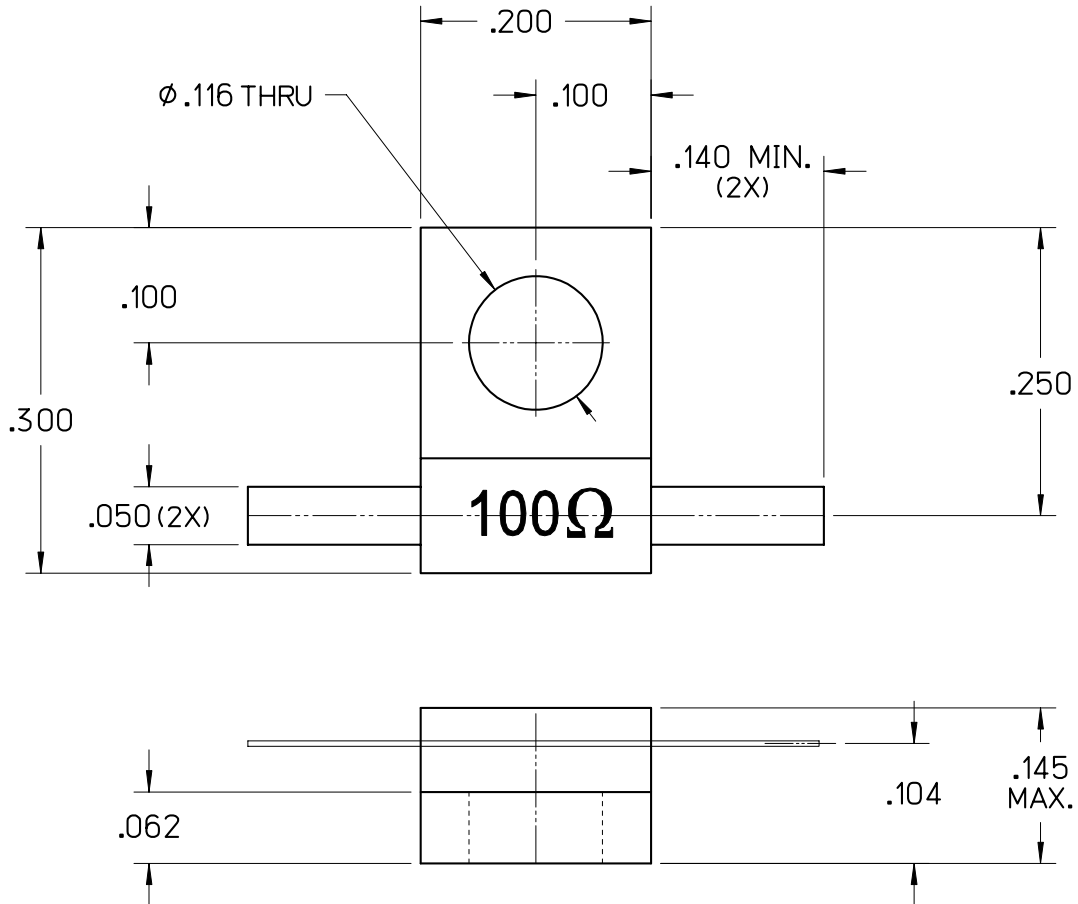


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RF010AA01

AIN Flanged Resistor



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# RF005BB01

## BeO Flanged Resistor

**Power:** 5 Watts (CW)

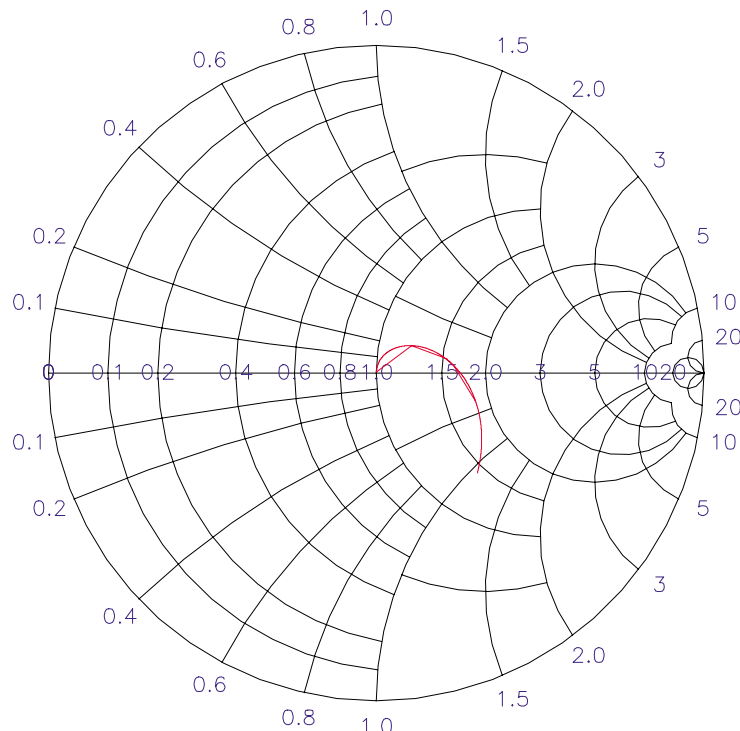
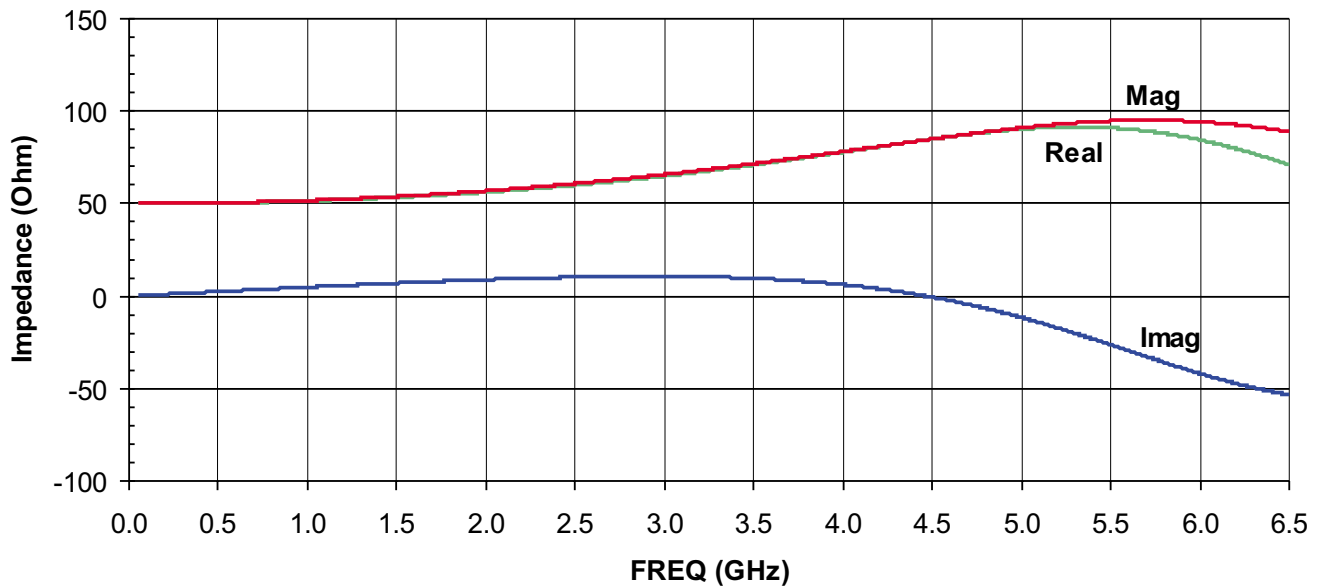
**Resistance:**  $50 \Omega \pm 5\%$

**Frequency Range:** DC to 6 GHz

**Substrate:** BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

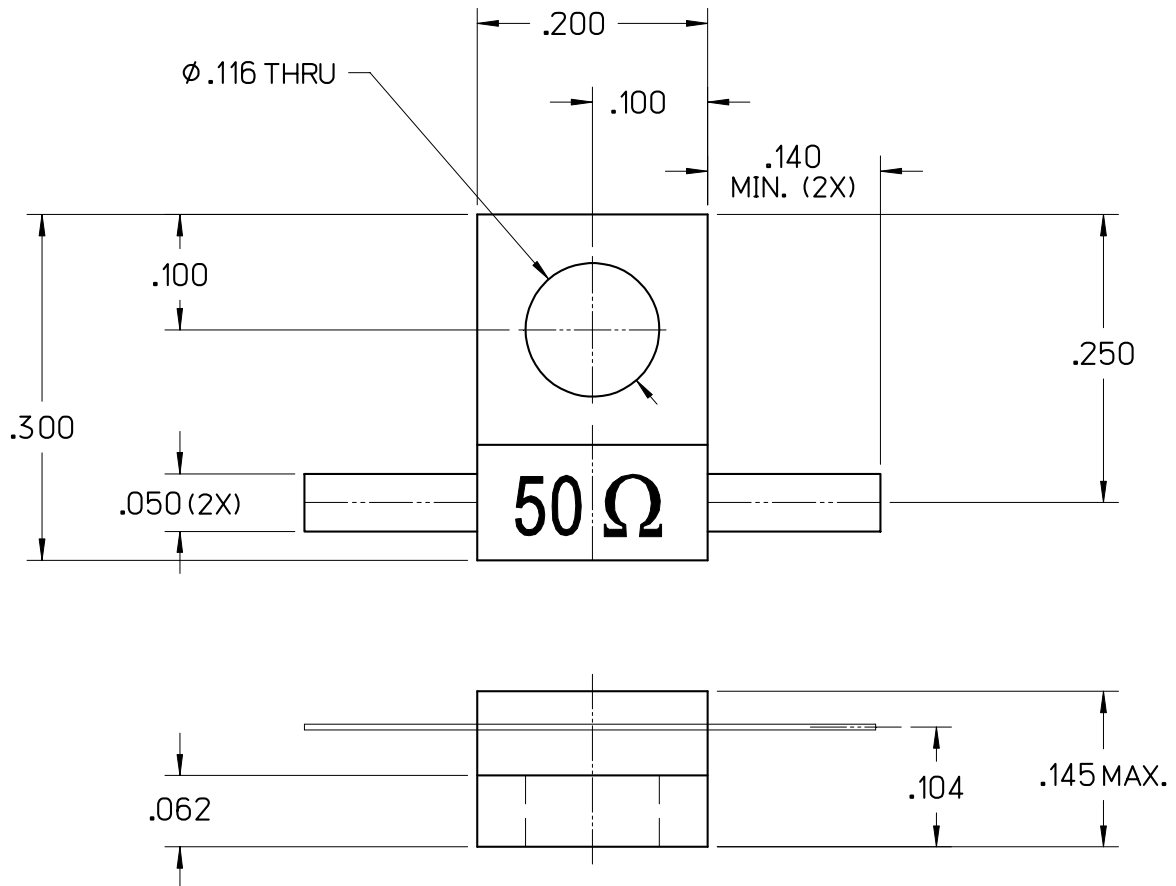


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RF005BB01

BeO Flanged Resistor



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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OCT 08



# RL040AA17

## AlN Flangeless Resistor

**Power:** 40 Watts (CW)

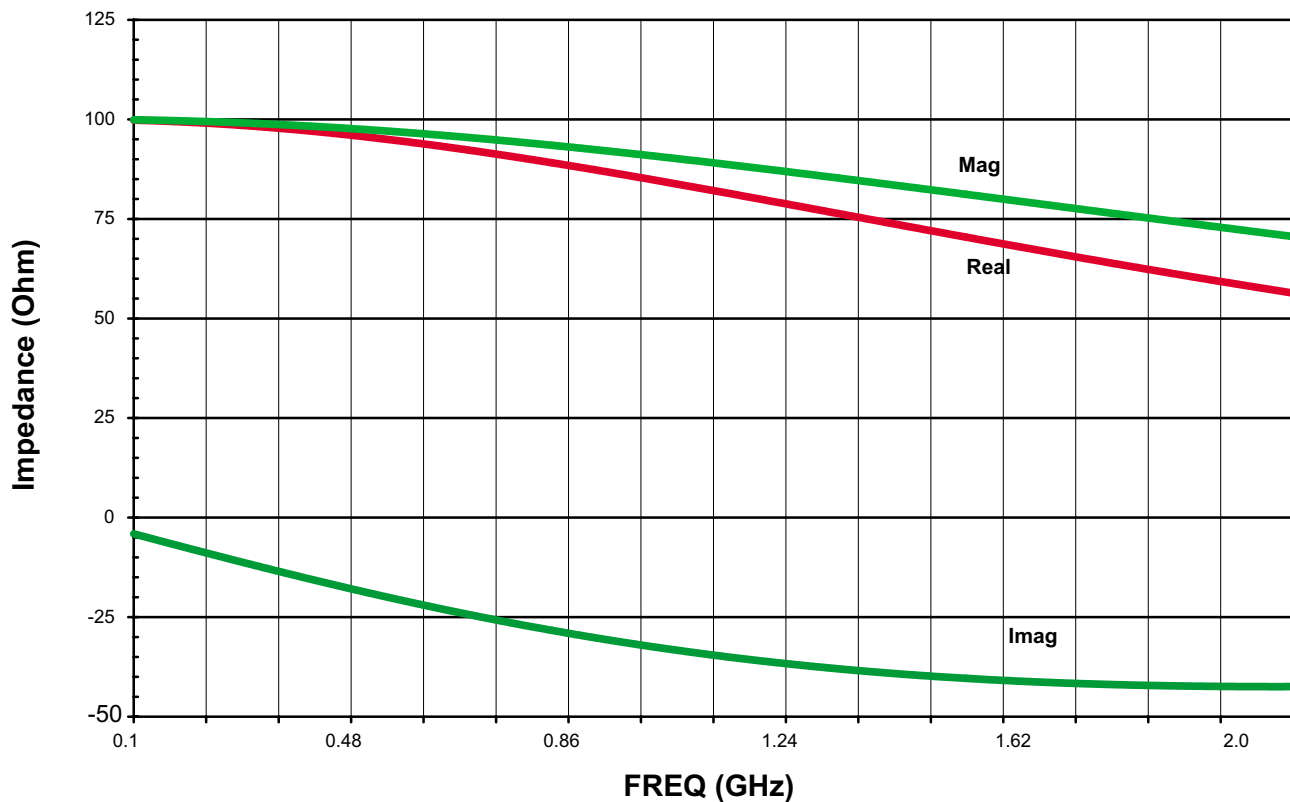
**Resistance:** 100  $\Omega \pm 5\%$

**Frequency Range:** DC to 2 GHz

**Substrate:** AlN



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales



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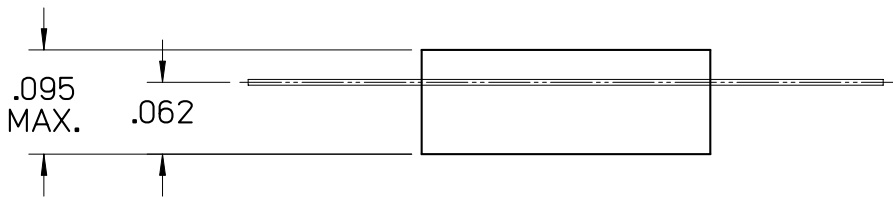
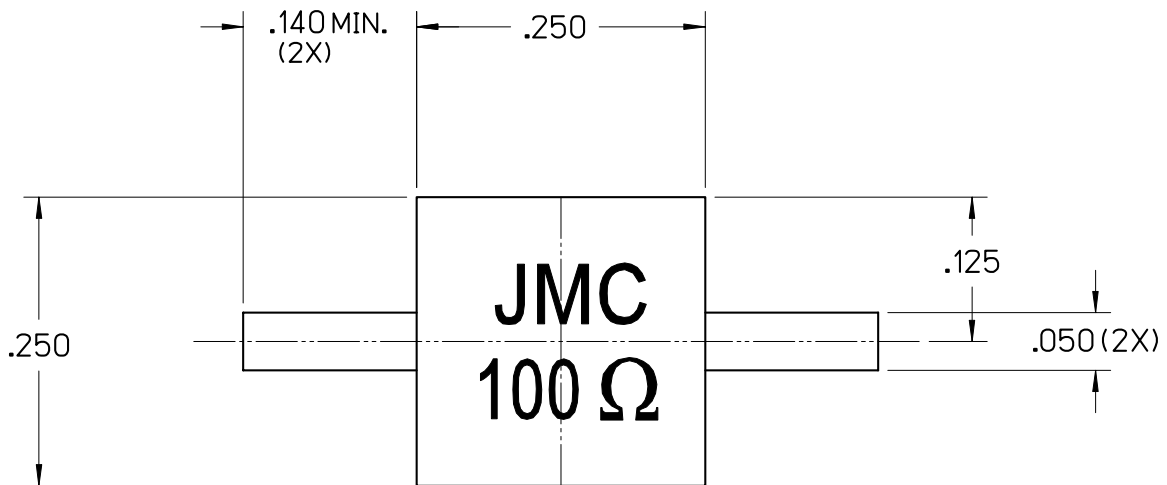
OCT 08





RL040AA17

AlN Flangeless Resistor



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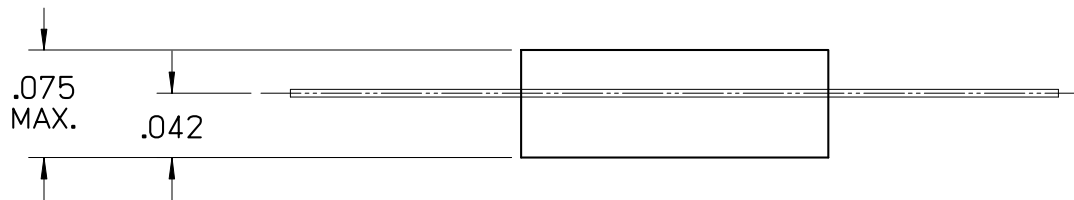
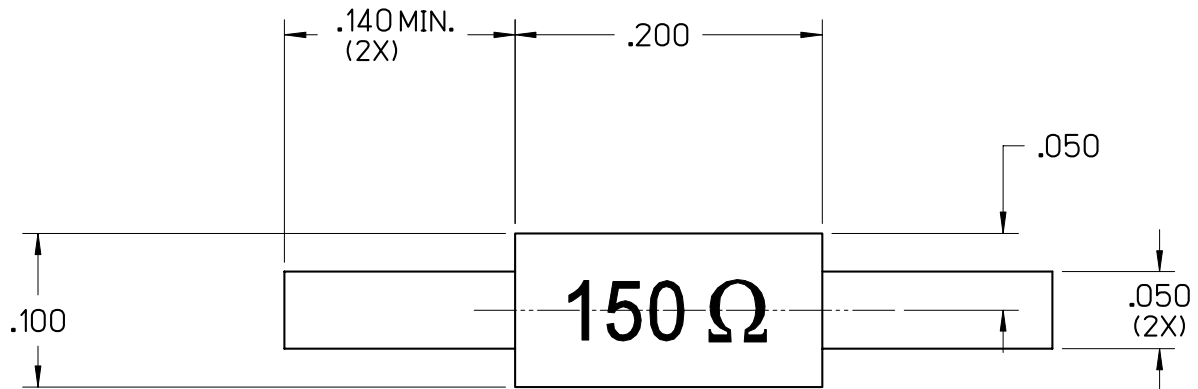
OCT 08





# RL030BE16-08

## BeO Flangeless Resistor



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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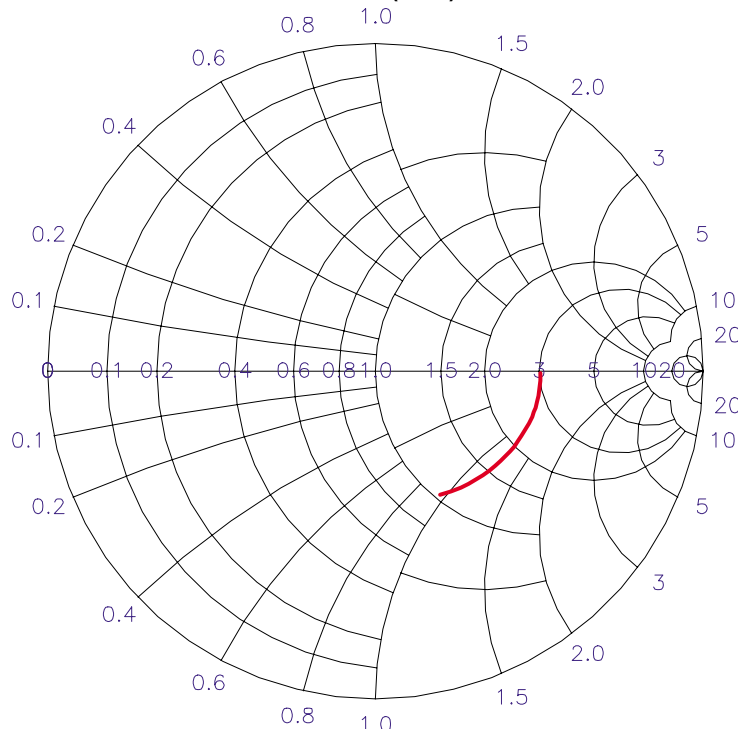
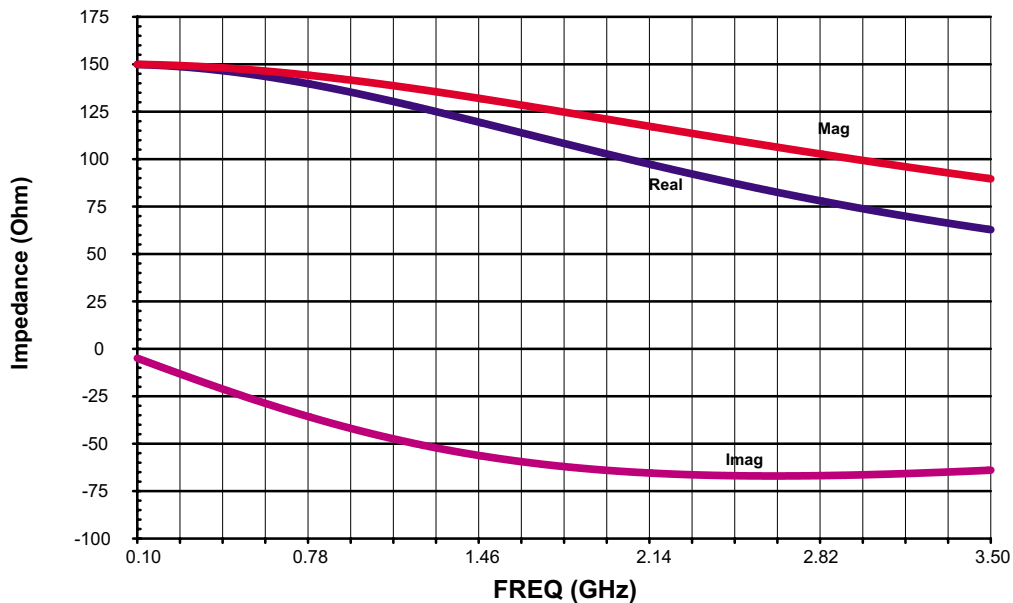
# RL030BE16

## BeO Flangeless Resistor

**Power:** 30 Watts (CW)  
**Resistance:** 150  $\Omega$   $\pm$  5%  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

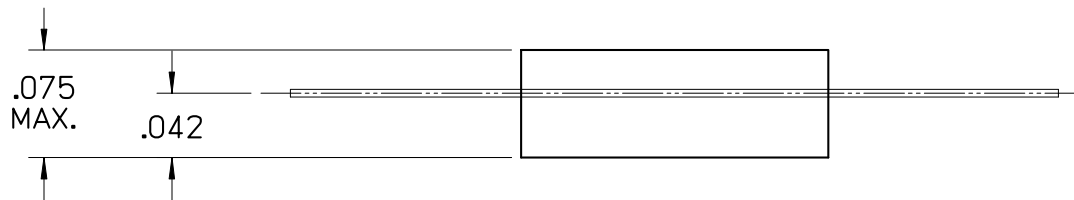
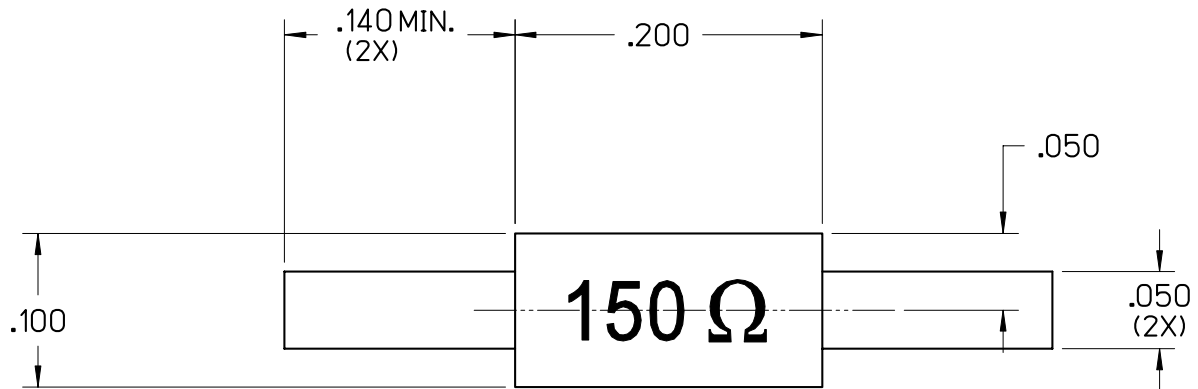


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# RL030BE16

BeO Flangeless Resistor



## CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



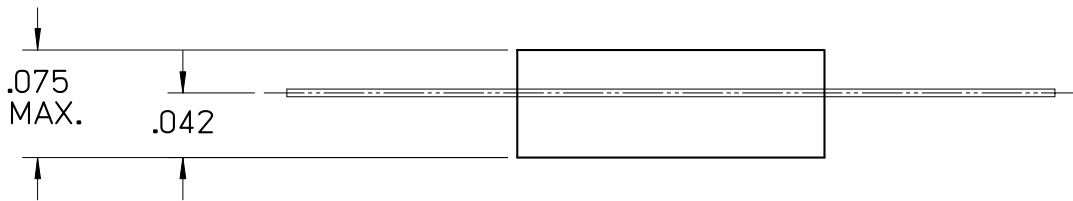
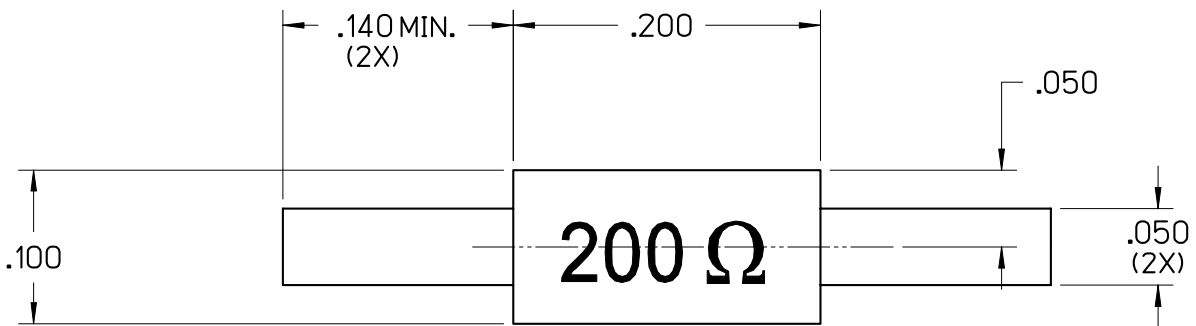
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# RL030BD16

## BeO Flangeless Resistor

**Power:** 30 Watts (CW)  
**Resistance:** 200  $\Omega$   $\pm$  5%  
**Substrate:** BeO



For detailed information regarding this product or sample request contact Johanson Sales

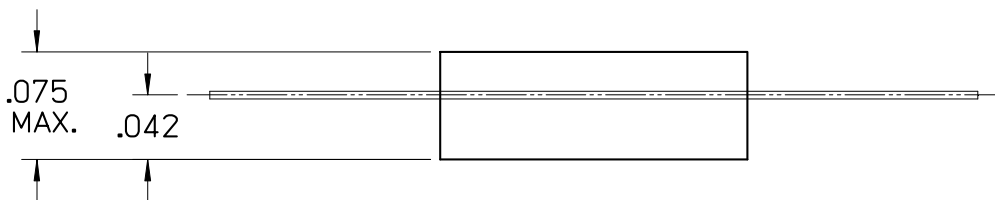
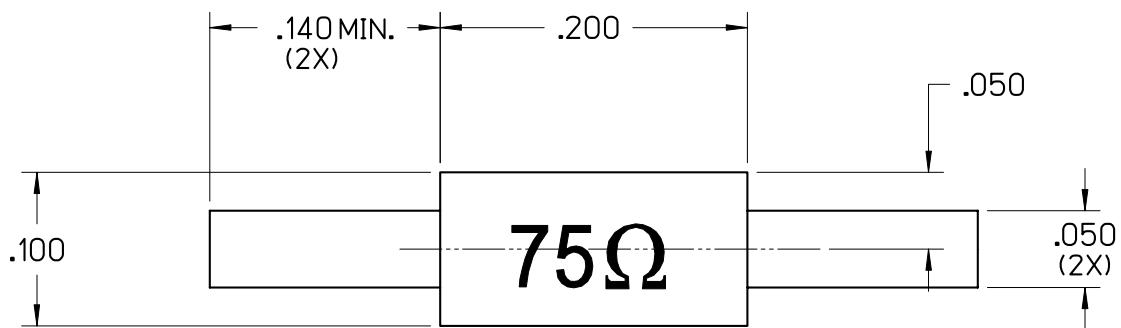




# RL030BC16

## BeO Flangeless Resistor

**Power:** 30 Watts (CW)  
**Resistance:**  $75 \Omega \pm 5\%$   
**Substrate:** BeO



For detailed information regarding this product or sample request contact Johanson Sales





# RL030BB16

## BeO Flangeless Resistor

**Power:** 30 Watts (CW)

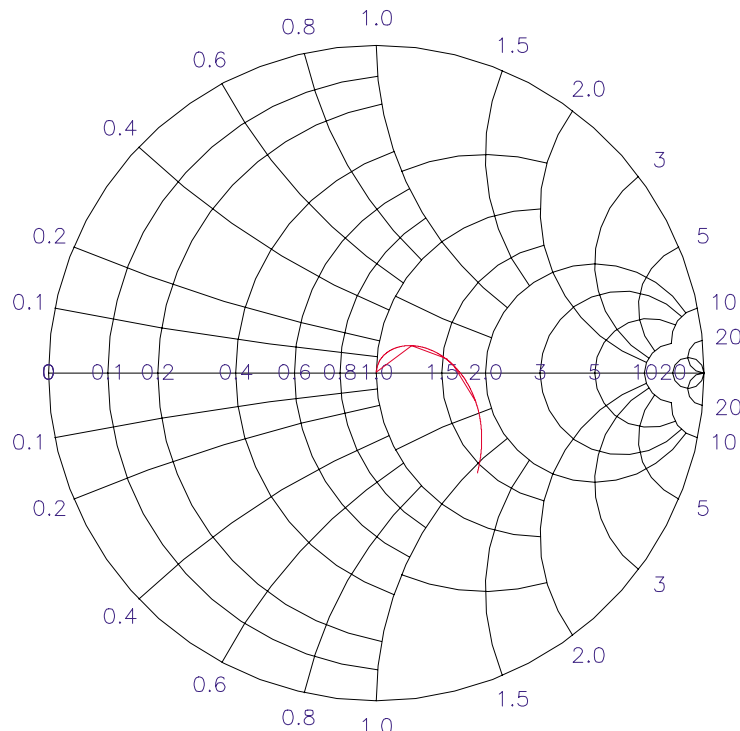
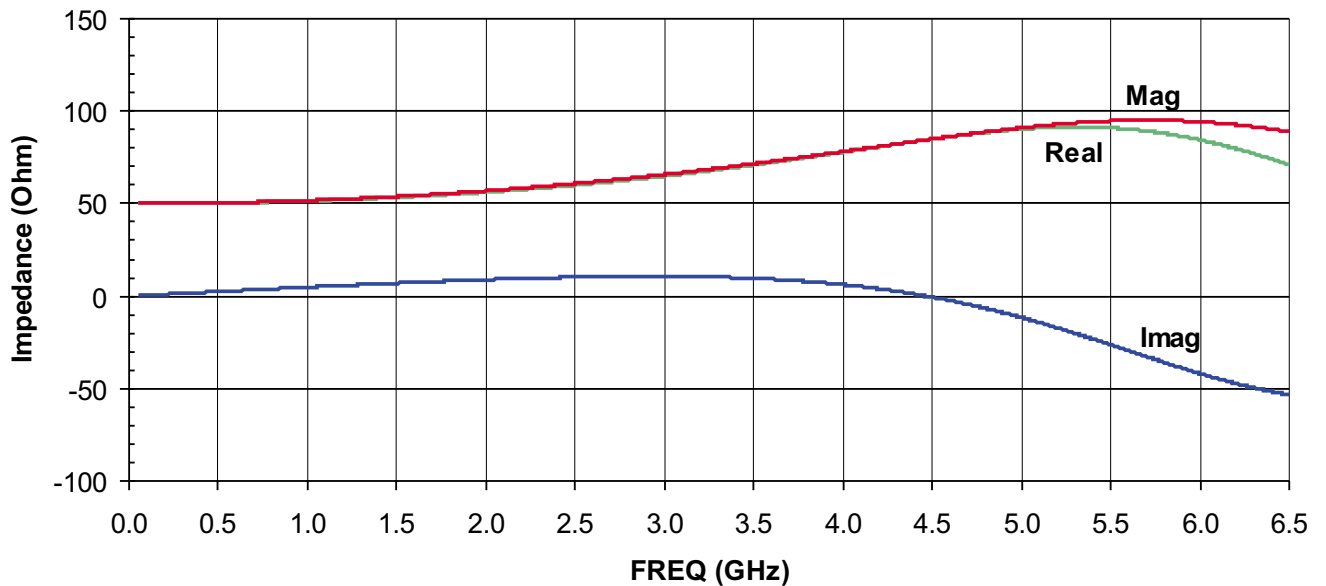
**Resistance:**  $50 \Omega \pm 5\%$

**Frequency Range:** DC to 6 GHz

**Substrate:** BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales



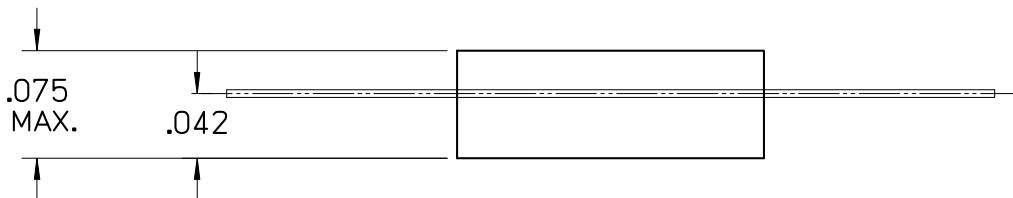
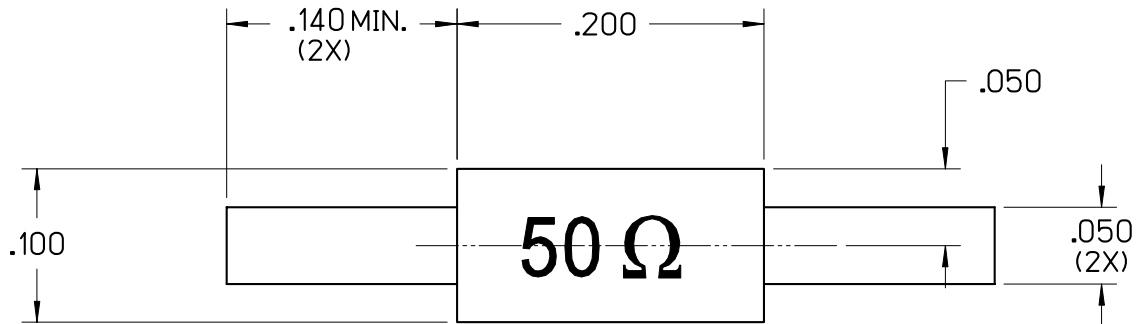
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# RL030BB16

## BeO Flangeless Resistor



### CAUTION

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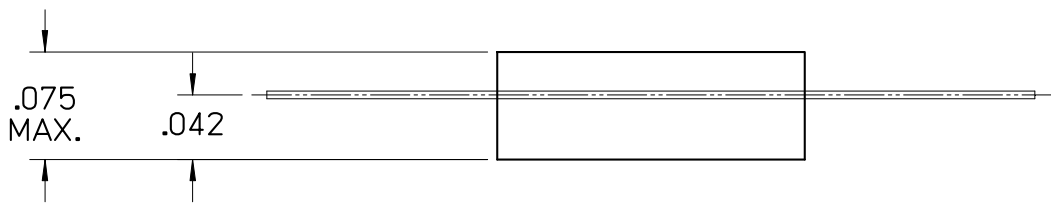
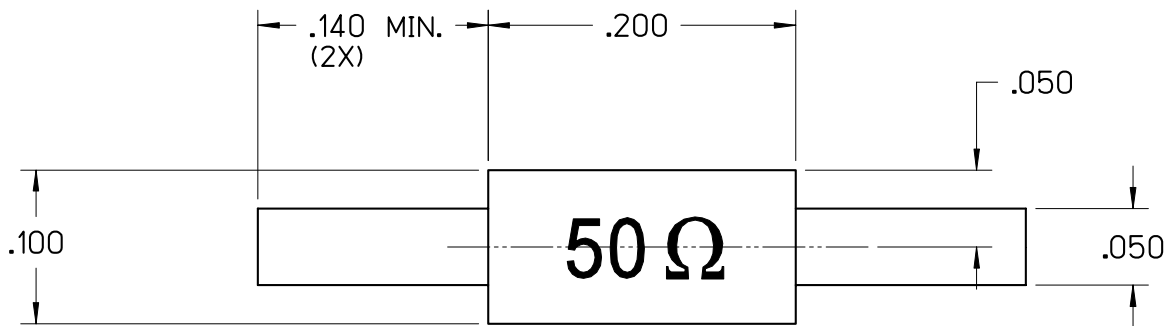
OCT 08



# RL030AB16

## AlN Flangeless Resistor

**Power:** 30 Watts (CW)  
**Resistance:**  $50 \Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales

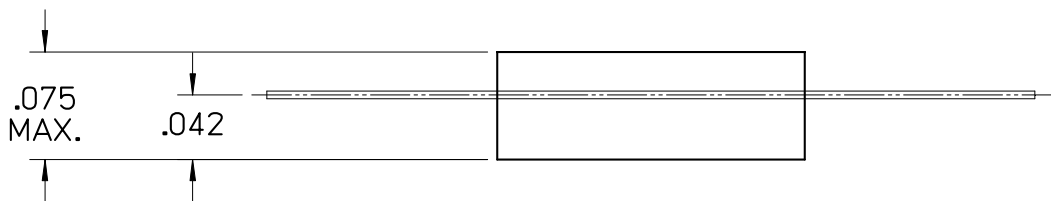
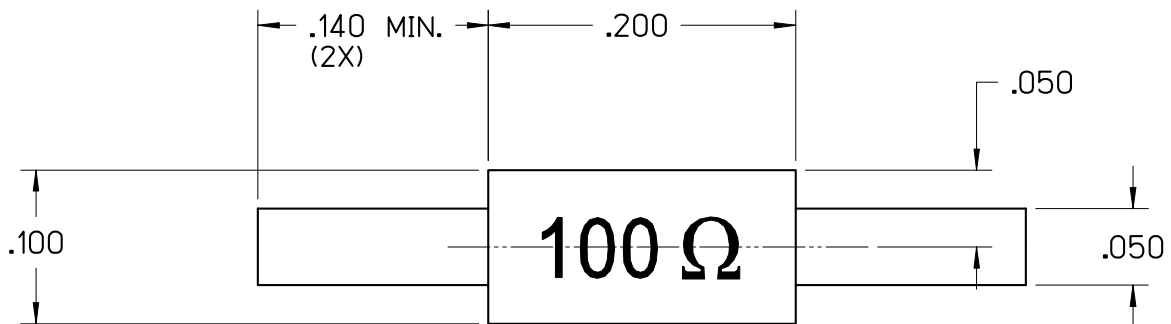




# RL030AA16

## AlN Flangeless Resistor

**Power:** 30 Watts (CW)  
**Resistance:** 100  $\Omega$   $\pm$  5%  
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales





# RF800BB14-004

BeO Flanged Resistor

**Power:** 800 Watts (CW)

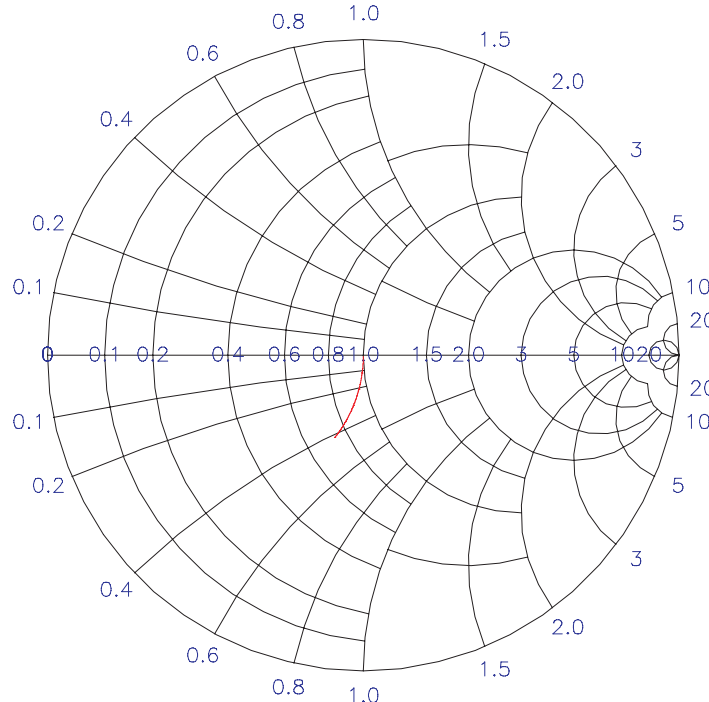
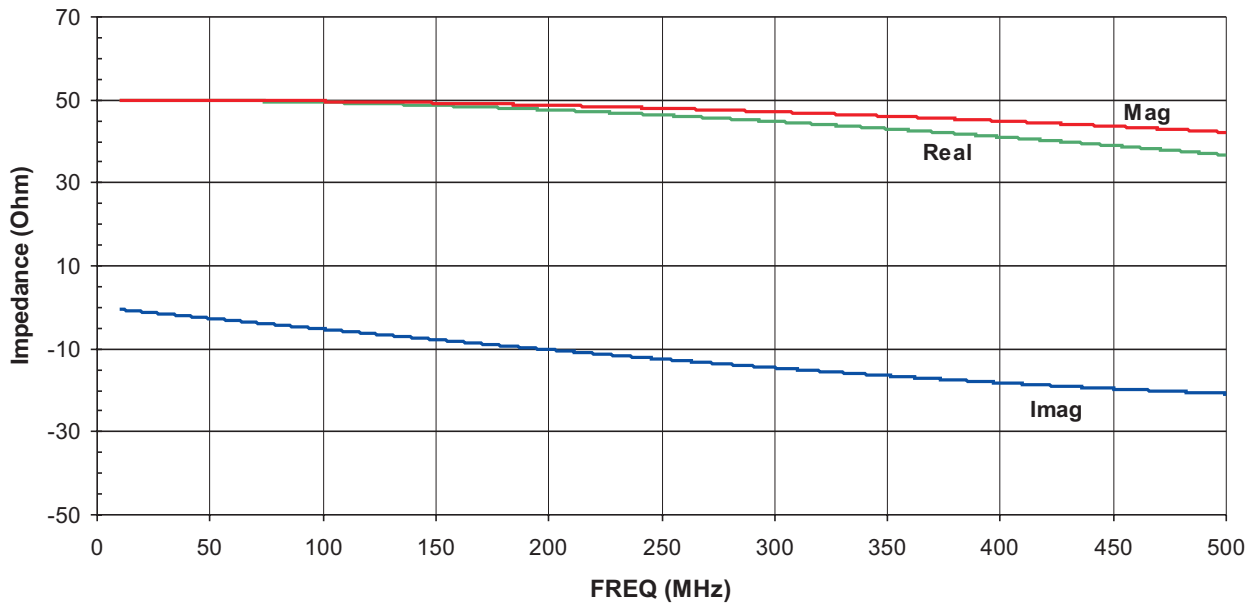
**Resistance:**  $50 \Omega \pm 5\%$

**Frequency Range:** DC to 500 MHz

**Substrate:** BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

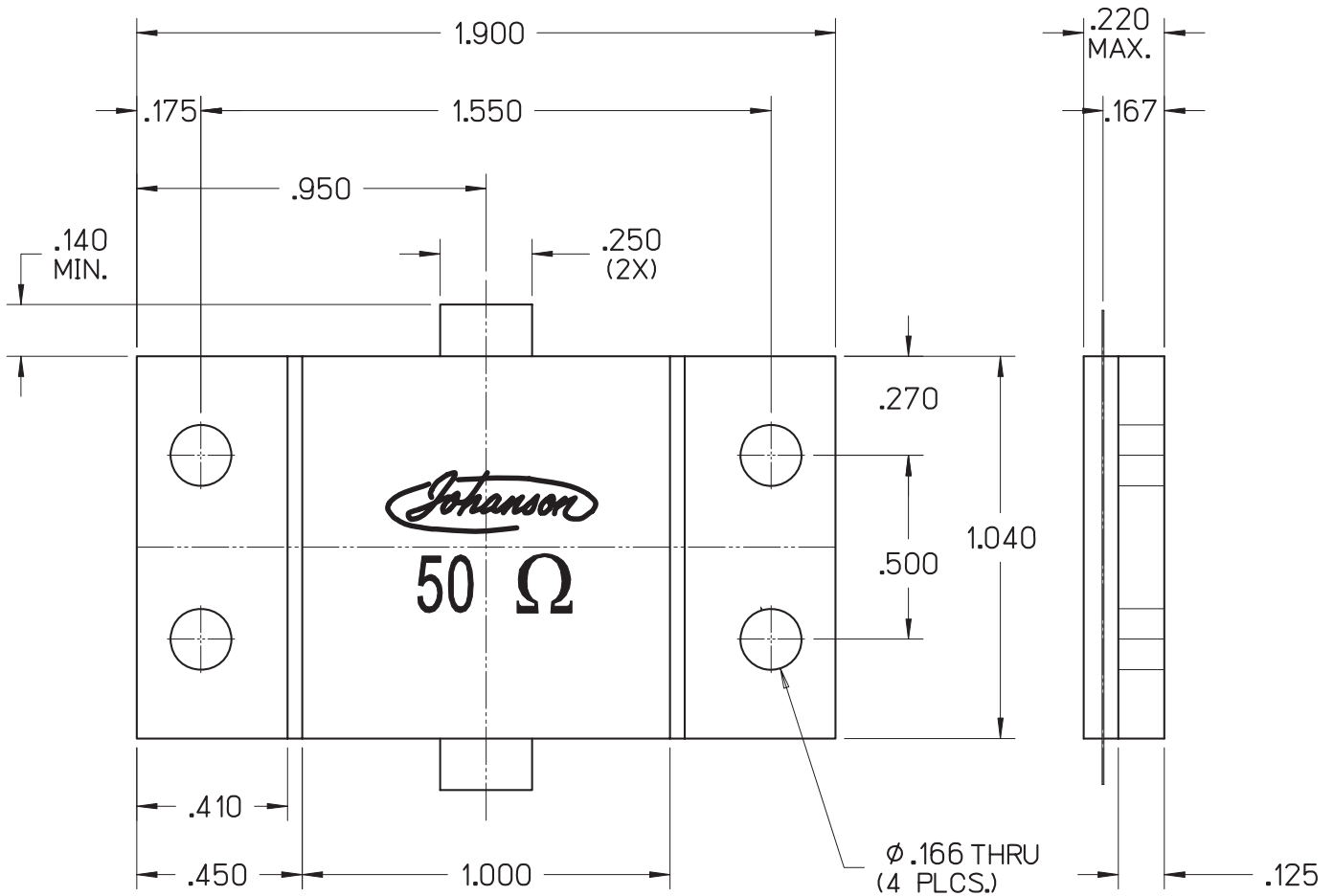


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# RF800BB14-004

BeO Flanged Resistor



## CAUTION

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# RF800BA14-004

BeO Flanged Resistor

Power: 800 Watts (CW)

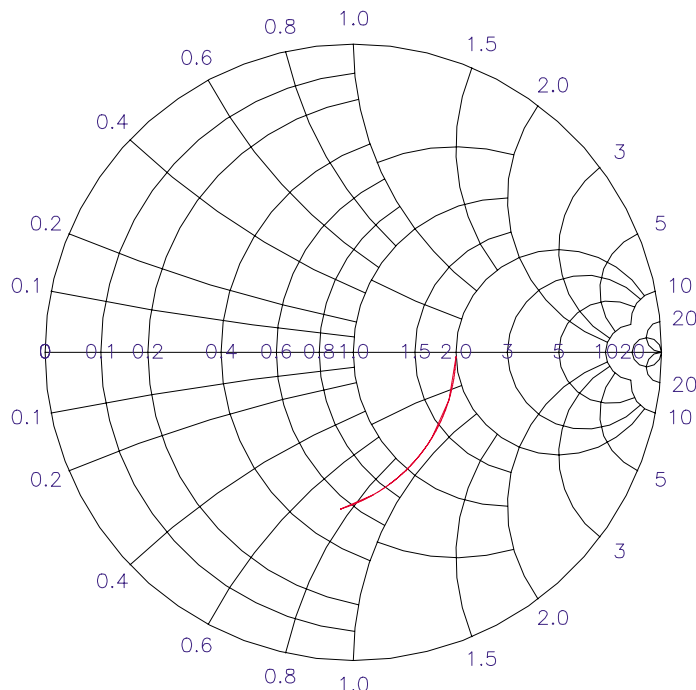
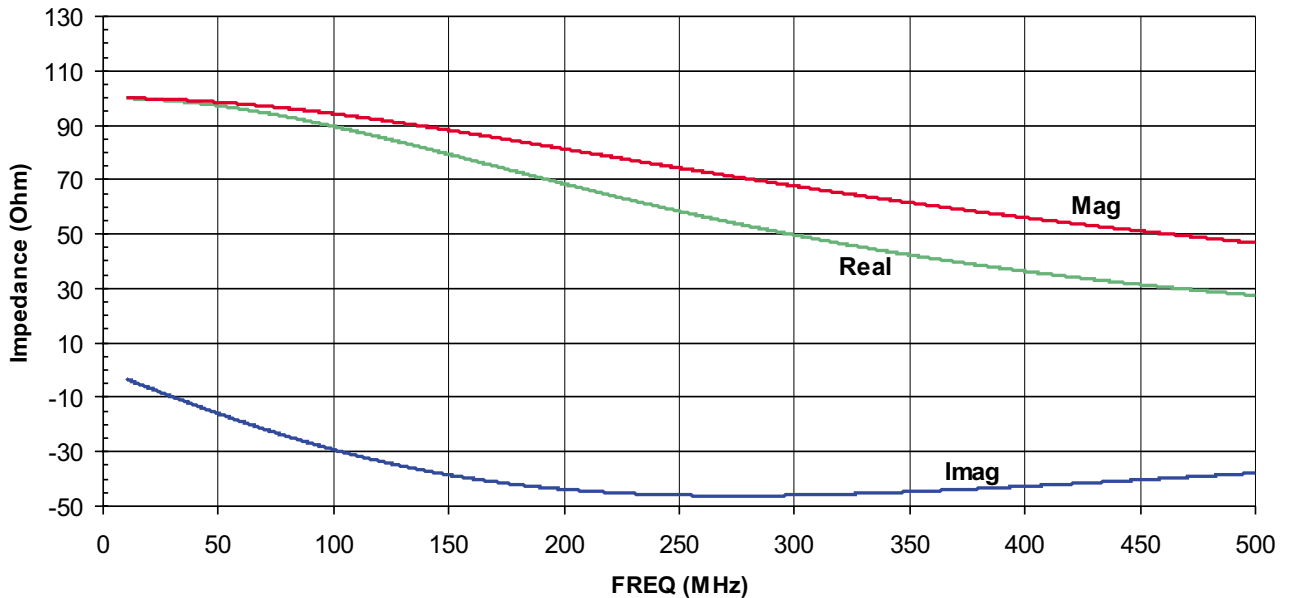
Resistance: 100  $\Omega \pm 5\%$

Frequency Range: DC to 500 MHz

Substrate: BeO



## TYPICAL PERFORMANCE



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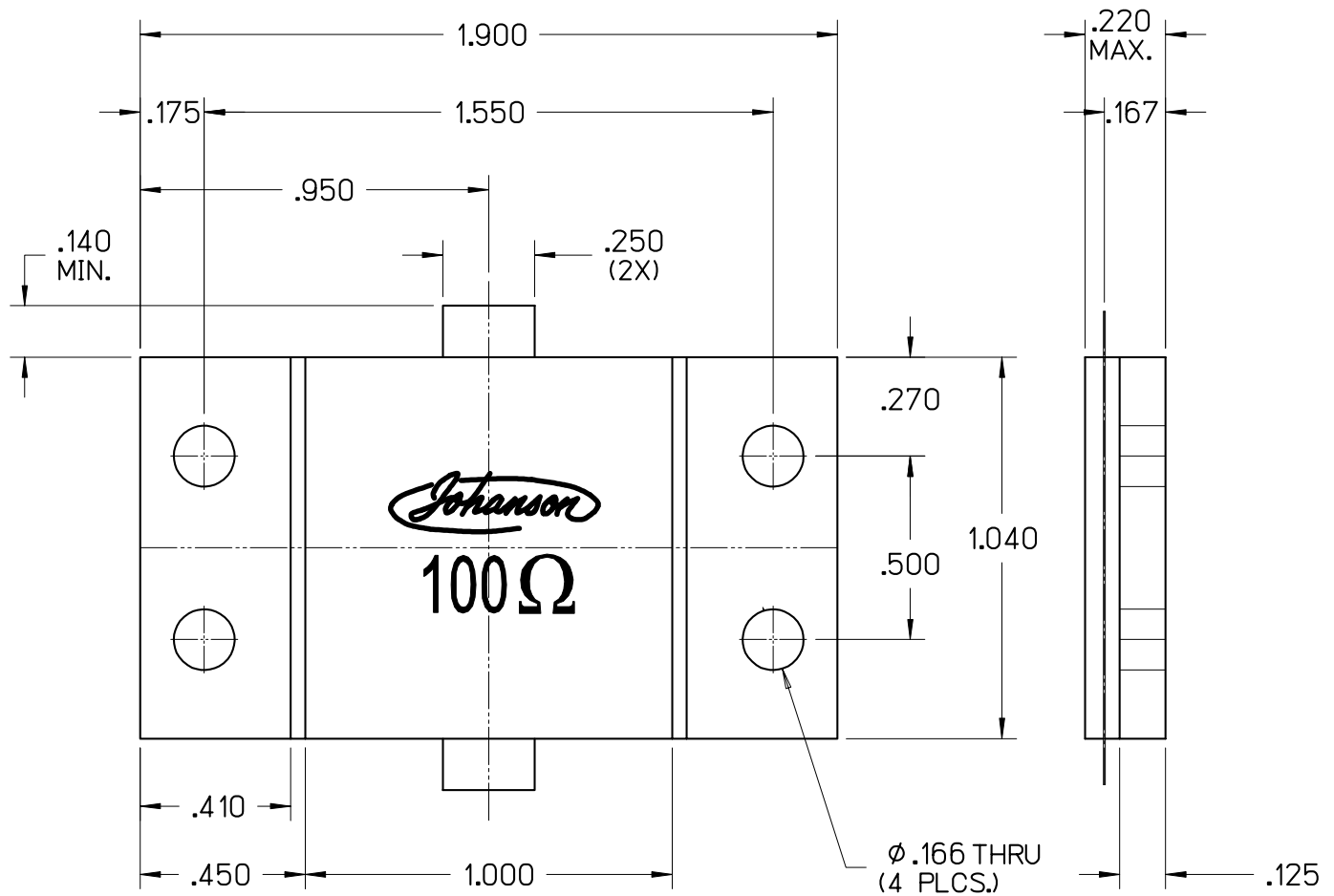


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# RF800BA14-004

## BeO Flanged Resistor



### CAUTION

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# RF500BB15-040

BeO Flanged Resistor

Power: 500 Watts (CW)

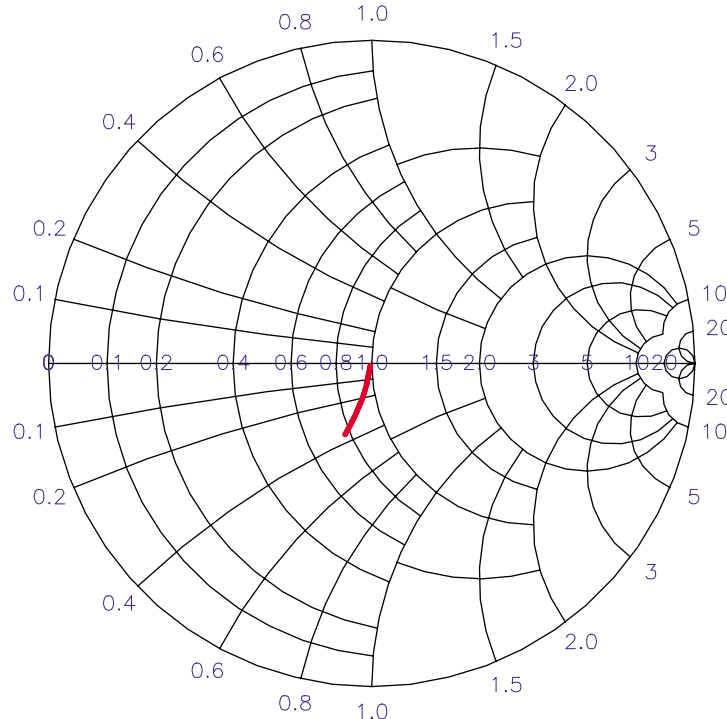
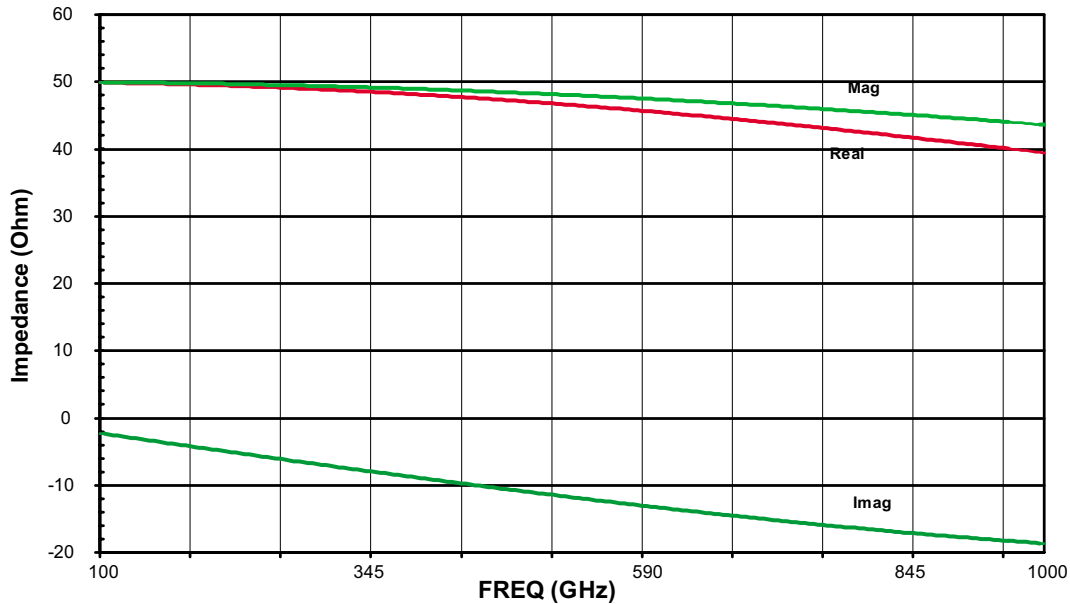
Resistance:  $50\Omega \pm 5\%$

Frequency Range: DC to 3.0 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales



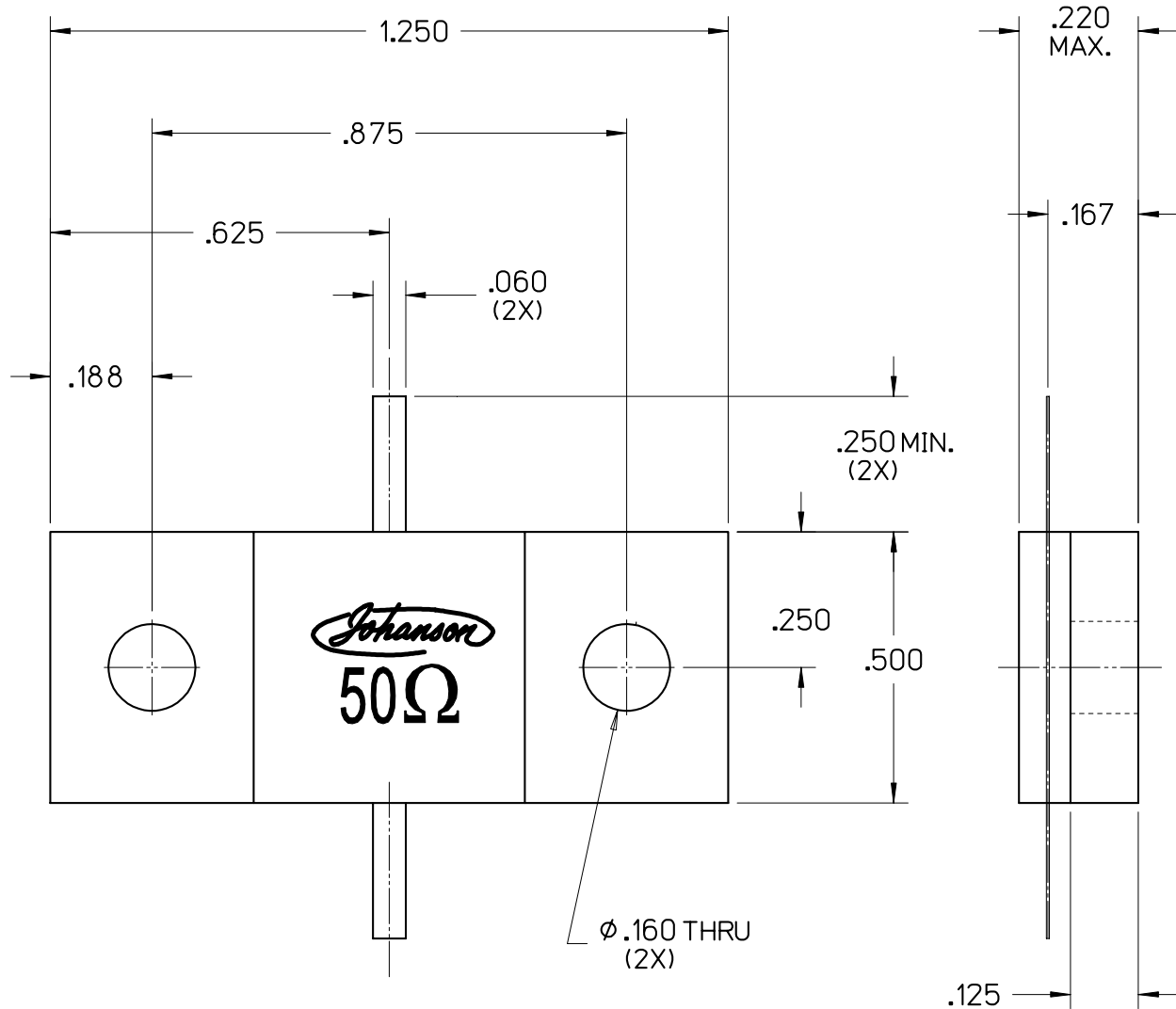
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# RF500BB15-040

BeO Flanged Resistor



## CAUTION

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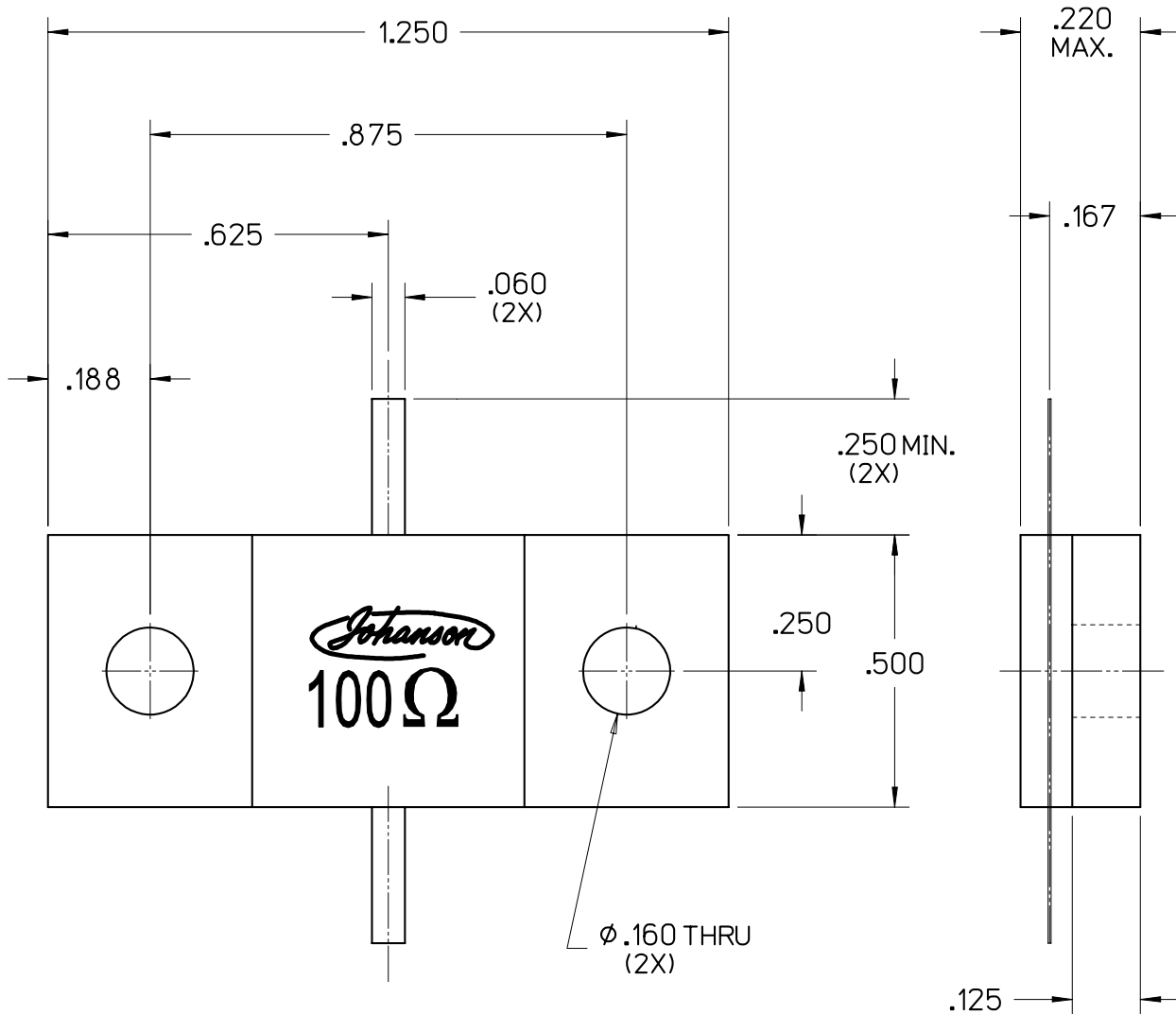
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# RF500BA15-040

## BeO Flanged Resistor

**Power:** 500 Watts (CW)  
**Resistance:**  $100 \Omega \pm 5\%$   
**Substrate:** BeO



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# RF400BB13

BeO Flanged Resistor

Power: 400 Watts (CW)

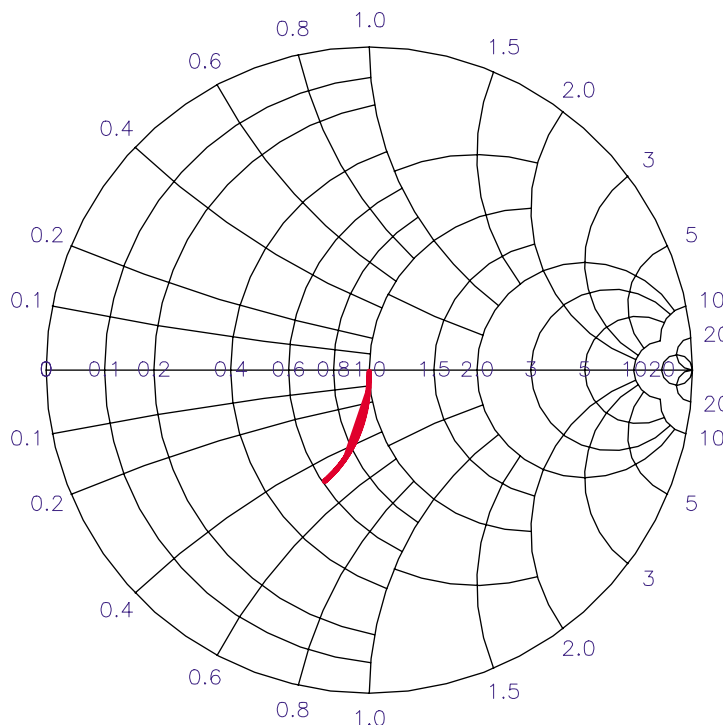
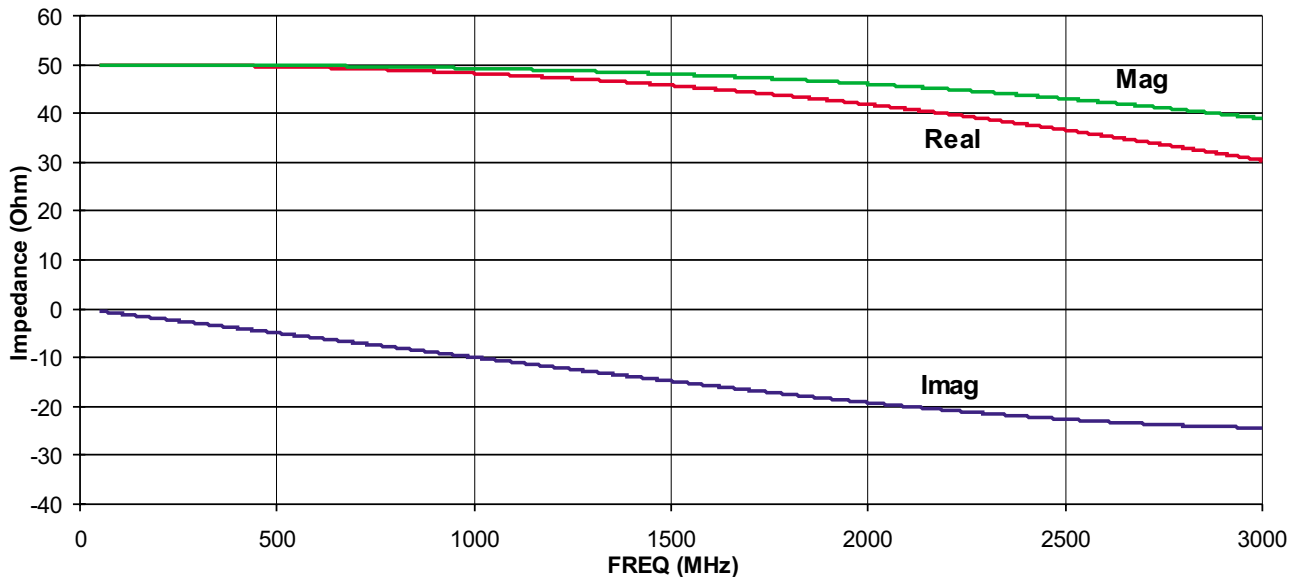
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 3.0 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

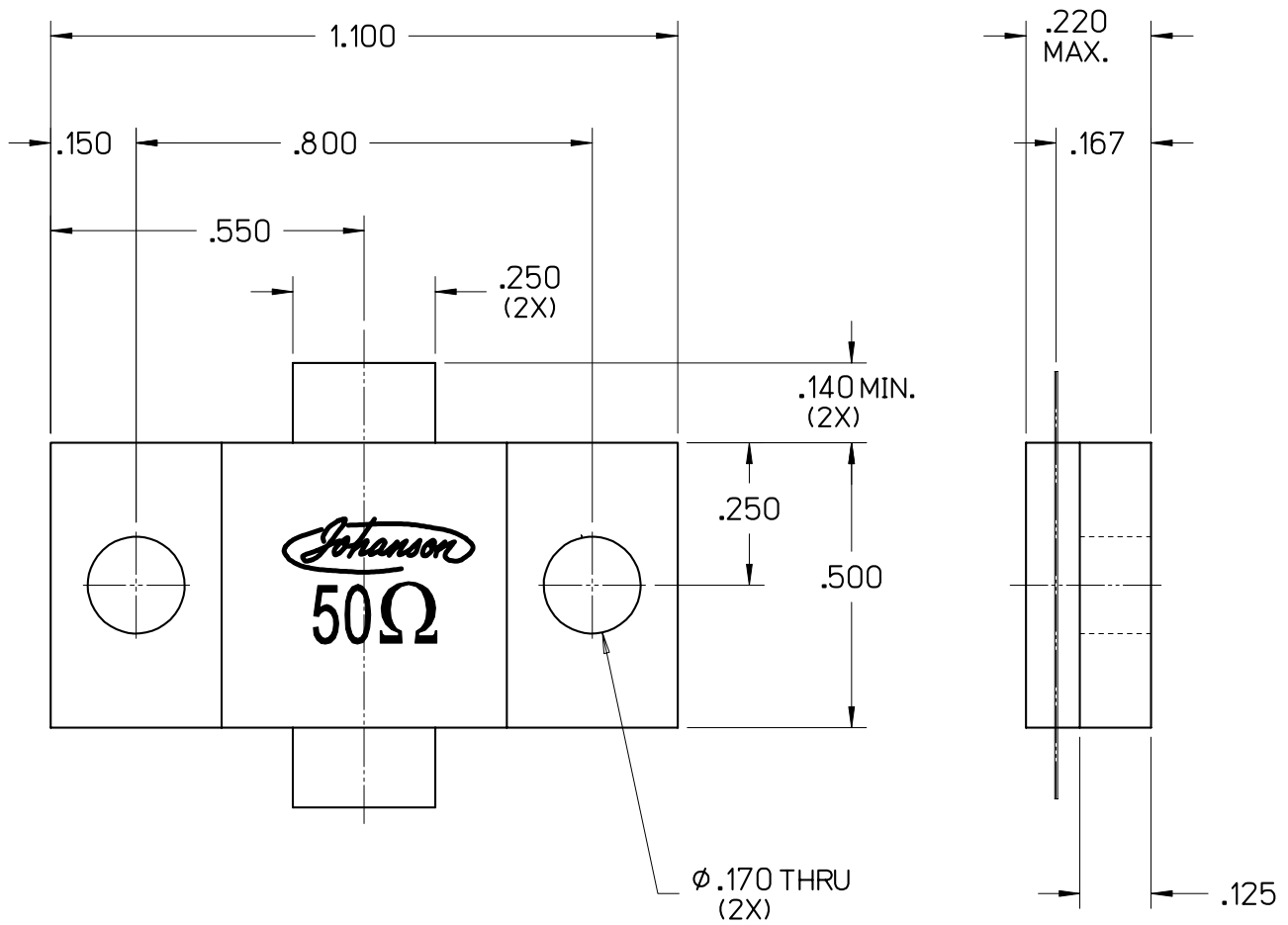


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# RF400BB13

## BeO Flanged Resistor



### CAUTION

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# RF400BA13

## BeO Flanged Resistor

**Power:** 400 Watts (CW)

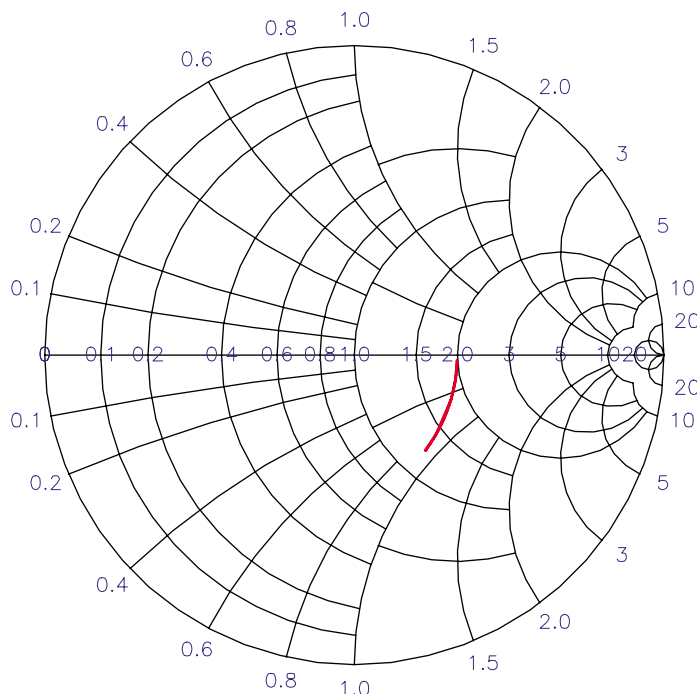
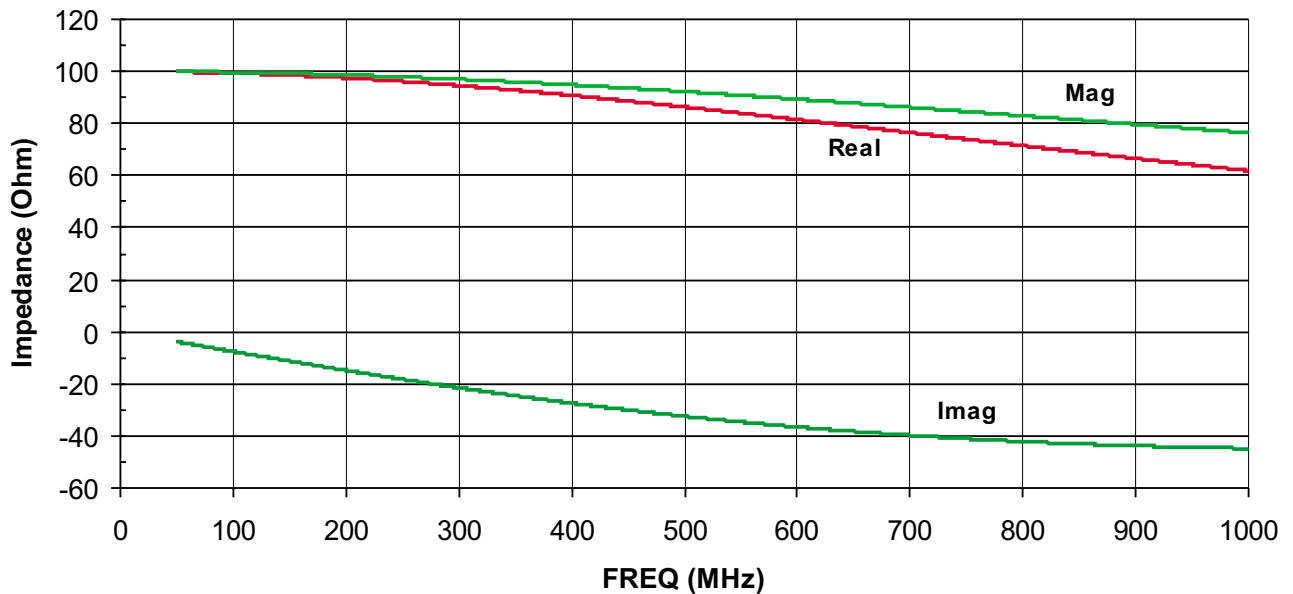
**Resistance:**  $100 \Omega \pm 5\%$

**Frequency Range:** DC to 1.0 GHz

**Substrate:** BeO



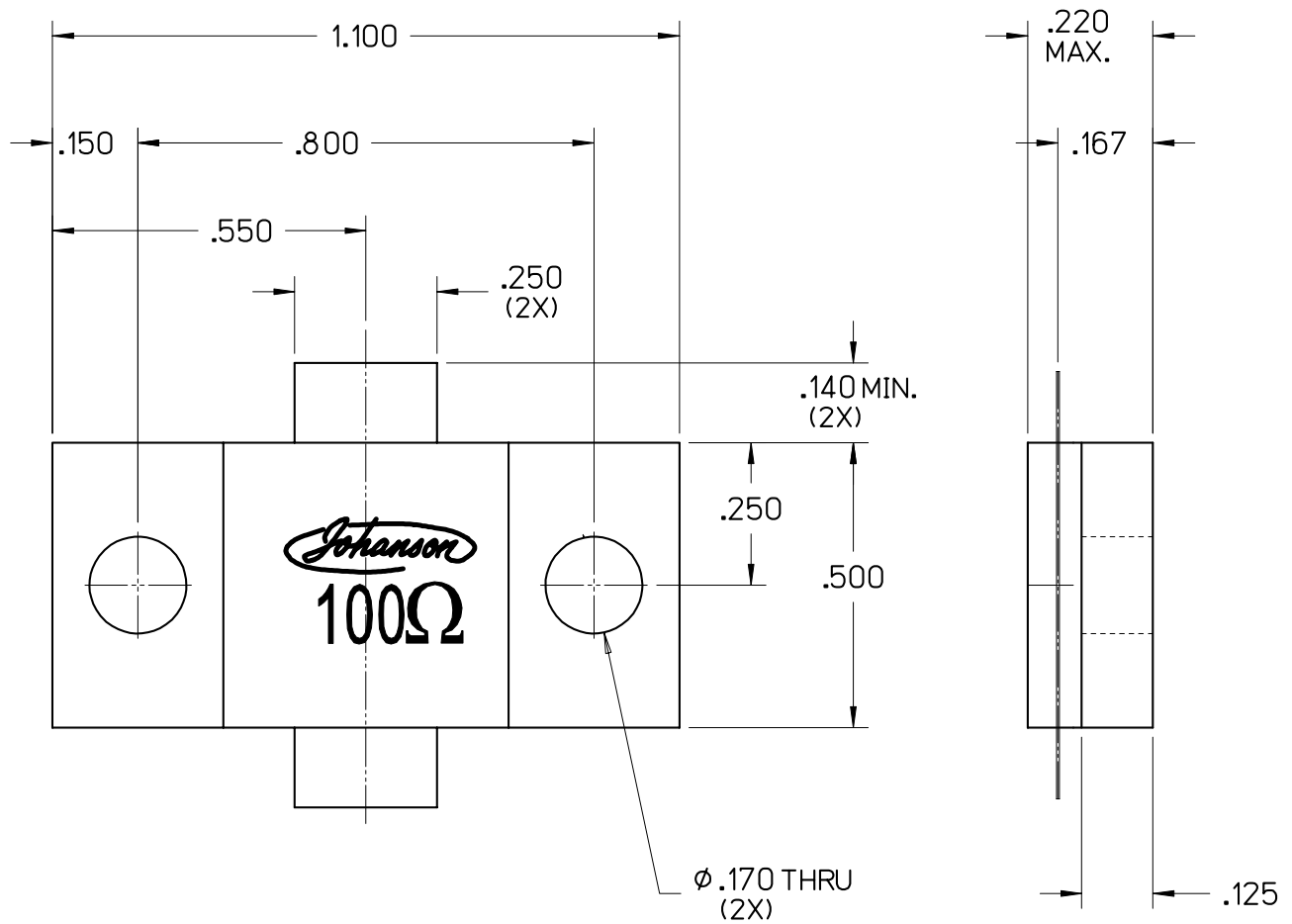
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### CAUTION

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# RF250BF12

BeO Flanged Resistor

Power: 250 Watts (CW)

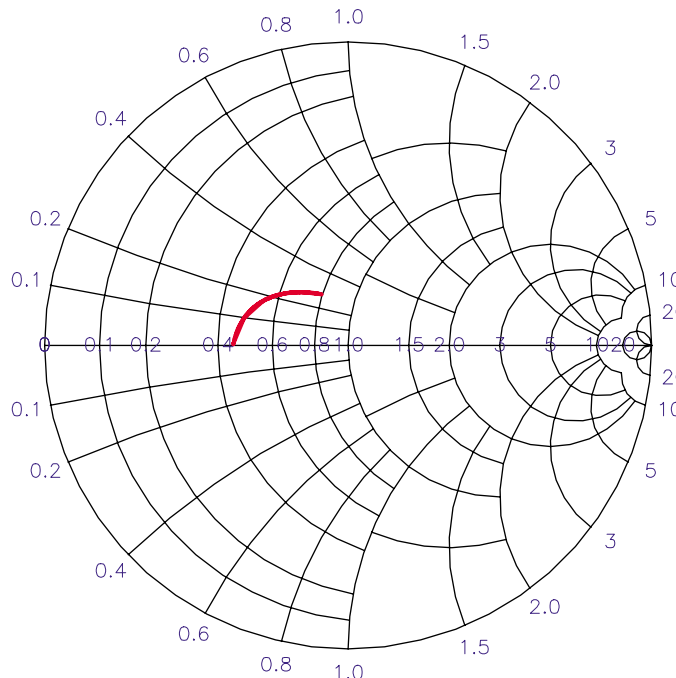
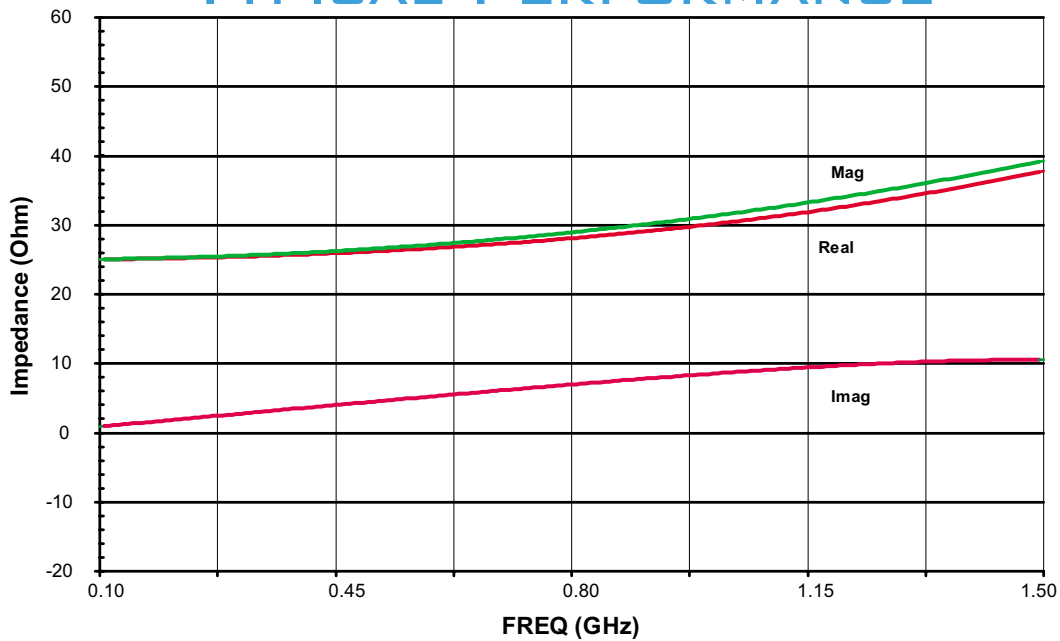
Resistance:  $25 \Omega \pm 5\%$

Frequency Range: DC to 1.5 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

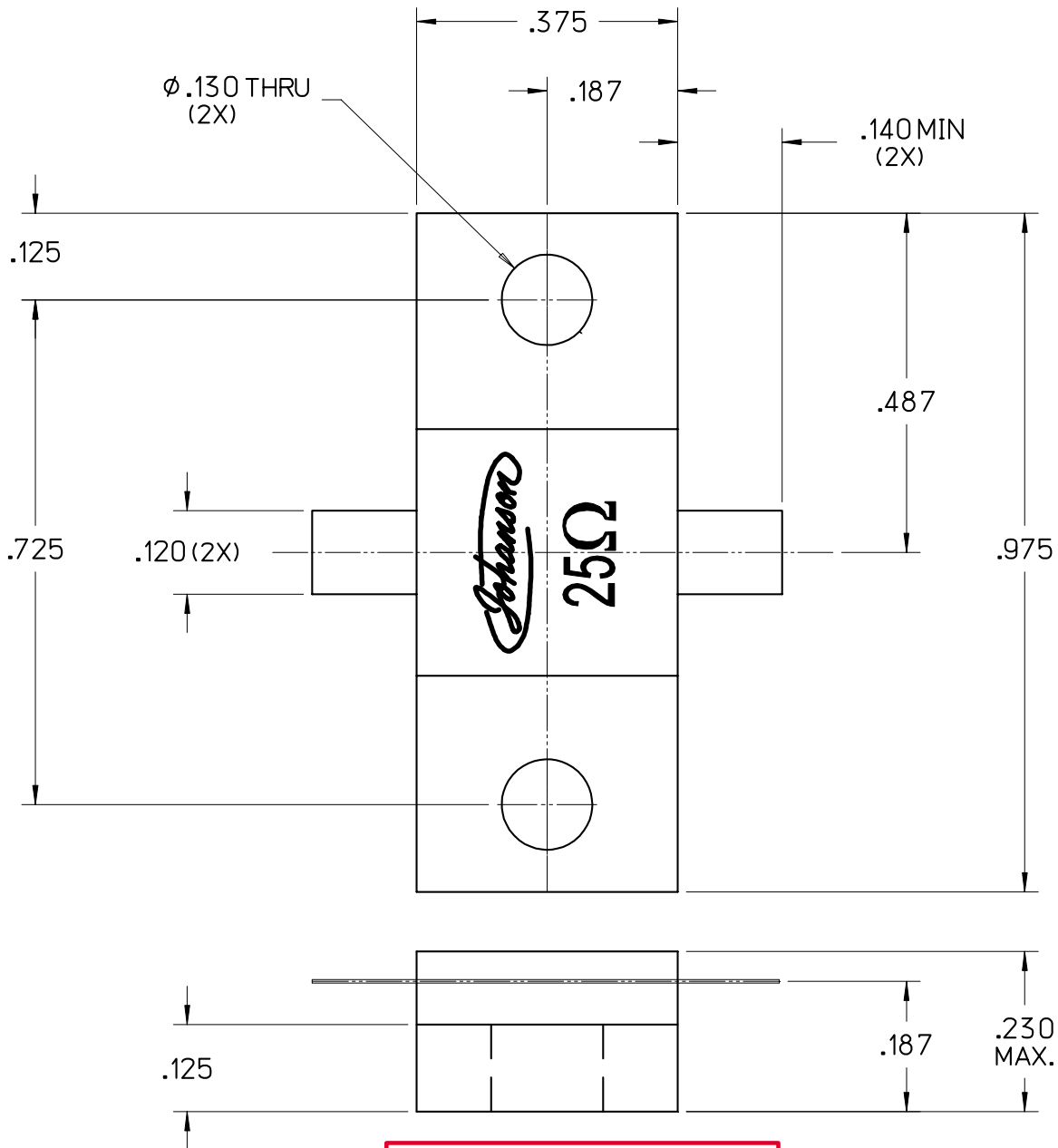


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# RF250BF12

## BeO Flanged Resistor



### CAUTION

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# RF250BB12-013

BeO Flanged Resistor

Power: 250 Watts (CW)

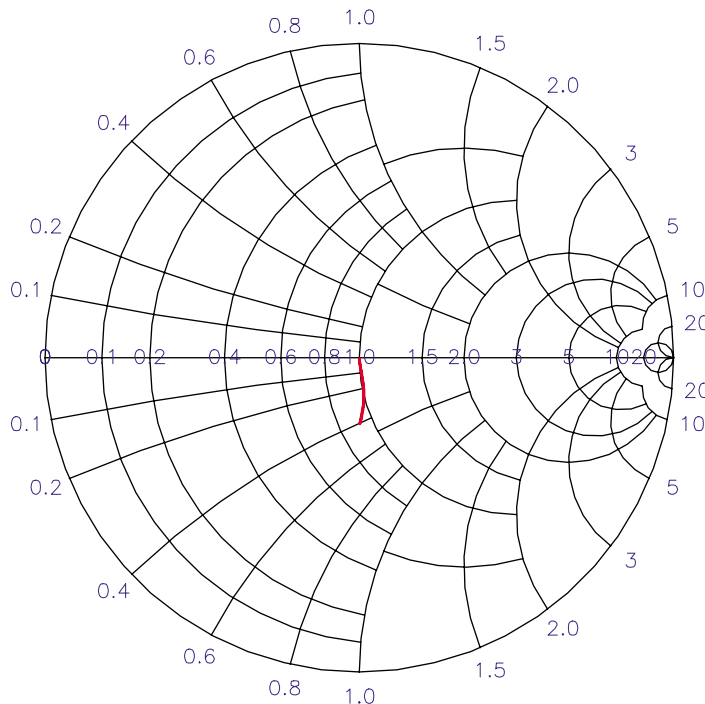
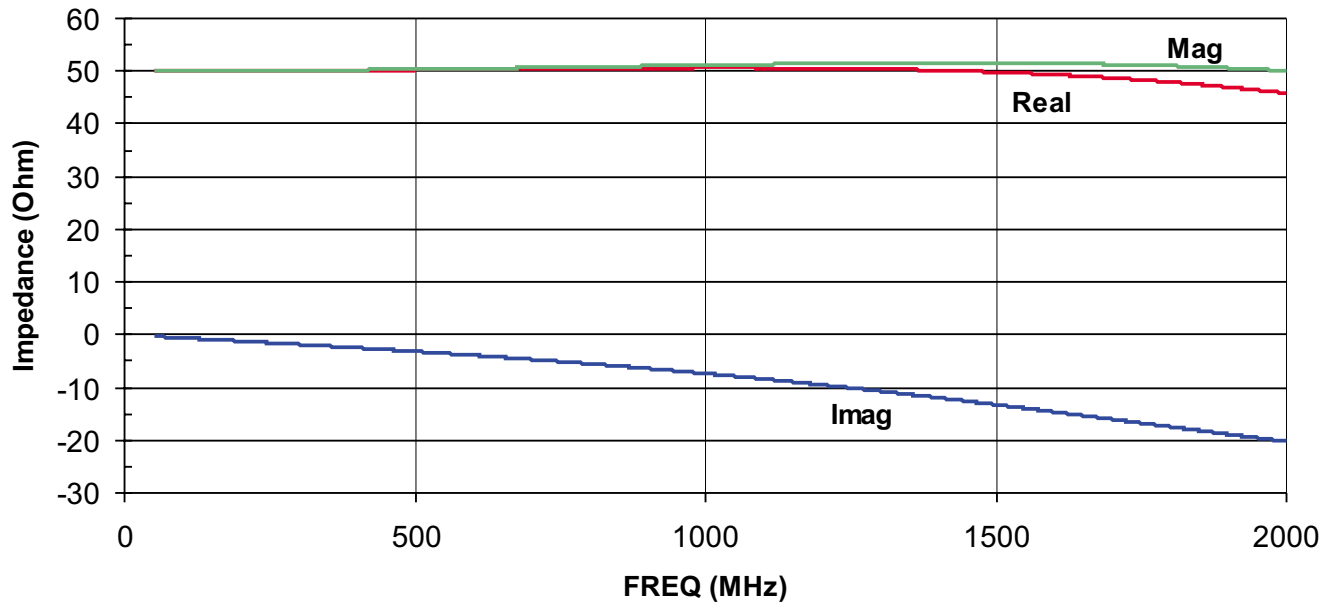
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

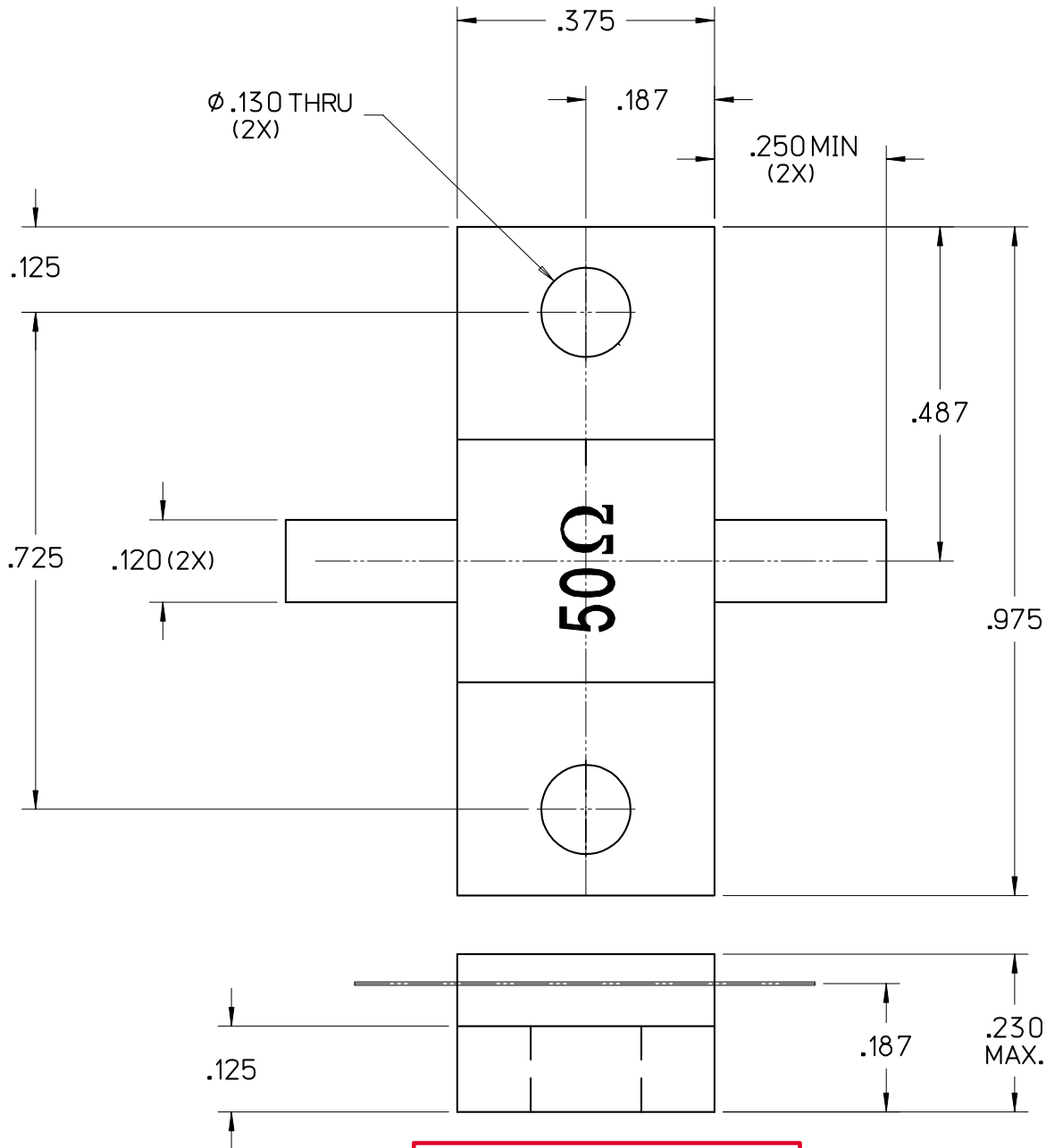


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# RF250BB12-013

BeO Flanged Resistor



## CAUTION

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# RF250BB12

BeO Flanged Resistor

Power: 250 Watts (CW)

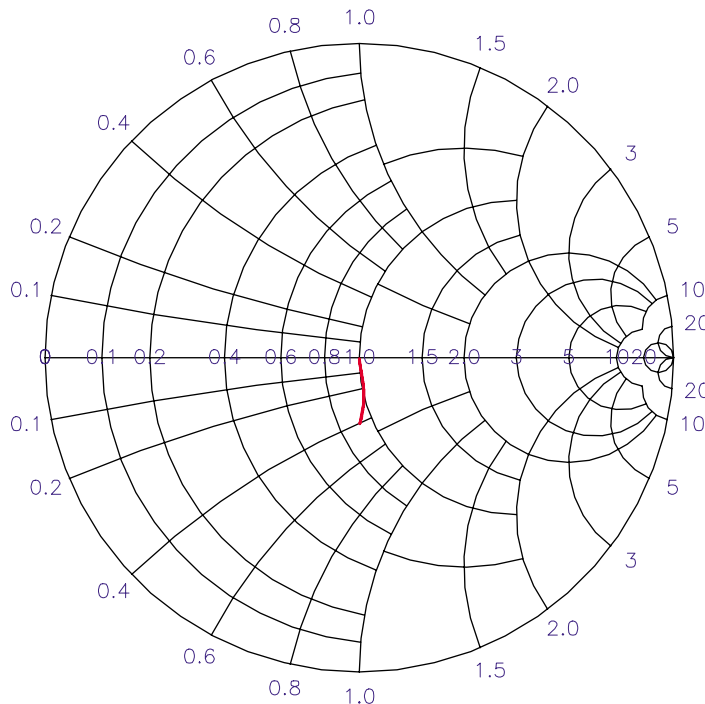
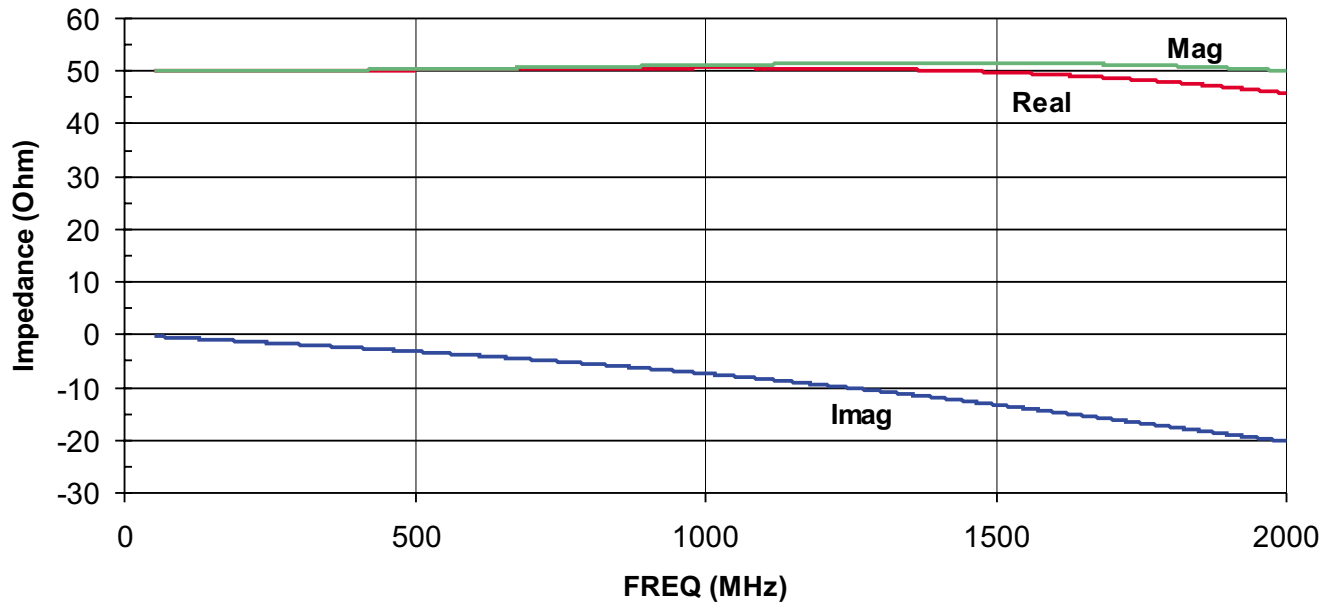
Resistance:  $50 \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

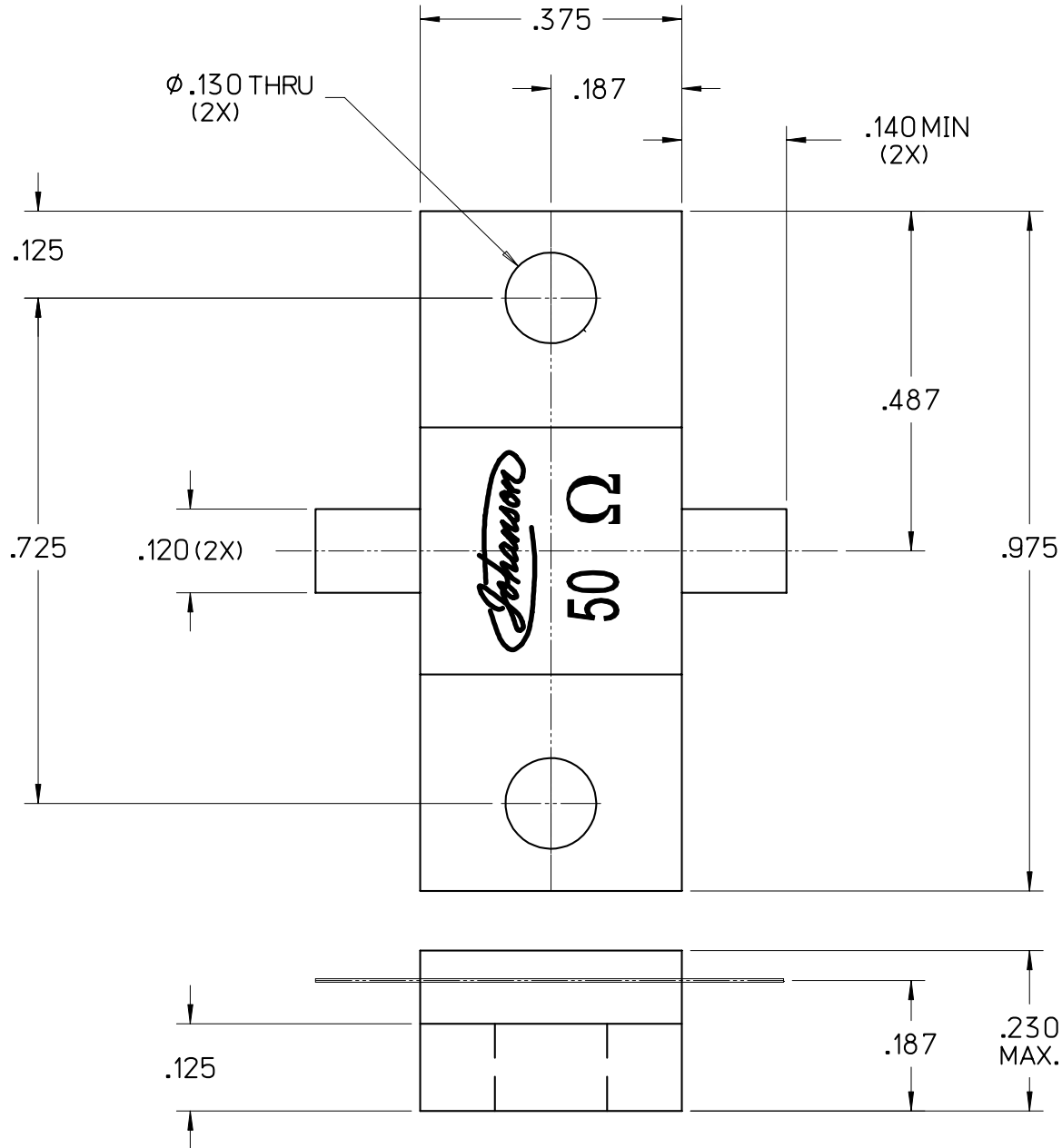


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# RF250BB12

## BeO Flanged Resistor



### CAUTION

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# RF250BA12

BeO Flanged Resistor

Power: 250 Watts (CW)

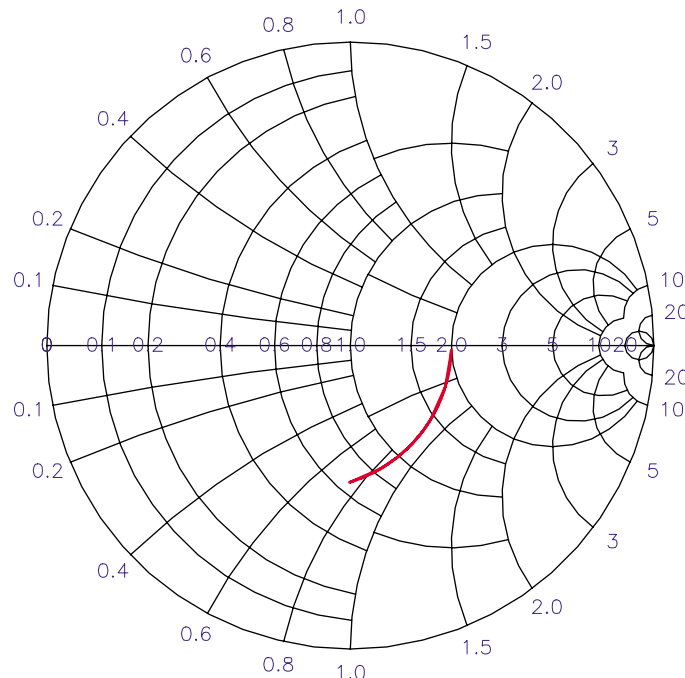
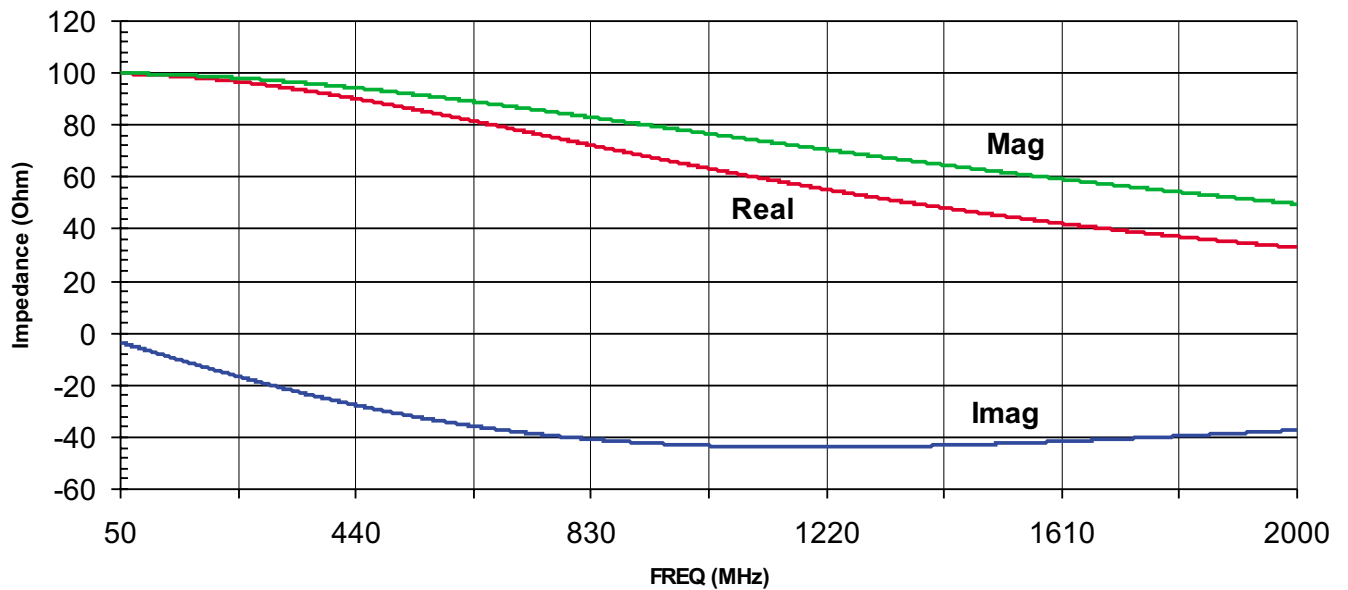
Resistance:  $100\ \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

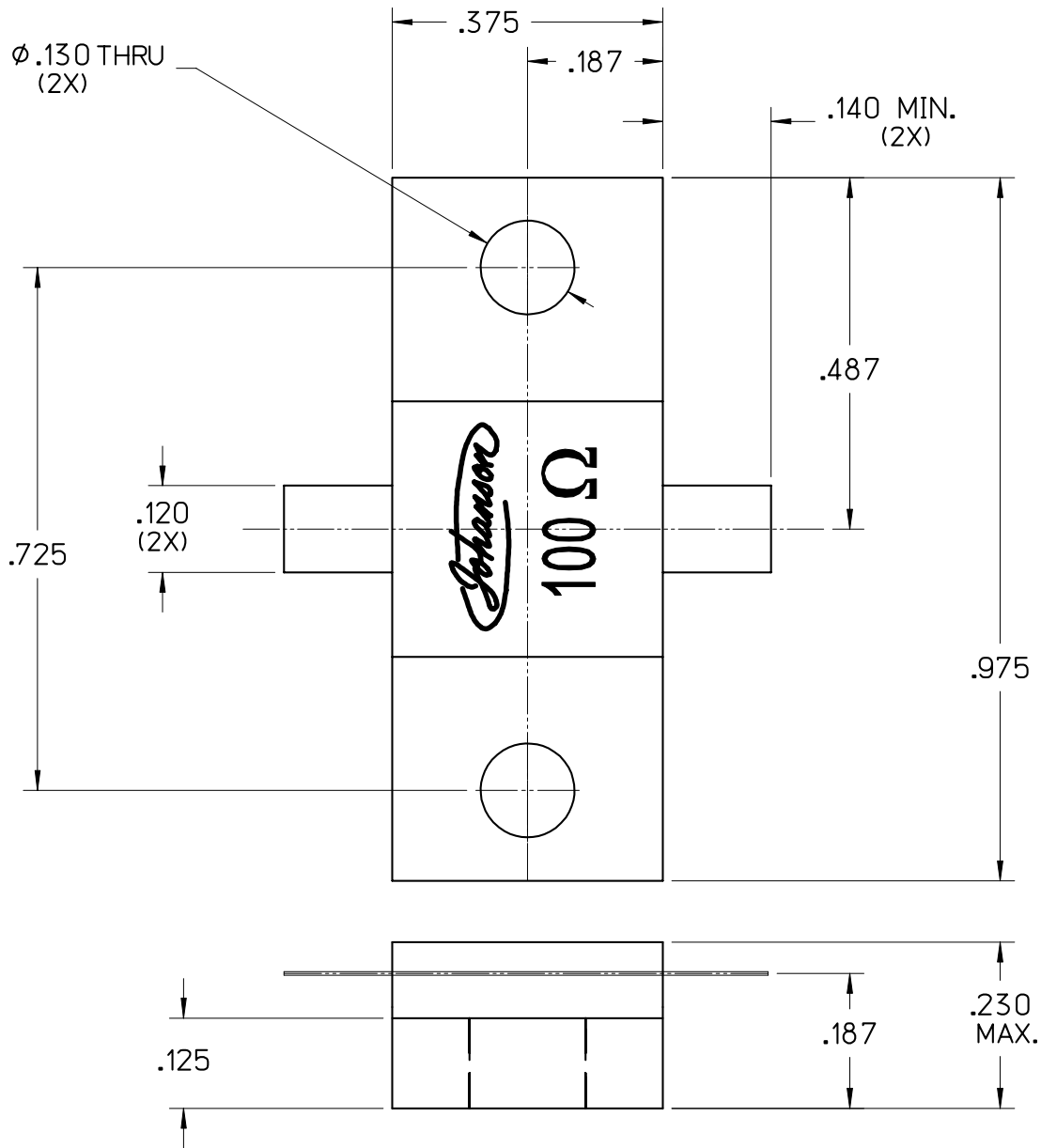


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# RF250BA12

## BeO Flanged Resistor



### CAUTION

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# RF250AB12

AlN Flanged Resistor

Power: 250 Watts (CW)

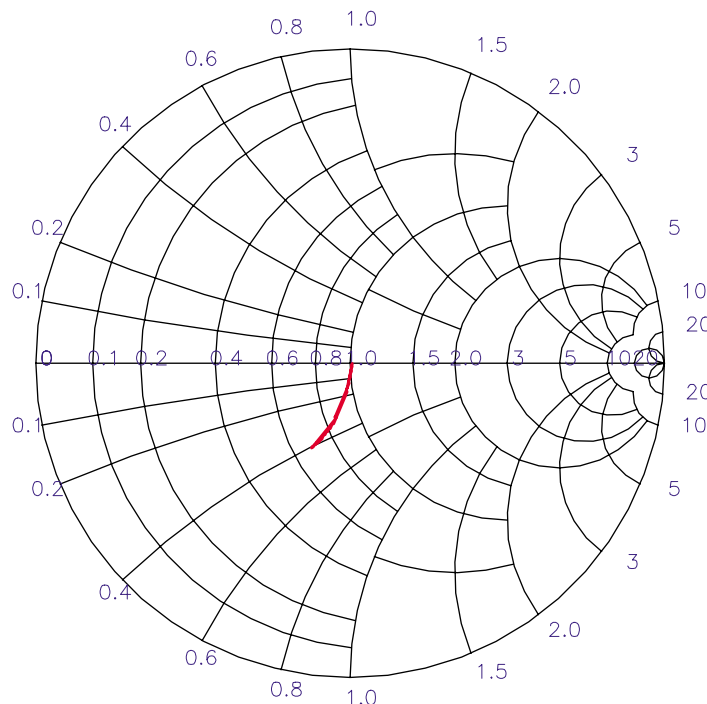
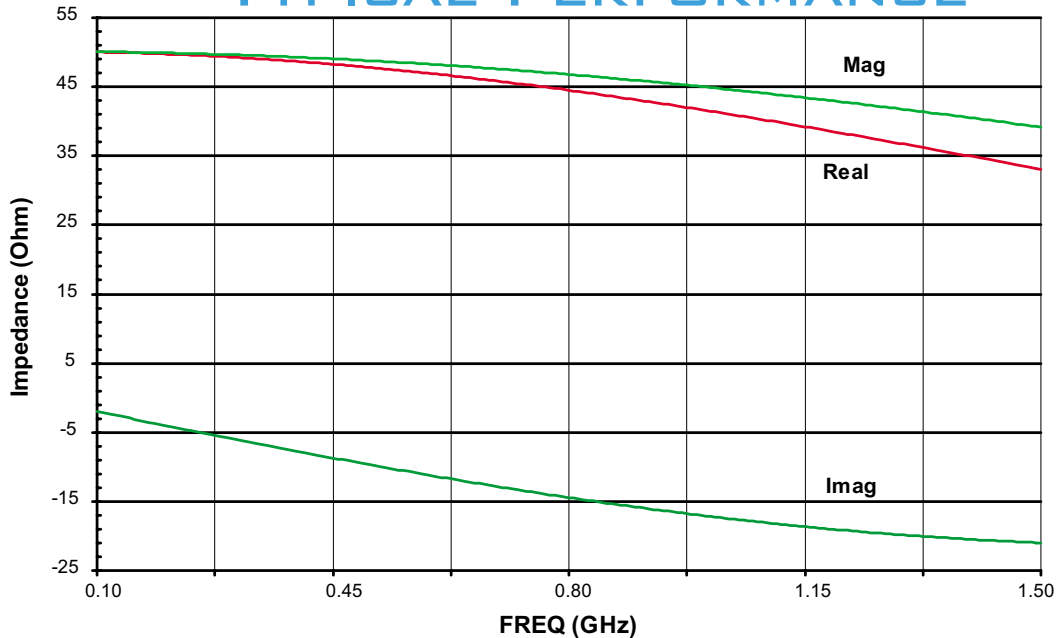
Resistance:  $50\Omega \pm 5\%$

Frequency Range: DC to 1.5 GHz

Substrate: AlN



## TYPICAL PERFORMANCE



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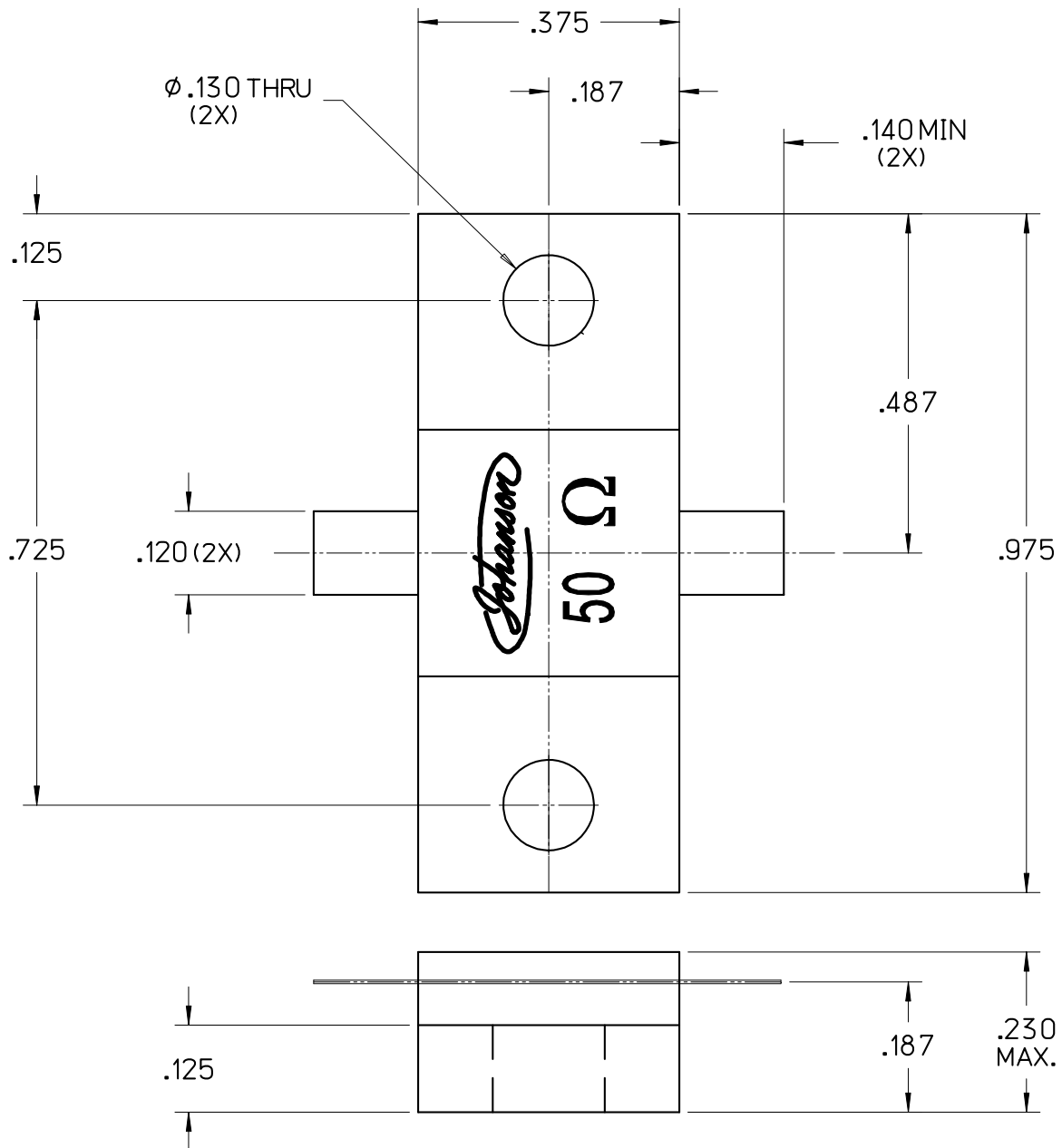


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# RF250AB12

## AIN Flanged Resistor



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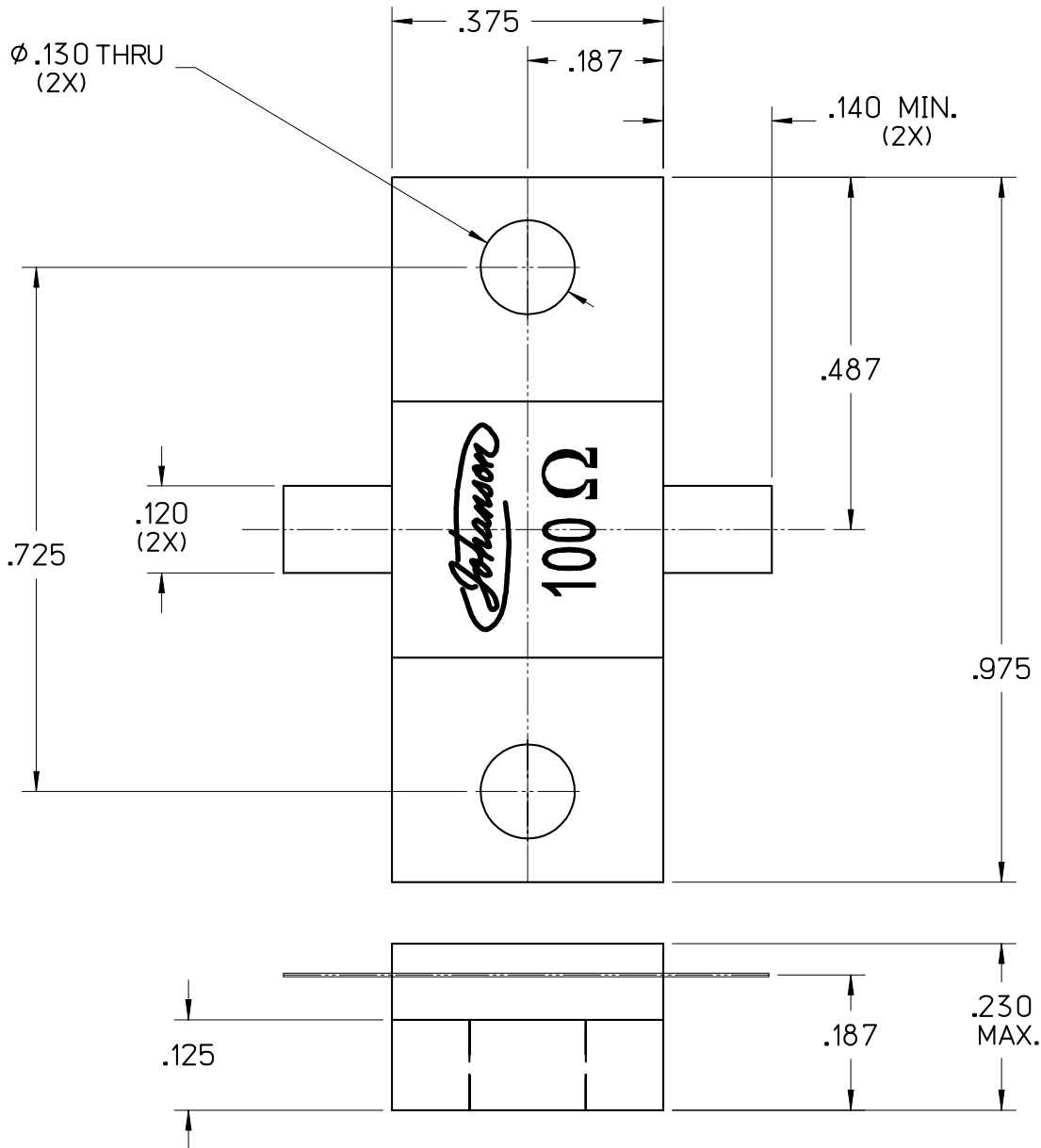
# RF250AA12

## AlN Flanged Resistor

**Power:** 250 Watts (CW)

**Resistance:** 100  $\Omega \pm 5\%$

**Substrate:** AlN



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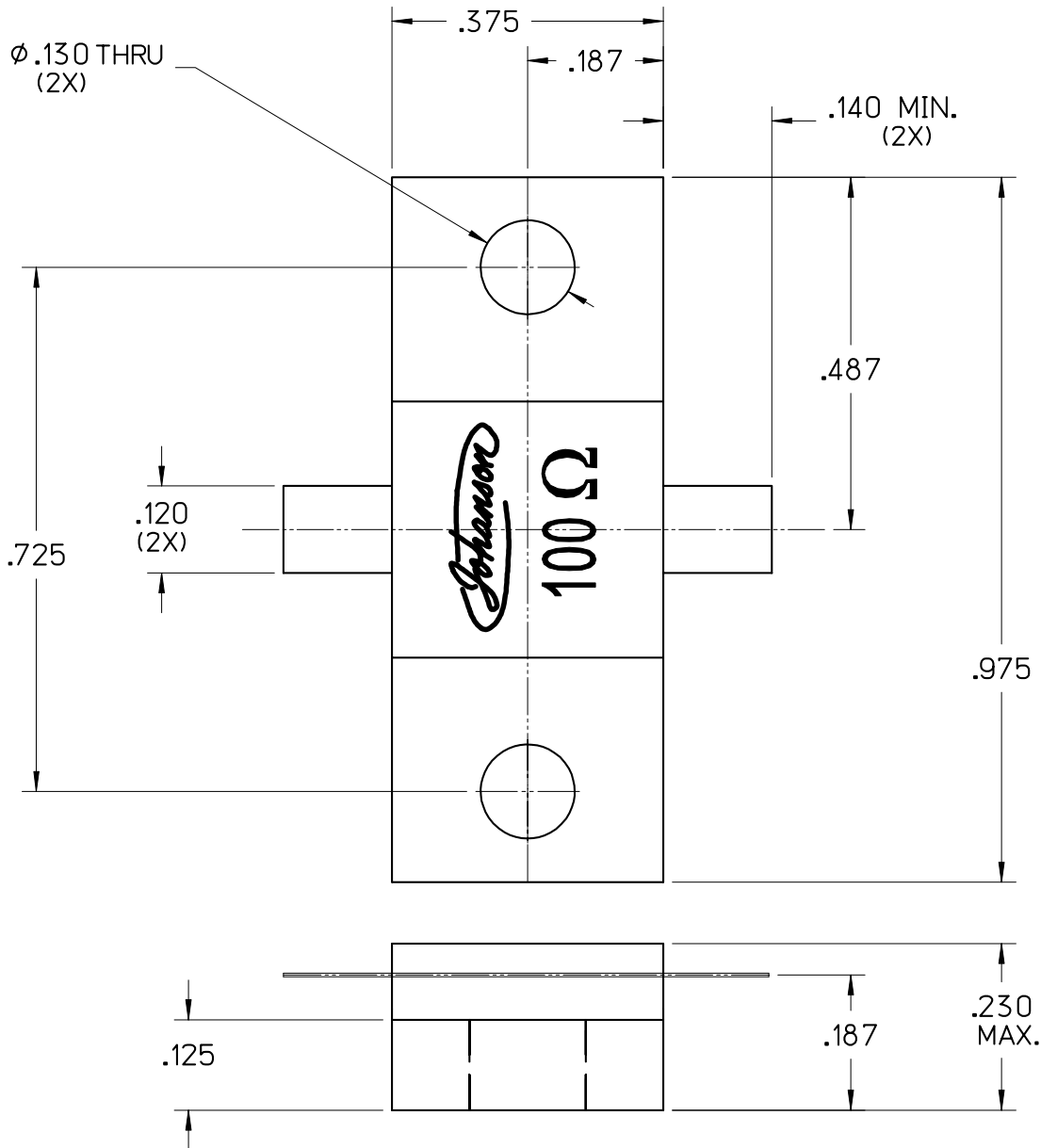
# RF200AA12

## AlN Flanged Resistor

**Power:** 200 Watts (CW)

**Resistance:** 100  $\Omega \pm 5\%$

**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales

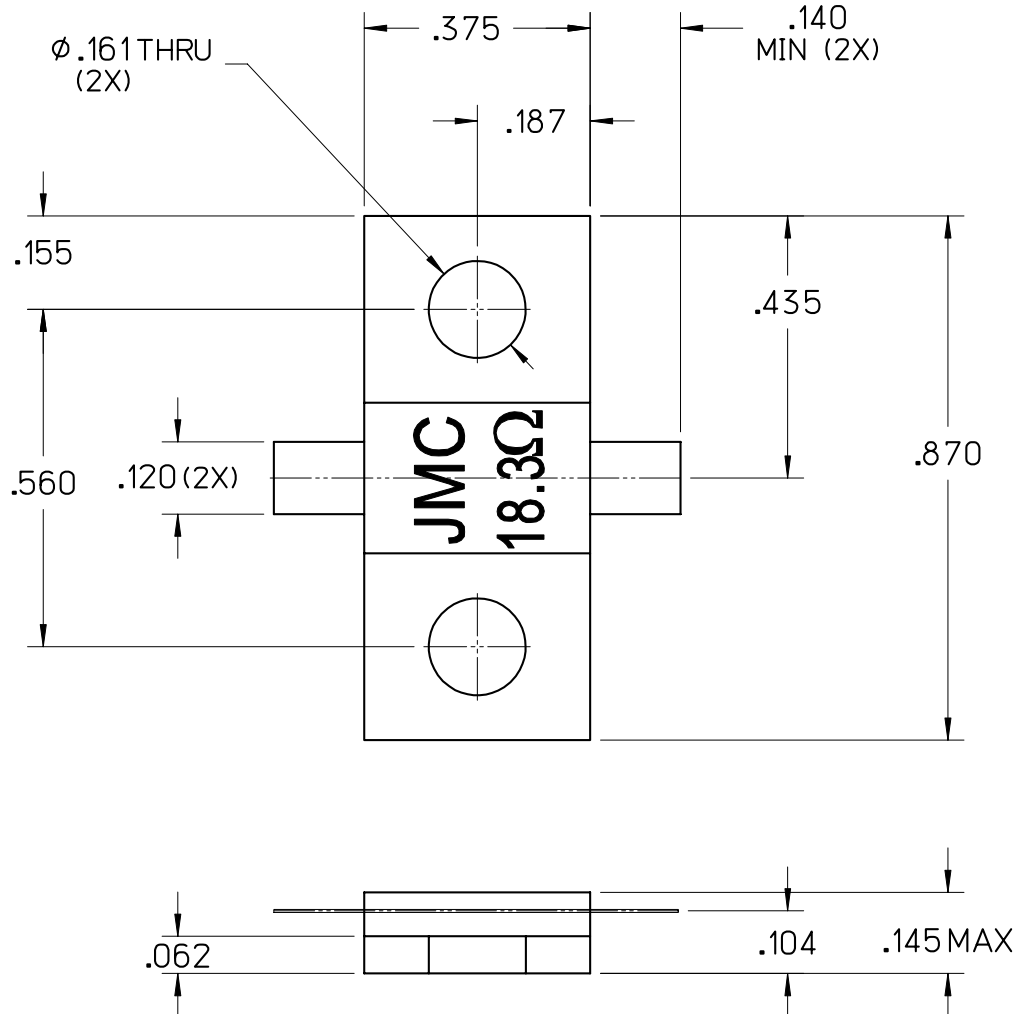




# RF150BM11

## BeO Flanged Resistor

**Power:** 150 Watts (CW)  
**Resistance:** 18.3  $\Omega \pm 5\%$   
**Substrate:** BeO



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# RF150BD11

BeO Flanged Resistor

Power: 150 Watts (CW)

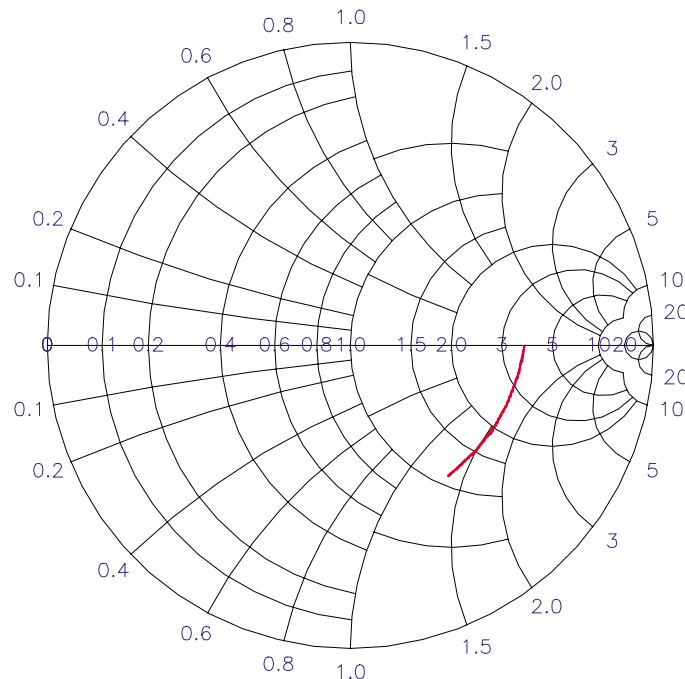
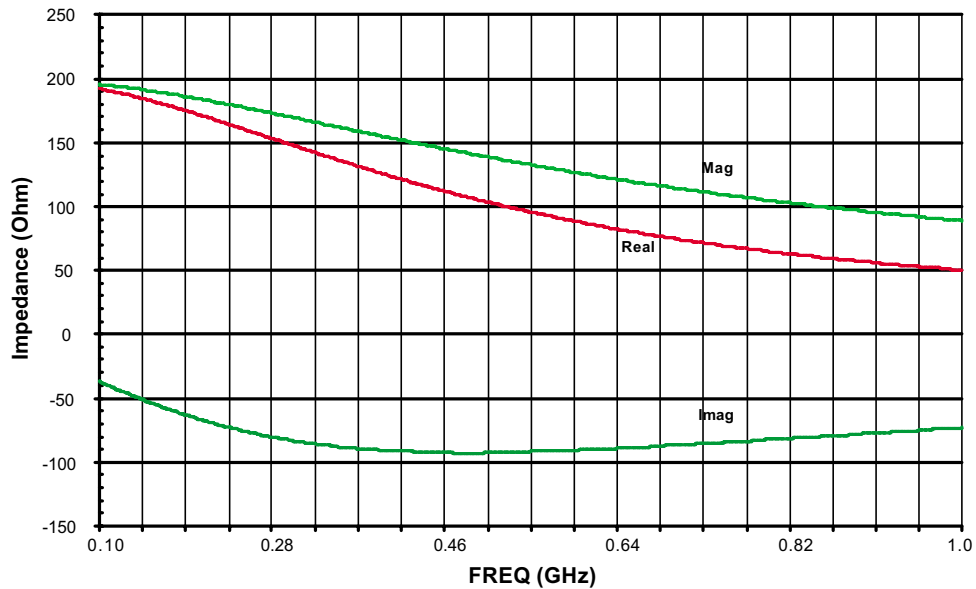
Resistance:  $200\ \Omega \pm 5\%$

Frequency Range: DC to 1 GHz

Substrate: BeO



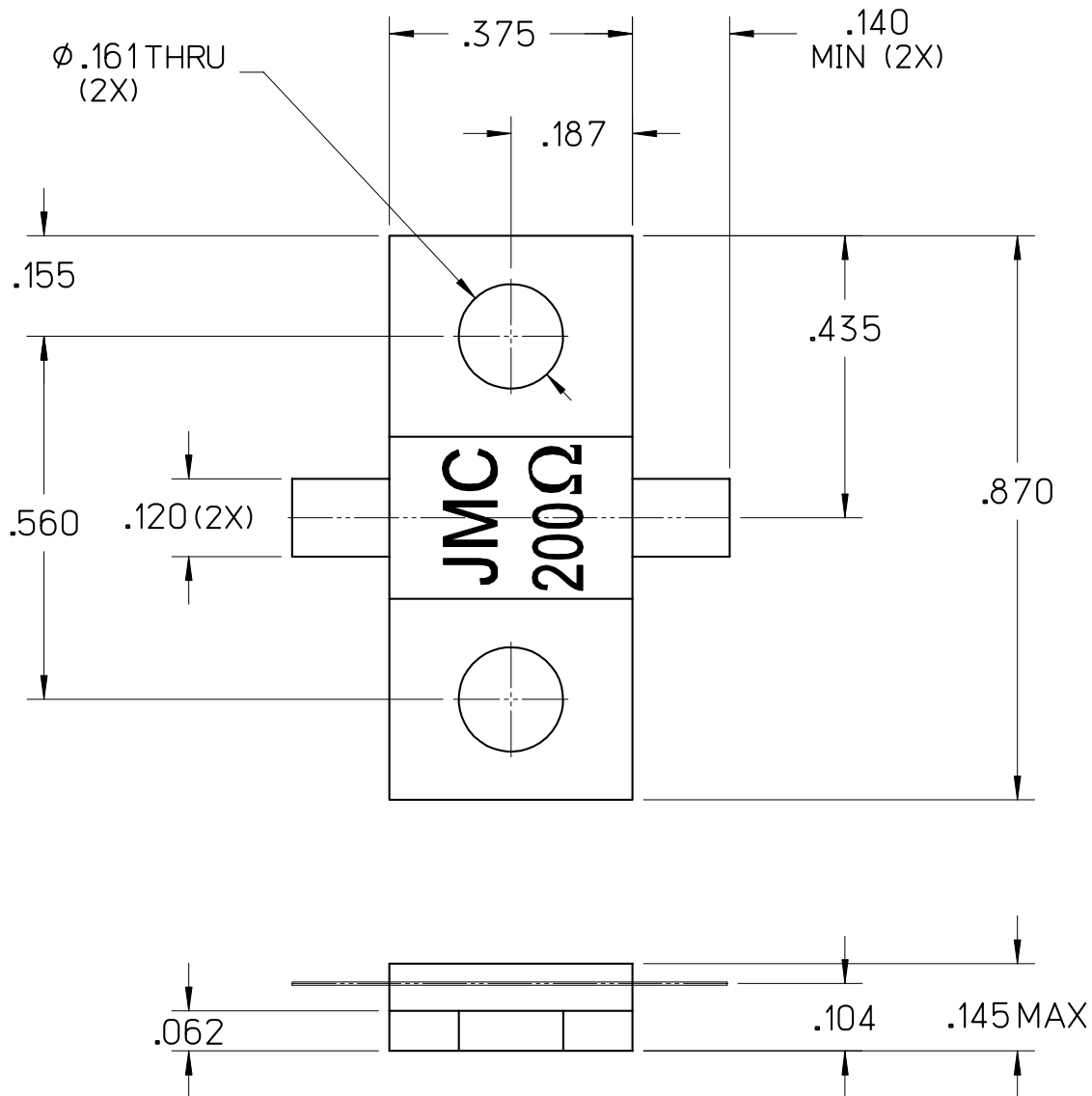
## TYPICAL PERFORMANCE



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### CAUTION

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 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

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# RF150BB09

## BeO Flanged Resistor

**Power:** 150 Watts (CW)

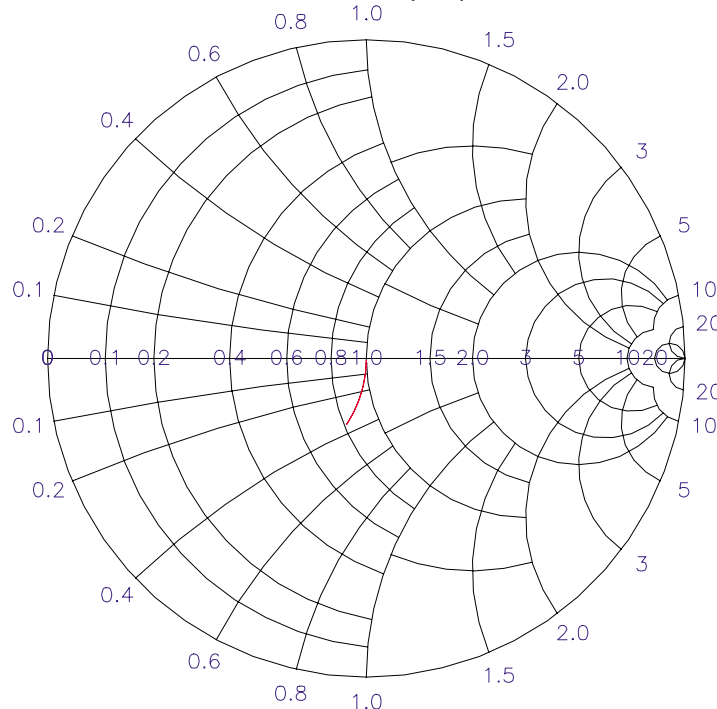
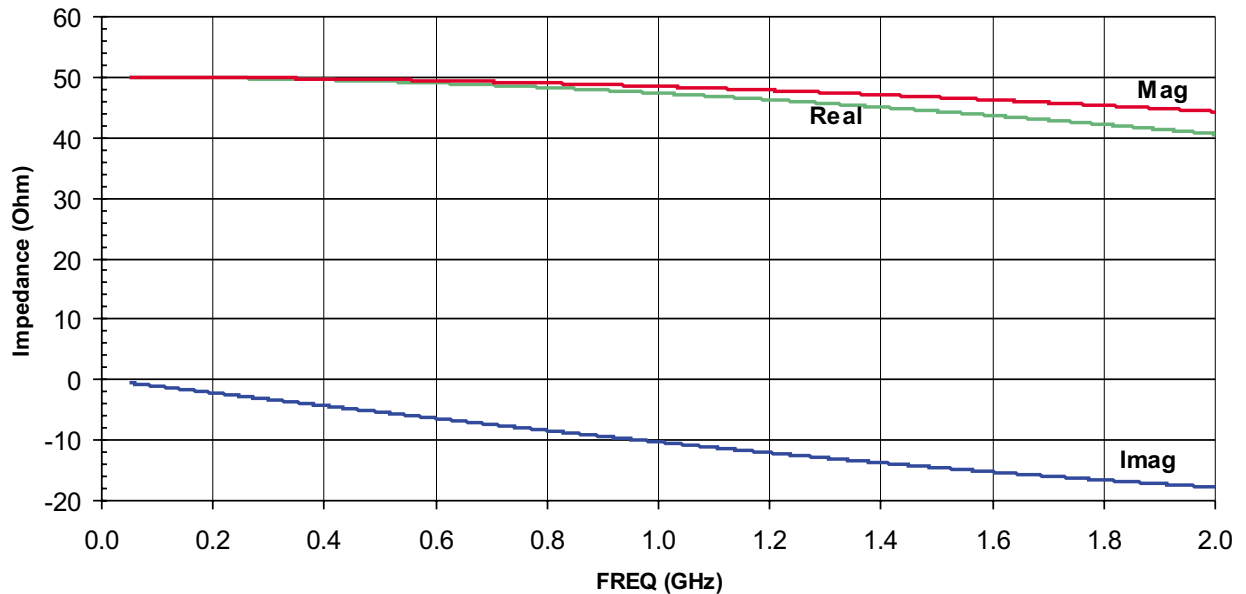
**Resistance:**  $50 \Omega \pm 5\%$

**Frequency Range:** DC to 2 GHz

**Substrate:** BeO



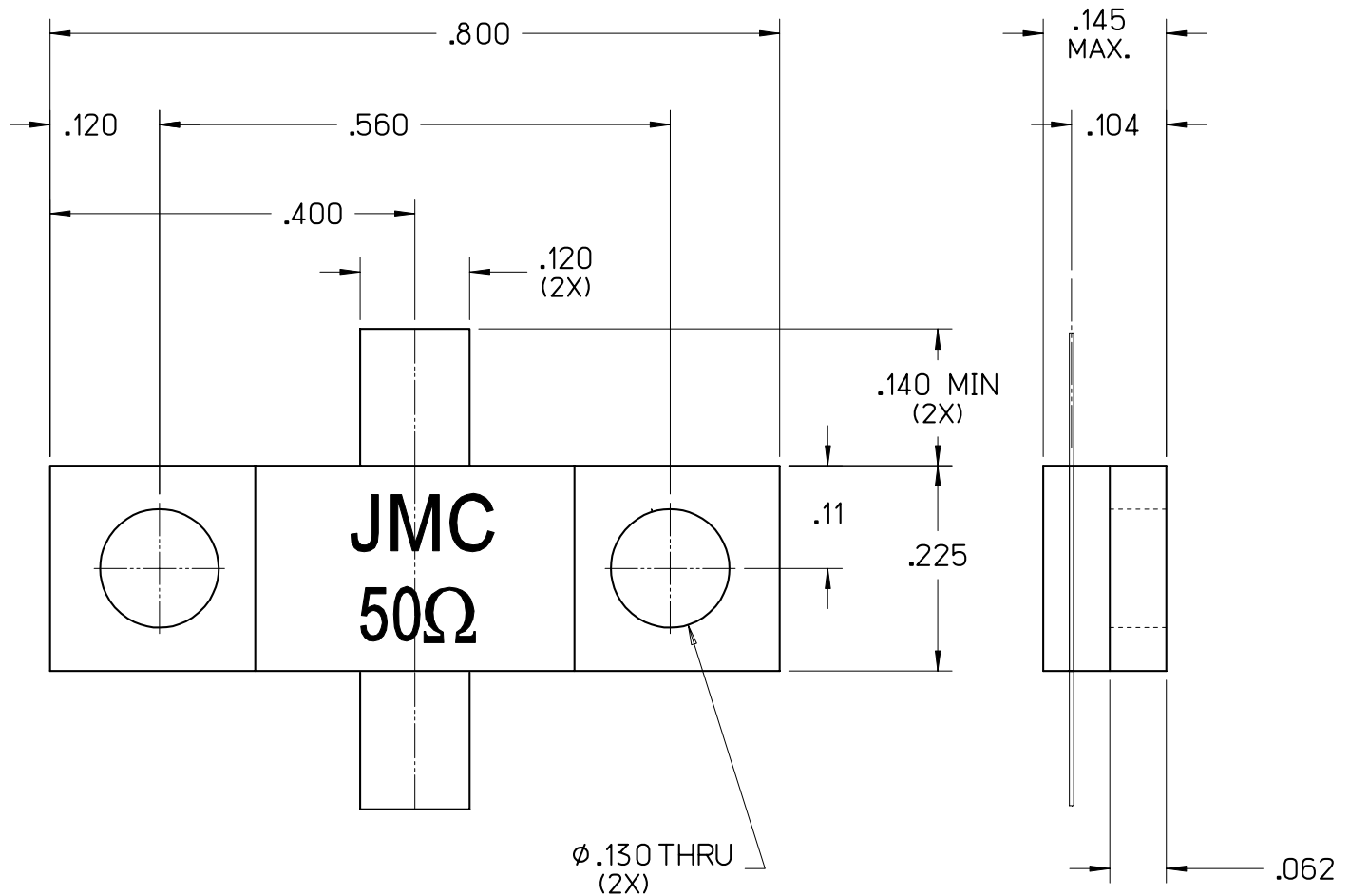
### TYPICAL PERFORMANCE



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# RF150BA11

BeO Flanged Resistor

Power: 150 Watts (CW)

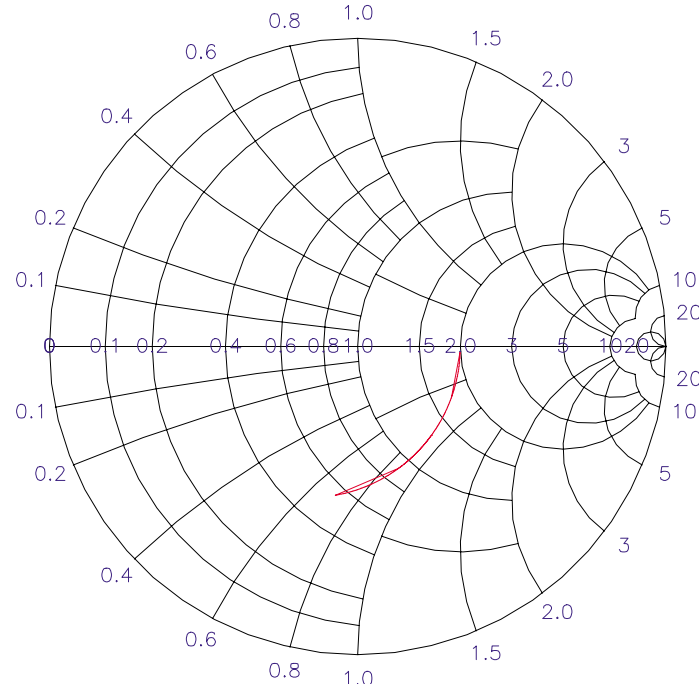
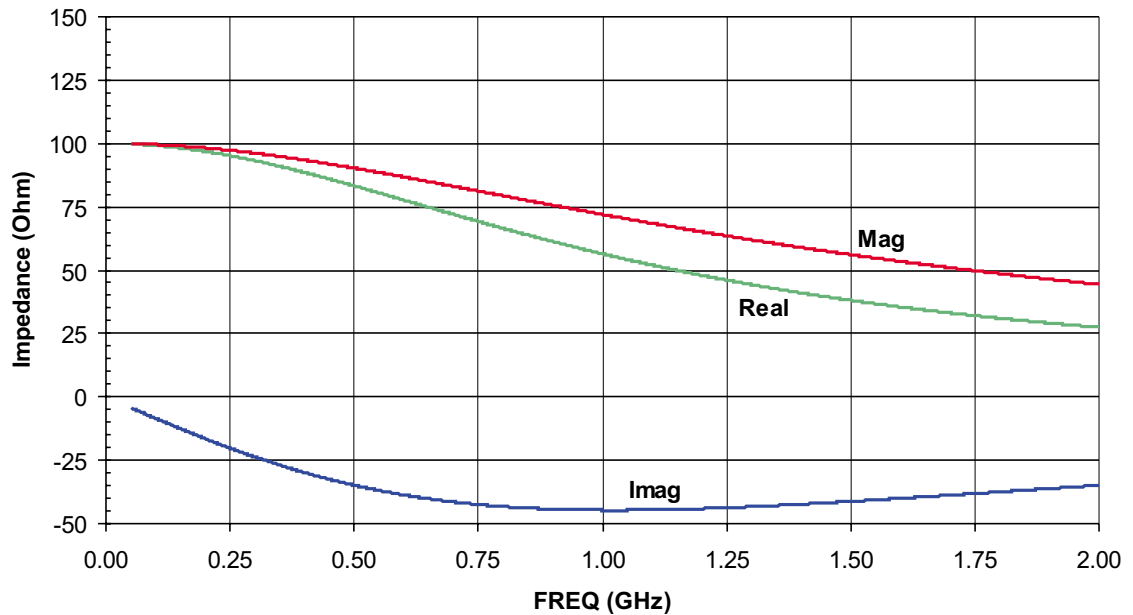
Resistance:  $100 \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE

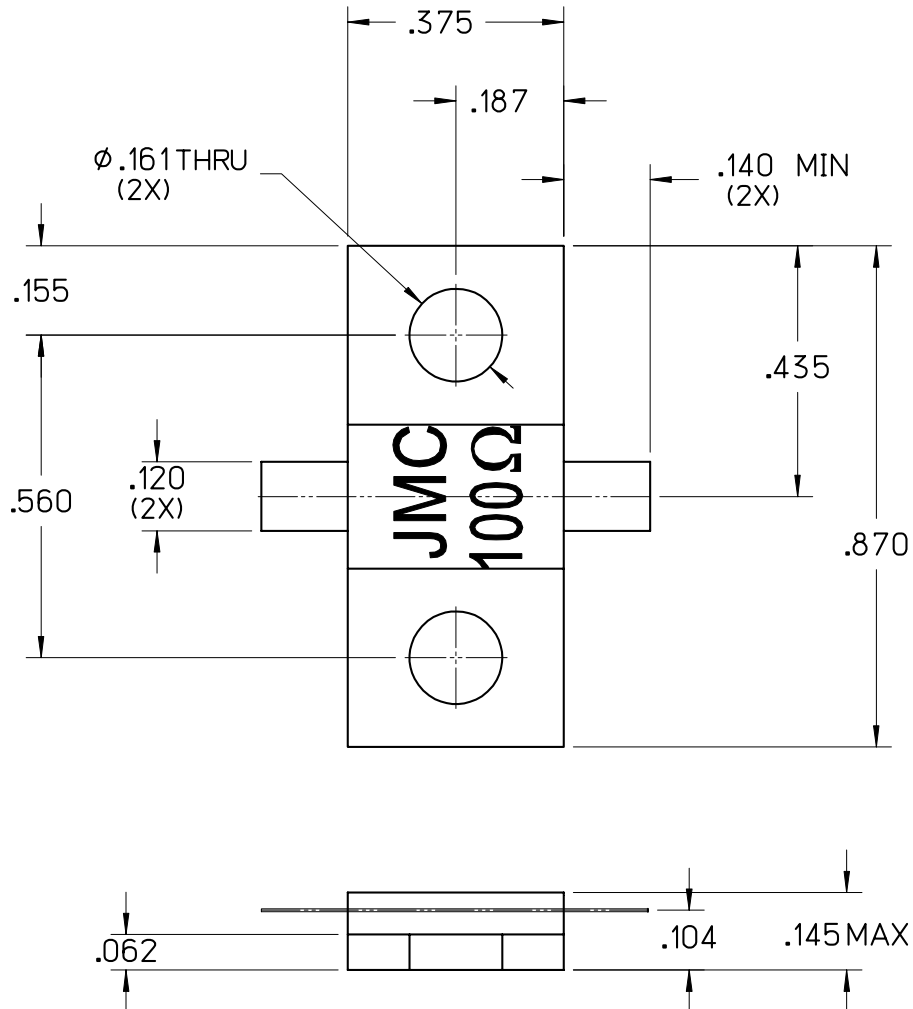


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# RF150BA09

BeO Flanged Resistor

Power: 150 Watts (CW)

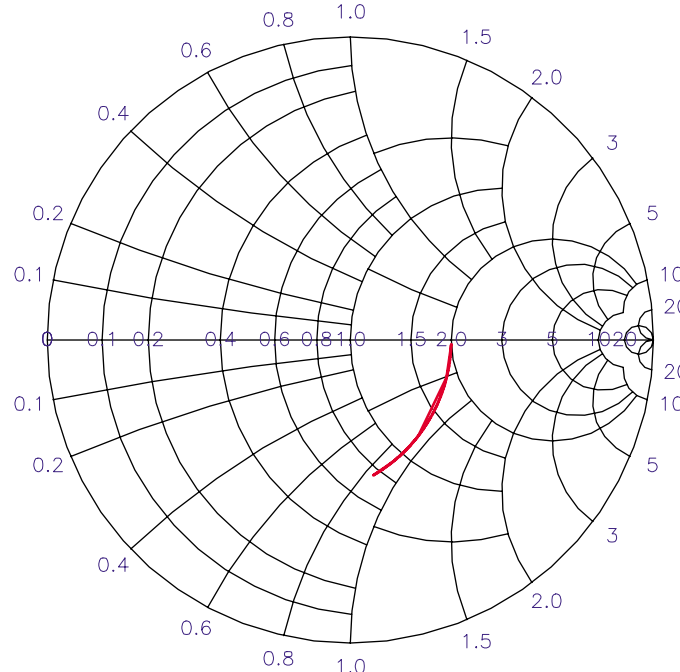
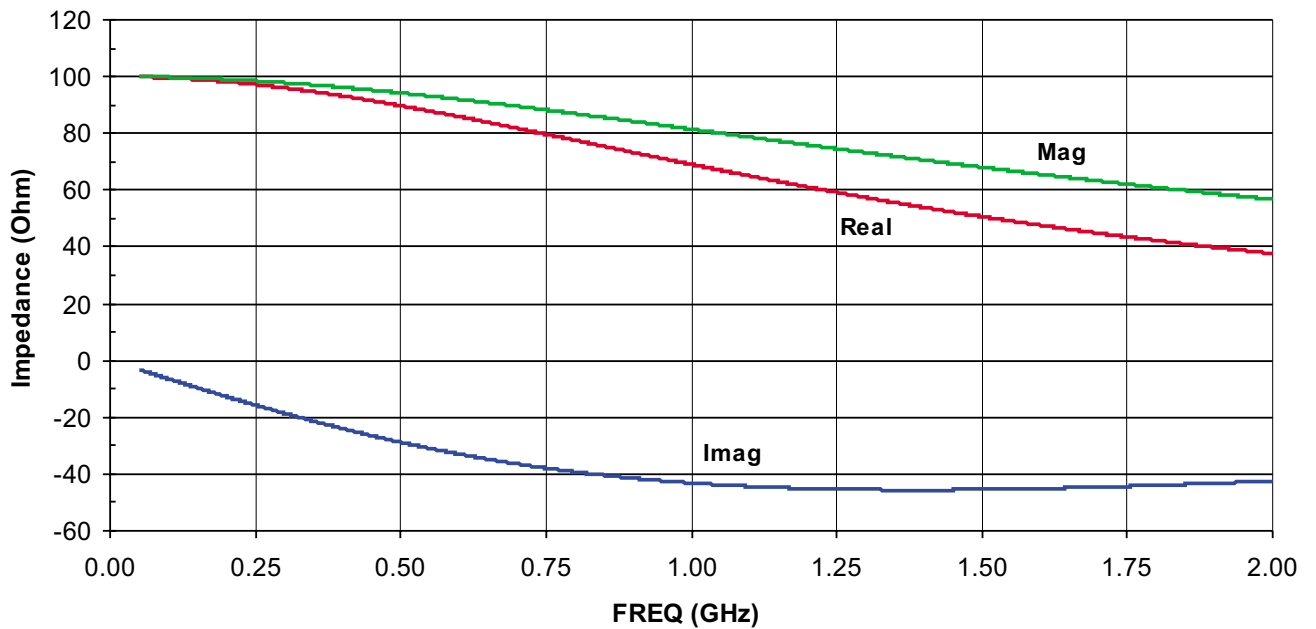
Resistance:  $100 \Omega \pm 5\%$

Frequency Range: DC to 2 GHz

Substrate: BeO



## TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales

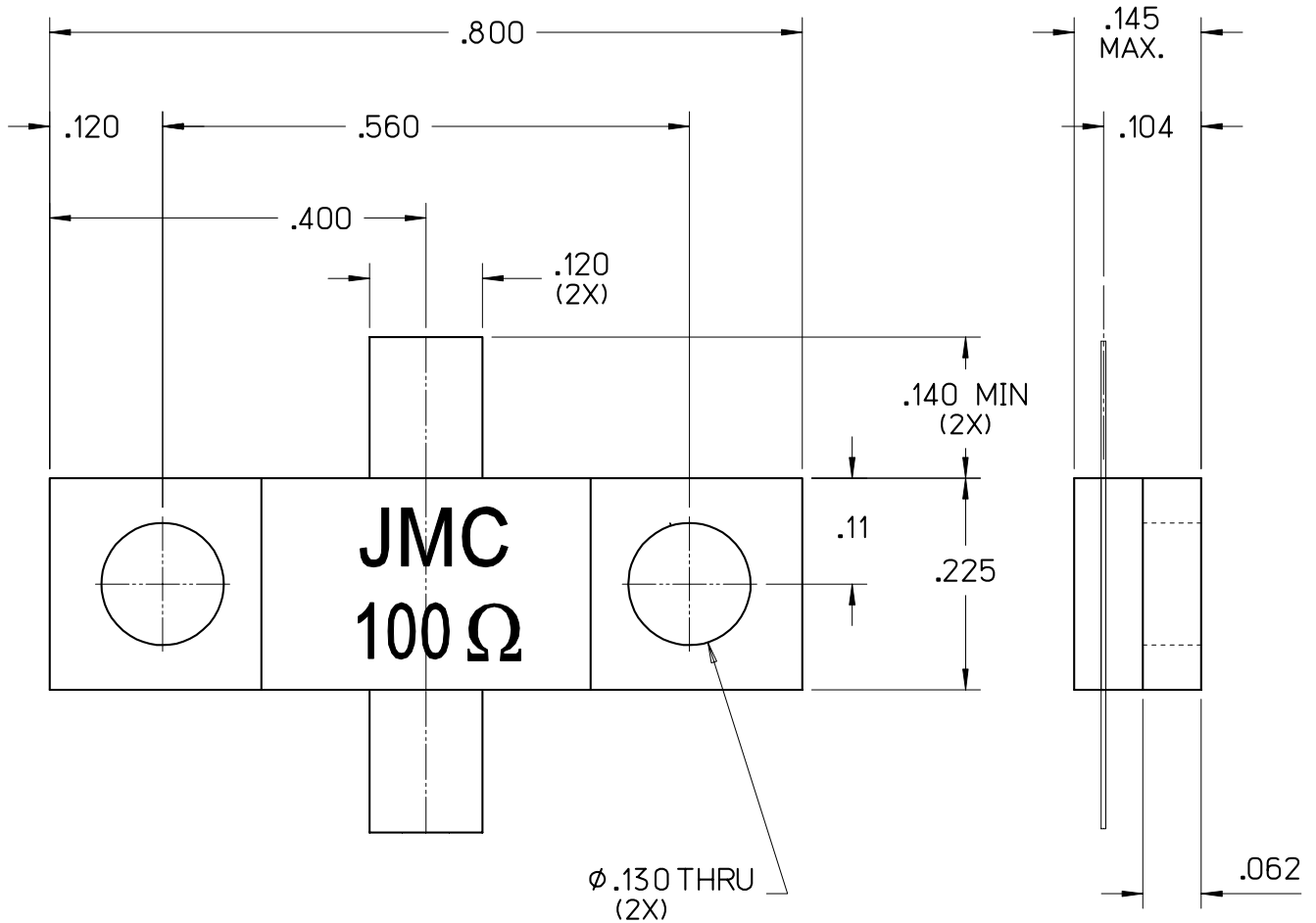


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# RF150BA09

## BeO Flanged Resistor



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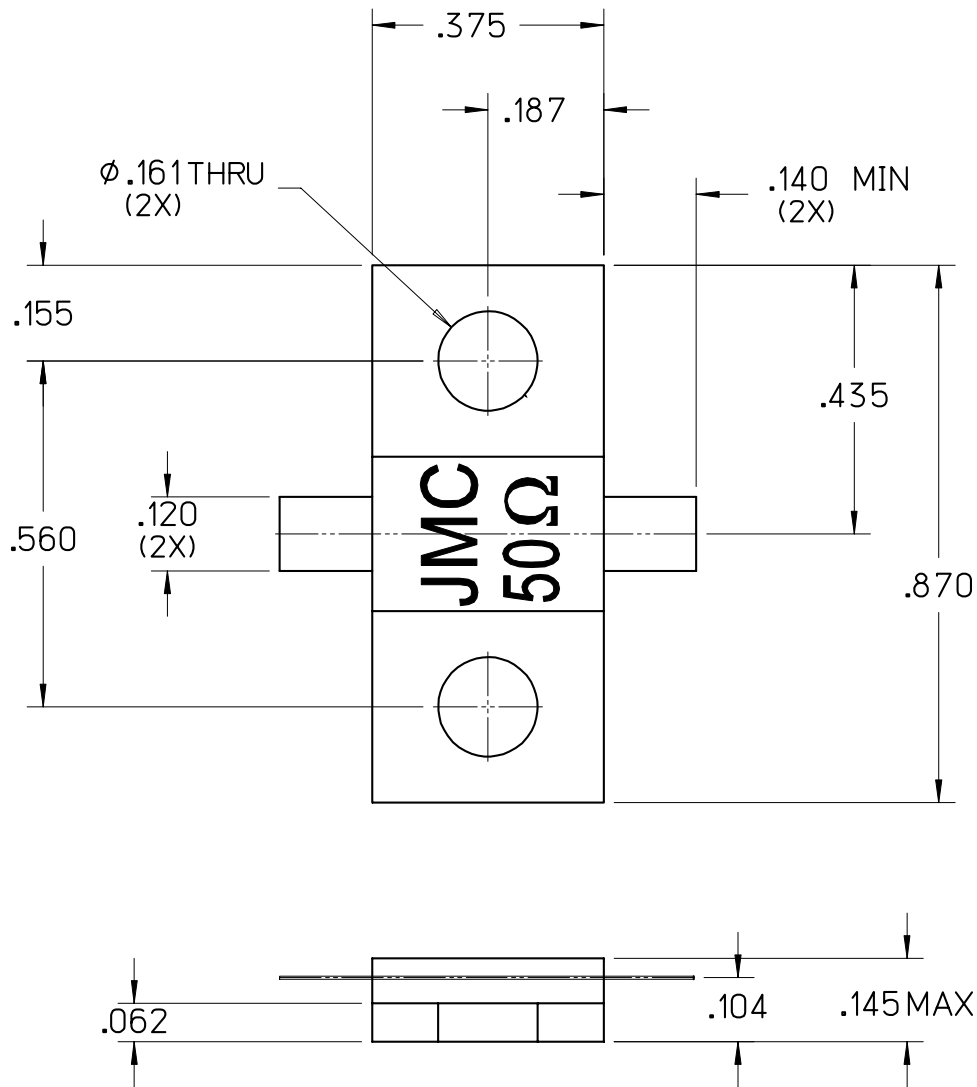
# RF150AB11

## AlN Flanged Resistor

**Power:** 150 Watts (CW)

**Resistance:**  $50 \Omega \pm 5\%$

**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales





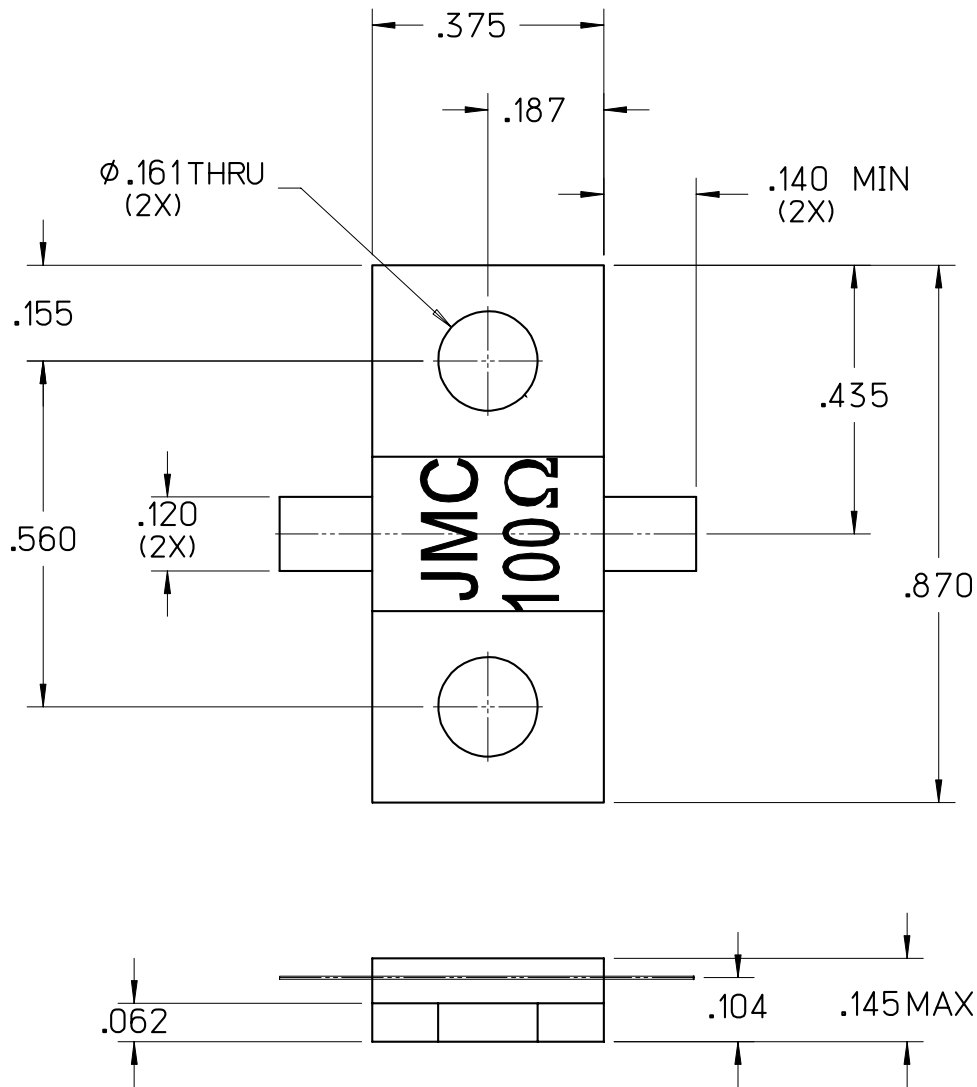
# RF150AA11

## AlN Flanged Resistor

**Power:** 150 Watts (CW)

**Resistance:** 100  $\Omega \pm 5\%$

**Substrate:** AlN



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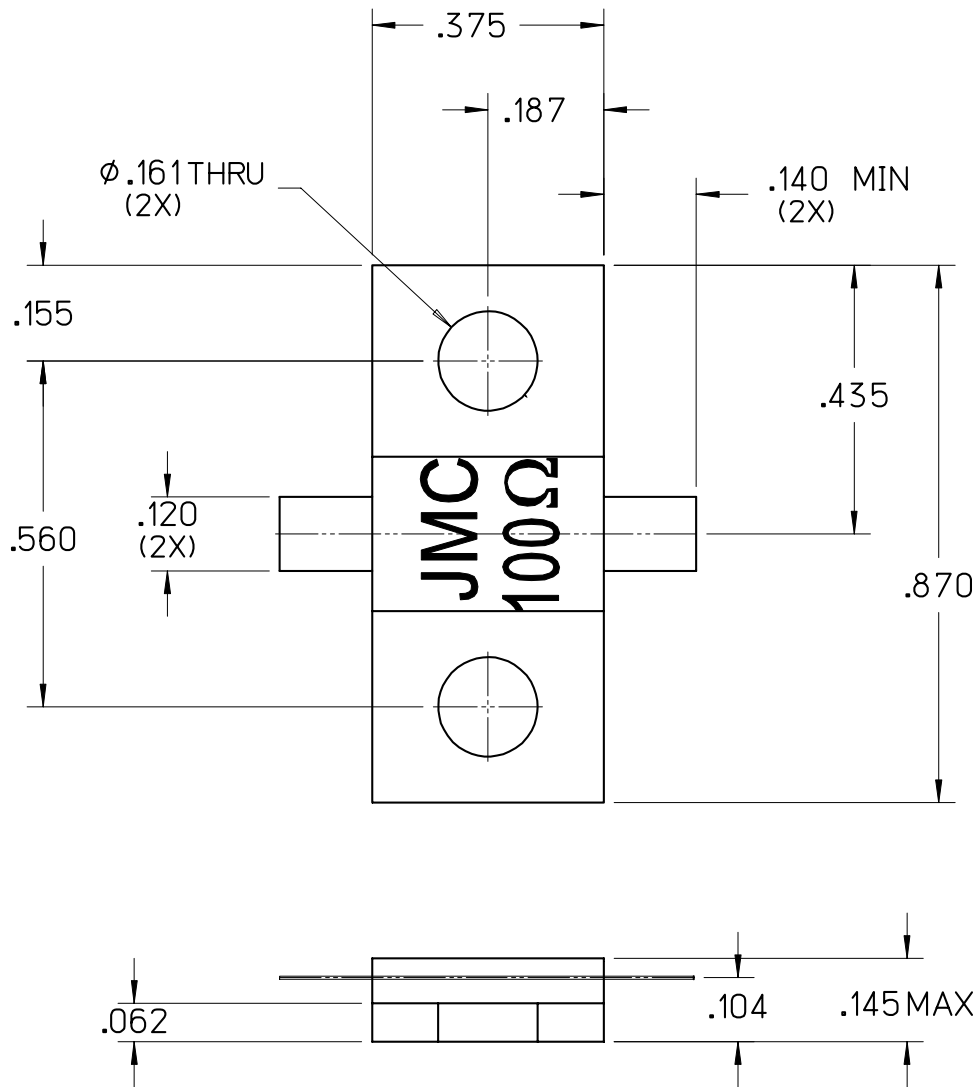
# RF125AA11

## AlN Flanged Resistor

**Power:** 125 Watts (CW)

**Resistance:** 100  $\Omega \pm 5\%$

**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales







# RF100BF08

## BeO Flanged Resistor

Power: 100 Watts (CW)

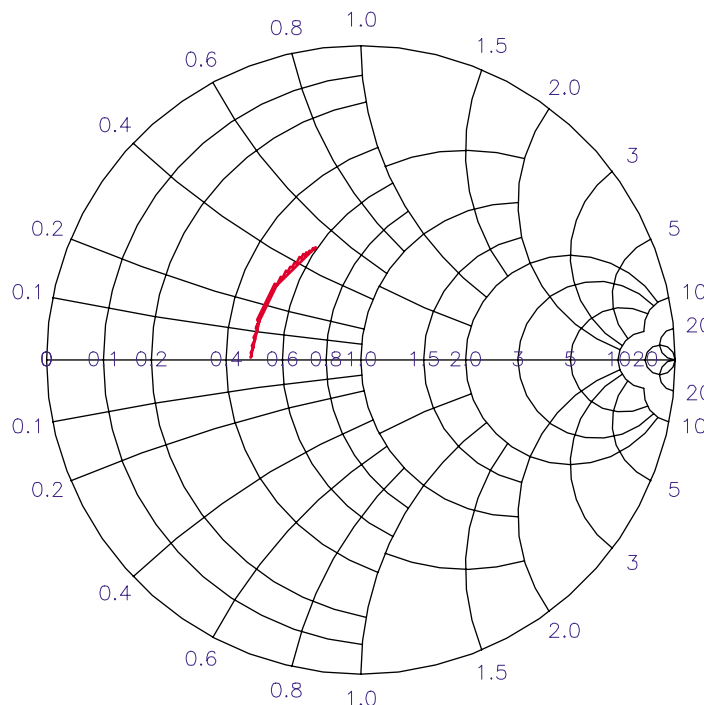
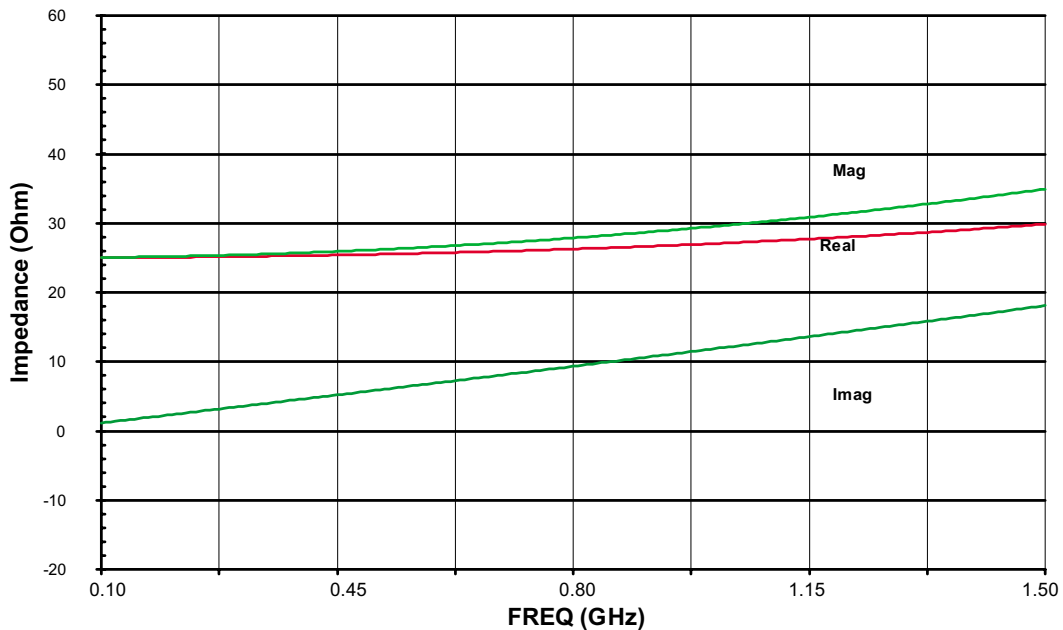
Resistance:  $25\Omega \pm 5\%$

Frequency Range: DC to 1.5 GHz

Substrate: BeO



### TYPICAL PERFORMANCE



For detailed information regarding this product or sample request contact Johanson Sales



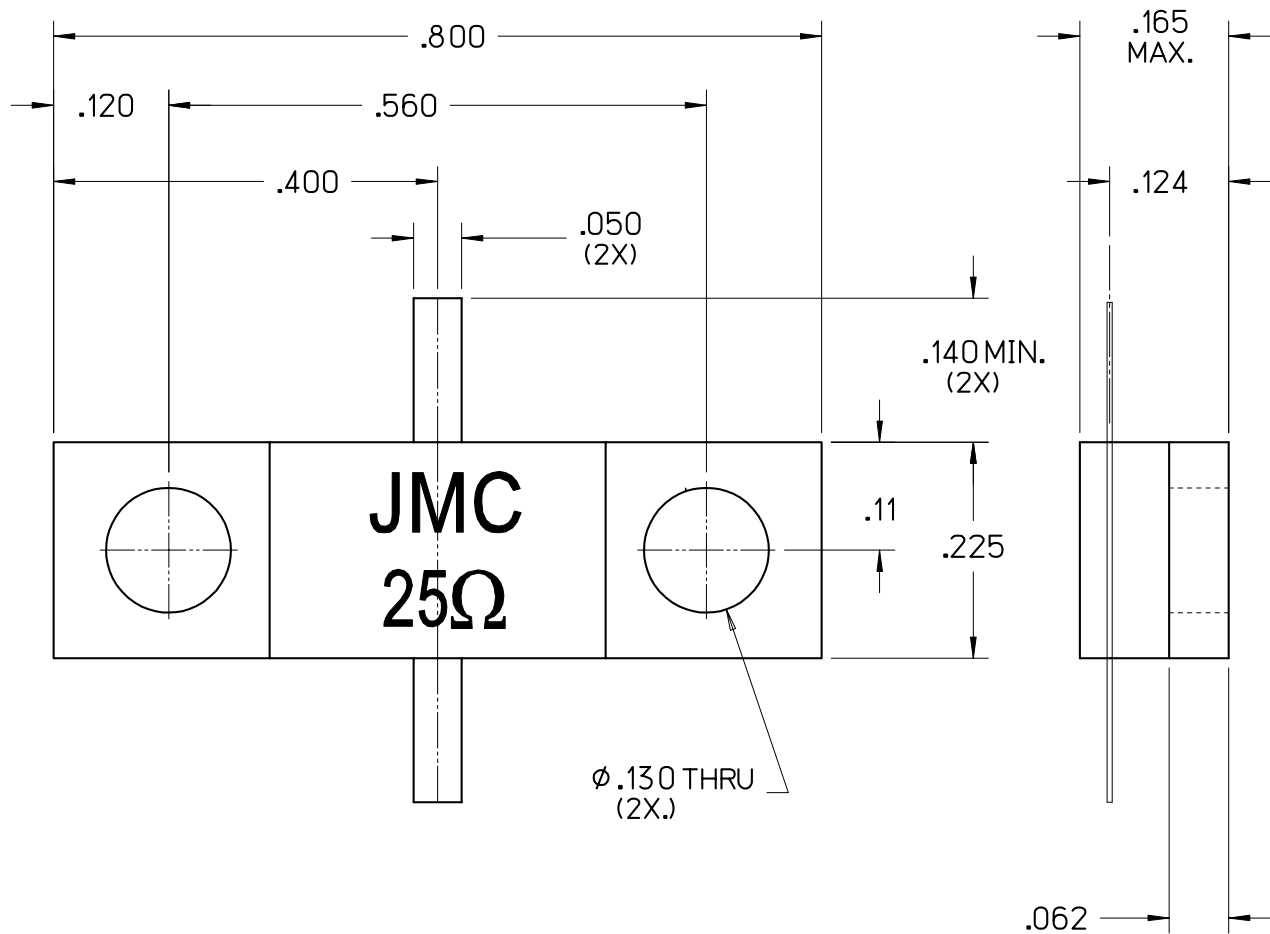
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# RF100BF08

## BeO Flanged Resistor



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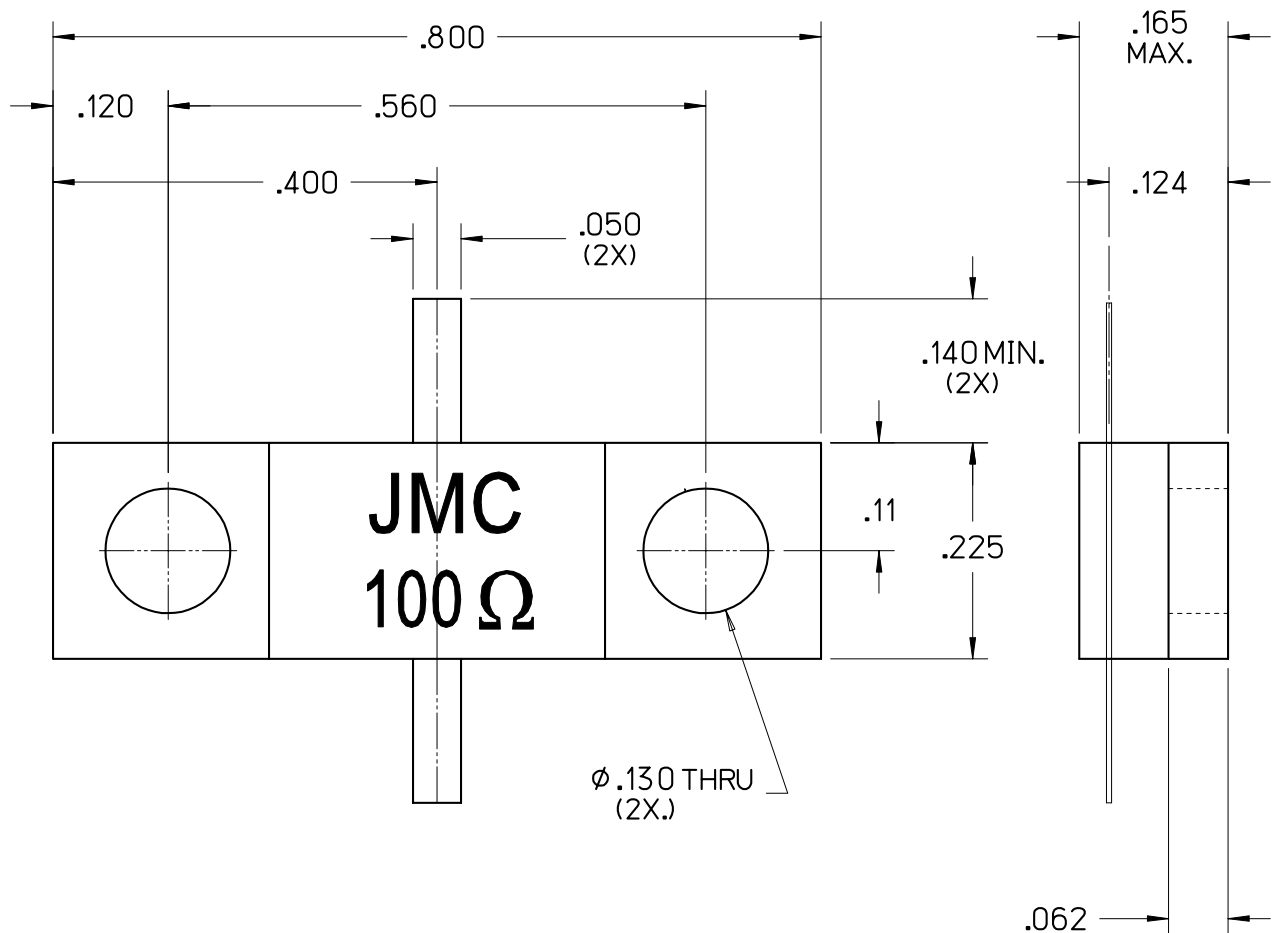
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# RF100BA08

## BeO Flanged Resistor

**Power:** 100 Watts (CW)  
**Resistance:** 100  $\Omega$   $\pm$  5%  
**Substrate:** BeO



### CAUTION

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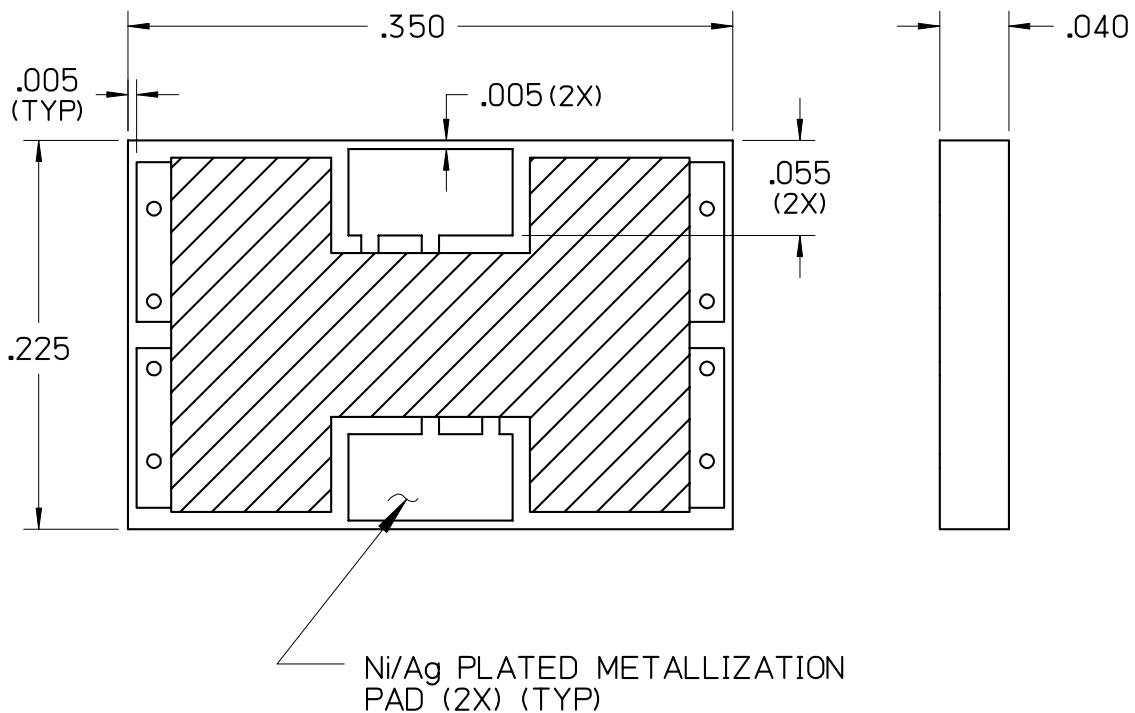
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# CA2335A0308C

AlN Chip Attenuator

**Power:** 120 Watts (CW)  
**Attenuation:** 30 dB  $\pm$  1.0 dB  
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 2.5 GHz  
**Substrate:** AlN



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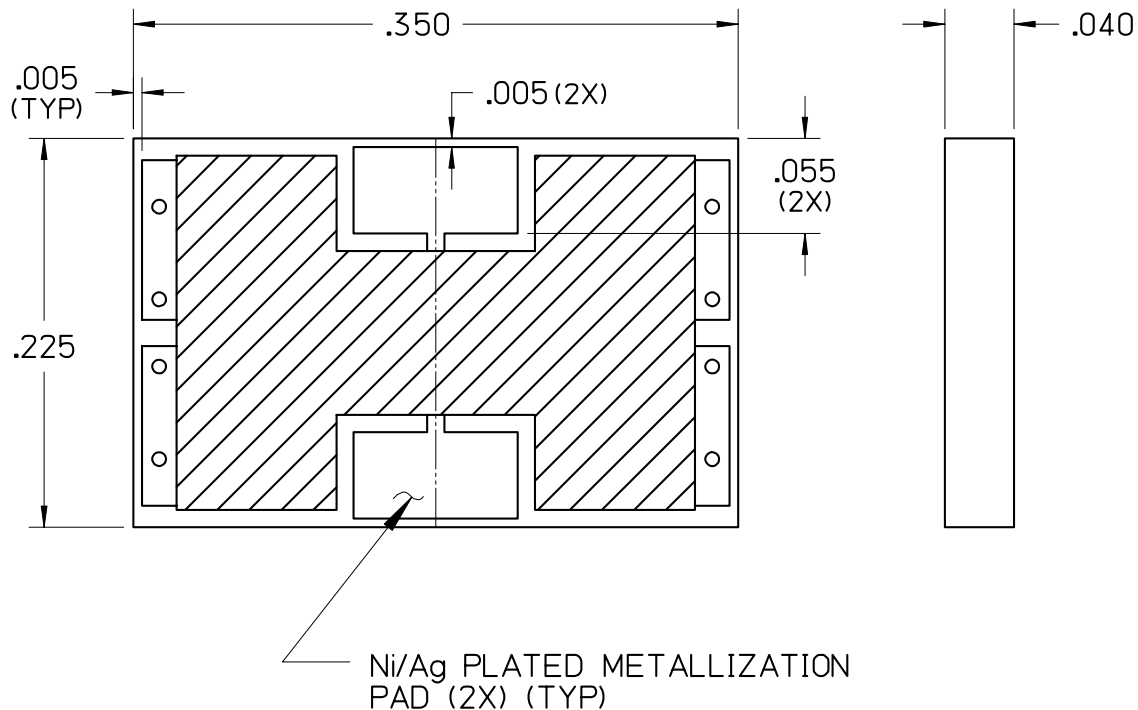
Nov 08



# CA2335A0208C

## AlN Chip Attenuator

**Power:** 120 Watts (CW)  
**Attenuation:** 20 dB  $\pm$  1.0 dB  
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 2.5 GHz  
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



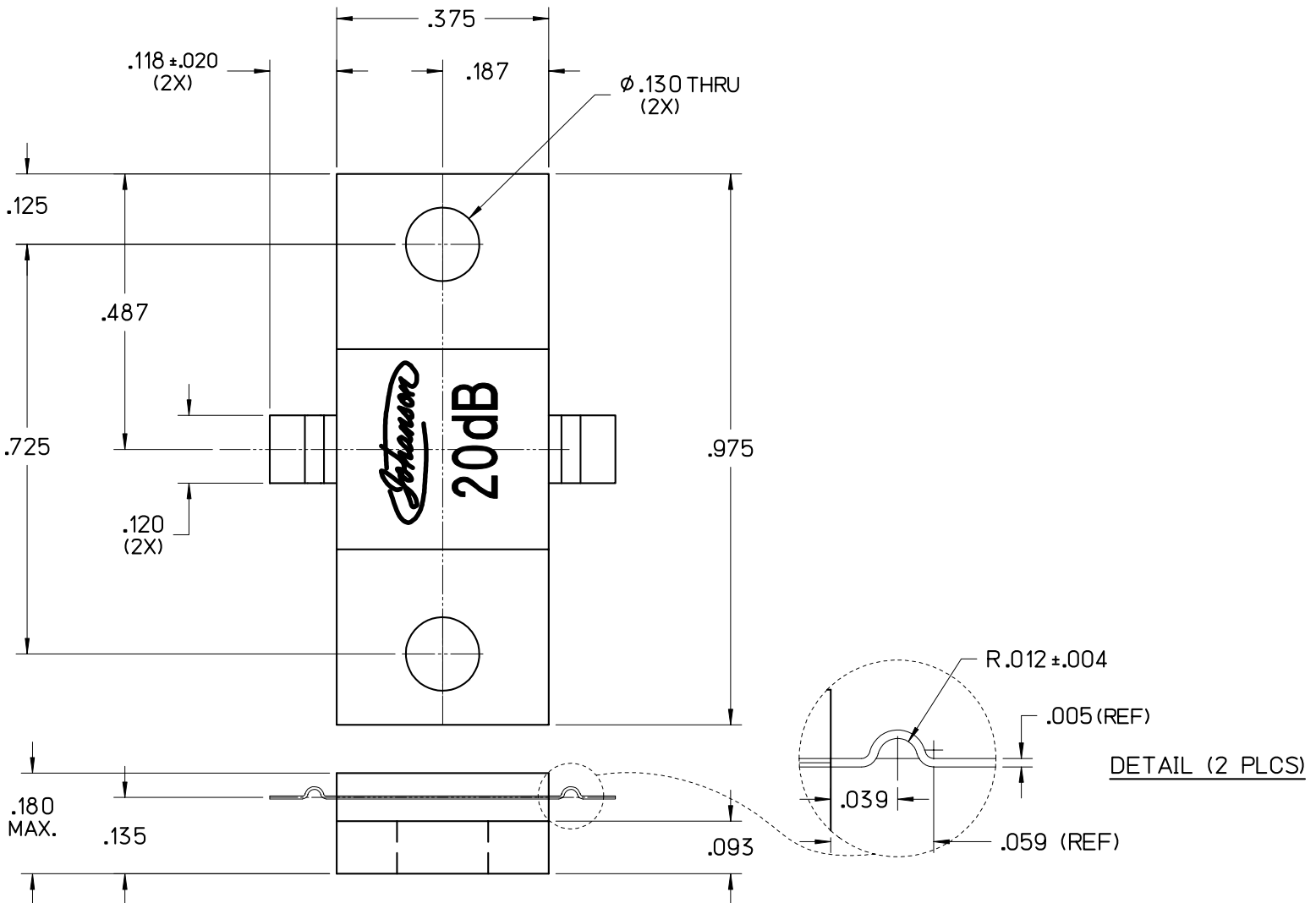
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# AF200A02012-480

## AIN Flange Attenuator

**Power:** 200 Watts (CW) (135 CW max @ 140 C)  
**Attenuation:** 20 dB  $\pm$  1.0 dB  
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 2.0 GHz  
**Substrate:** AIN



For detailed information regarding this product or sample request contact Johanson Sales



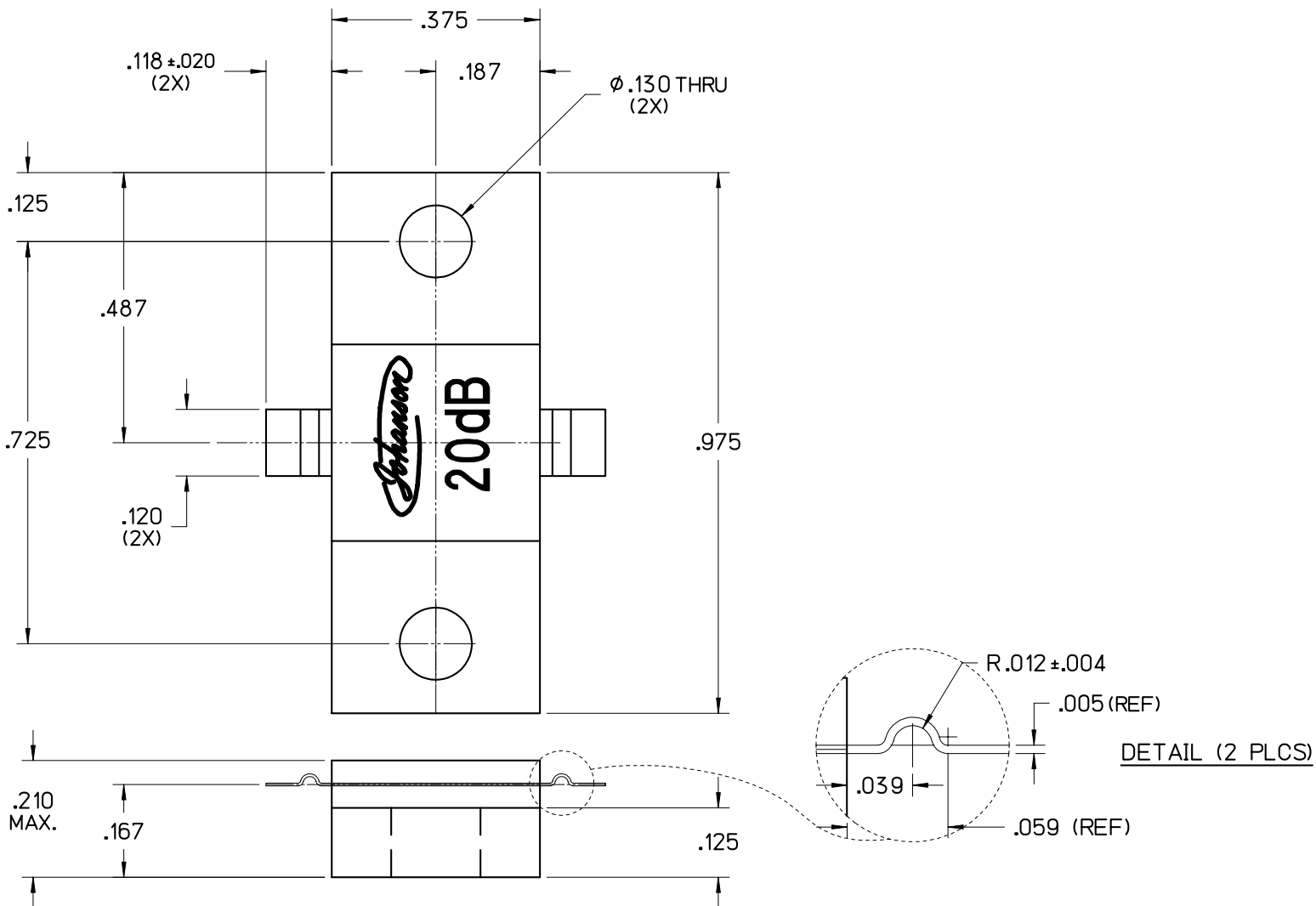
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# AF200A02012-080

## AIN Flange Attenuator

**Power:** 200 Watts (CW) (135 CW max @ 140 C)  
**Attenuation:** 20 dB  $\pm$  1.0 dB  
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 2.0 GHz  
**Substrate:** AIN



For detailed information regarding this product or sample request contact Johanson Sales



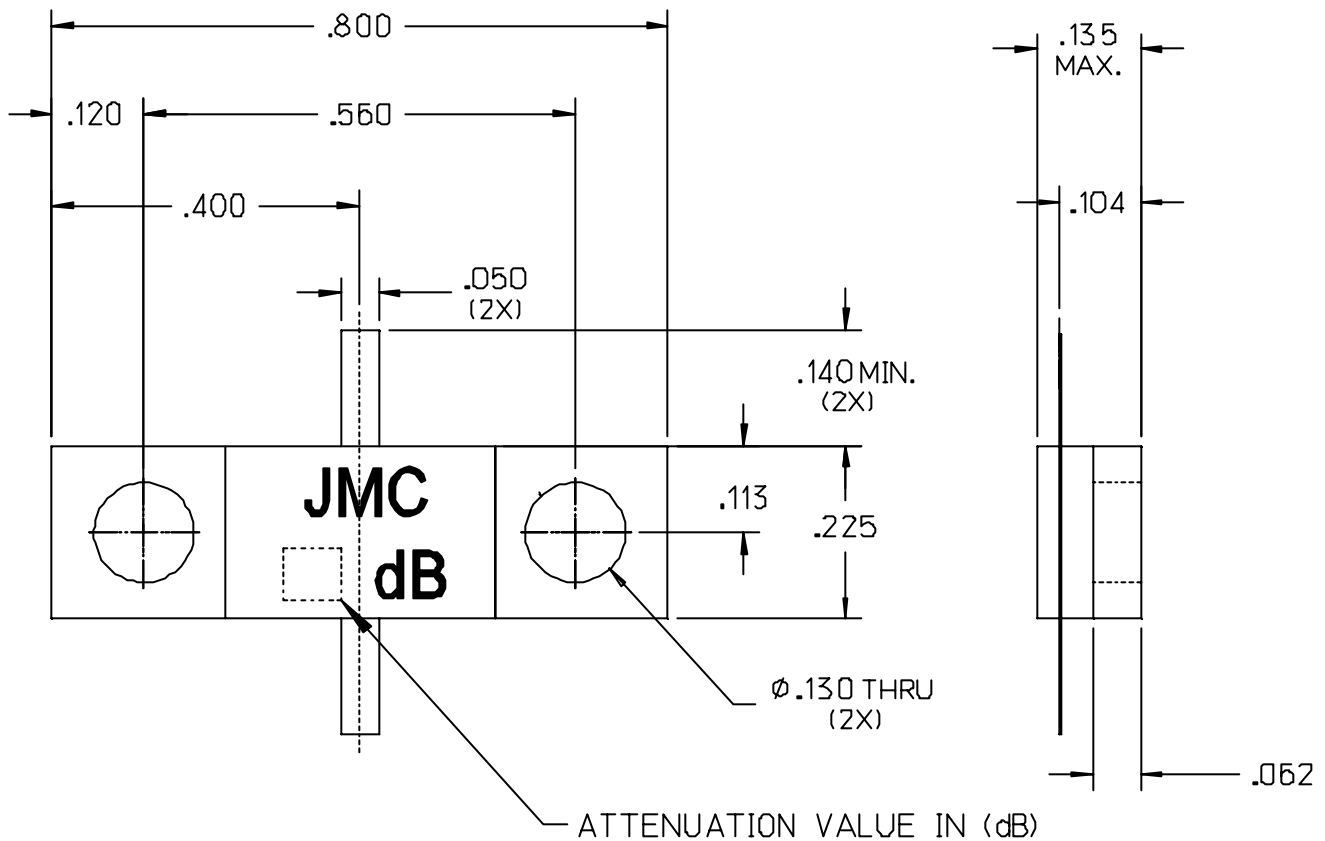
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# AF150B00104

## BeO Flange Attenuator

**Power:** 150 Watts (CW)  
**Attenuation:** 1 dB  $\pm$  0.2 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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# AF100B03004

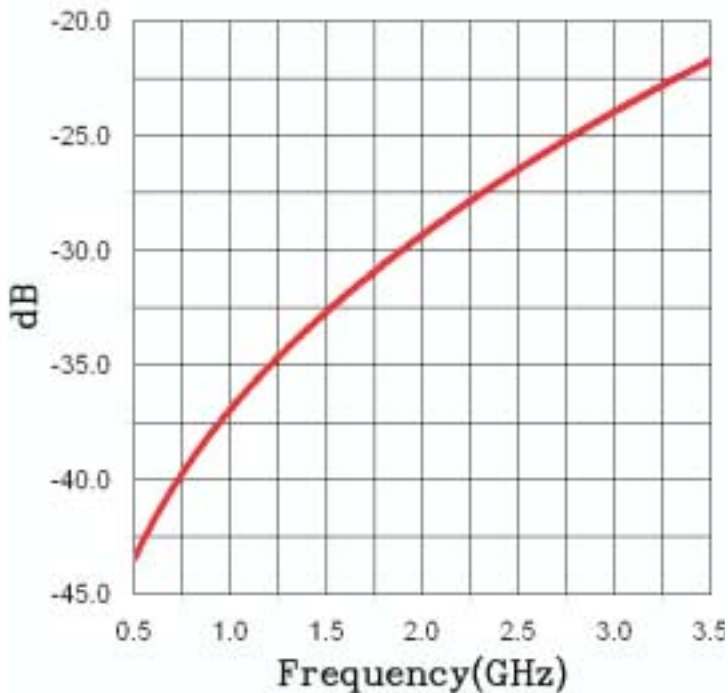
## BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 30 dB  $\pm$  1.0 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO

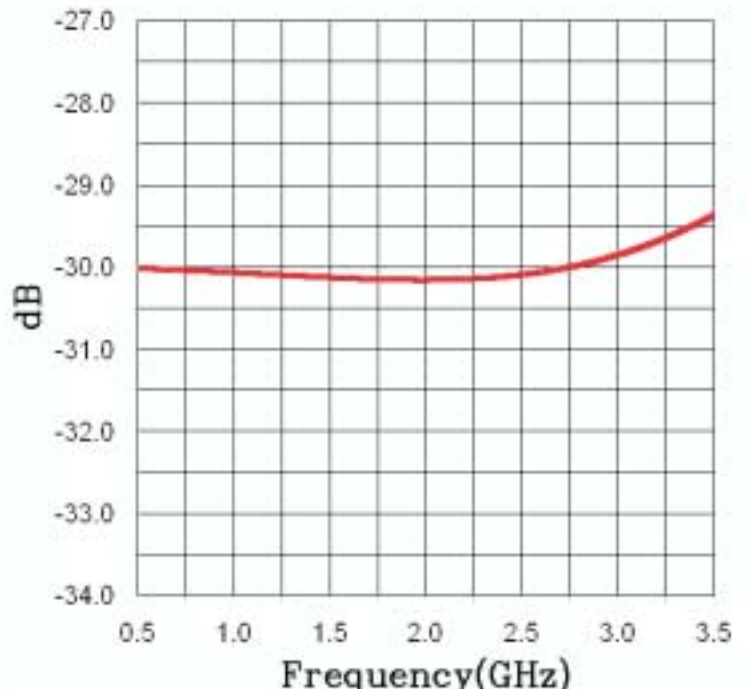


### TYPICAL PERFORMANCE

RETURN LOSS



ATTENUATION

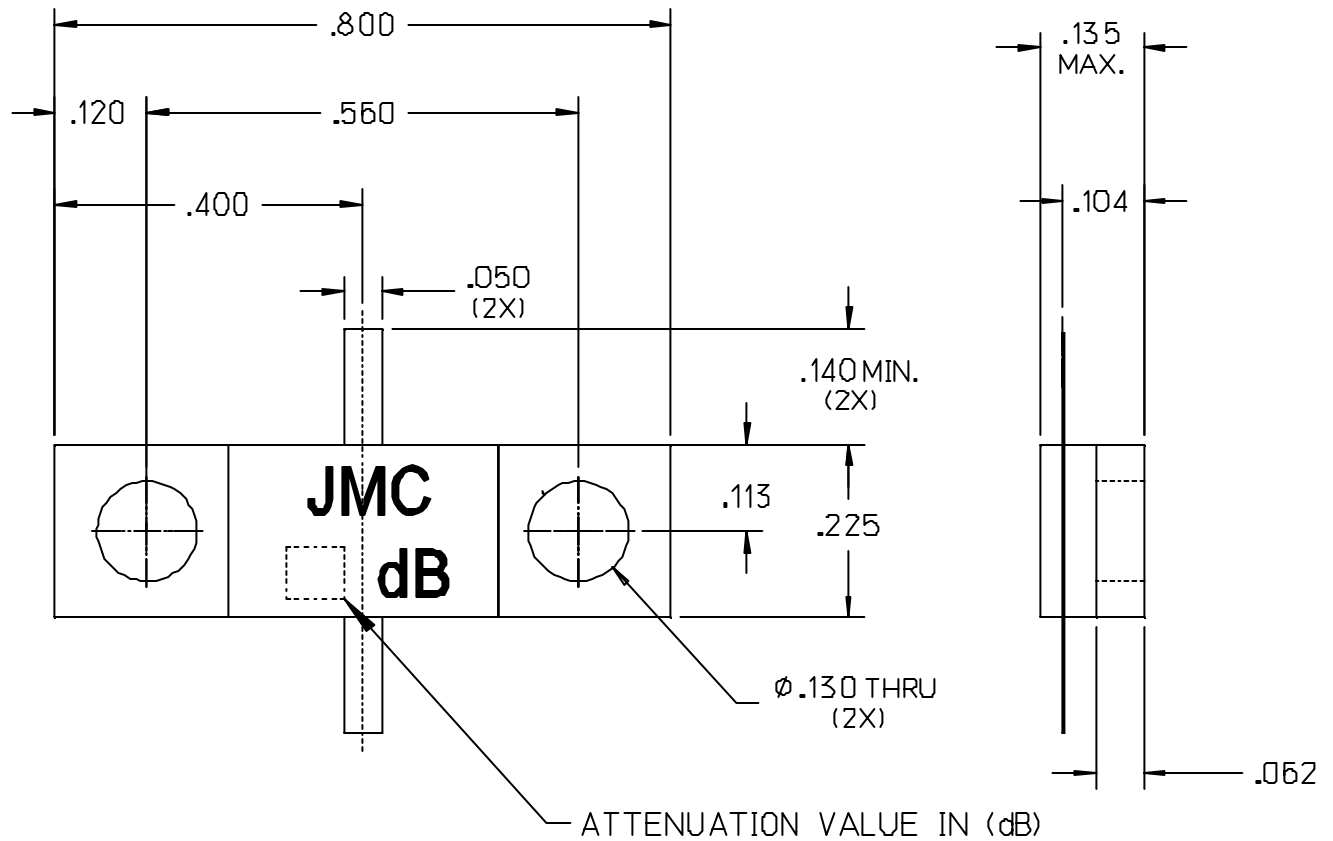


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### CAUTION

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For detailed information regarding this product or sample request contact Johanson Sales



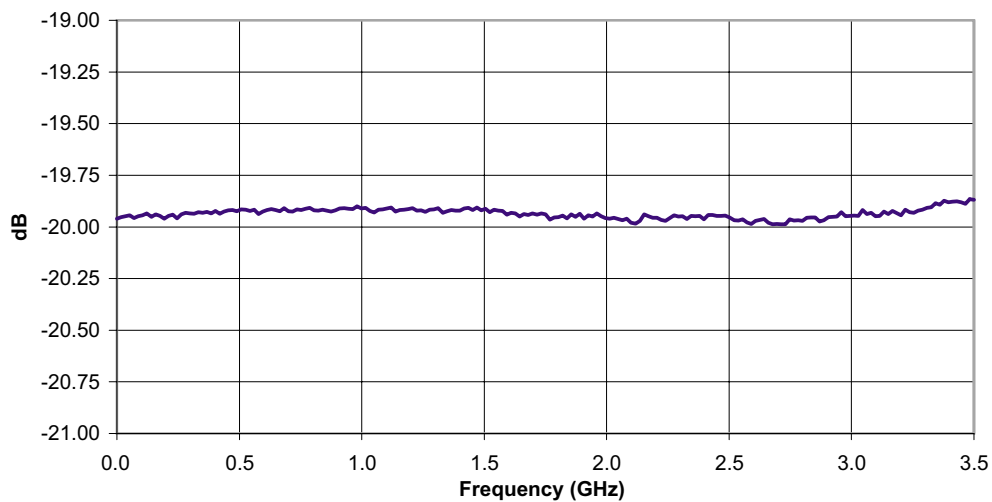
# AF100B02004

## BeO Flange Attenuator

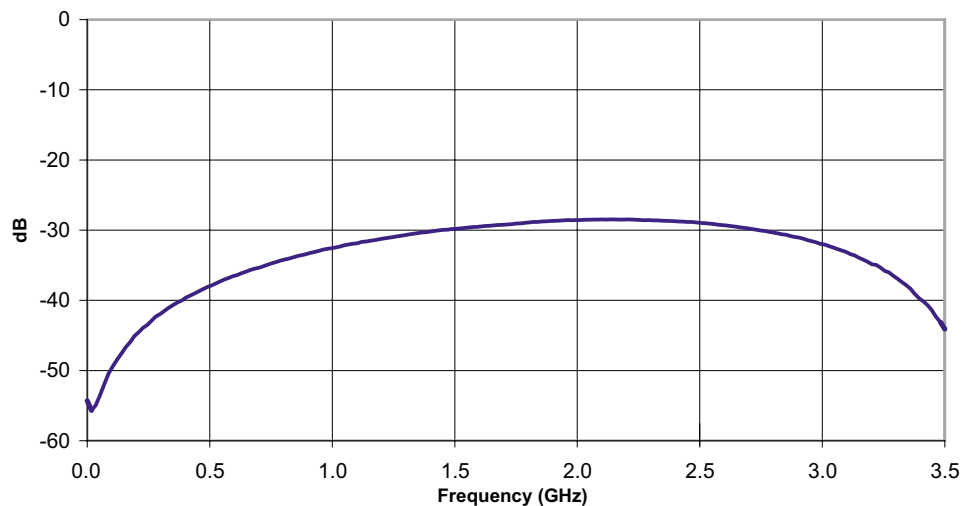
**Power:** 100 Watts (CW)  
**Attenuation:** 20 dB  $\pm$  0.5 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE ATTENUATION



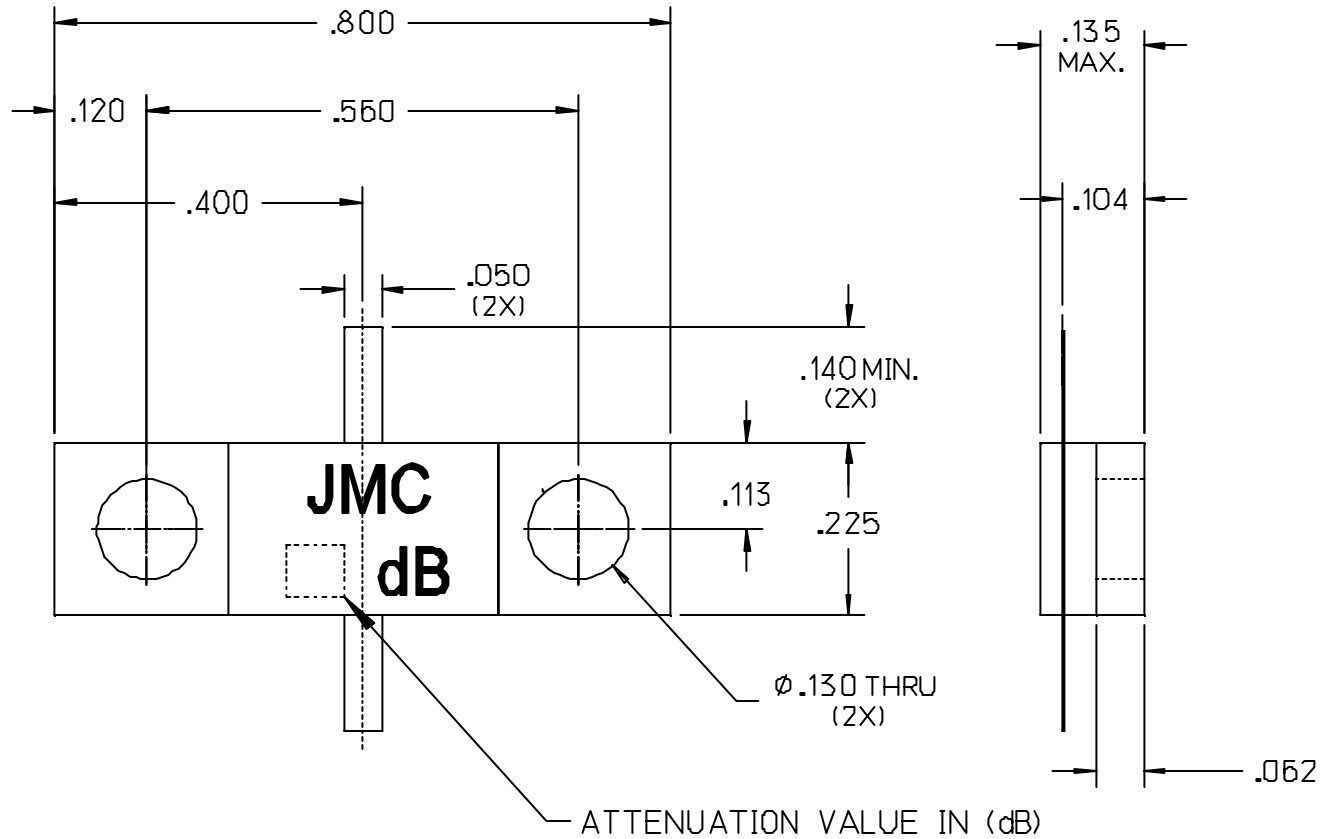
### RETURN LOSS



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### CAUTION

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# AF100B01004

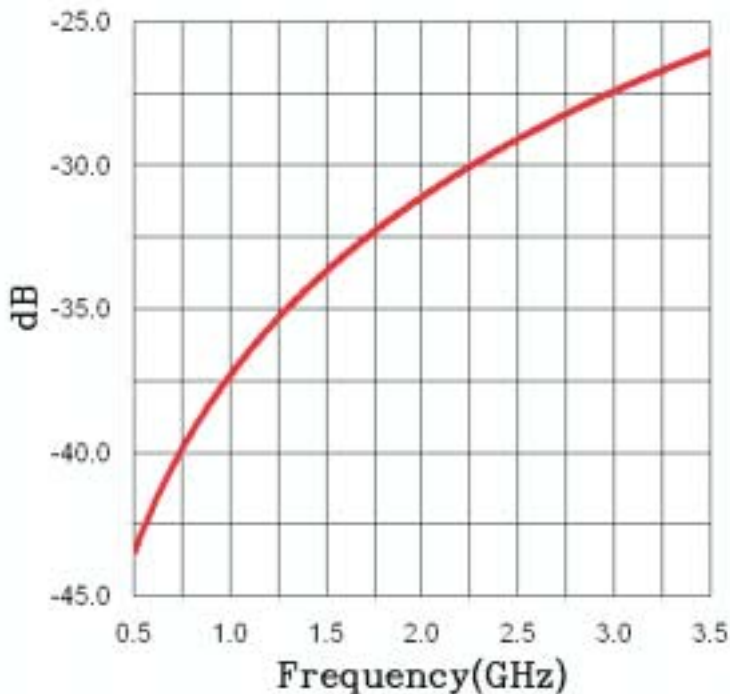
BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 10 dB  $\pm$  0.3 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO

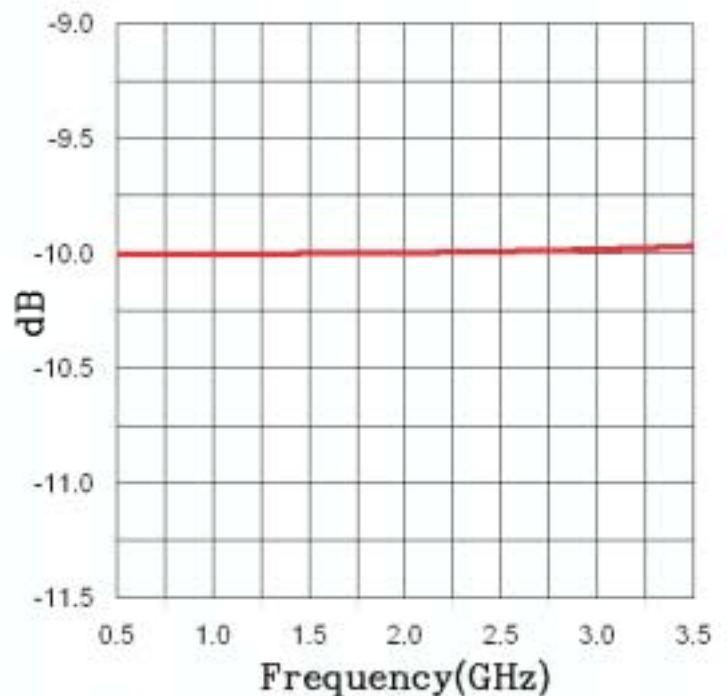


## TYPICAL PERFORMANCE

RETURN LOSS



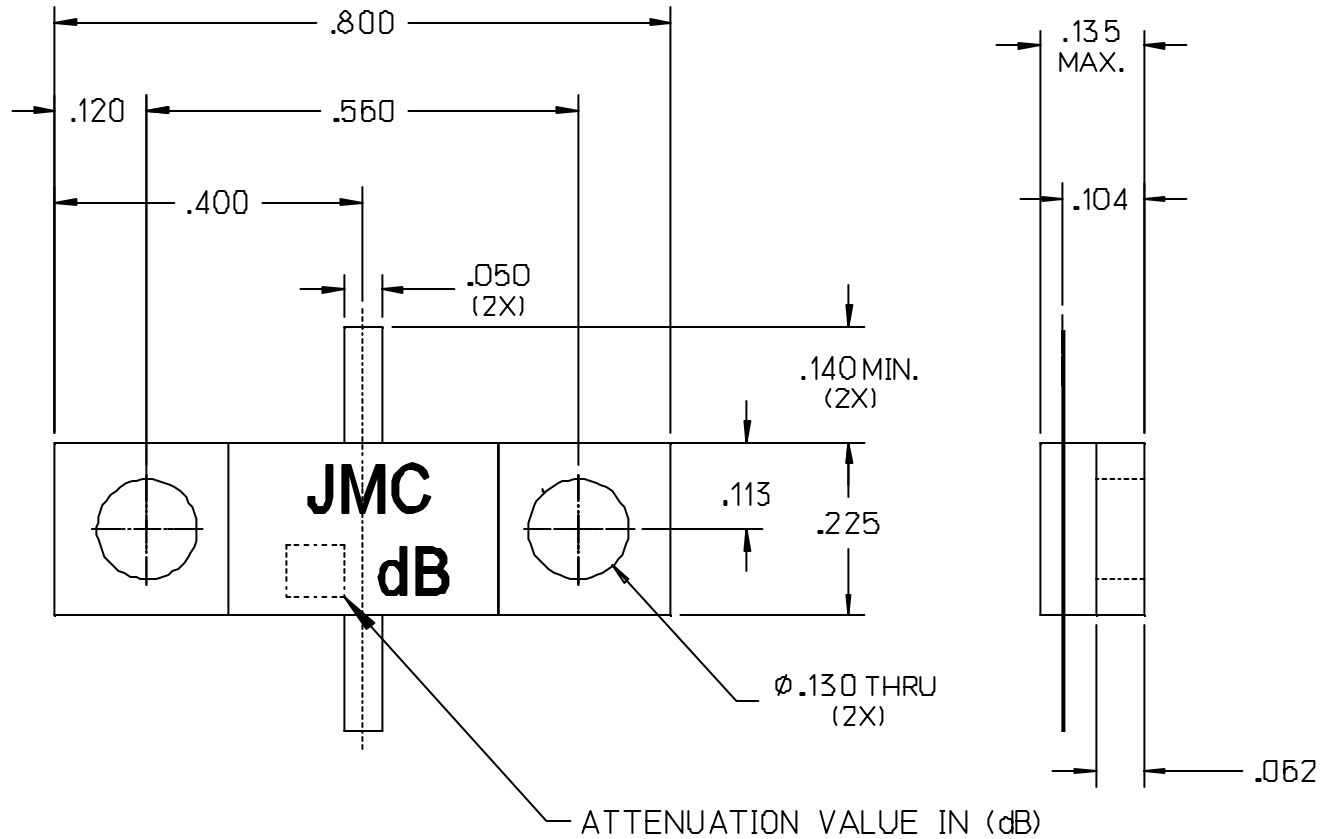
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**AF100B00604**

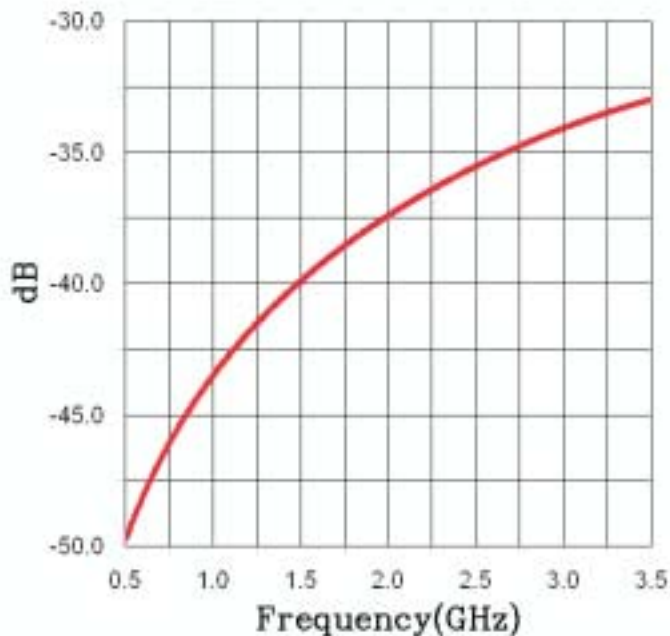
BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 6 dB  $\pm$  0.3 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO

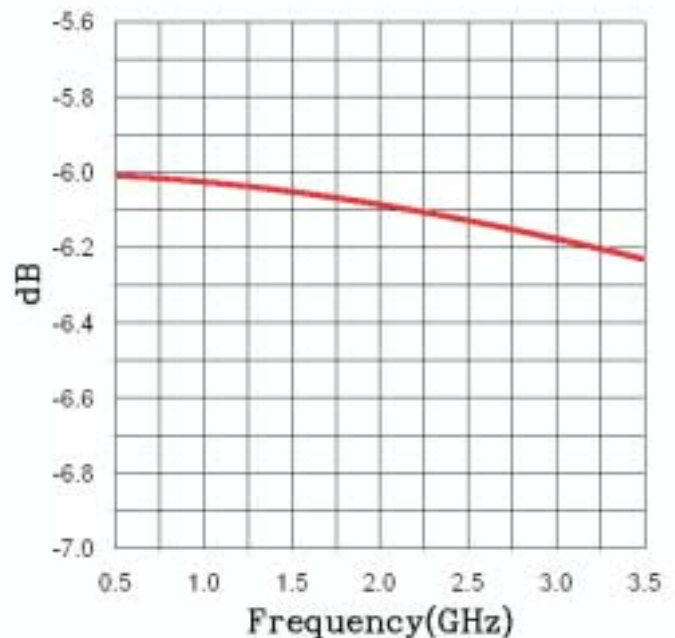


### TYPICAL PERFORMANCE

RETURN LOSS



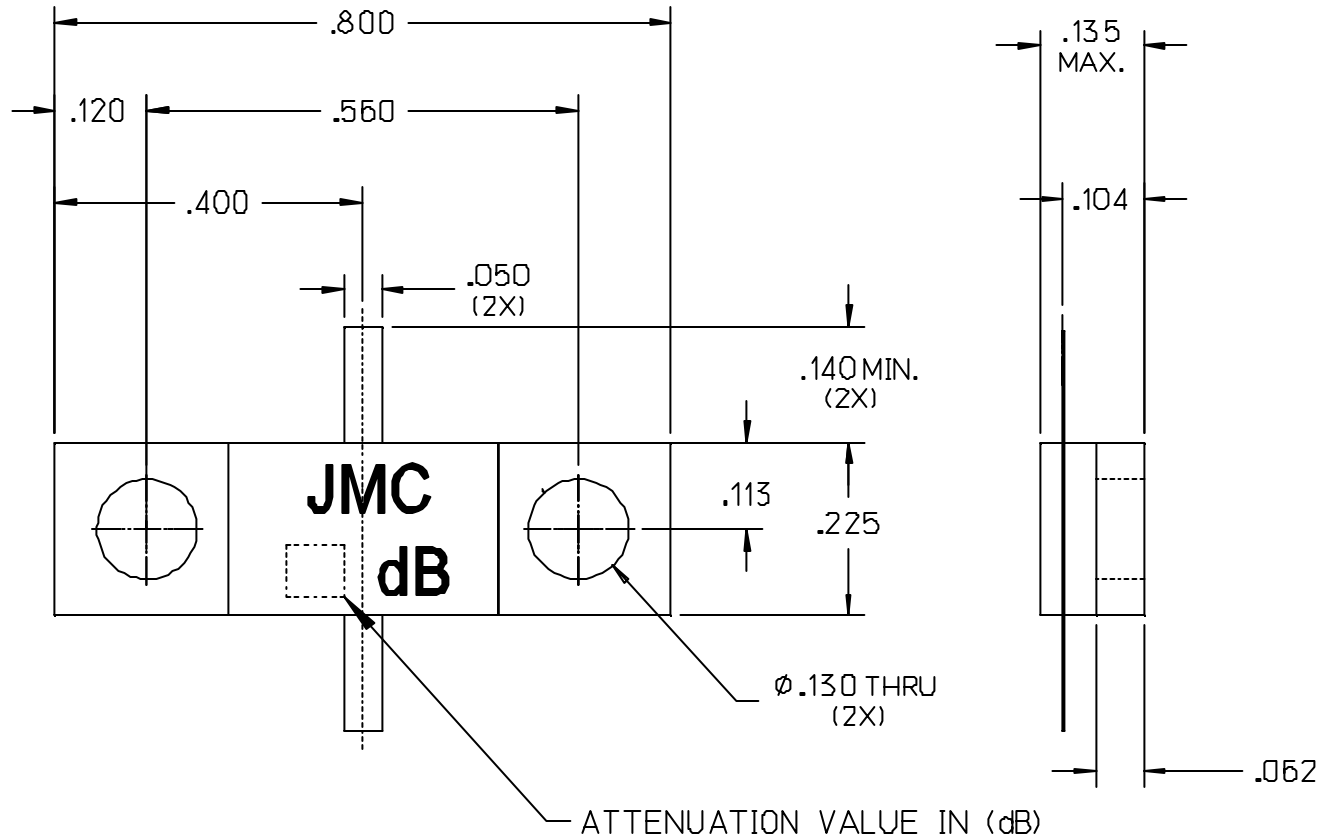
ATTENUATION



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**AF100B00504**

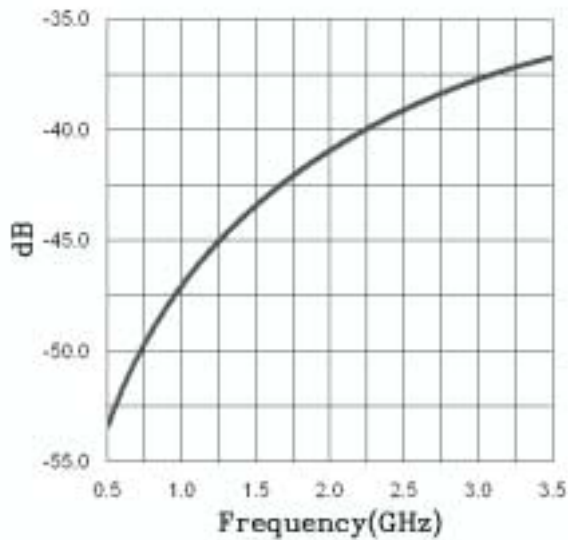
BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 5 dB  $\pm$  0.3 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO

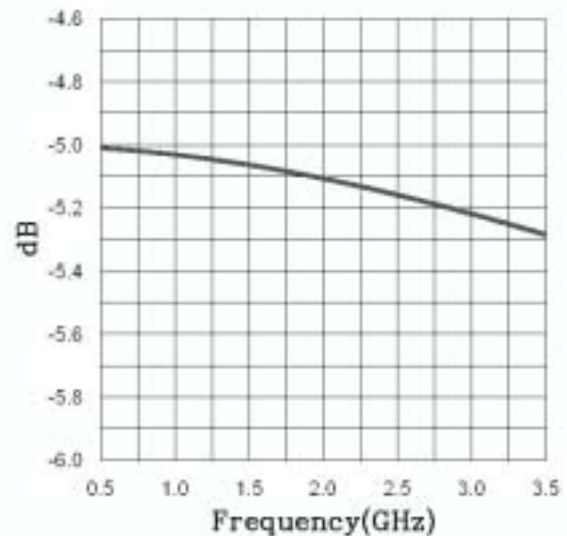


### TYPICAL PERFORMANCE

**RETURN LOSS**



**ATTENUATION**

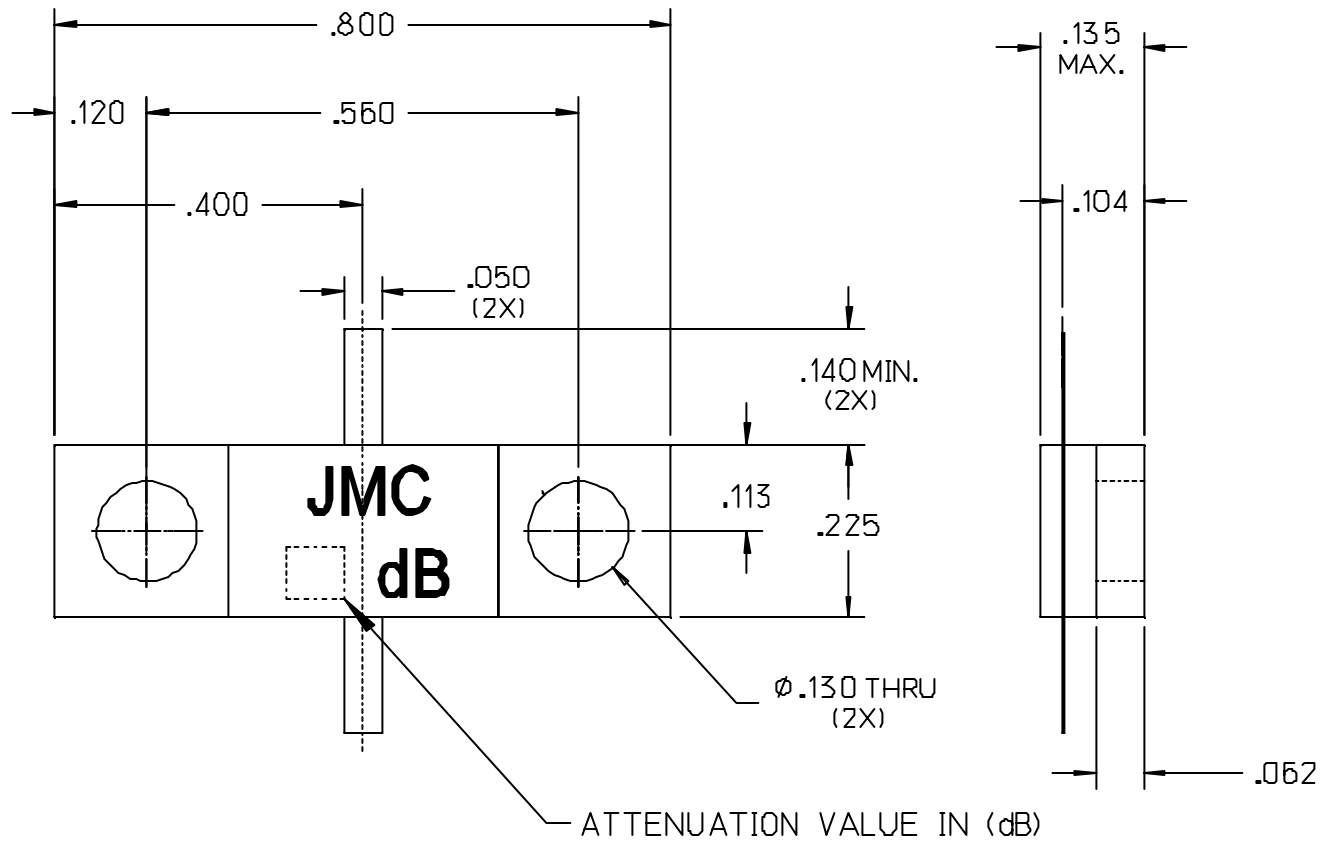


For detailed information regarding this product or sample request contact Johanson Sales



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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



# AF100B00304

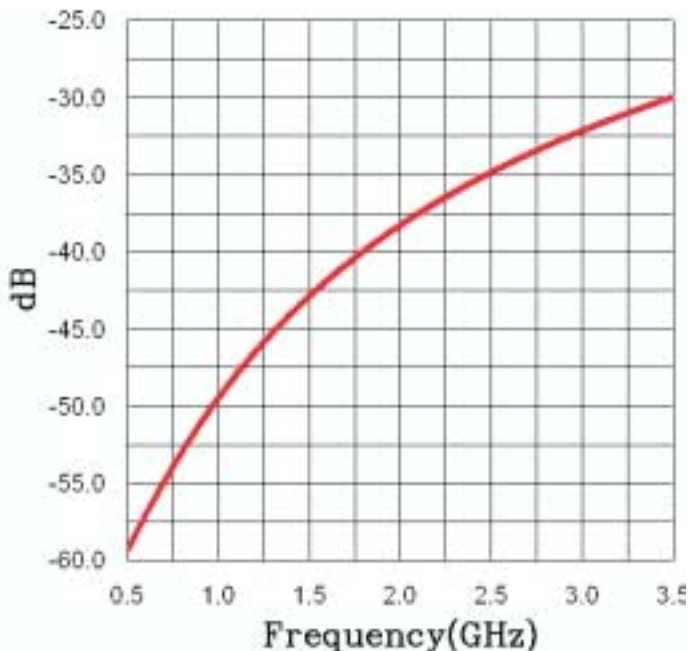
## BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 3 dB  $\pm$  0.2 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO

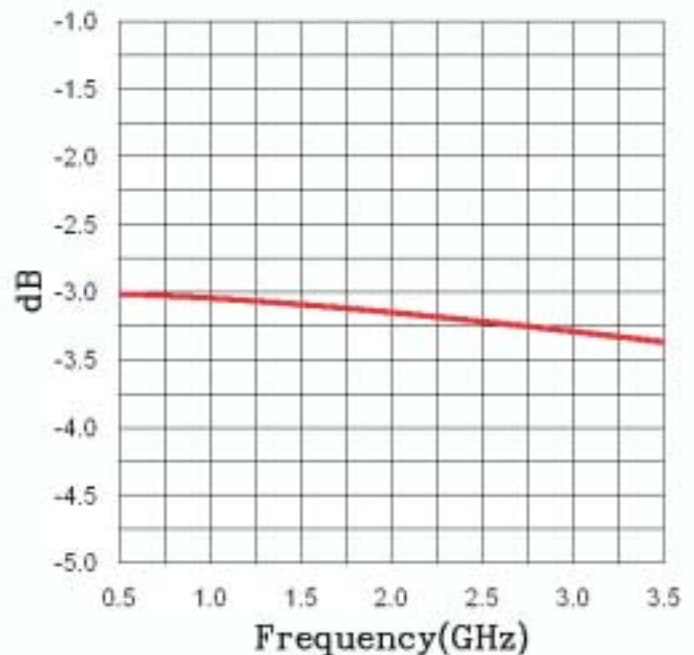


### TYPICAL PERFORMANCE

RETURN LOSS



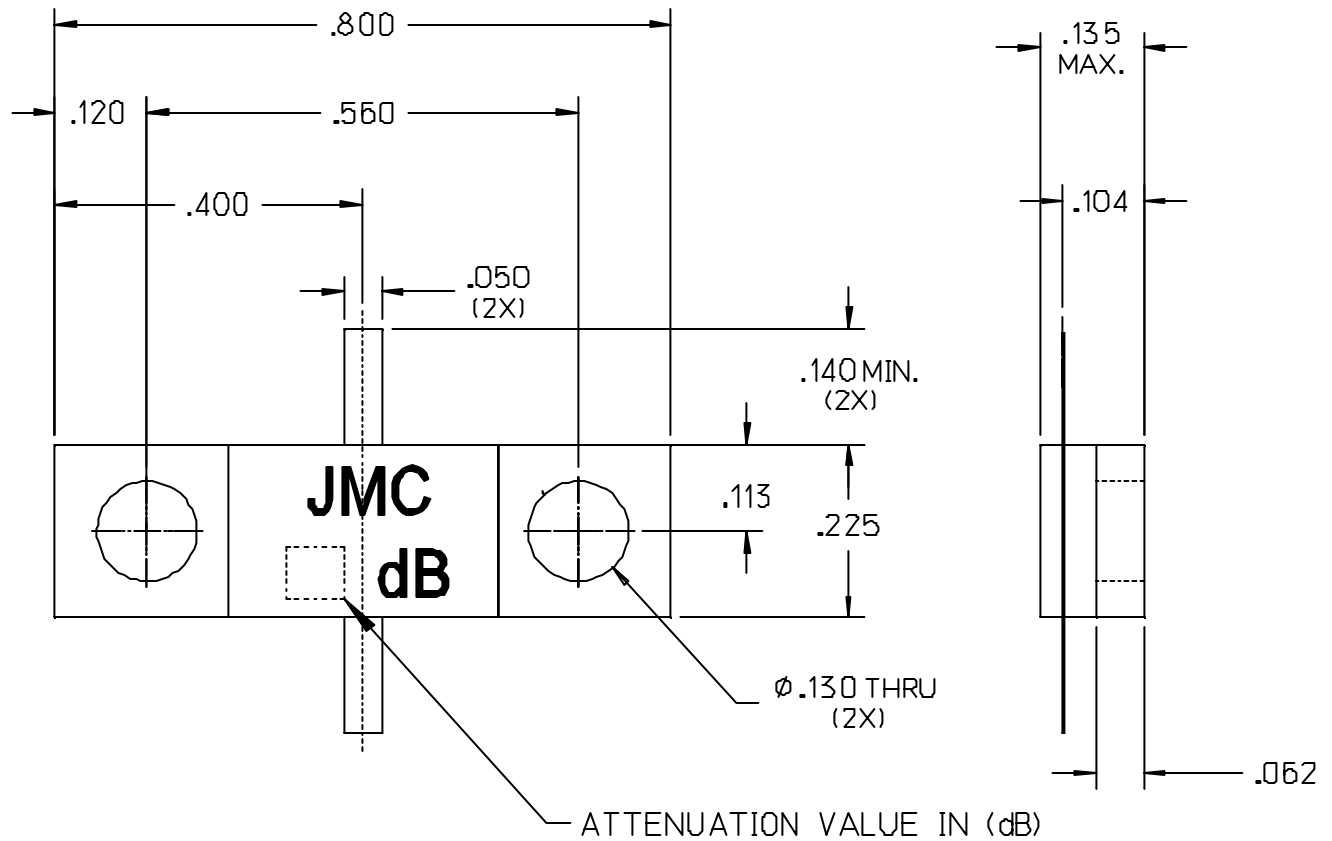
ATTENUATION



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### CAUTION

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 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

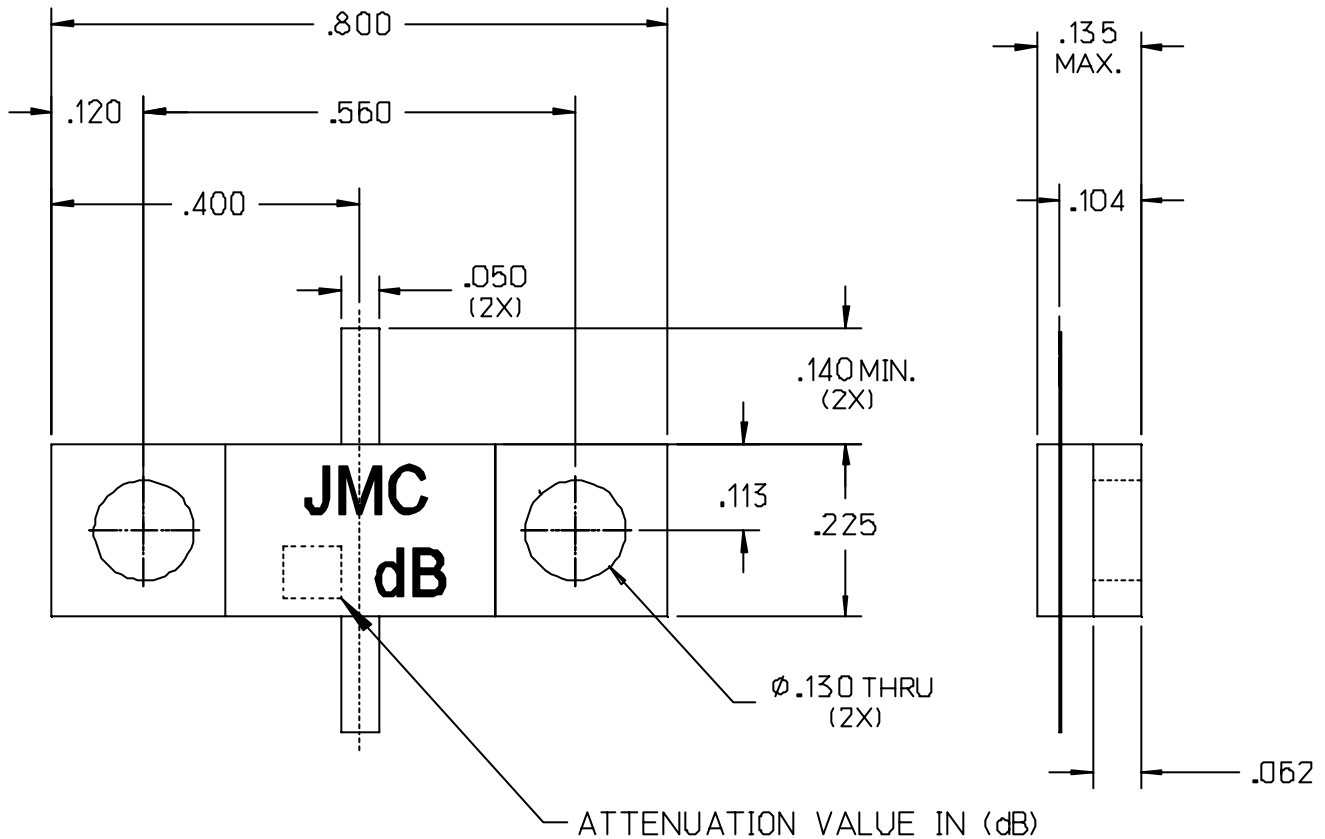
For detailed information regarding this product or sample request contact Johanson Sales



# AF100B00104

## BeO Flange Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 1 dB  $\pm$  0.2 dB  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



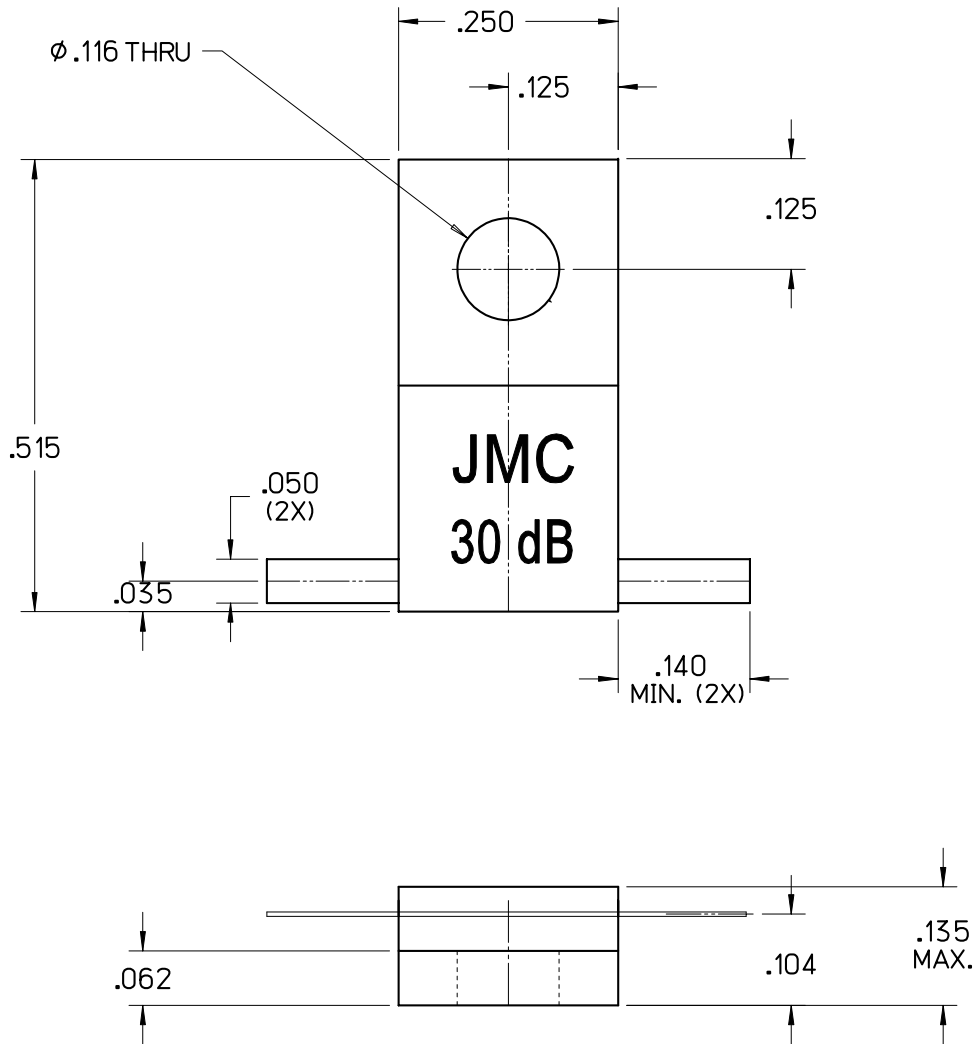
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# AF030B0303A

## BeO Flange Attenuator

**Power:** 30 Watts (CW)  
**Attenuation:** 30 dB  $\pm$  0.5 dB  
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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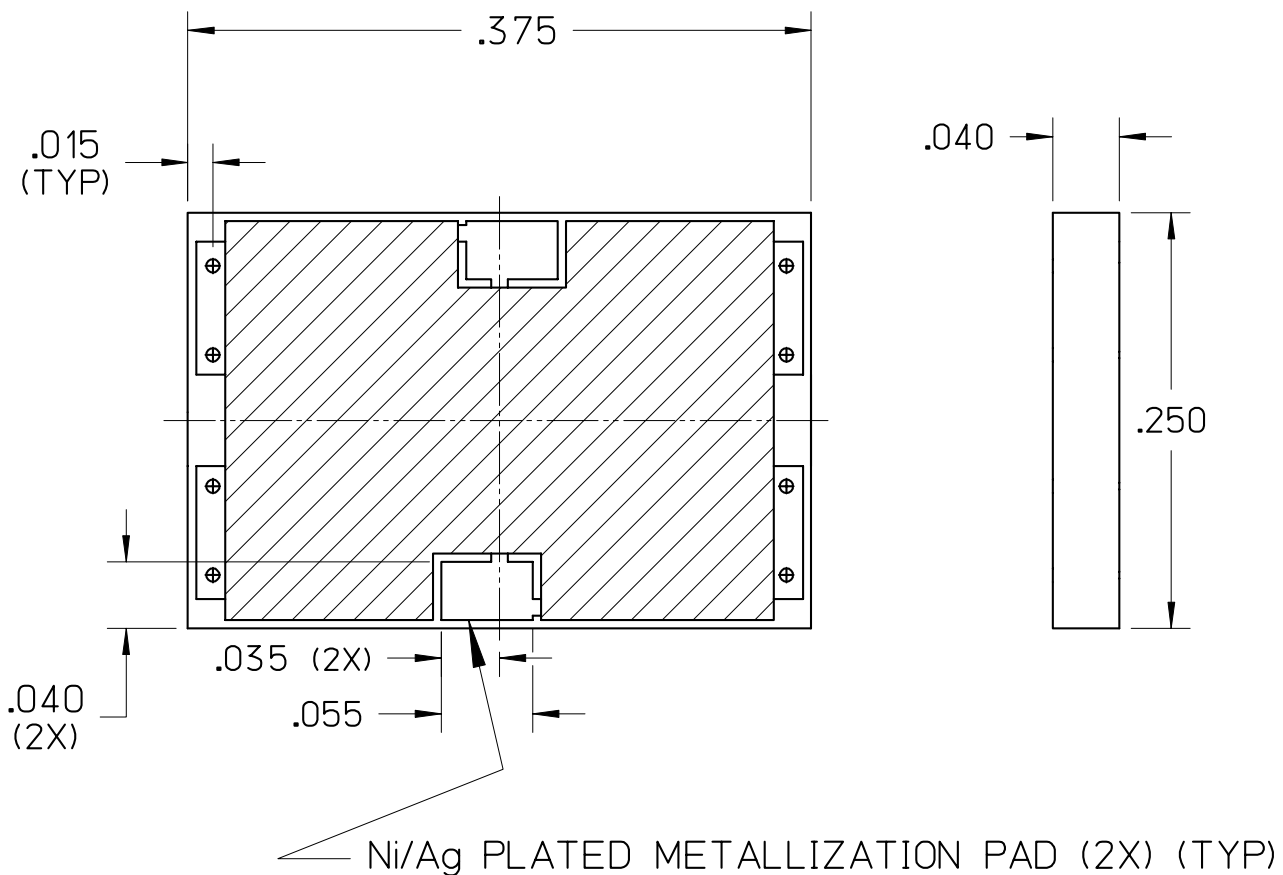




# CA3725A0207C

## AlN Chip Attenuator

**Power:** 100 Watts (CW)  
**Attenuation:** 20 dB  $\pm$  0.5 dB  
**Substrate:** AlN



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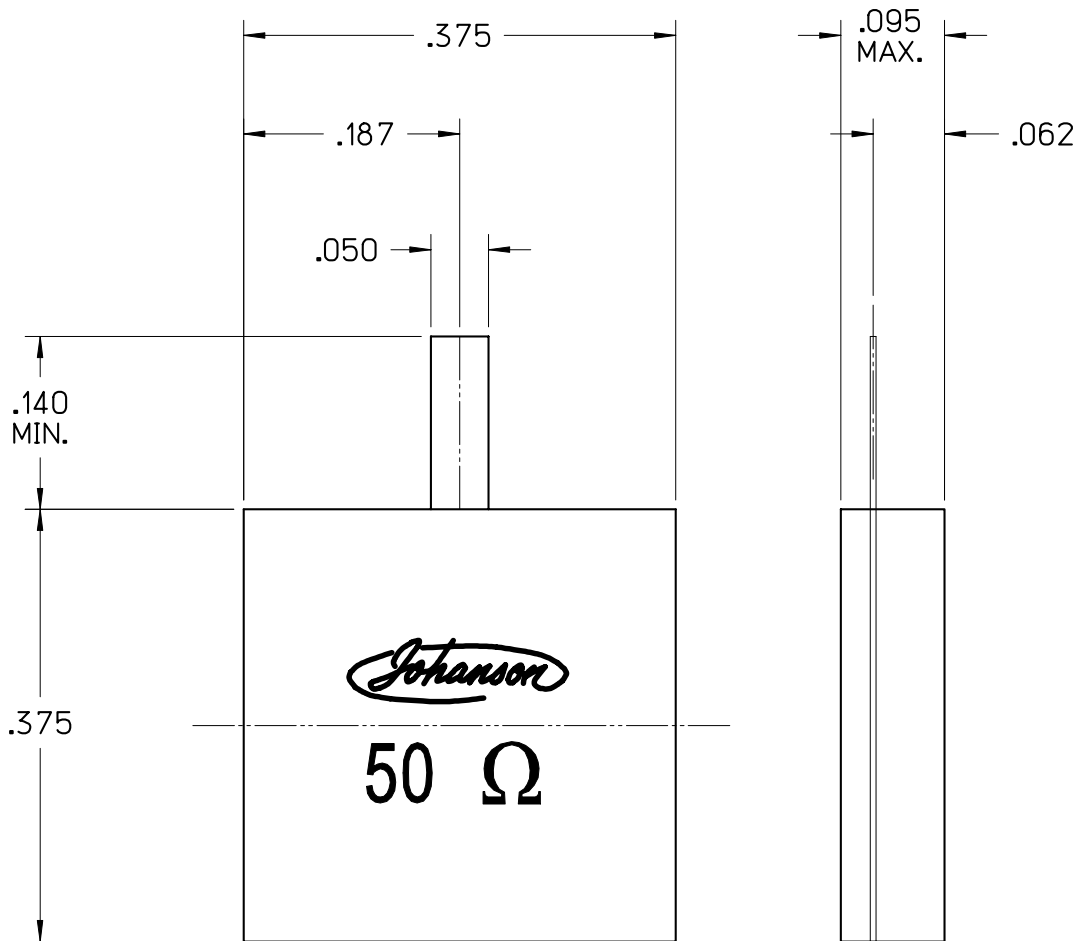




# TL250AB21

## AlN Flangeless Termination

**Power:** 250 Watts (CW)  
**Resistance:**  $50\ \Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



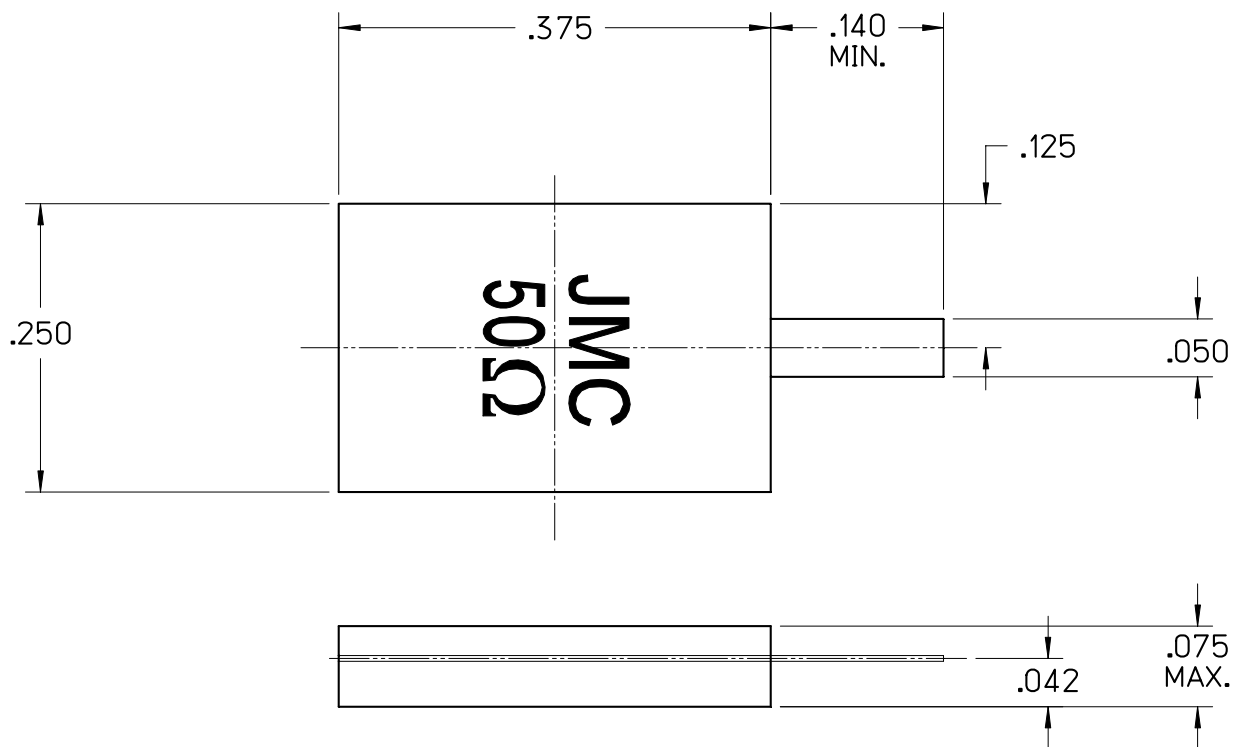
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# TL150AB19

## AlN Flangeless Termination

**Power:** 150 Watts (CW)  
**Resistance:**  $50\Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



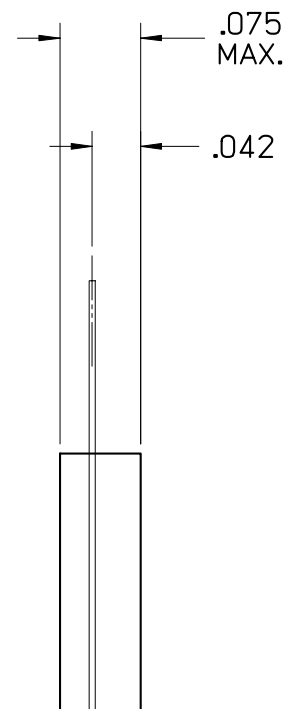
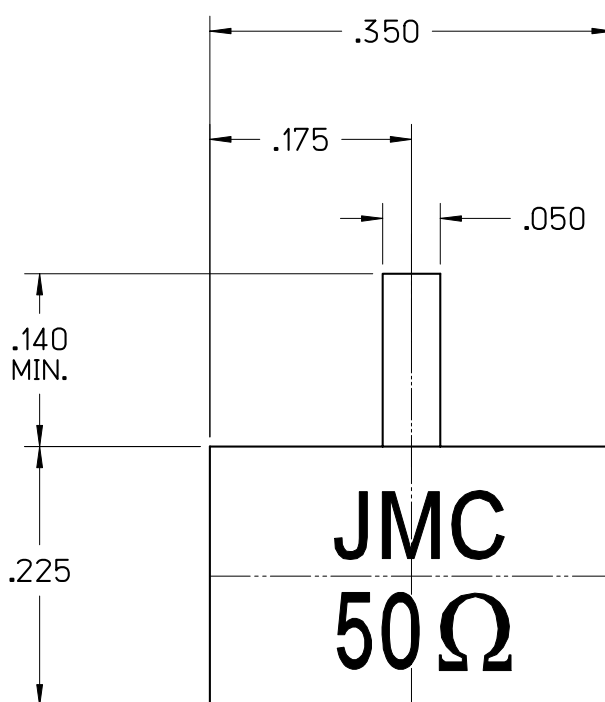
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# TL125BB18

## BeO Flangeless Termination

**Power:** 125 Watts (CW)  
**Resistance:**  $50 \Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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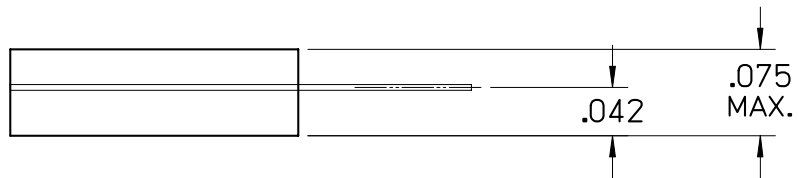
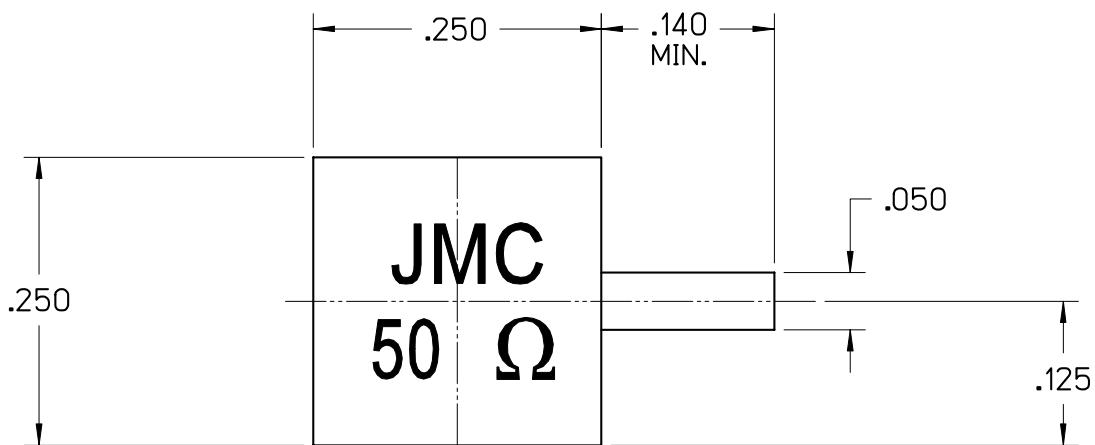
Nov 08



# TL100AB17-04

## AlN Flangeless Termination

**Power:** 100 Watts (CW)  
**Resistance:**  $50\ \Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales

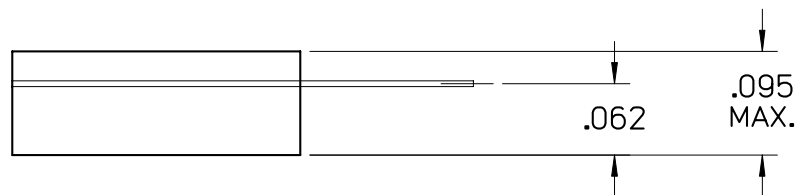
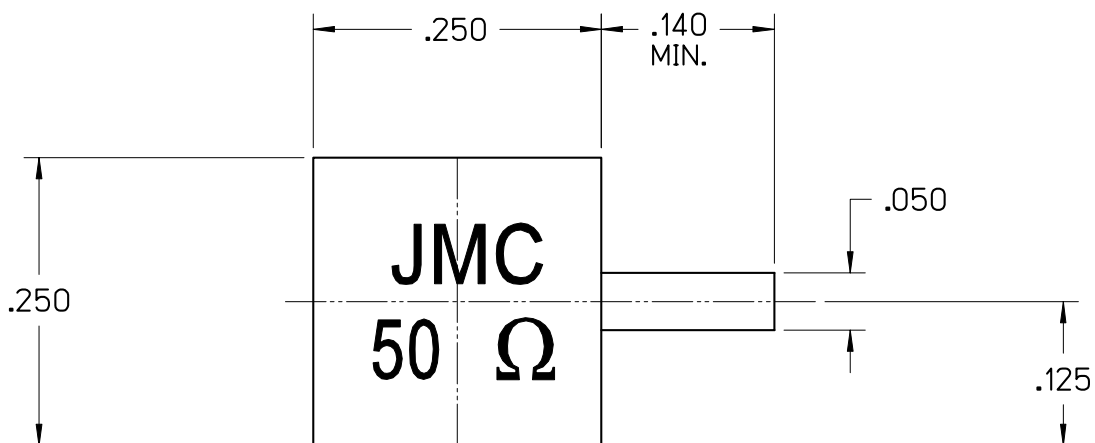




TL040BB17

BeO Flangeless Termination

Power: 40 Watts (CW)  
Resistance: 50 Ω ± 5%  
Substrate: BeO



**CAUTION**  
THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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**TL040AB17**

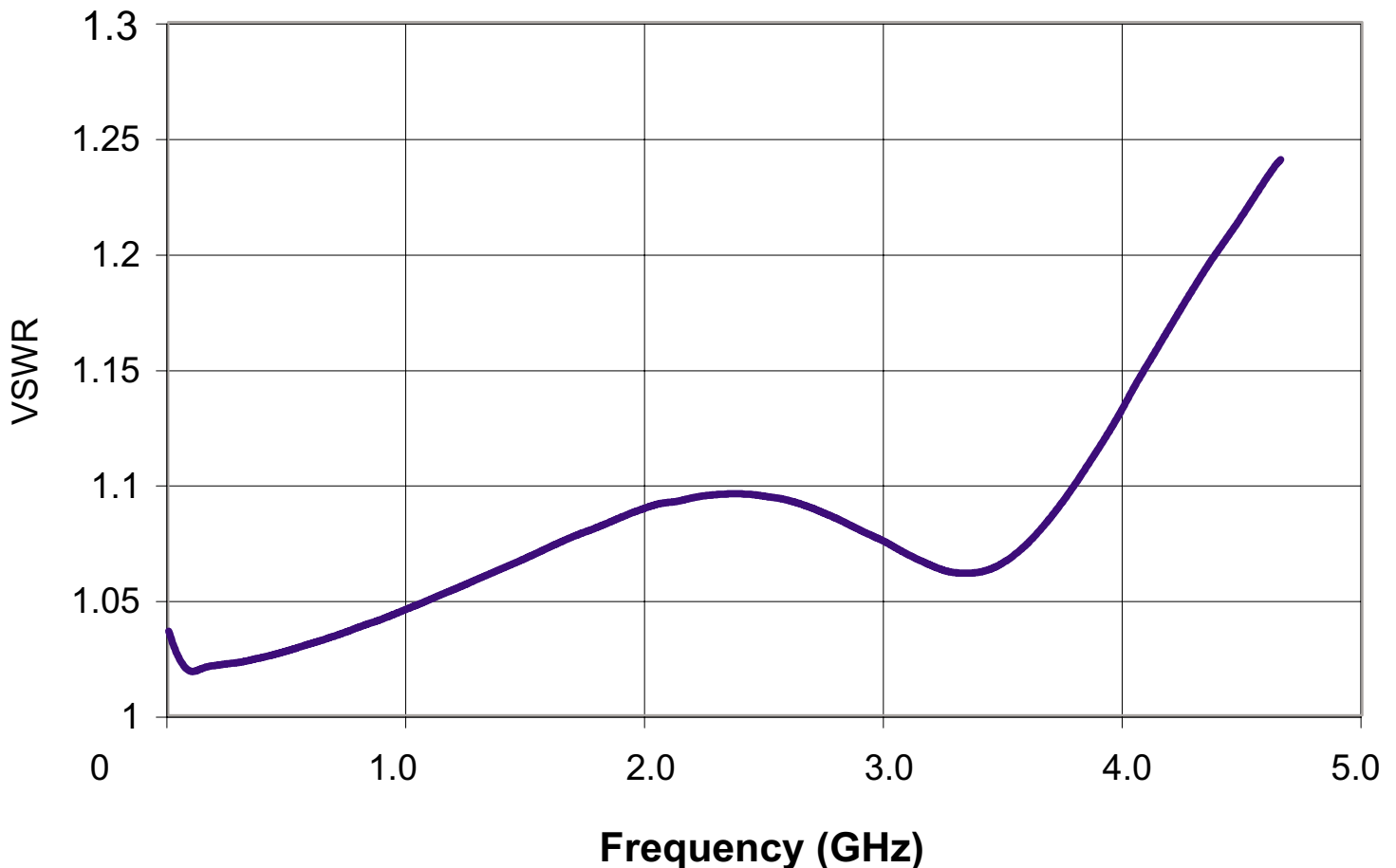
**AlN Flangeless Termination**

**Power:** 40 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.20:1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AlN



### TYPICAL PERFORMANCE

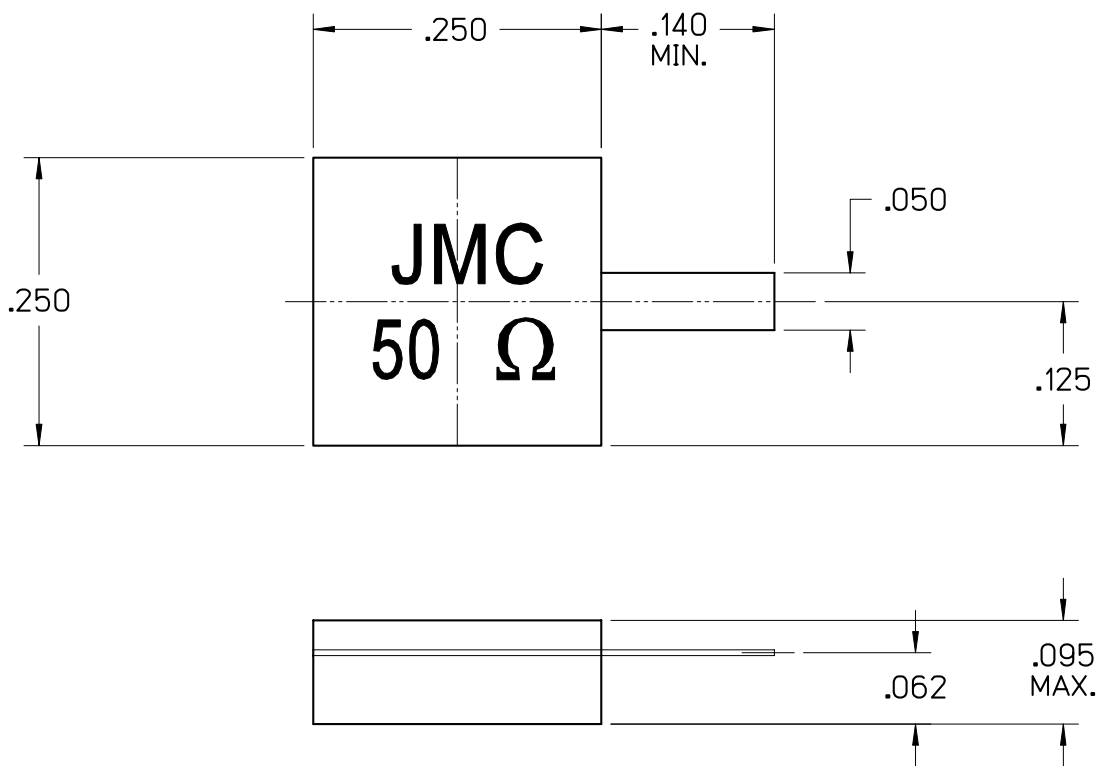
#### VSWR



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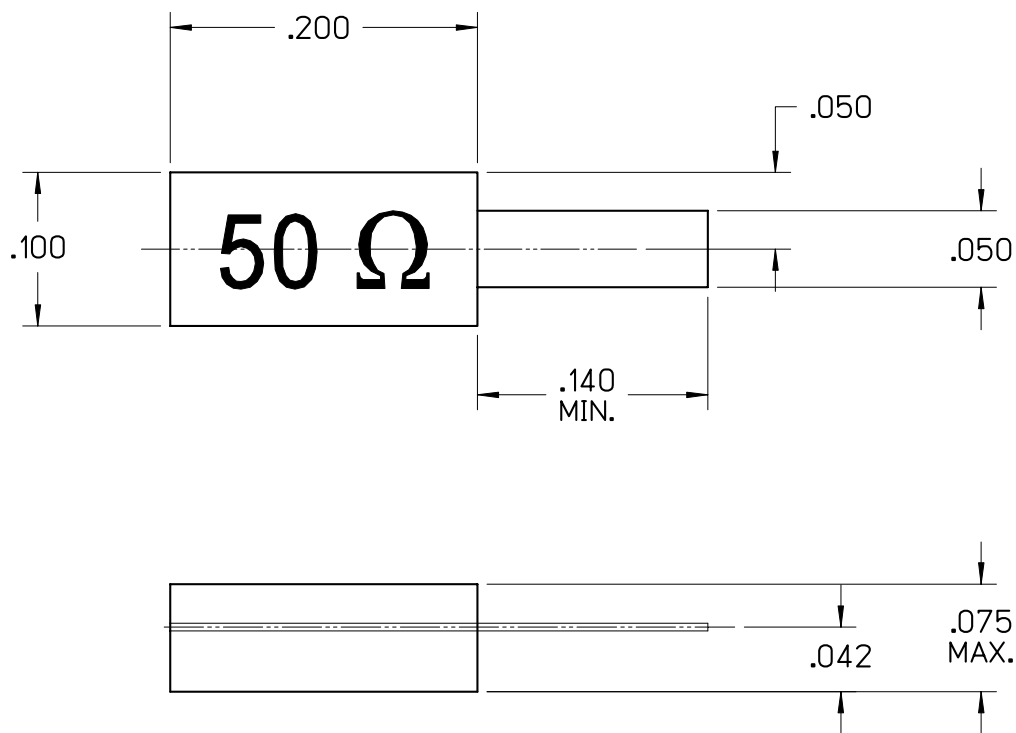
For detailed information regarding this product or sample request contact **Johanson Sales**



# TL030BB16

## BeO Flangeless Termination

**Power:** 30 Watts (CW)  
**Resistance:**  $50 \Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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**TL030AB16**

**AlN Flangeless Termination**

**Power: 30 Watts (CW)**

**Resistance: 50  $\Omega$   $\pm$  5%**

**VSWR: 1.07:1**

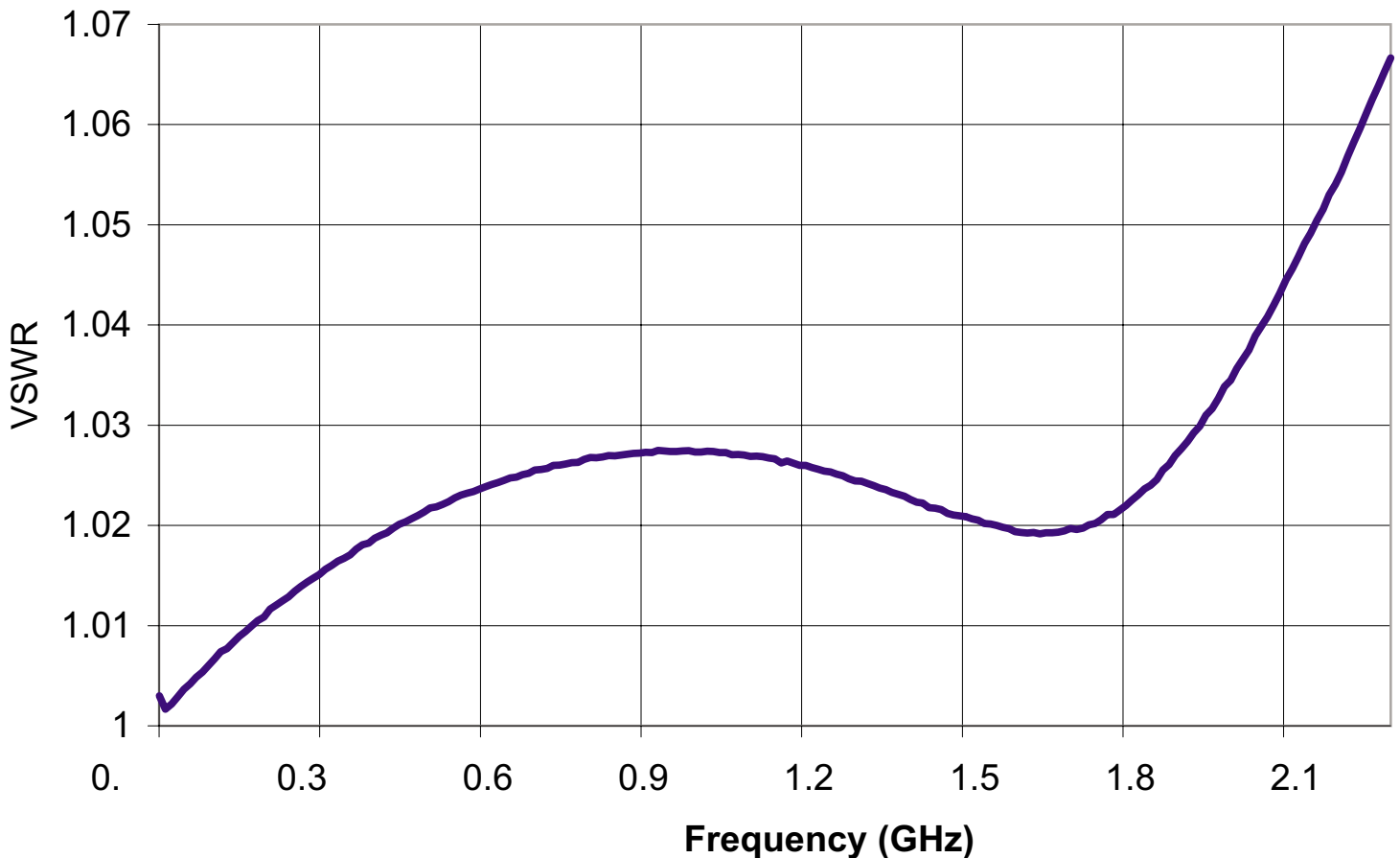
**Frequency Range: DC to 2.3 GHz**

**Substrate: AlN**



### TYPICAL PERFORMANCE

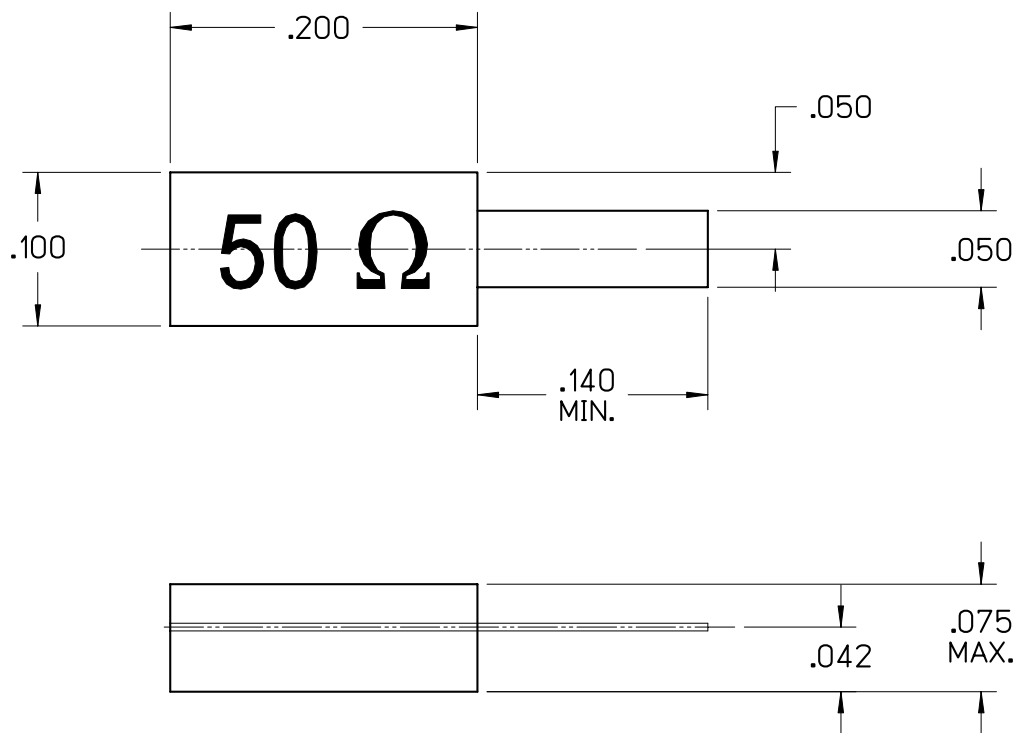
#### VSWR



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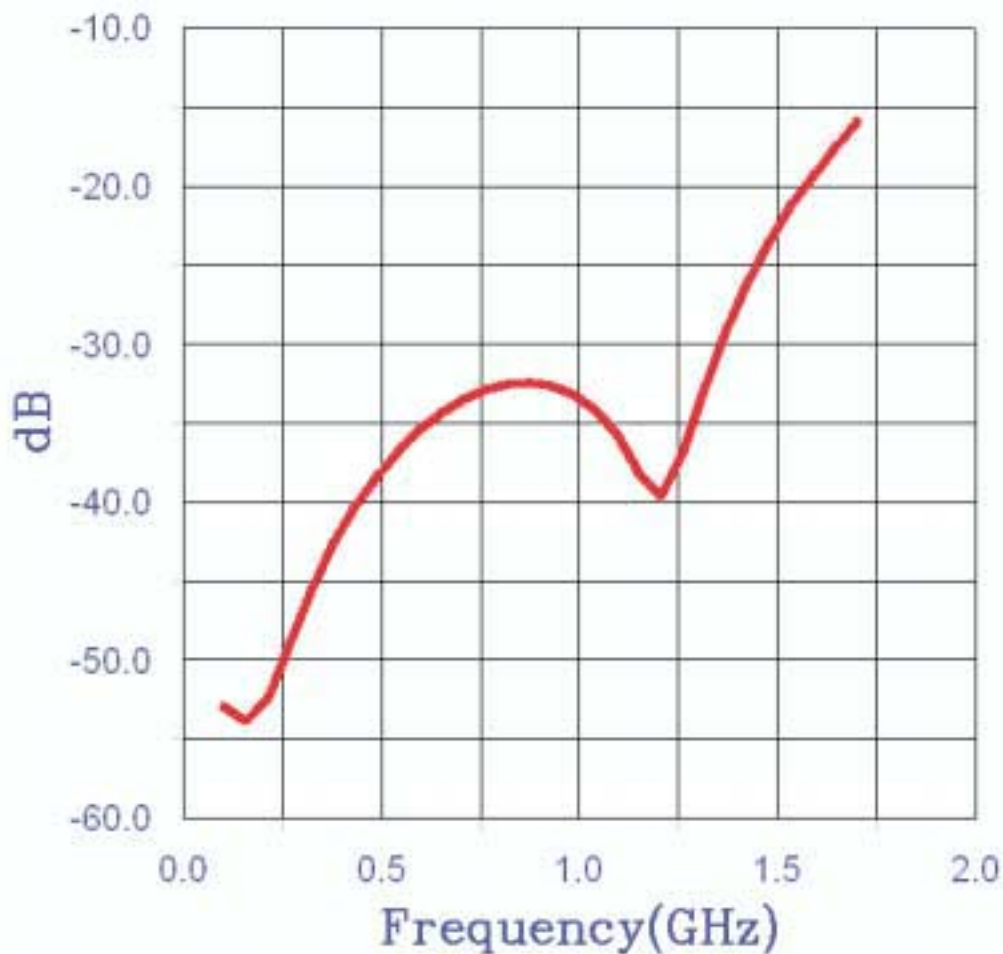


# TF800BB14-061

BeO Flanged Termination

**Power:** 800 Watts (CW)  
**Resistance:** 50  $\Omega$   $\pm$  5%  
**VSWR:** 1.065 :1 DC to 860 MHz  
1.220 :1 1.45 to 1.50 GHz  
**Substrate:** BeO

## TYPICAL PERFORMANCE RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales

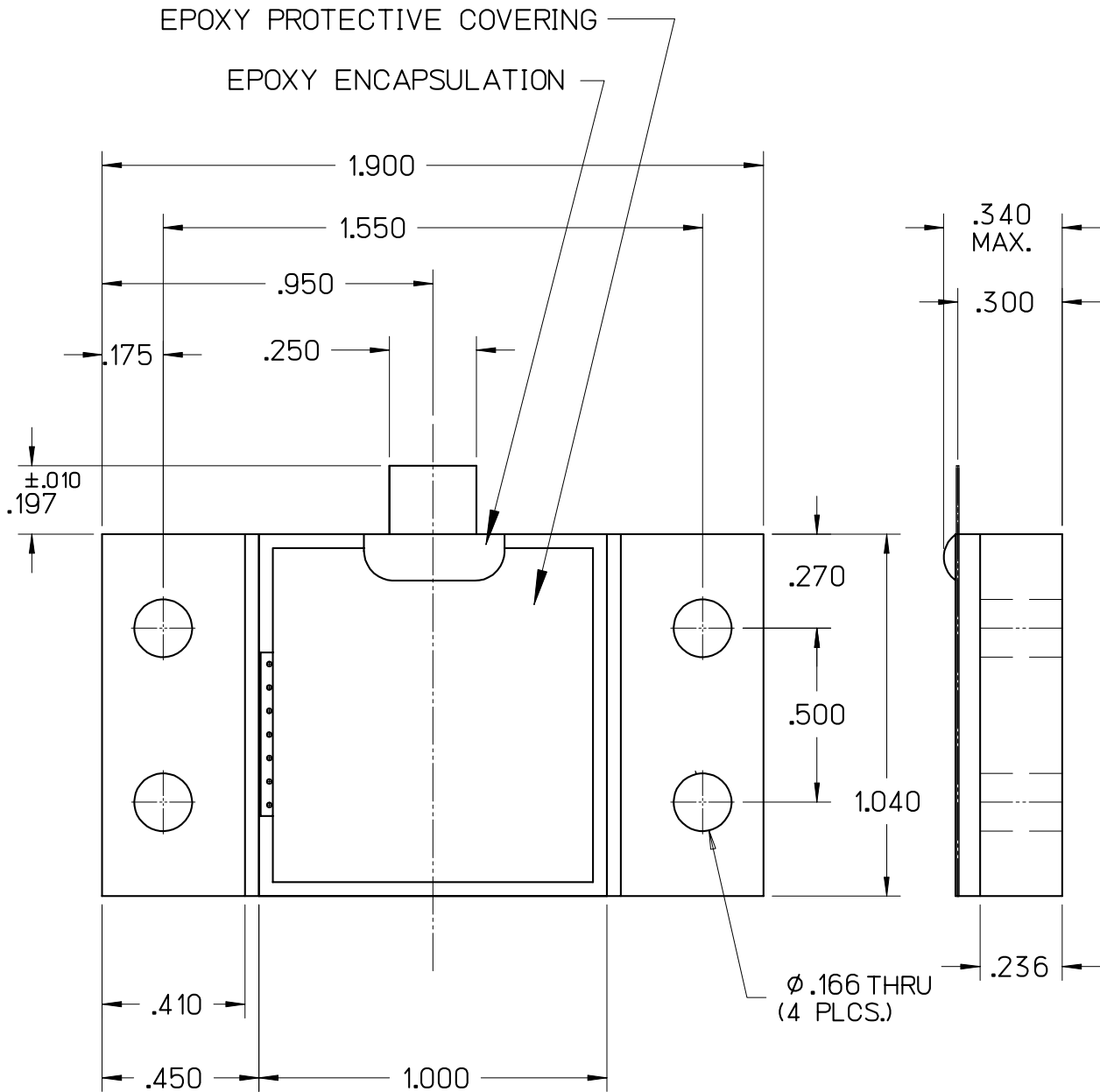


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# TF800BB14-061

## BeO Flanged Termination



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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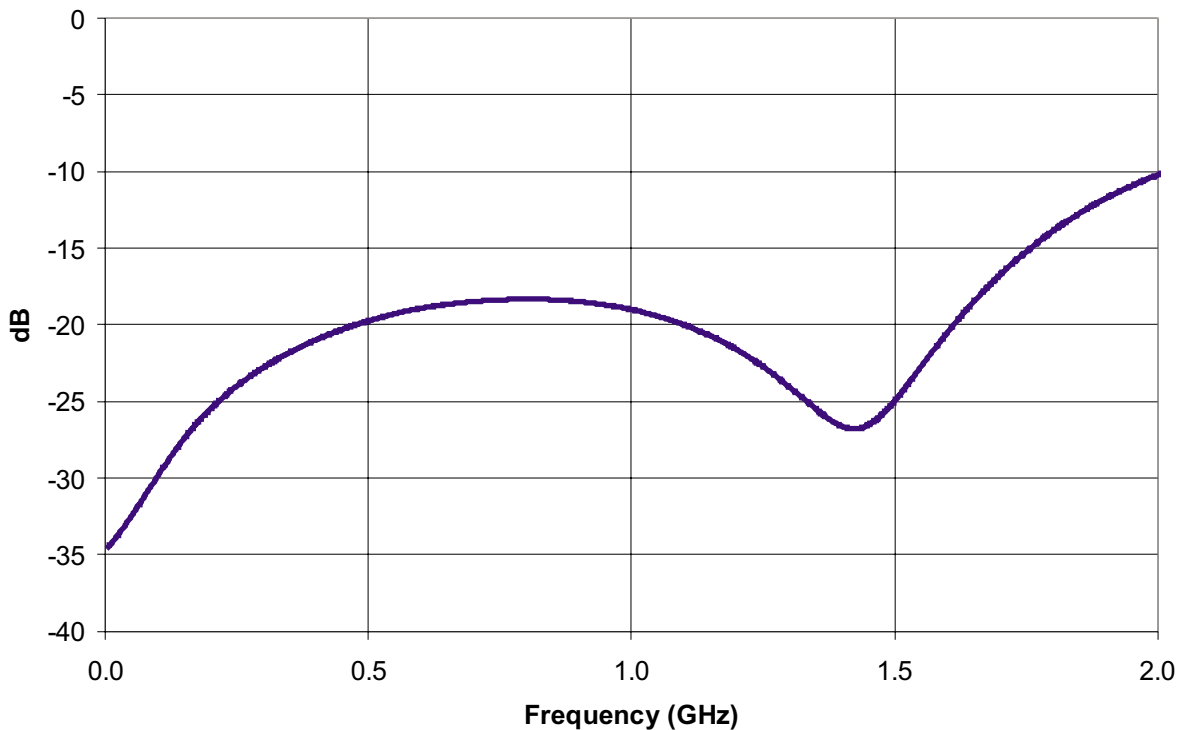


# TF800BB14

## BeO Flanged Termination

**Power:** 800 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.30:1  
**Frequency Range:** DC to 1.5 GHz  
**Substrate:** BeO

### TYPICAL PERFORMANCE RETURN LOSS

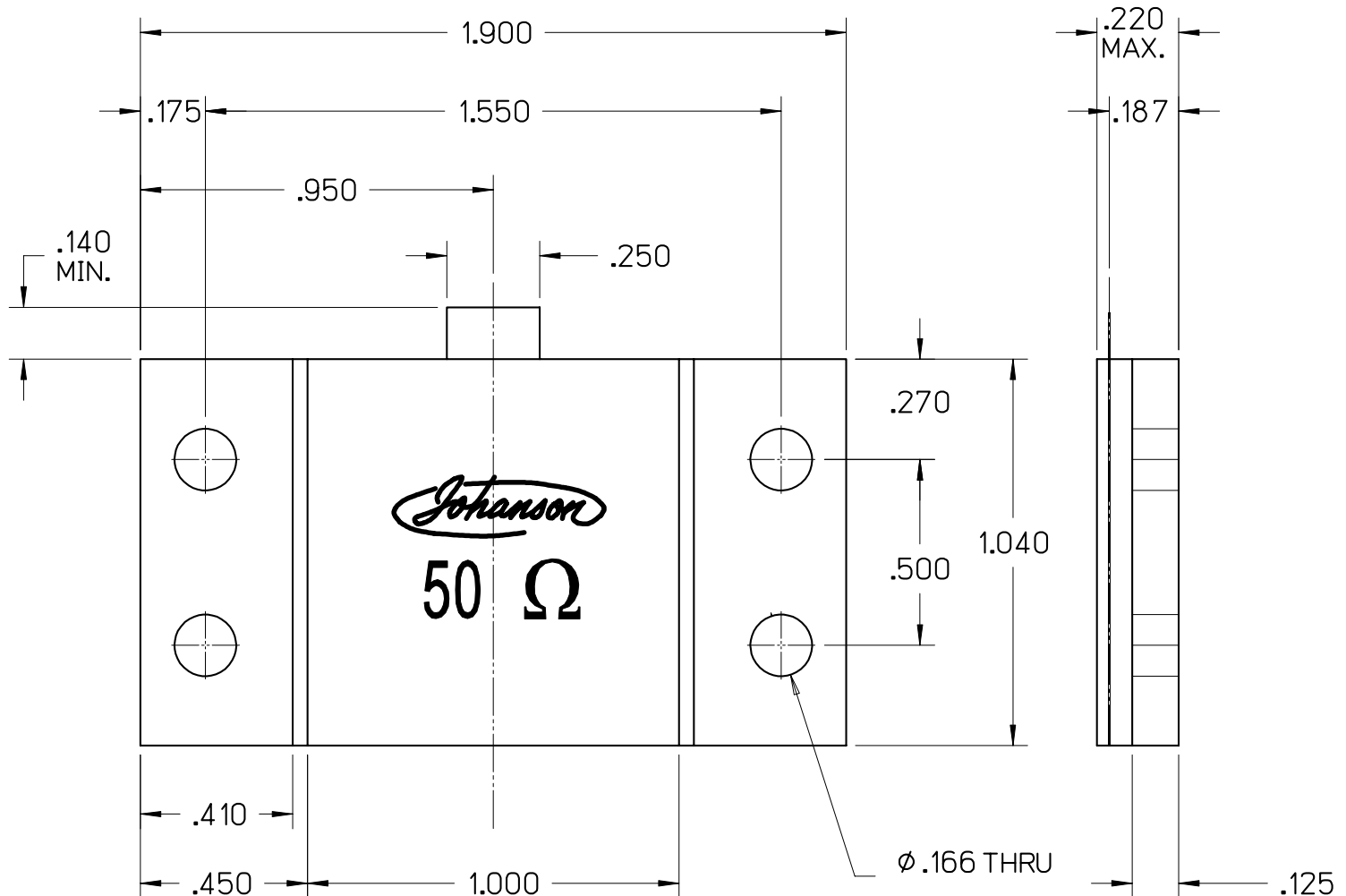


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

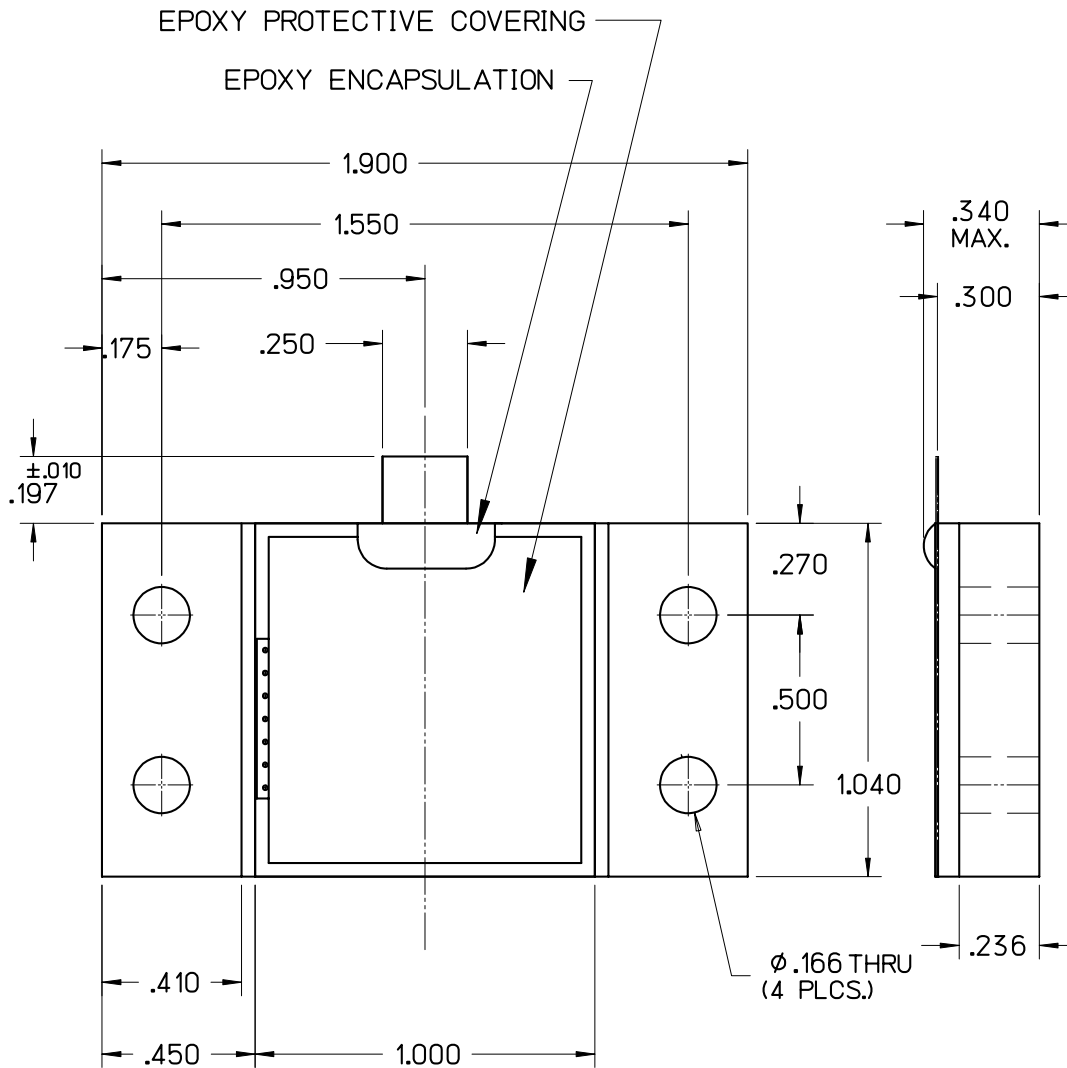
For detailed information regarding this product or sample request contact Johanson Sales



# TF800BA14-061

## BeO Flanged Termination

**Power:** 800 Watts (CW)  
**Resistance:** 100Ω ± 5%  
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



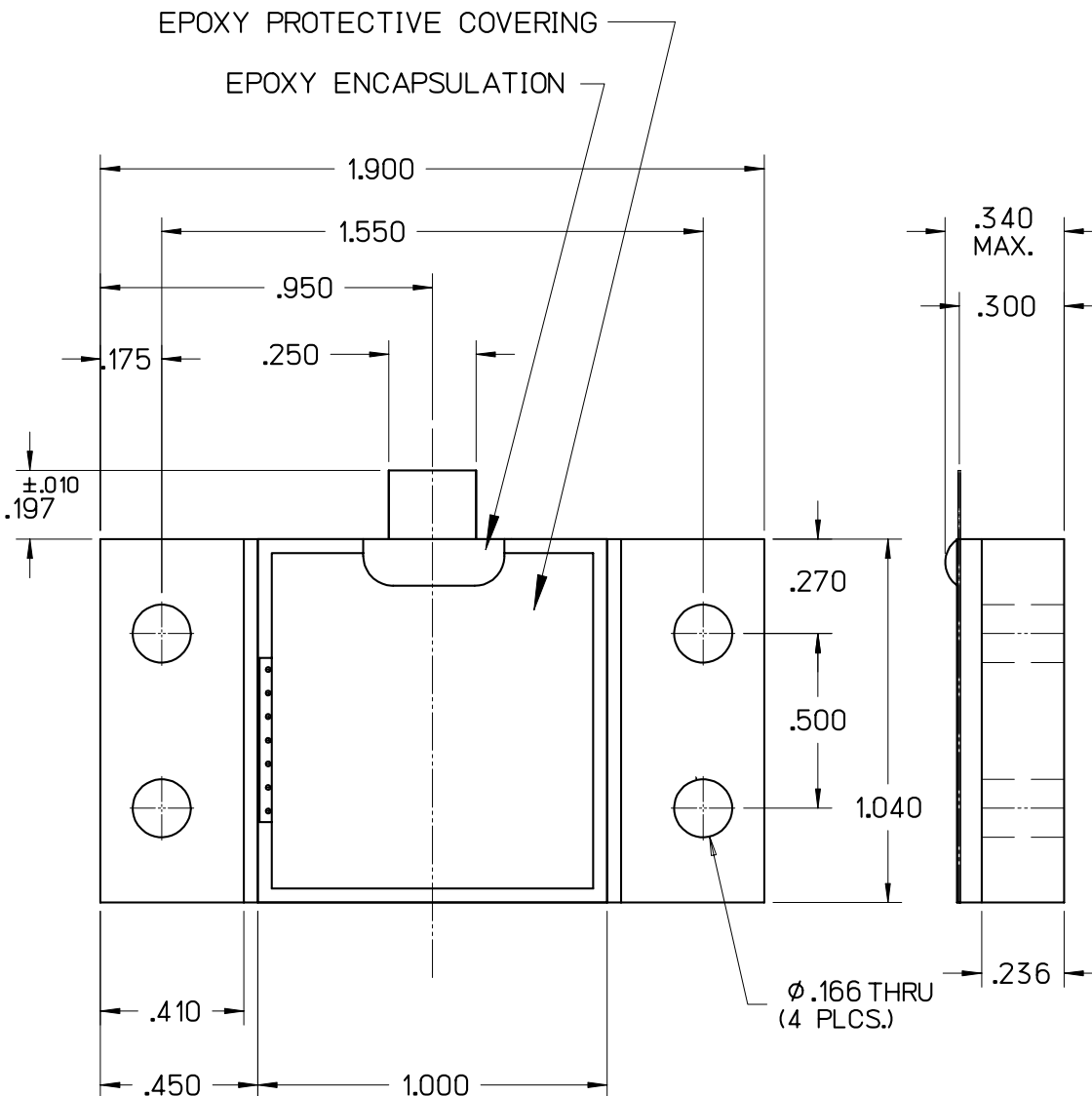
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# TF600AB14-061

## AIN Flanged Termination

**Power:** 600 Watts (CW)  
**Resistance:**  $50 \Omega \pm 5\%$   
**VSWR:** 1.10 :1  
**Frequency Range:** 150 to 860 Mhz  
**Substrate:** AIN



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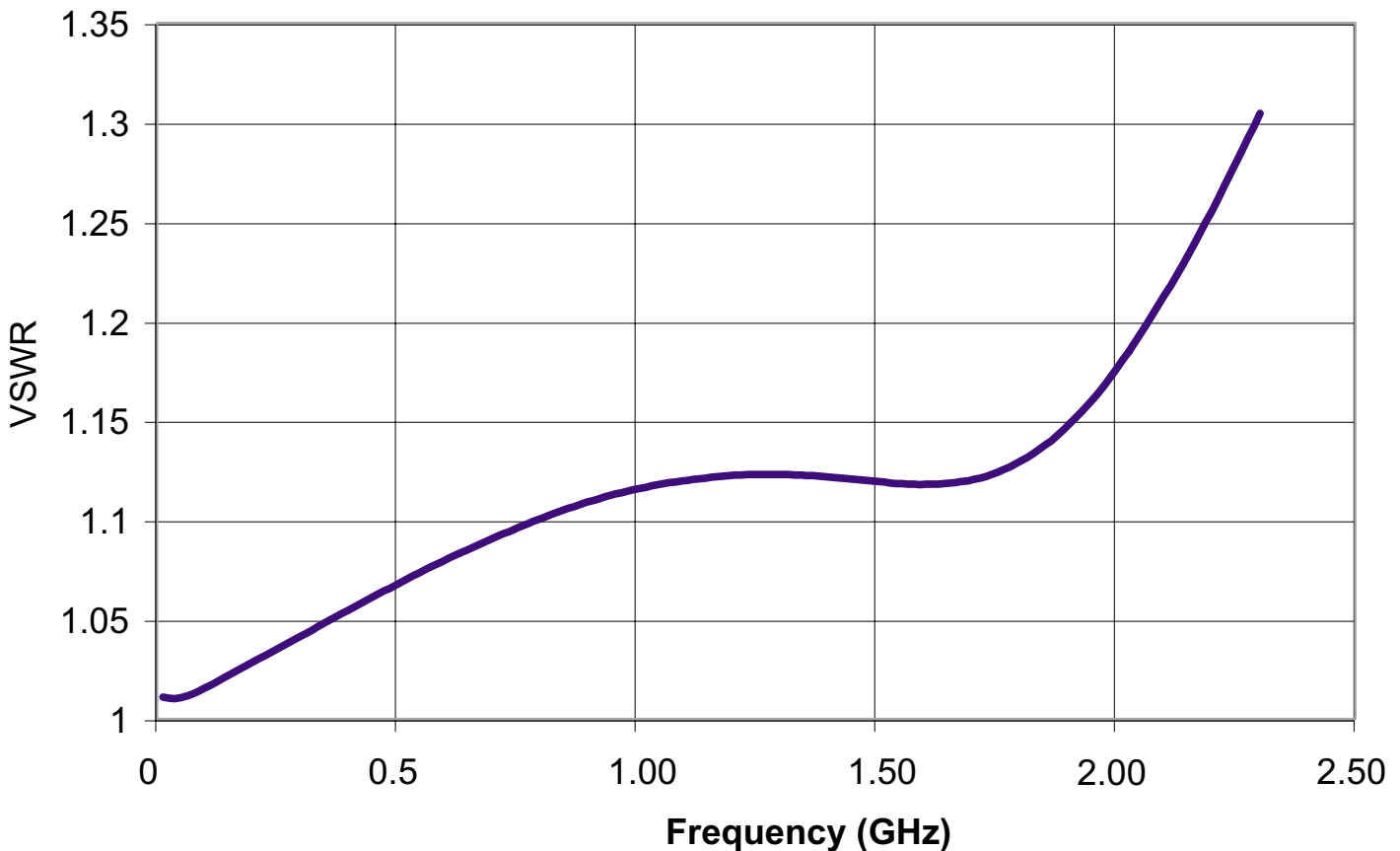


**TF500BB15-040**

**BeO Flanged Termination**

**Power:** 500 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.30:1  
**Frequency Range:** DC to 2.2 GHz  
**Substrate:** BeO

**TYPICAL PERFORMANCE**  
**VSWR**



For detailed information regarding this product or sample request contact Johanson Sales



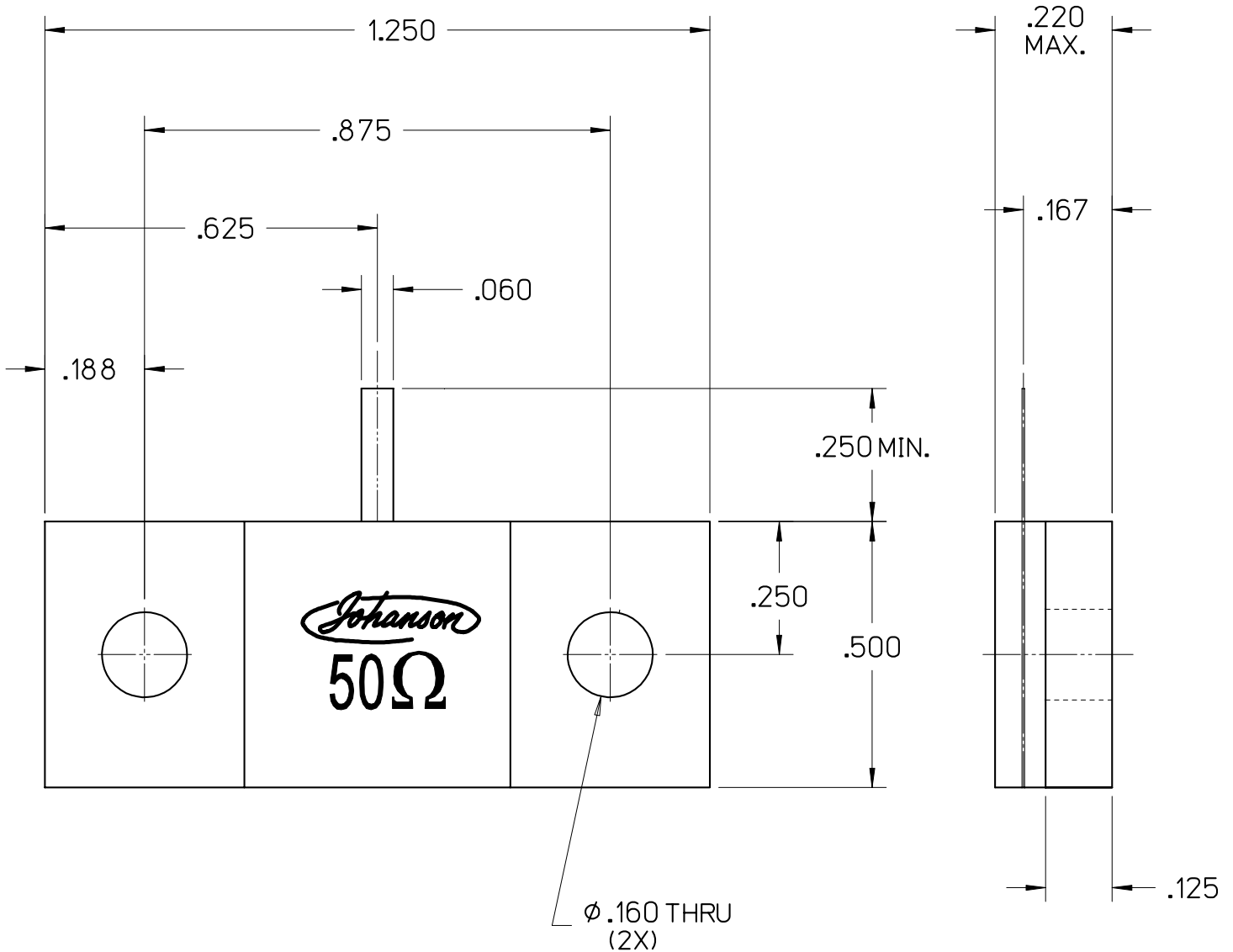
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# TF500BB15-040

## BeO Flanged Termination



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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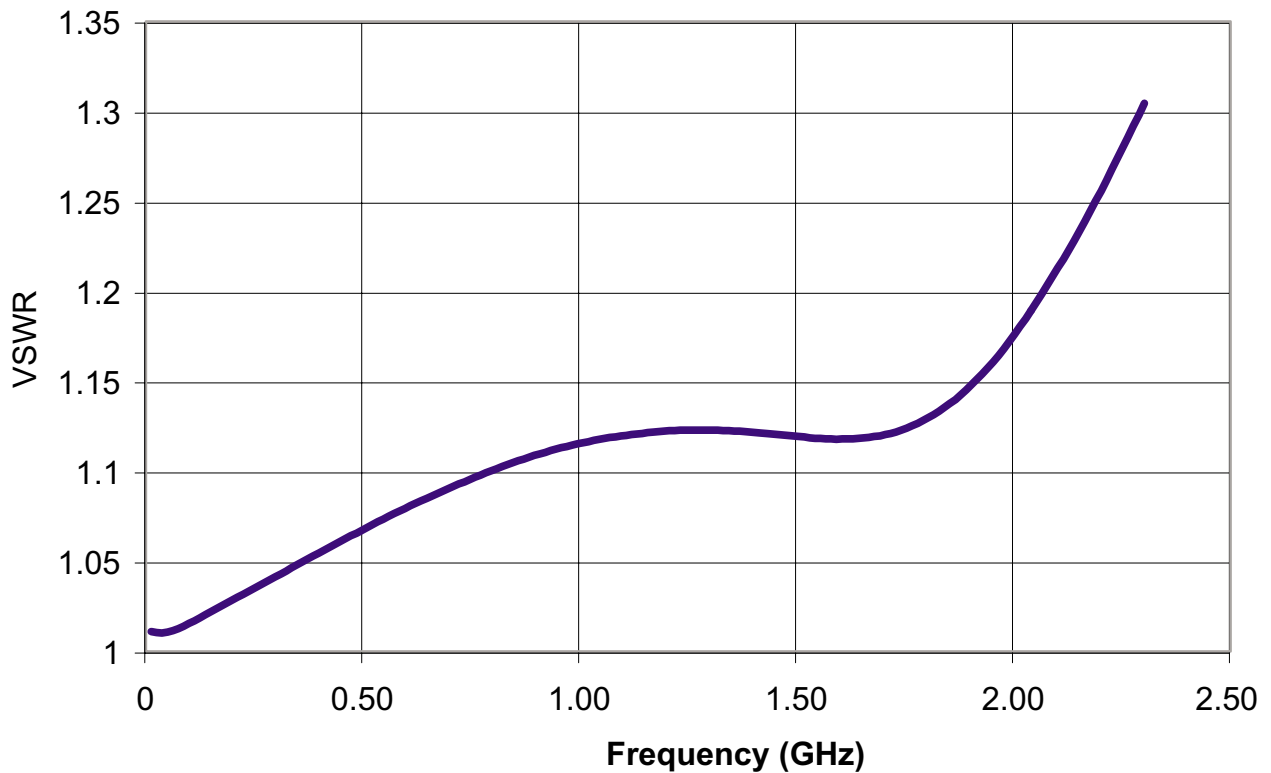
# TF500BB13

## BeO Flanged Termination

**Power:** 500 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.30:1  
**Frequency Range:** DC to 2.2 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

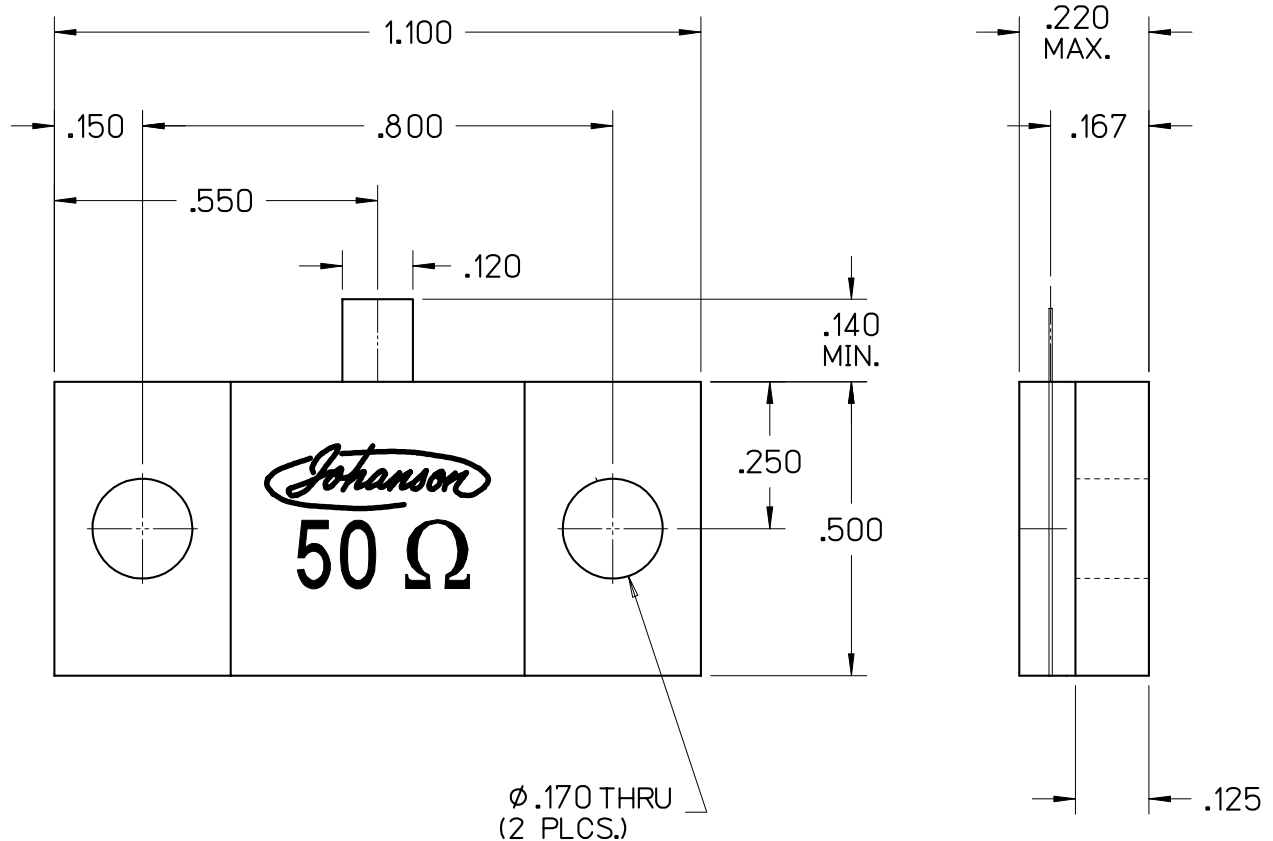


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



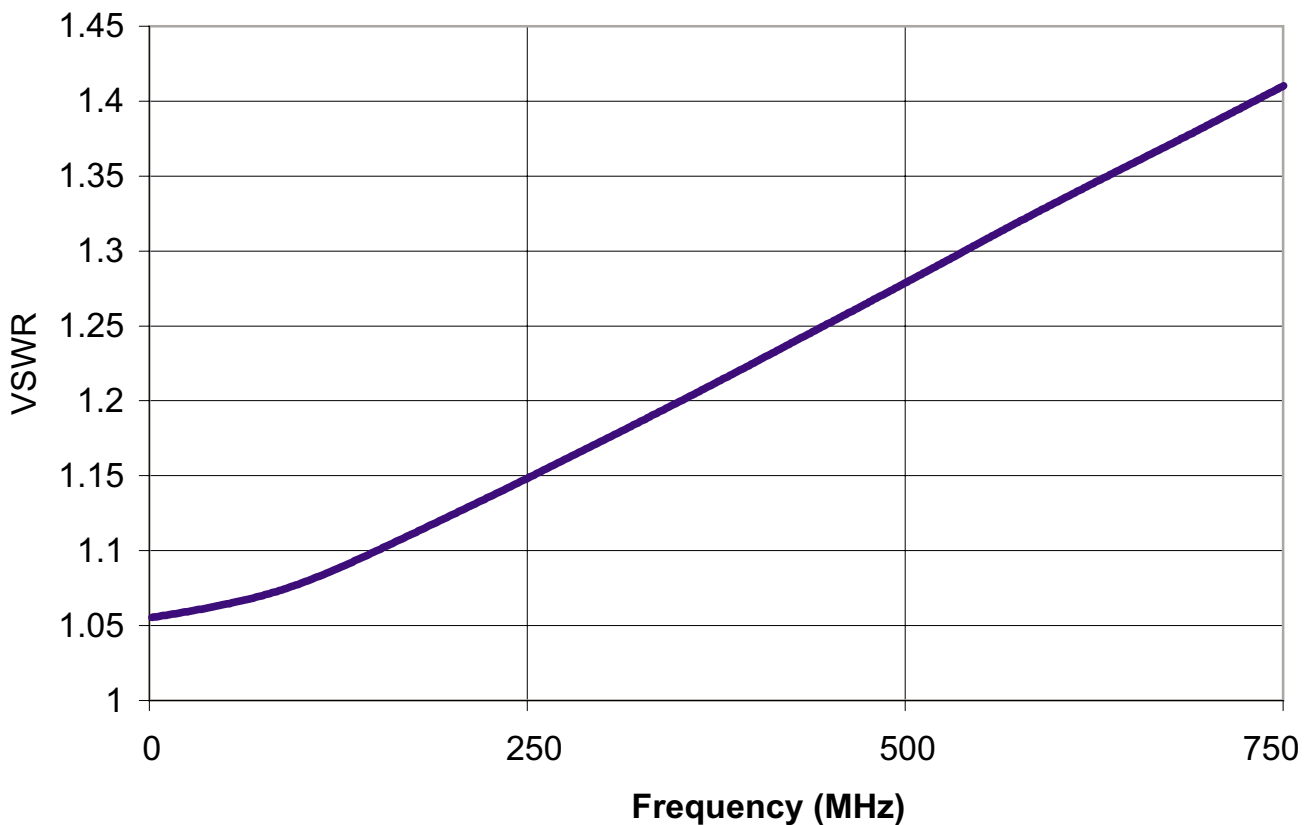
# TF500AB13

## AIN Flanged Termination

**Power:** 500 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.45:1  
**Frequency Range:** DC to 750 MHz  
**Substrate:** AIN

### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales



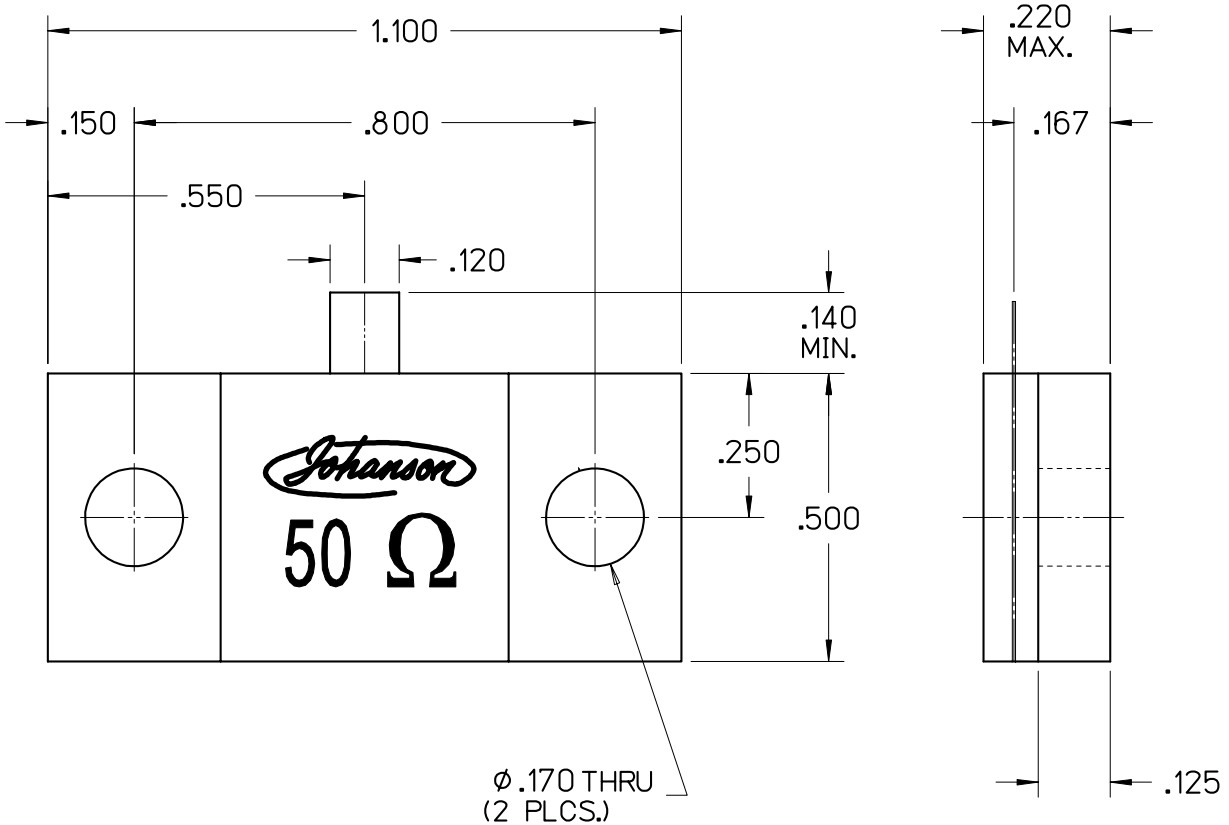
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# TF500AB13

## AIN Flanged Termination



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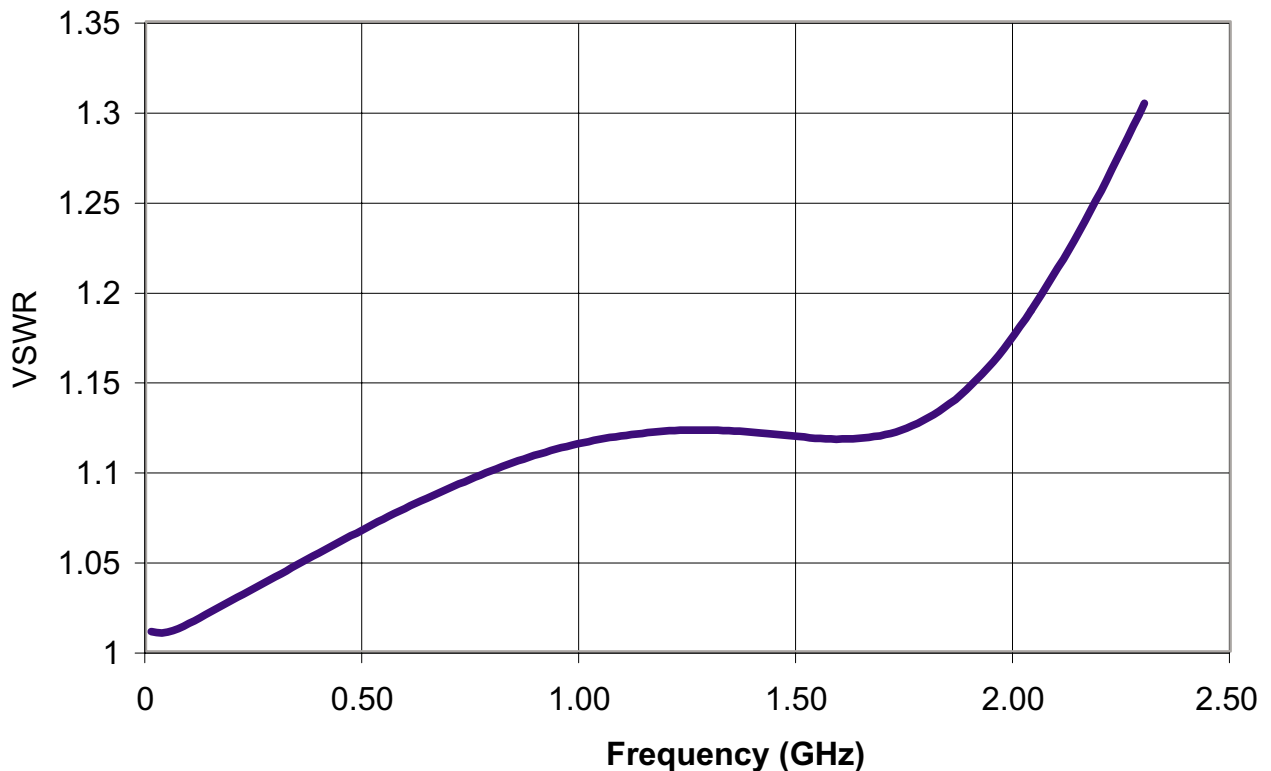
# TF400BB13

## BeO Flanged Termination

**Power:** 400 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.30:1  
**Frequency Range:** DC to 2.2 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

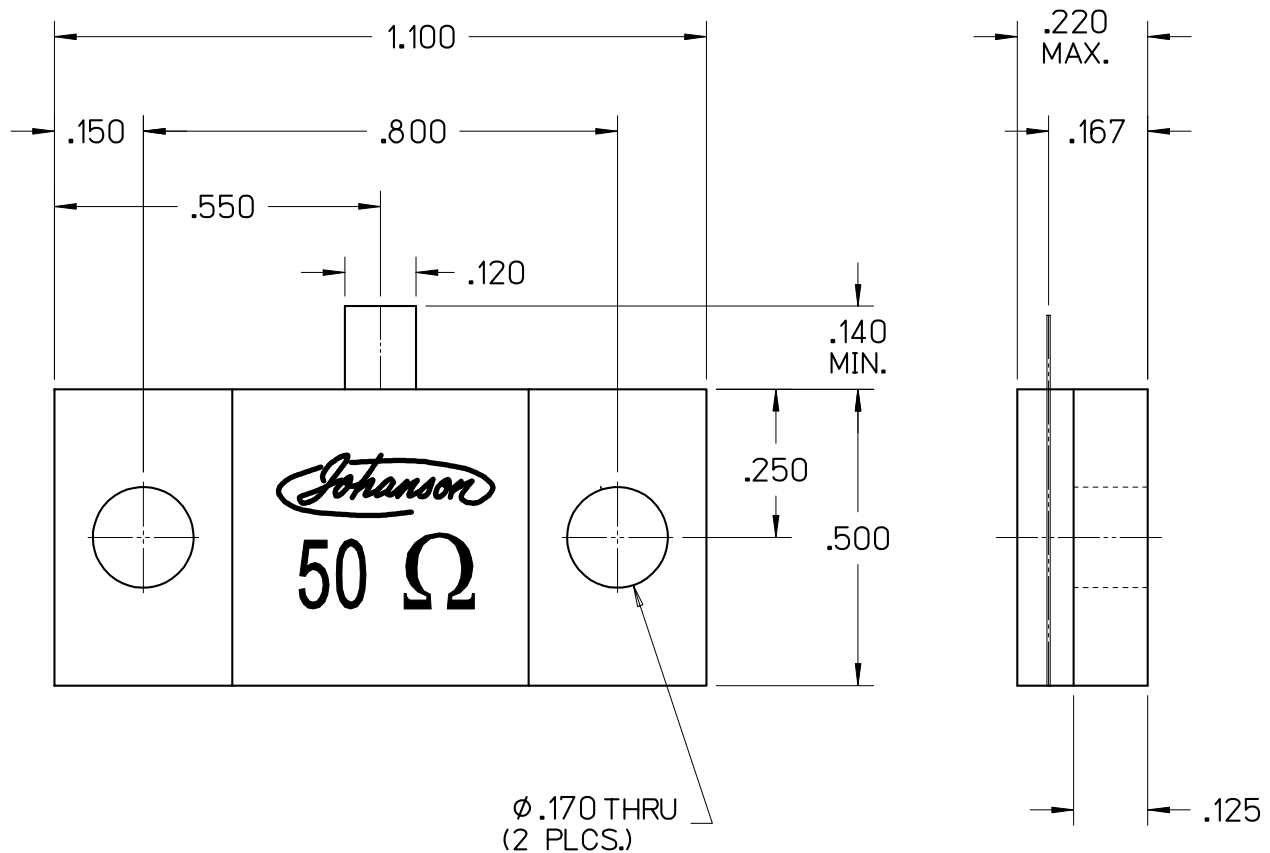


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales

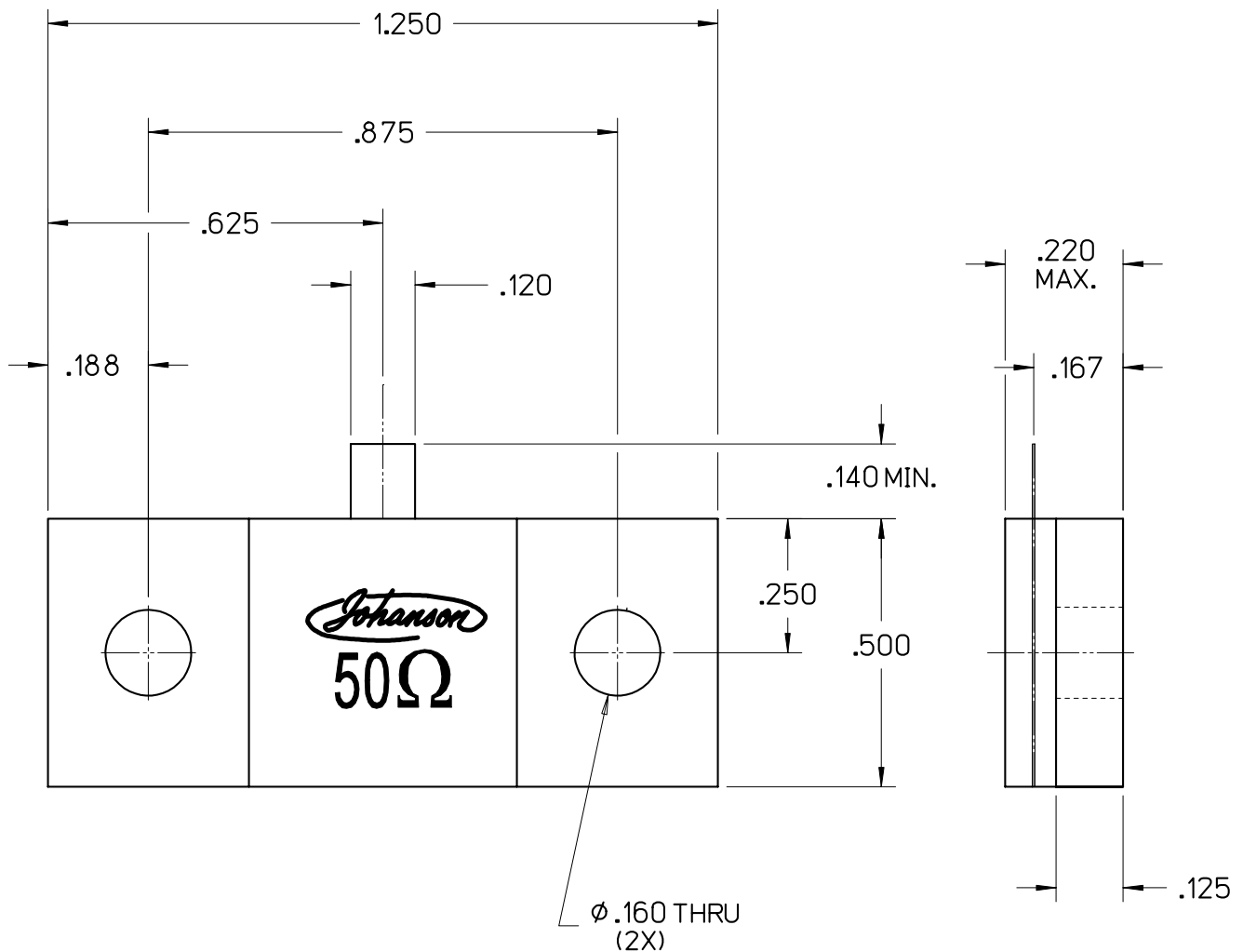




# TF400AB15

## AlN Flanged Termination

**Power:** 400 Watts (CW)  
**Resistance:**  $50\Omega \pm 5\%$   
**Substrate:** AlN



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# TF400AB13

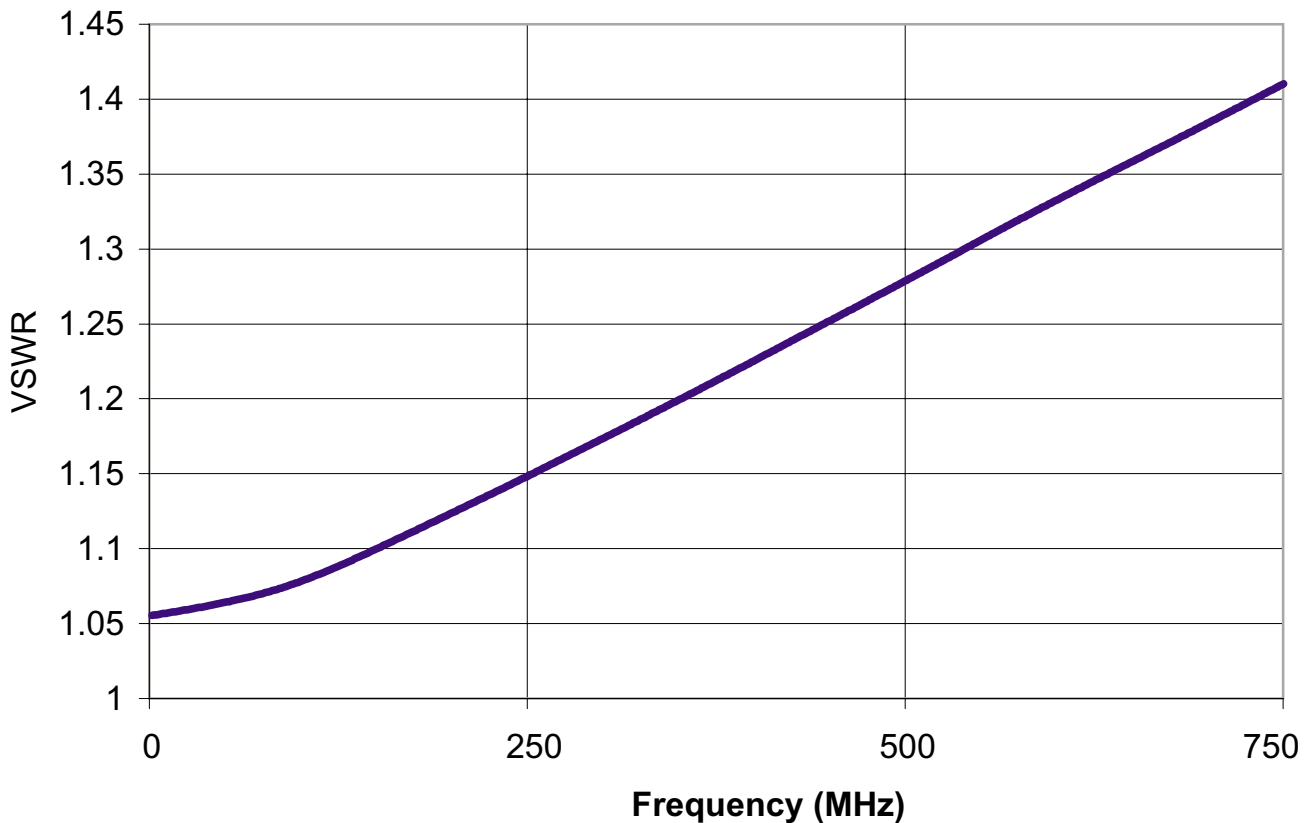
## AIN Flanged Termination

**Power:** 400 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.45:1  
**Frequency Range:** DC to 750 MHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales



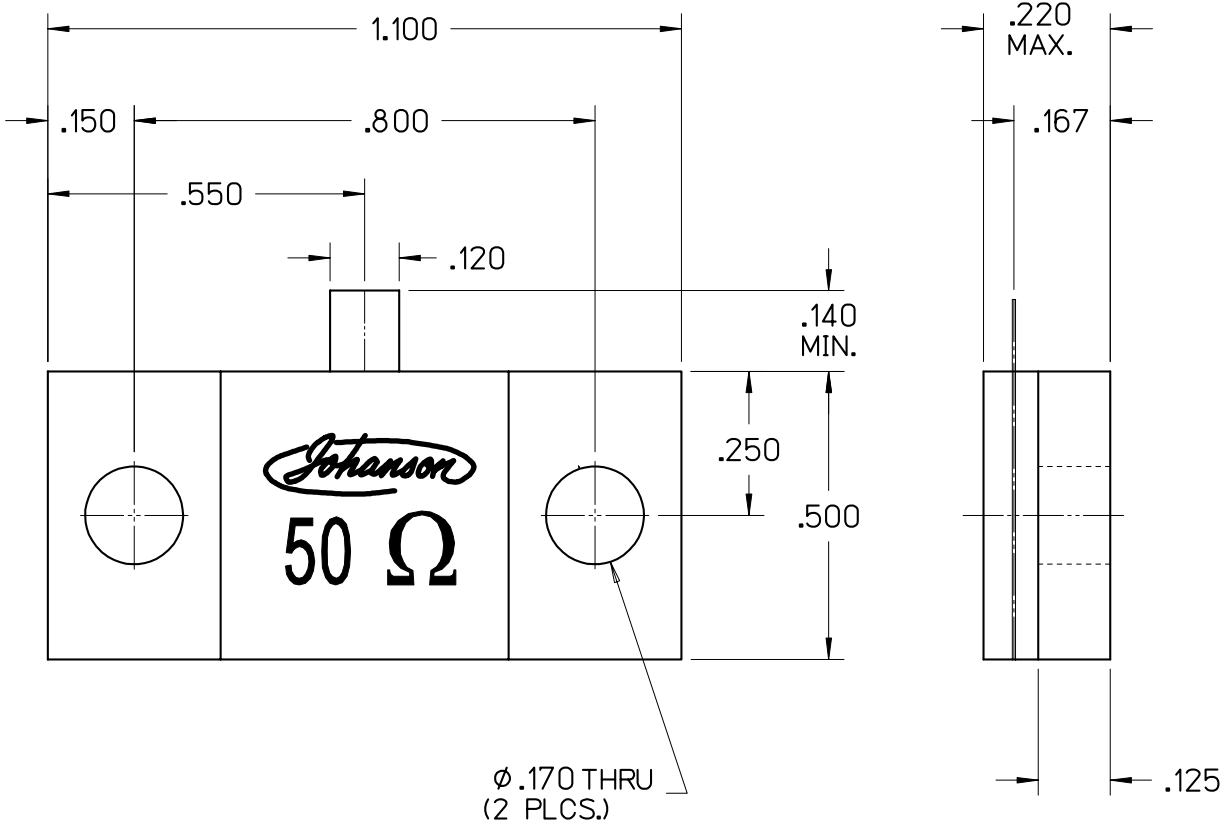
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# TF400AB13

## AIN Flanged Termination



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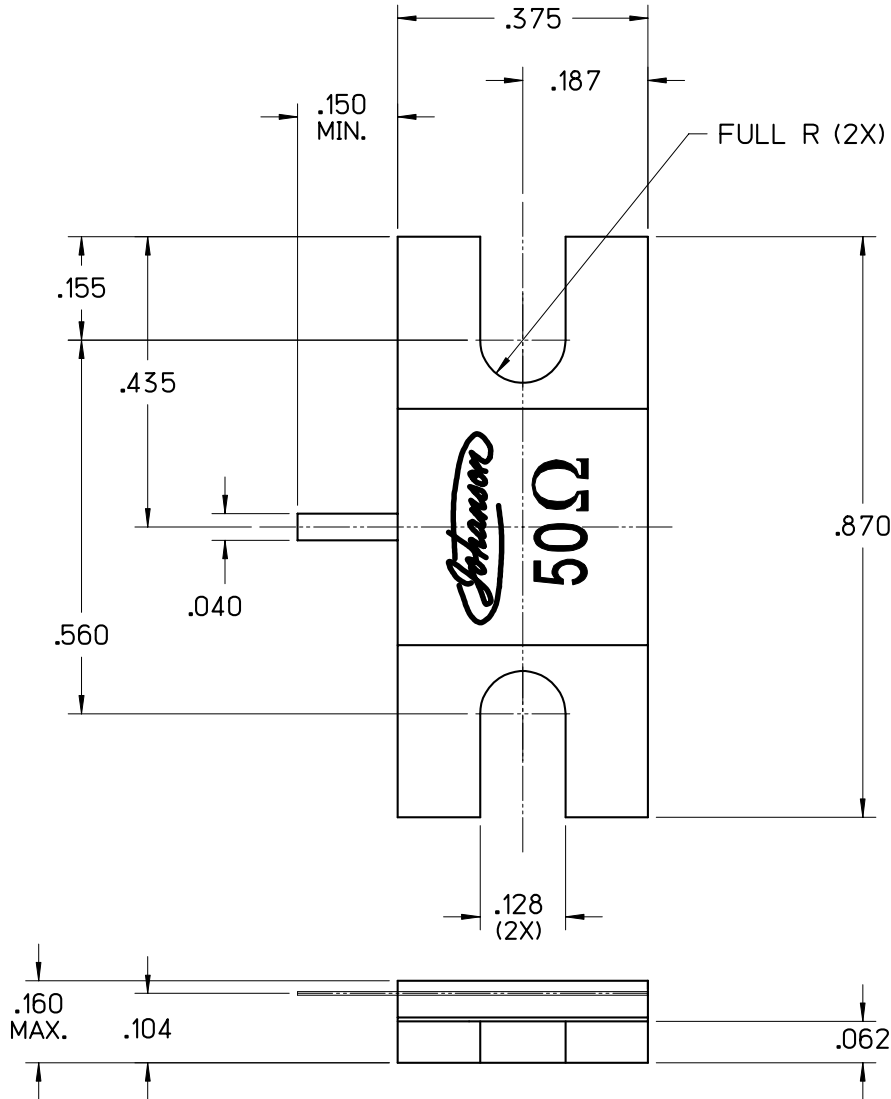
MAR 08



# TF300BB12-234

## BeO Flanged Termination

**Power:** 300 Watts (CW)  
**Resistance:**  $50\Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



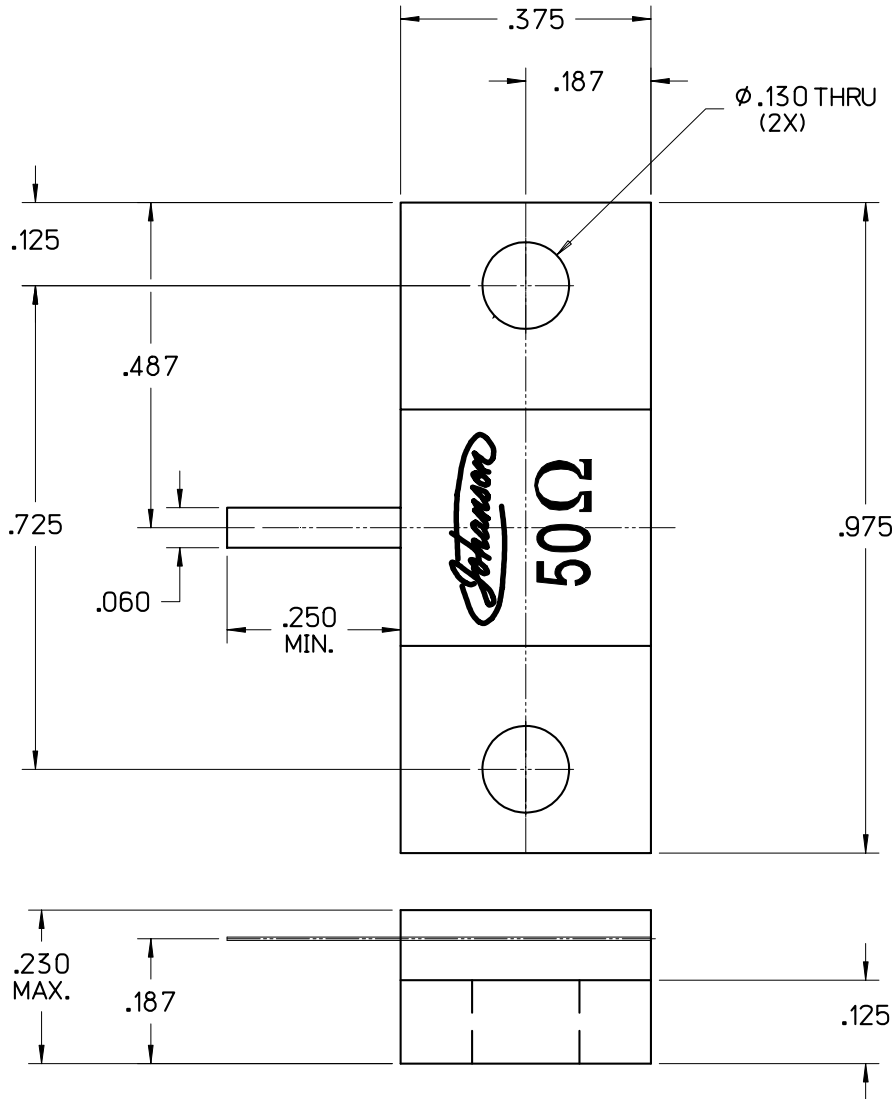
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# TF250BB12-040

## BeO Flanged Termination

**Power:** 250 Watts (CW)  
**Resistance:**  $50\Omega \pm 5\%$   
**Substrate:** BeO



**CAUTION**  
THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



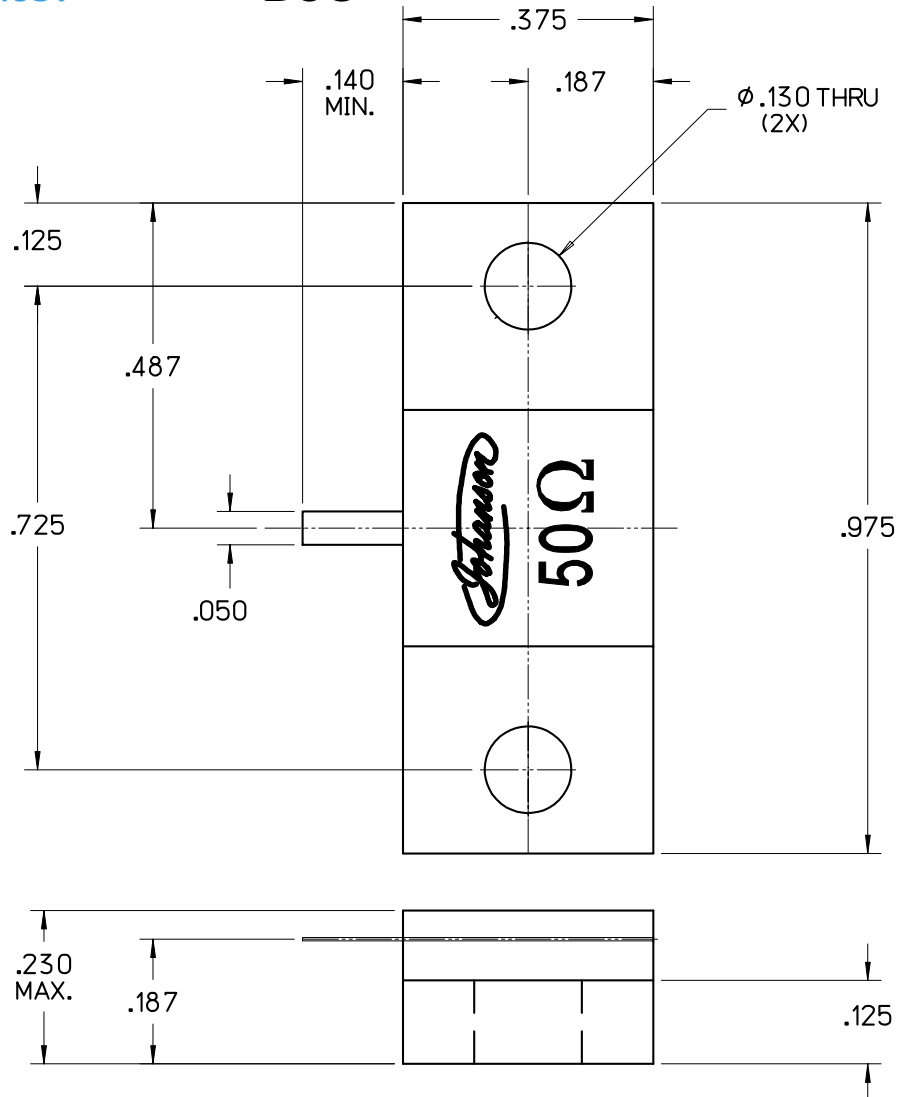
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# TF250BB12

## BeO Flanged Termination

**Power:** 250 Watts (CW)  
**Resistance:**  $50\Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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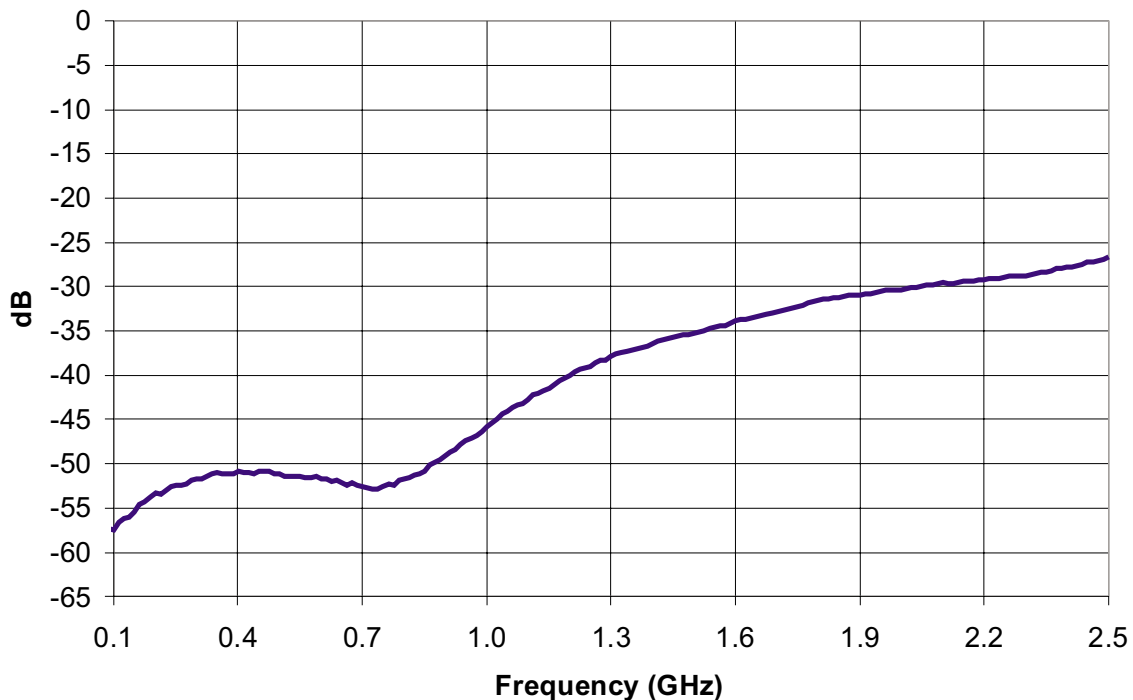
# TF250AB12-007

## AIN Flanged Termination

**Power:** 250 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.10:1 (1.05:1, DC to 900MHz)  
**Frequency Range:** DC to 2.2 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales



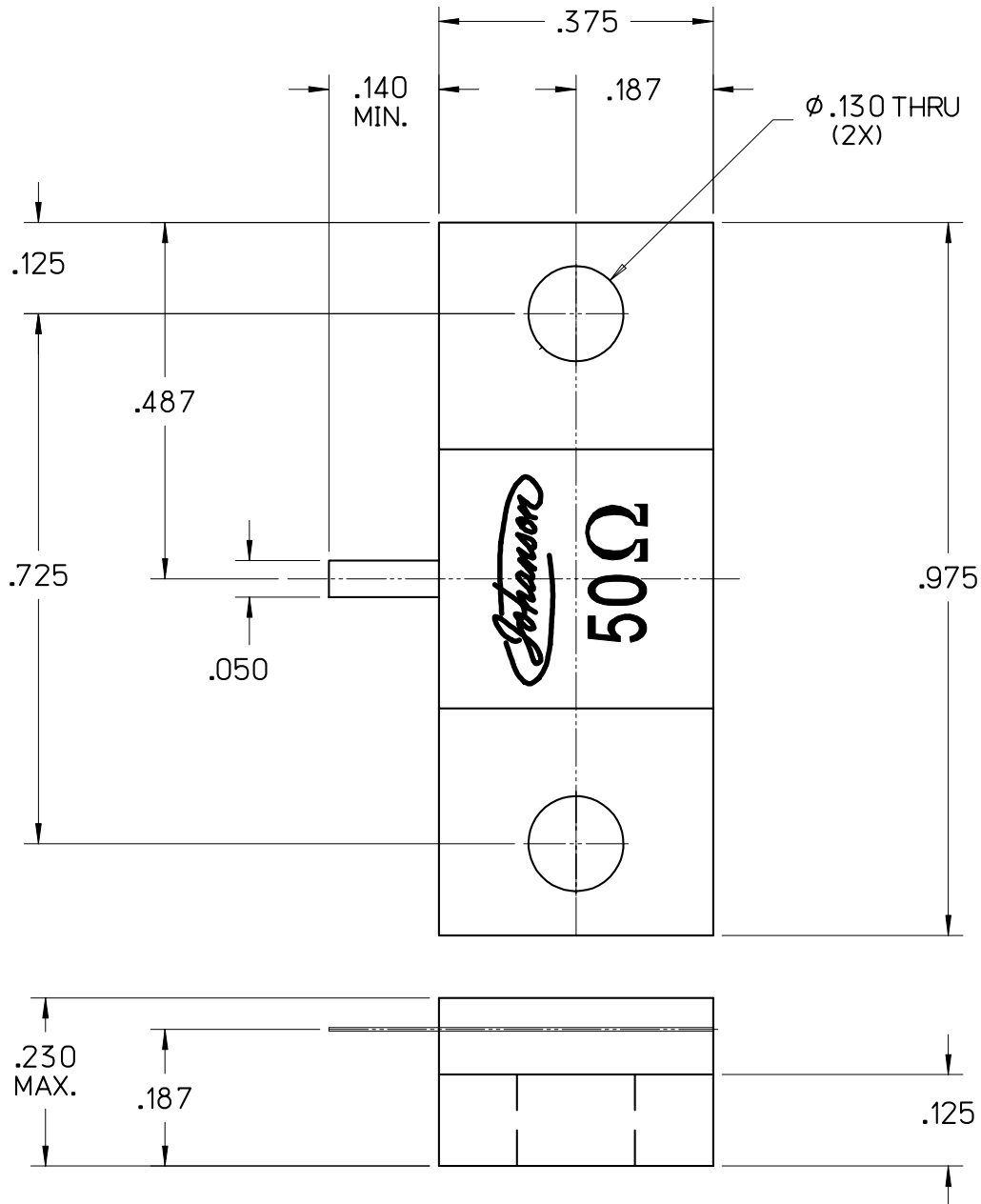
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# TF250AB12-007

## AIN Flanged Termination



For detailed information regarding this product or sample request contact Johanson Sales



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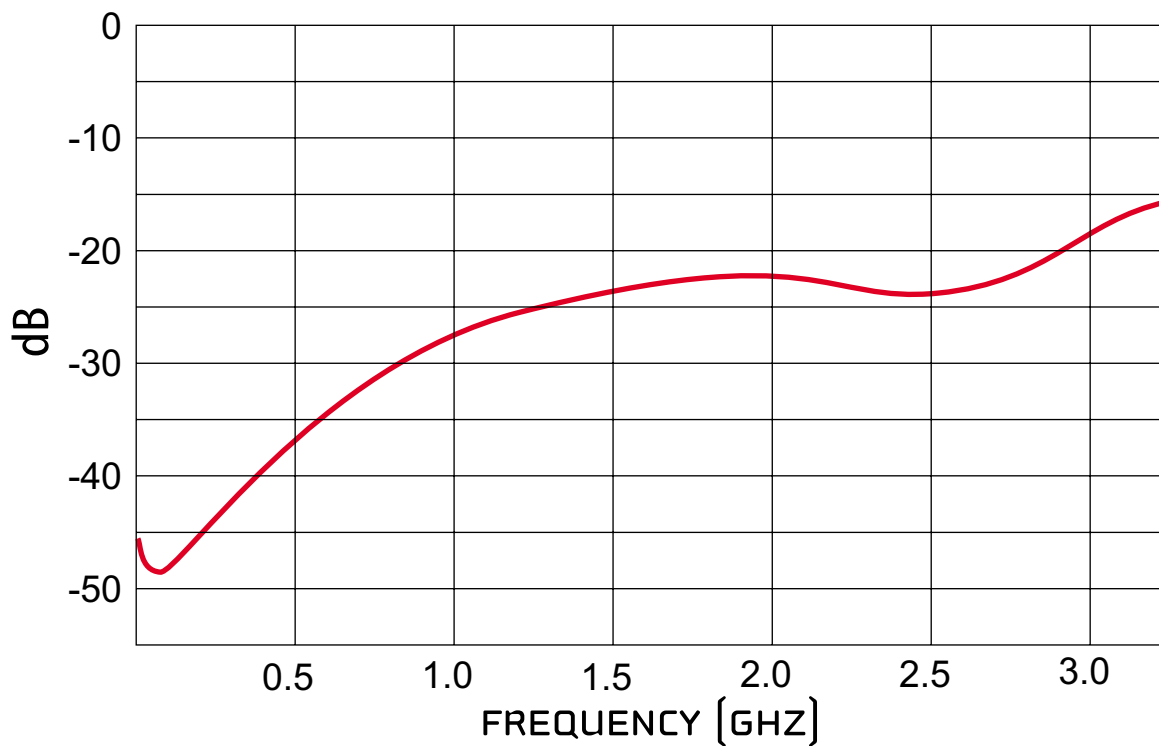
# TF250AB12

## AIN Flanged Termination

**Power:** 250 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.20:1  
**Frequency Range:** DC to 2.5 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales



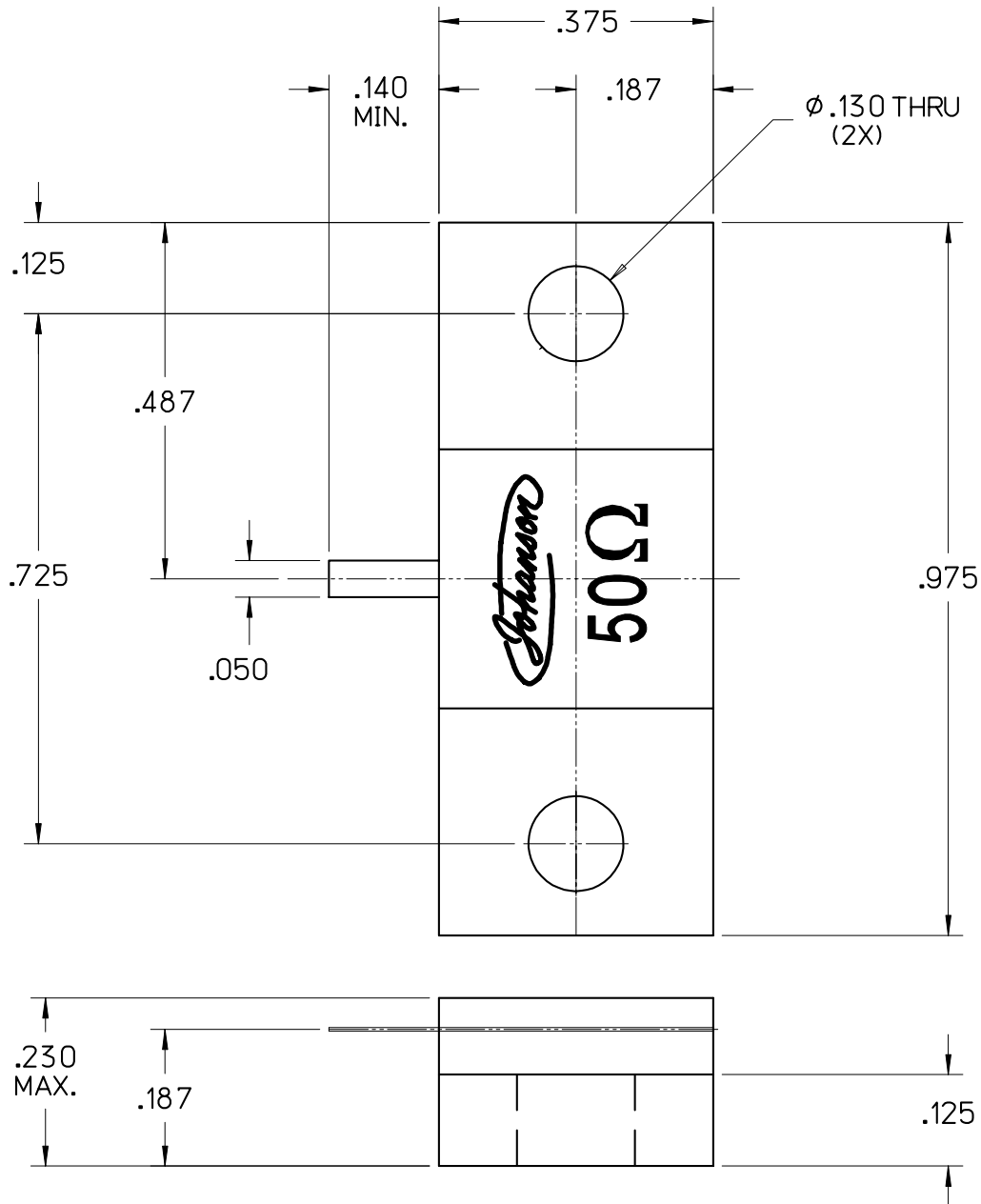
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# TF250AB12

## AIN Flanged Termination



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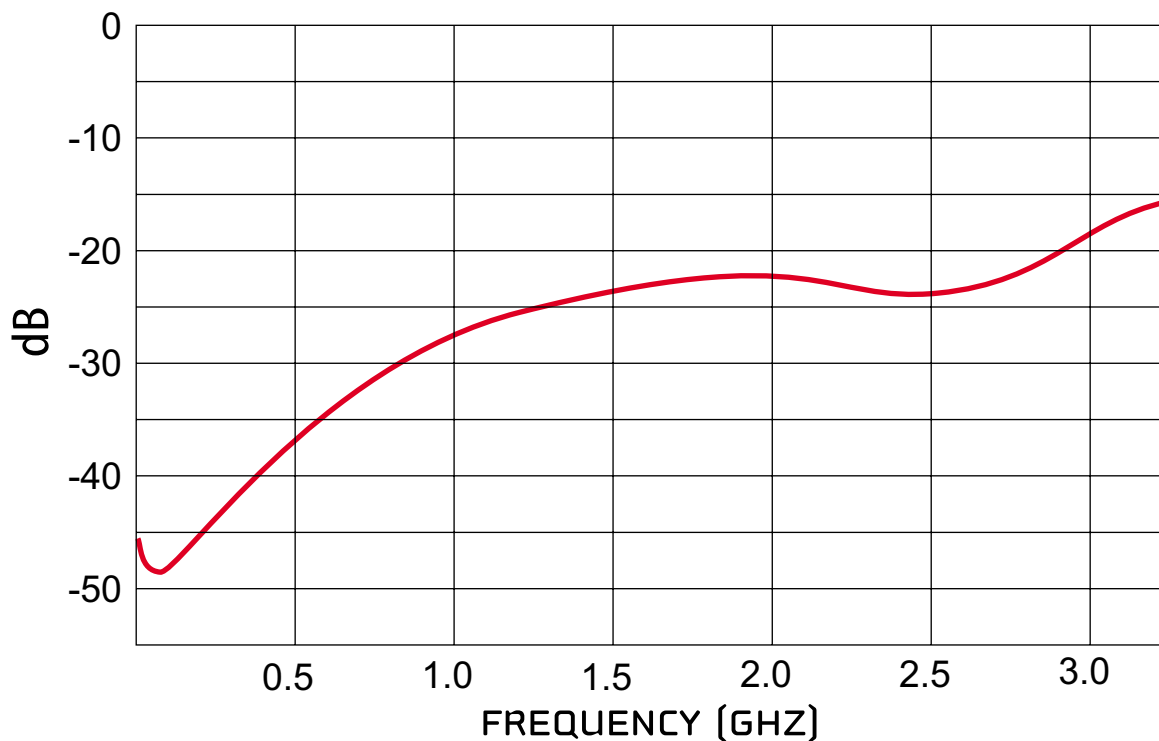
# TF200AB12

## AIN Flanged Termination

**Power:** 200 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.20:1  
**Frequency Range:** DC to 2.5 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales



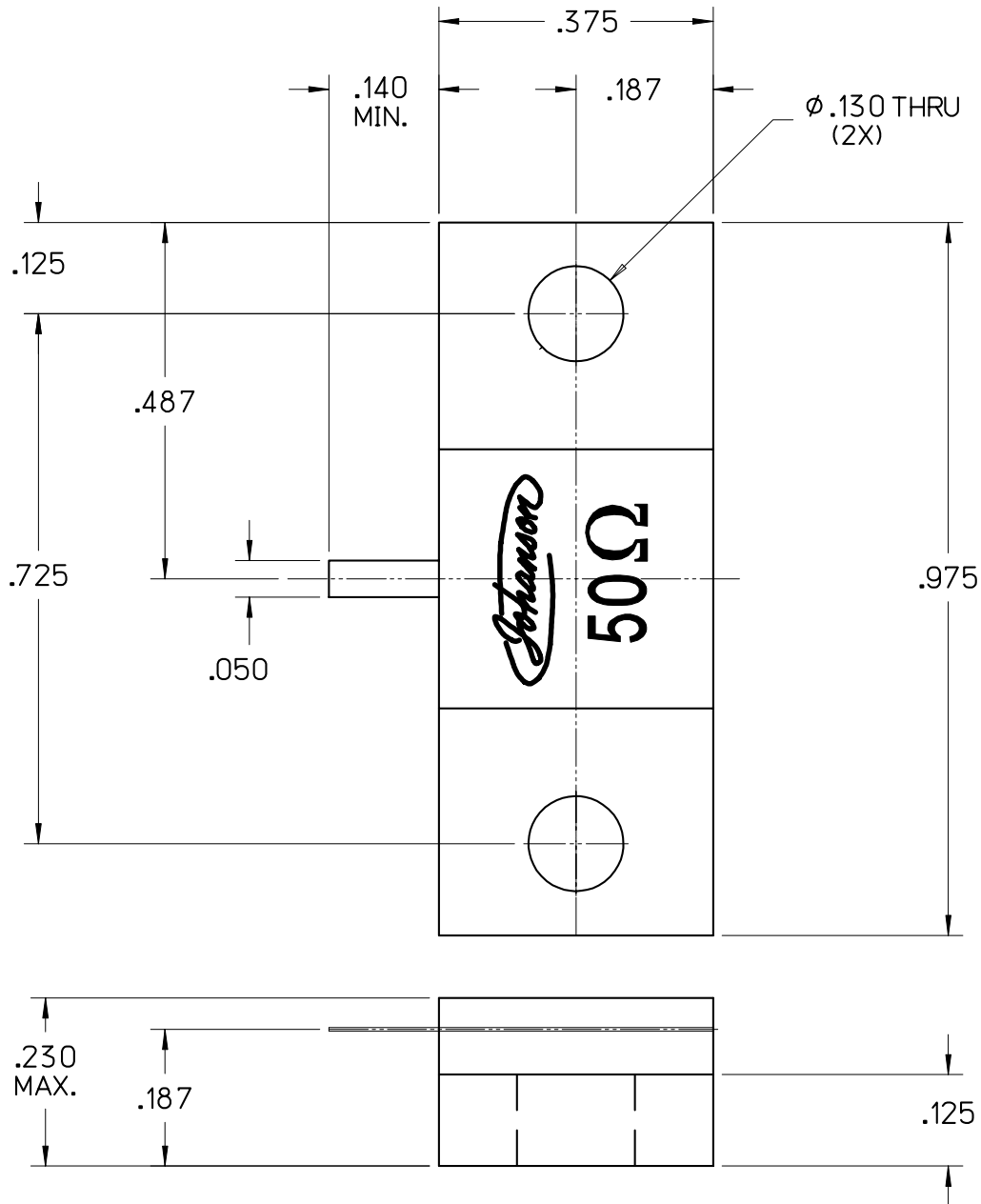
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# TF200AB12

## AIN Flanged Termination



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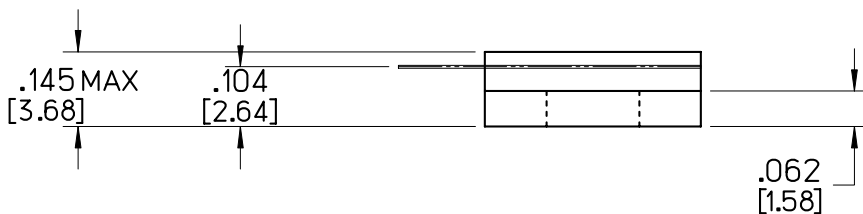
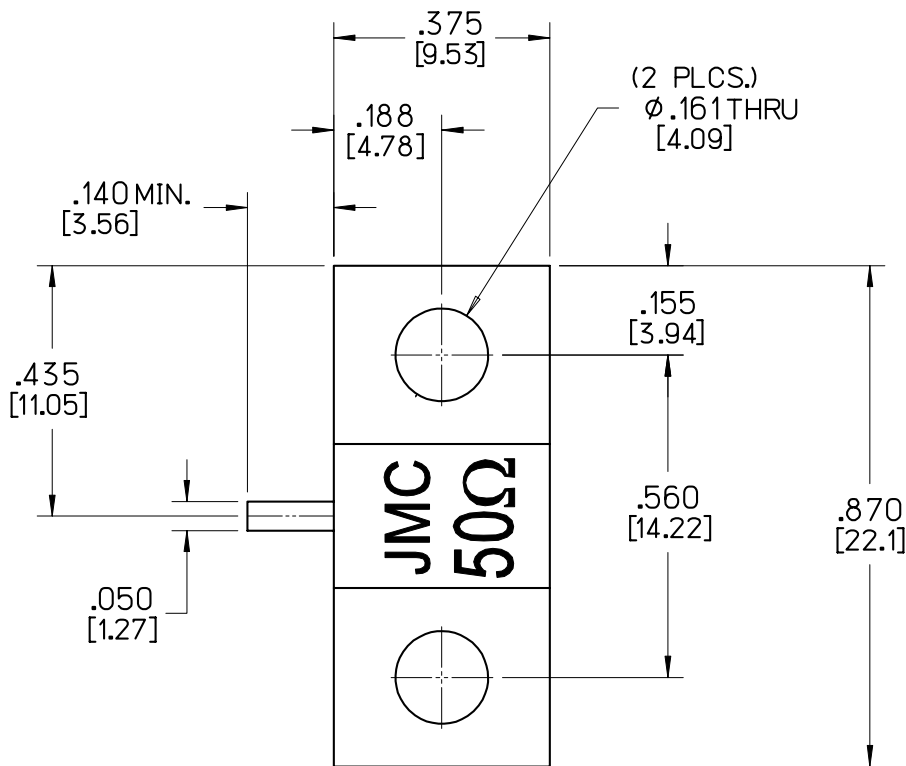
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# TF150BB11

## BeO Flanged Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50 Ω ± 5%  
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



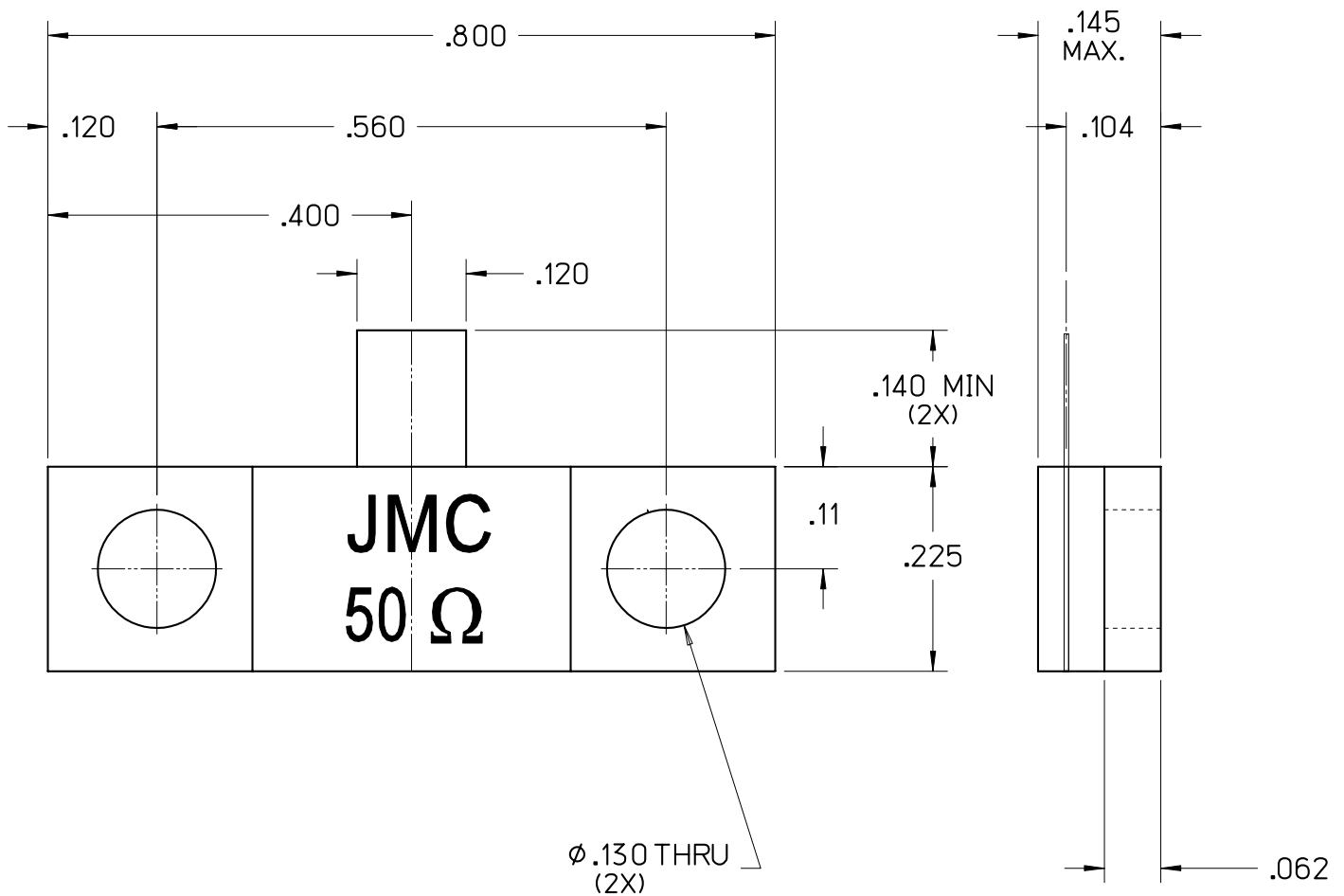
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# TF150BB09

## BeO Flanged Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50  $\Omega$   $\pm$  5%  
**Substrate:** BeO



**CAUTION**  
THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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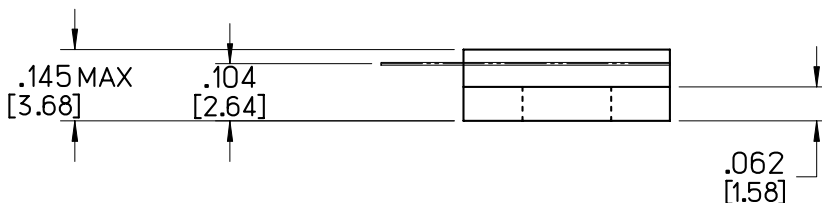
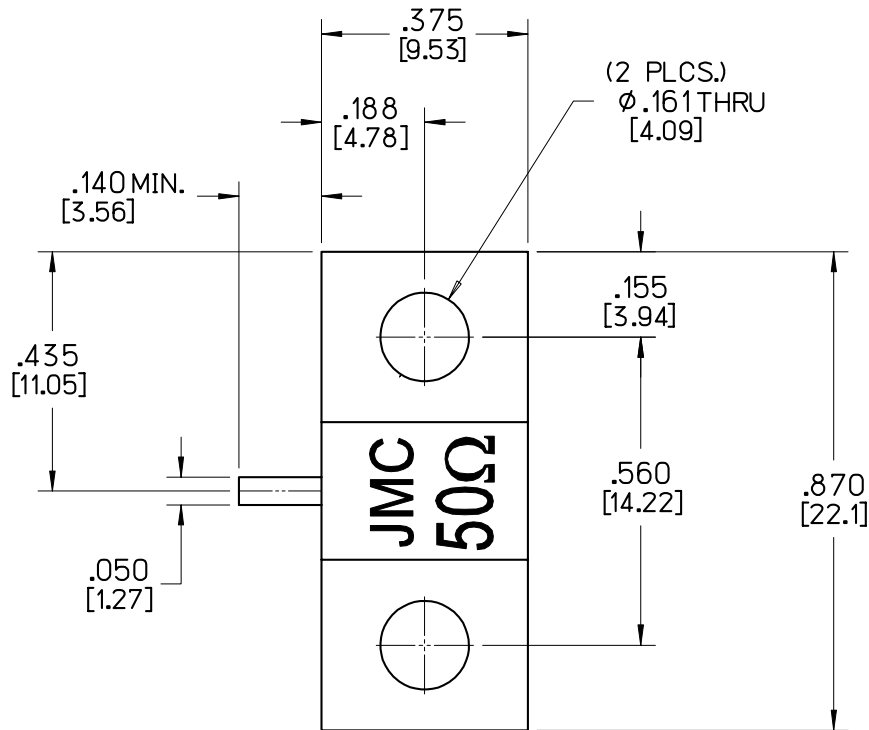


# TF150AB11-006

## AIN Flanged Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50  $\Omega$   $\pm$  5%  
**VSWR:** 1.06 :1 350 to 450 MHz  
1.06 :1 869 to 960 MHz  
1.06 :1 1805 to 2000 MHz  
1.10 :1 Up to 2300 MHz

**Substrate:** AIN



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**AIN Flanged Termination**

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# TF150AB11

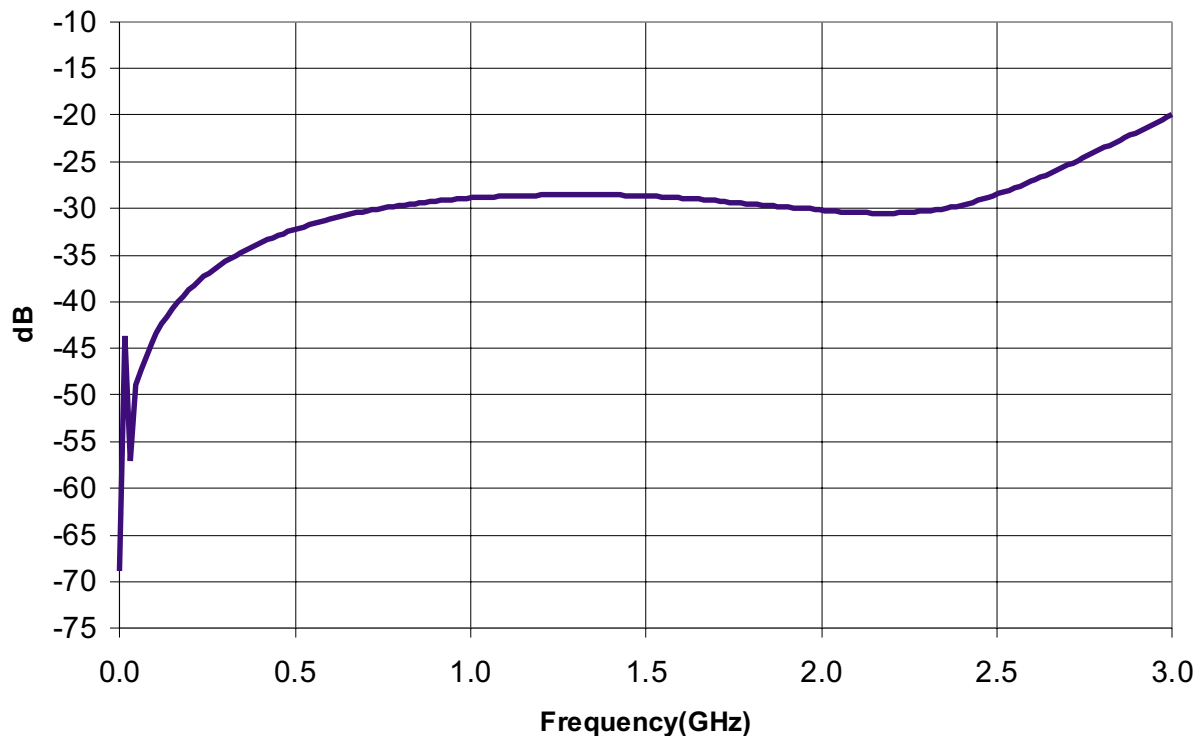
## AIN Flanged Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.15:1  
**Frequency Range:** DC to 2.7 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### RETURN LOSS

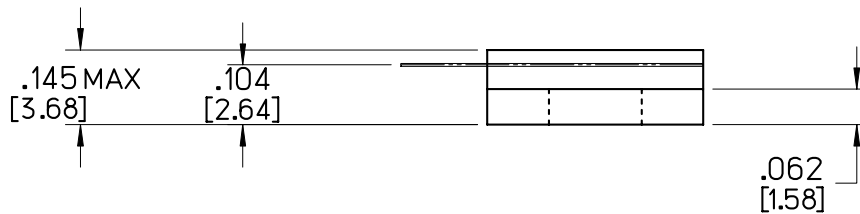
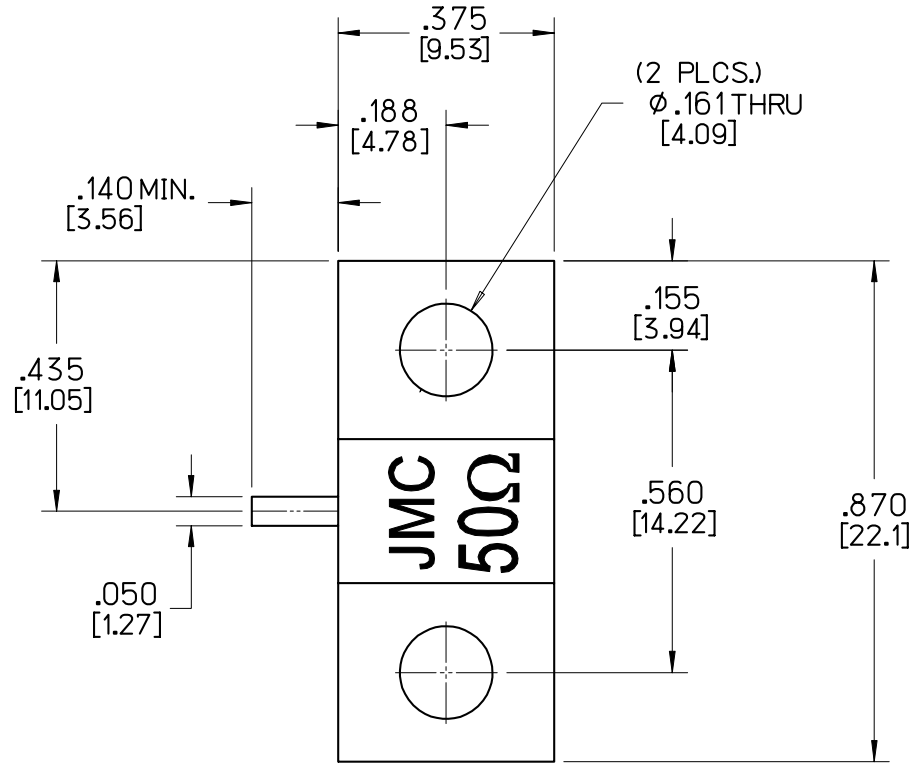


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# TF125AB11

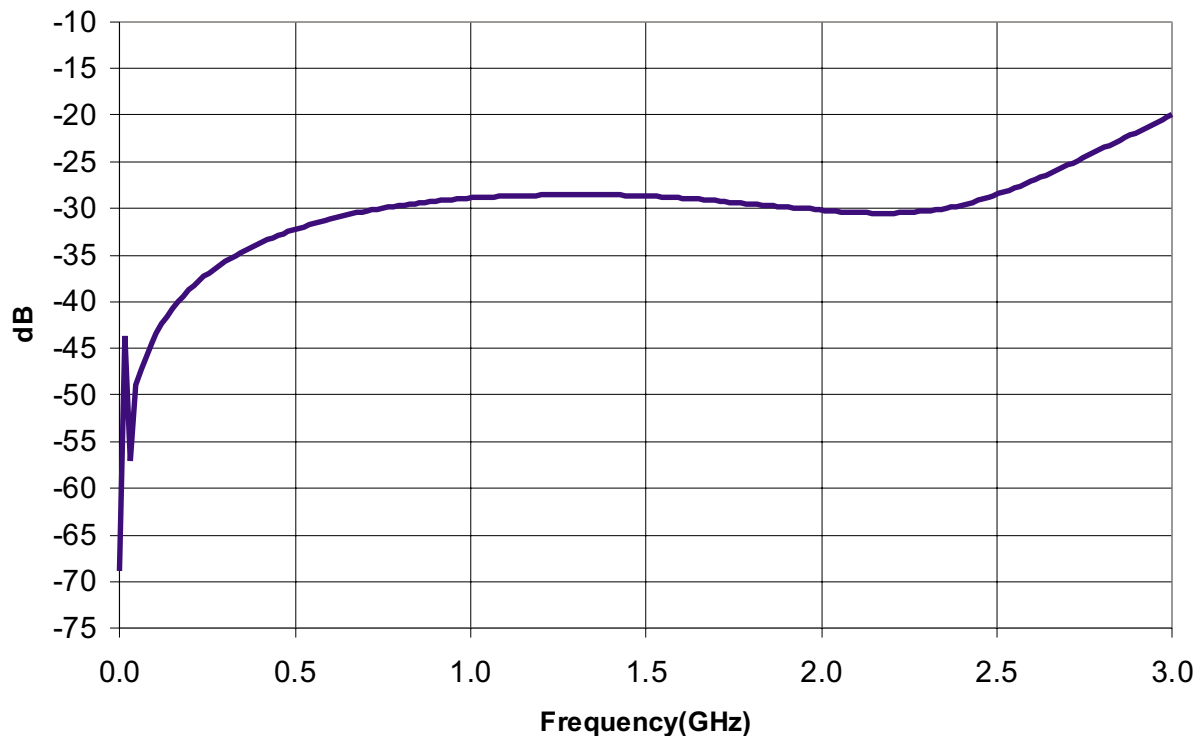
## AIN Flanged Termination

**Power:** 125 Watts (CW)  
**Resistance:** 50  $\Omega$   $\pm$  5%  
**VSWR:** 1.15:1  
**Frequency Range:** DC to 2.7 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales



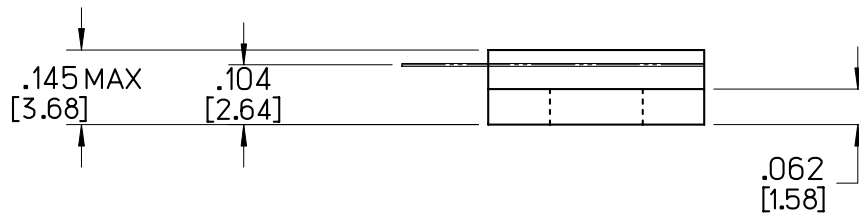
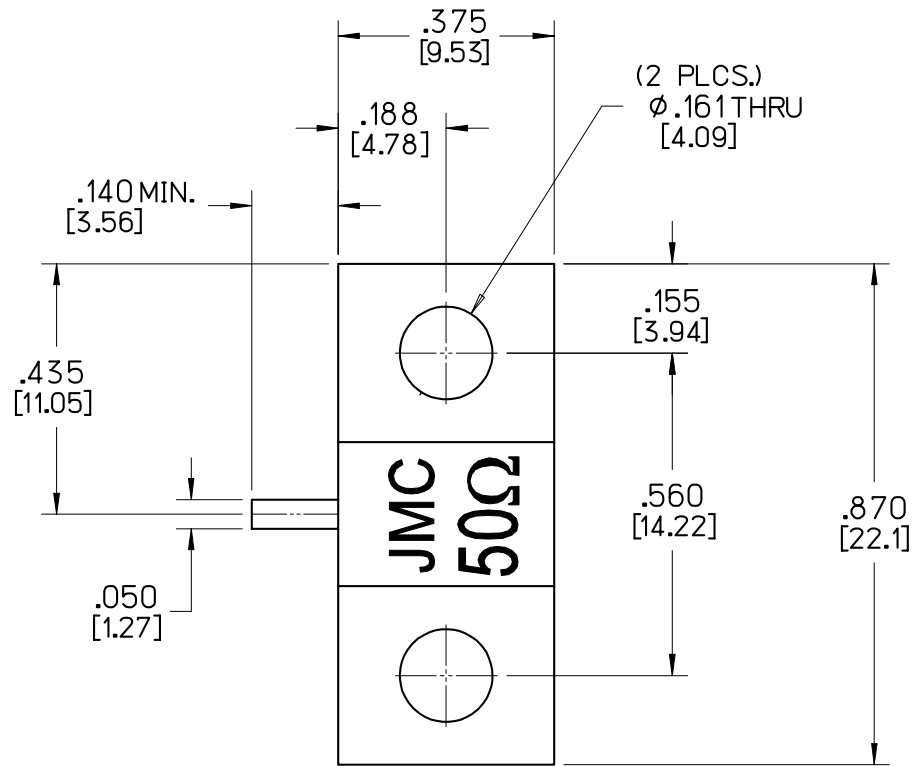
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# TF125AB11

## AIN Flanged Termination



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**TF125AB09**

**AIN Flanged Termination**

**Power: 125 Watts (CW)**

**Resistance: 50 Ω ± 5%**

**VSWR: 1.3 :1**

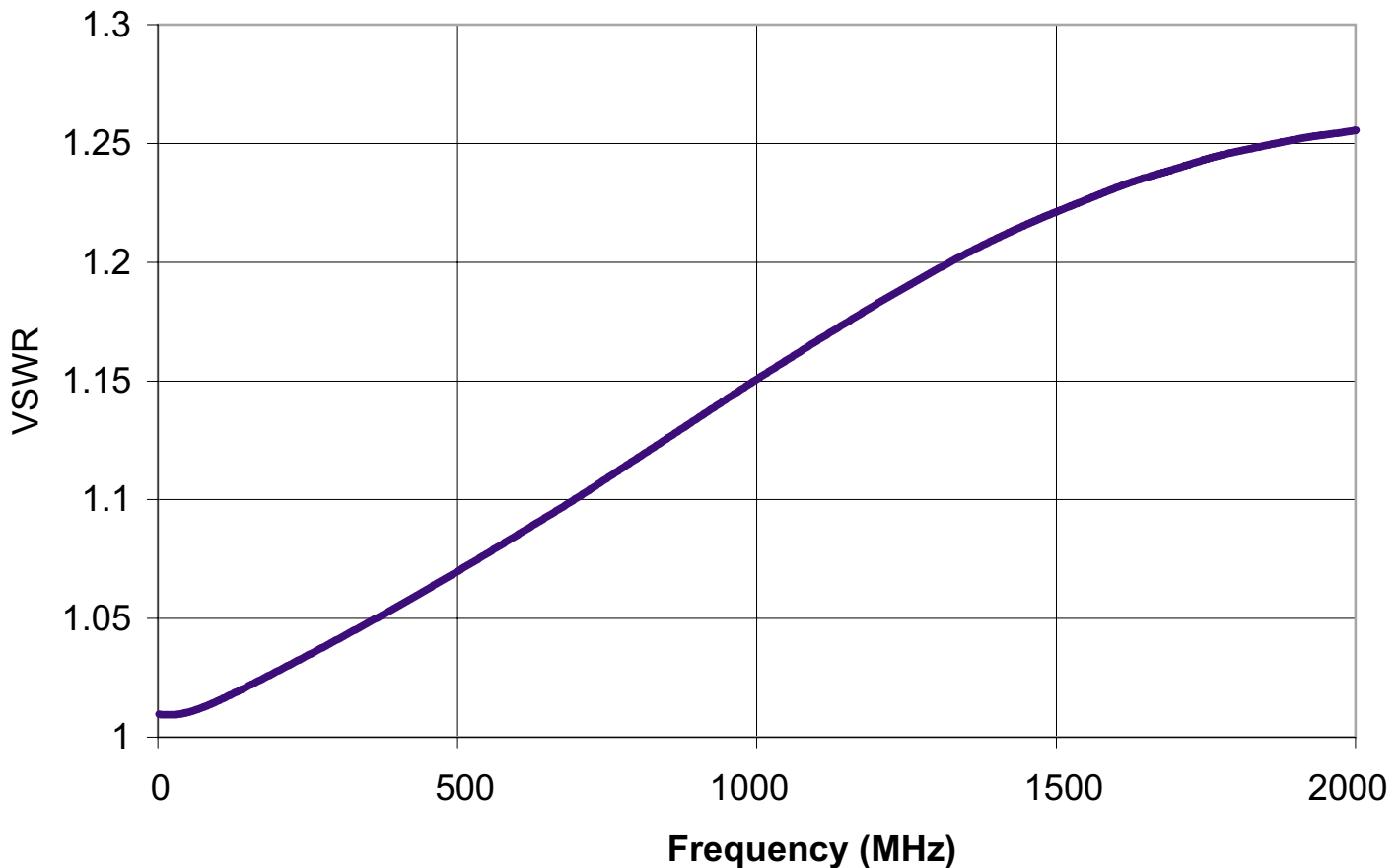
**Frequency Range: DC to 2 GHz**

**Substrate: AIN**



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales

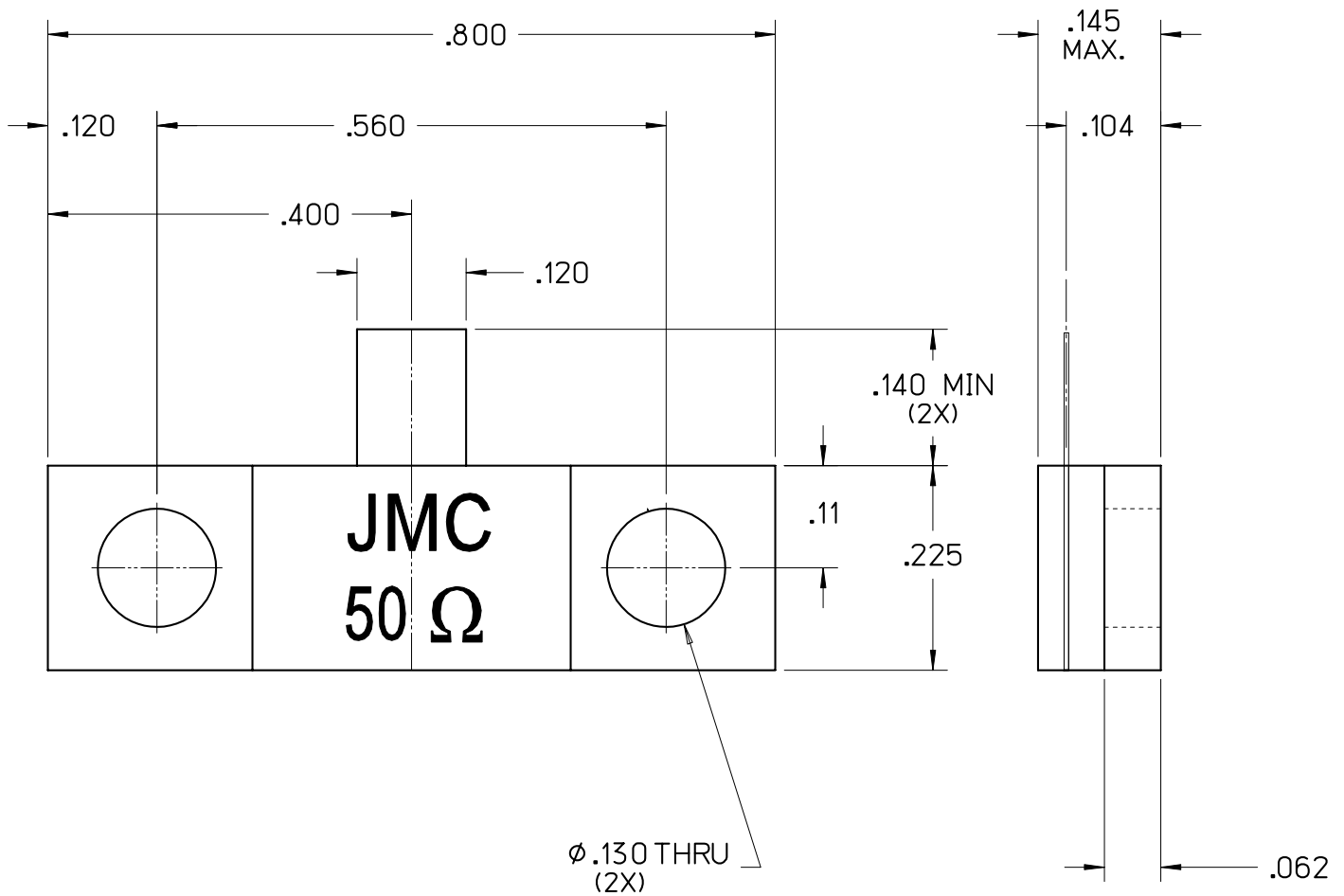


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# TF125AB09

## AIN Flanged Termination



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# TF100BB08

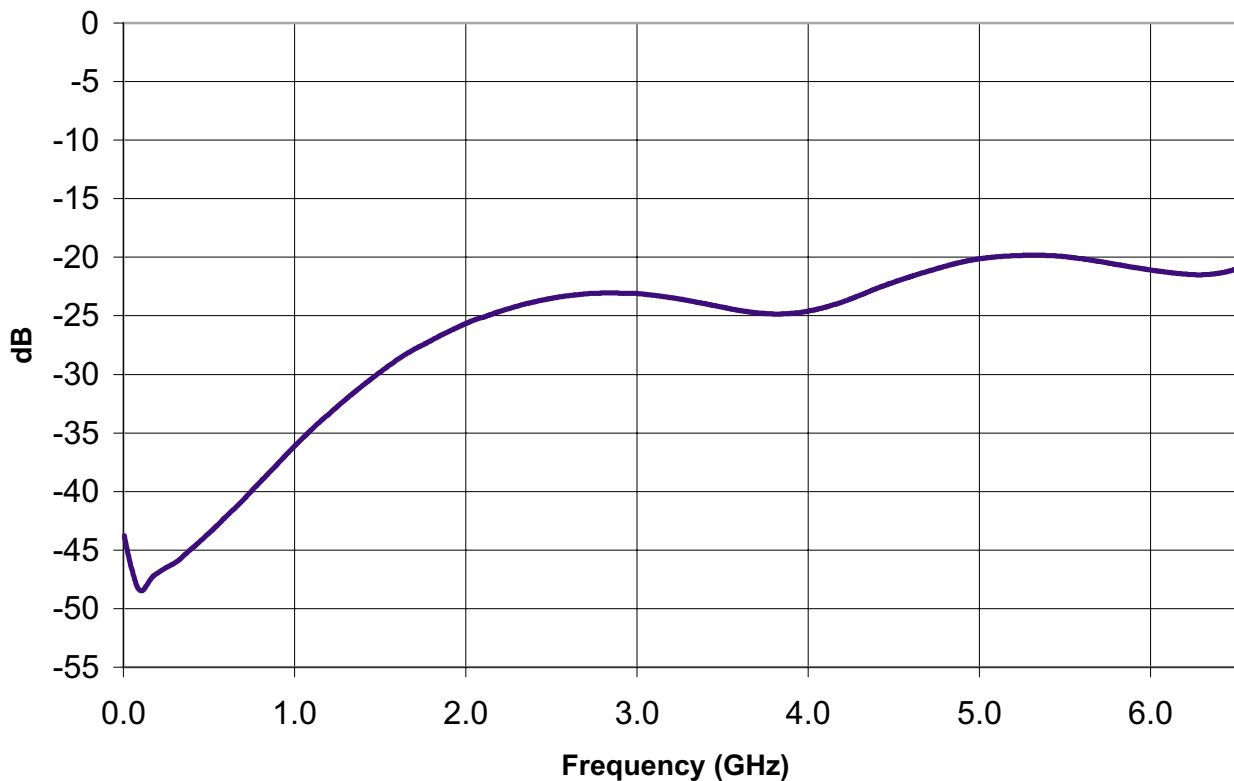
## BeO Flanged Termination

**Power:** 100 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

#### RETURN LOSS

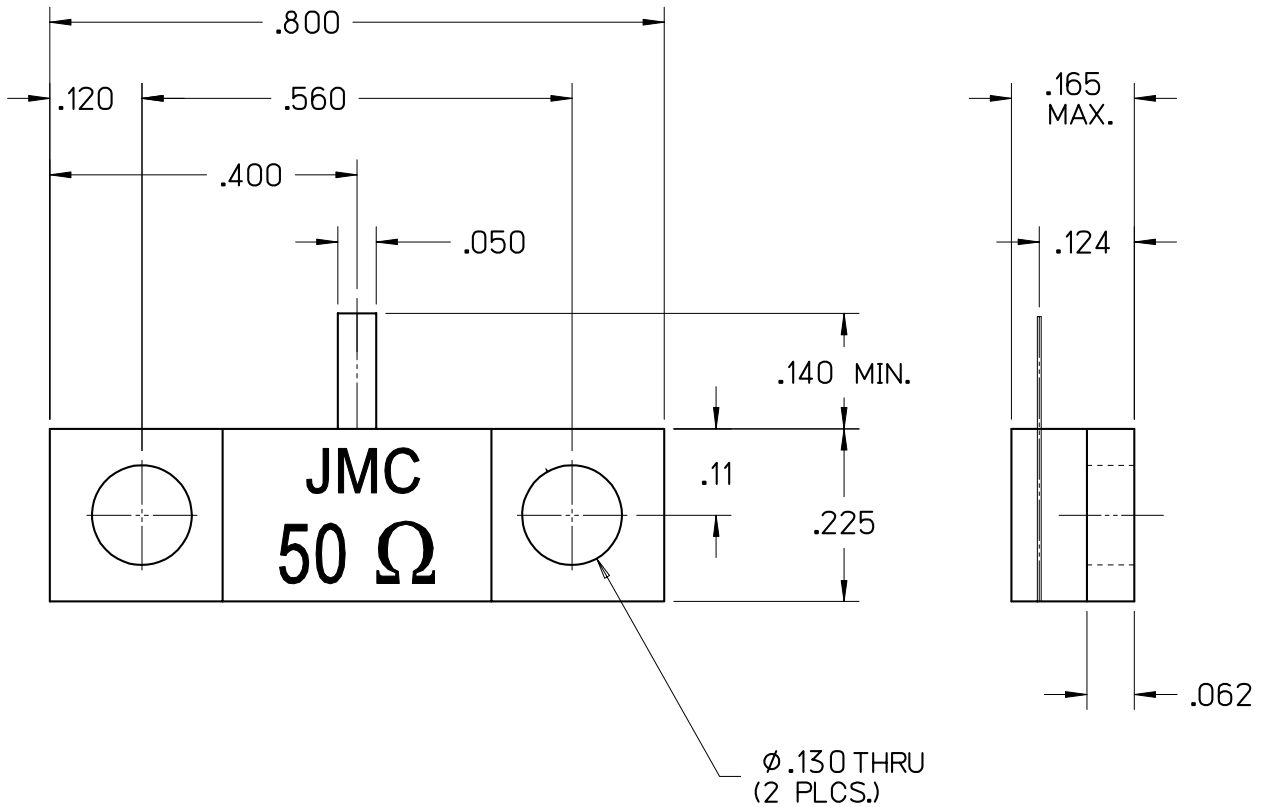


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales





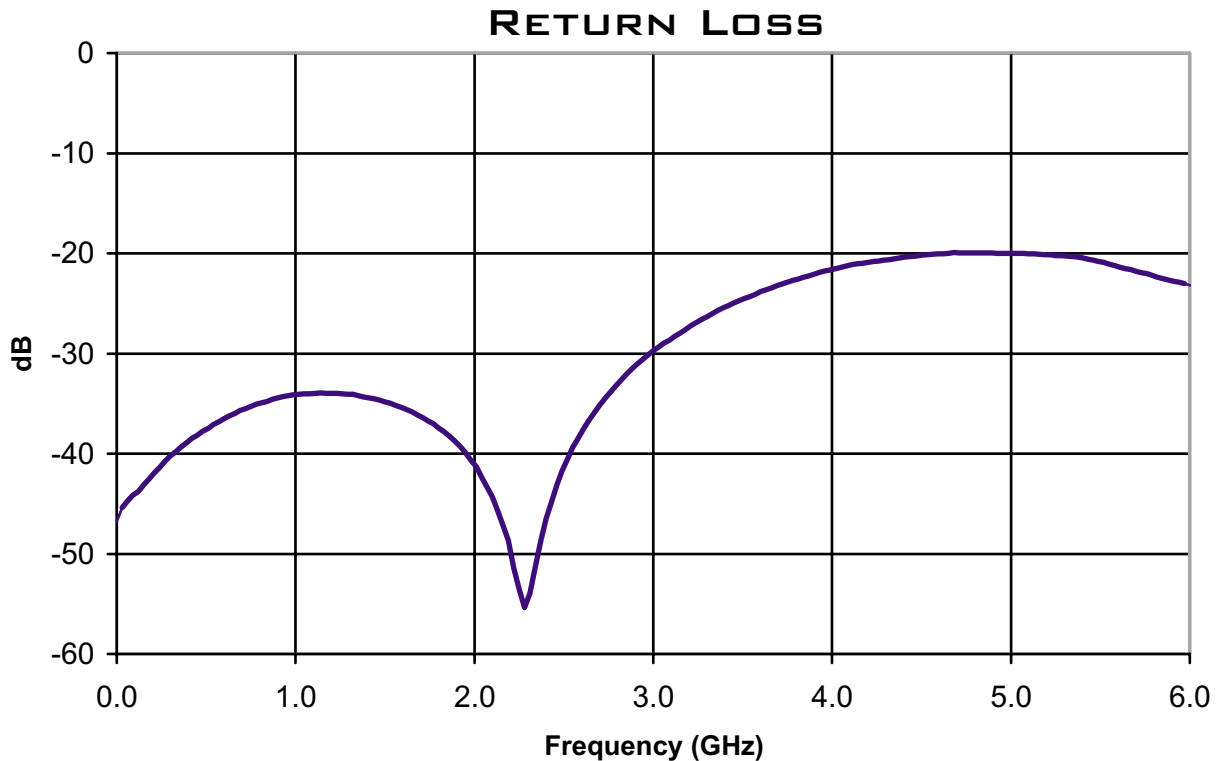
# TF100BB3R

## BeO Flanged Termination

**Power:** 100 Watts (CW)  
**Resistance:** 50  $\Omega$   $\pm$  5%  
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

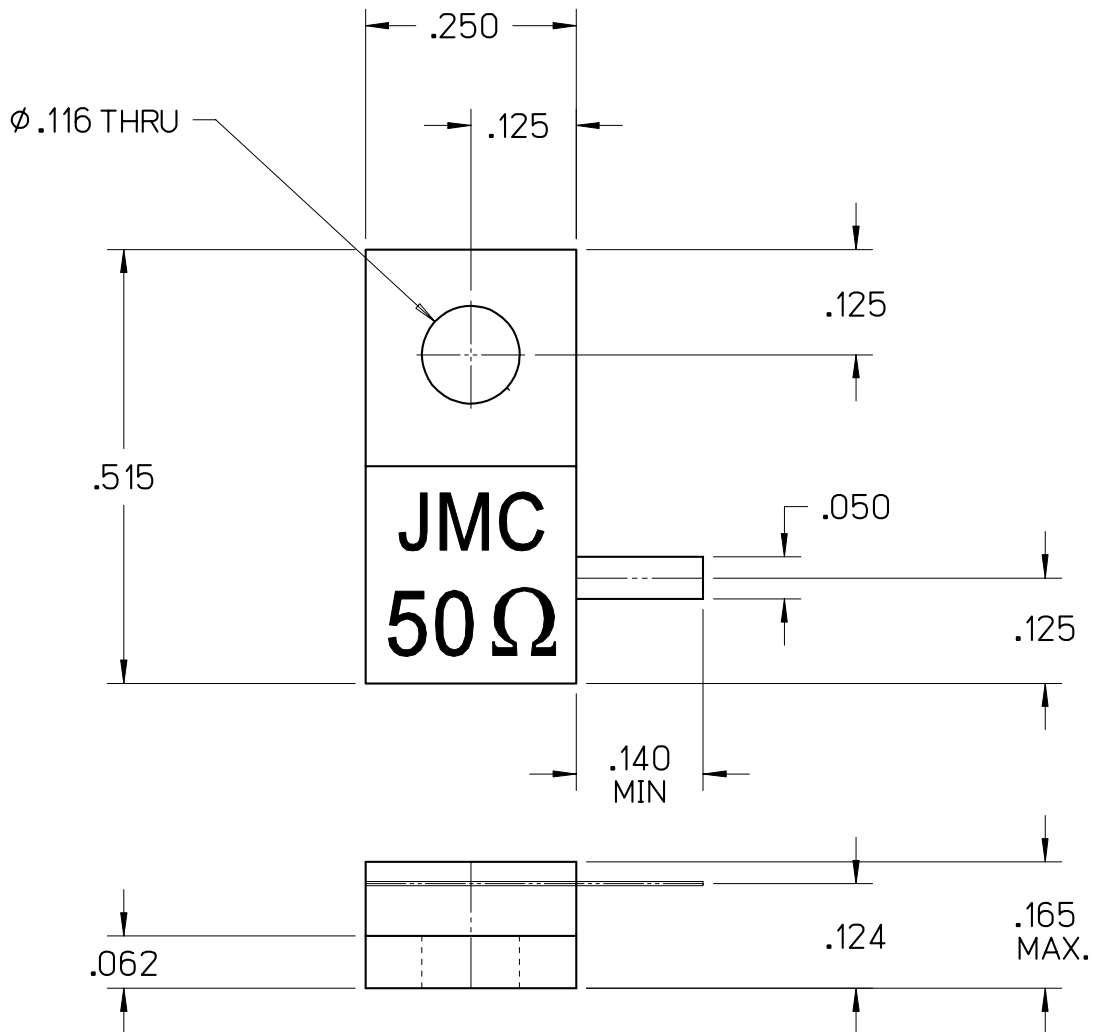


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



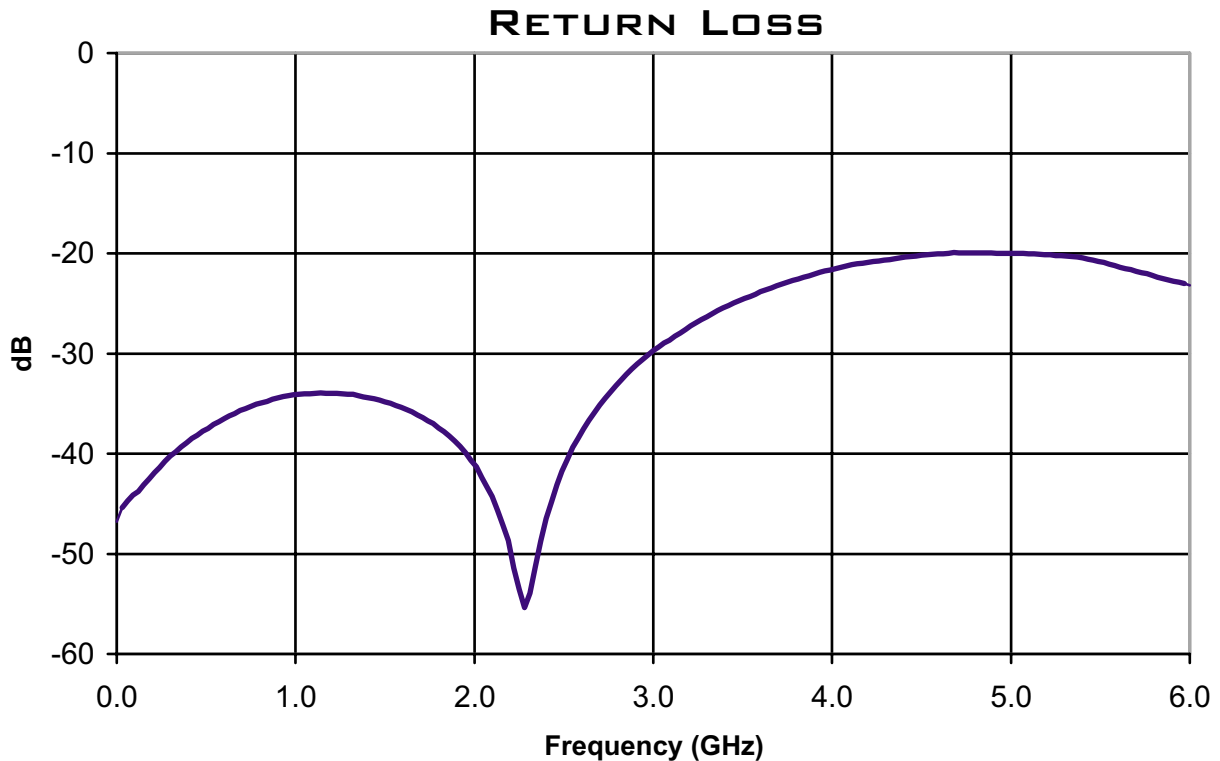
# TF100BB3C

## BeO Flanged Termination

**Power:** 100 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

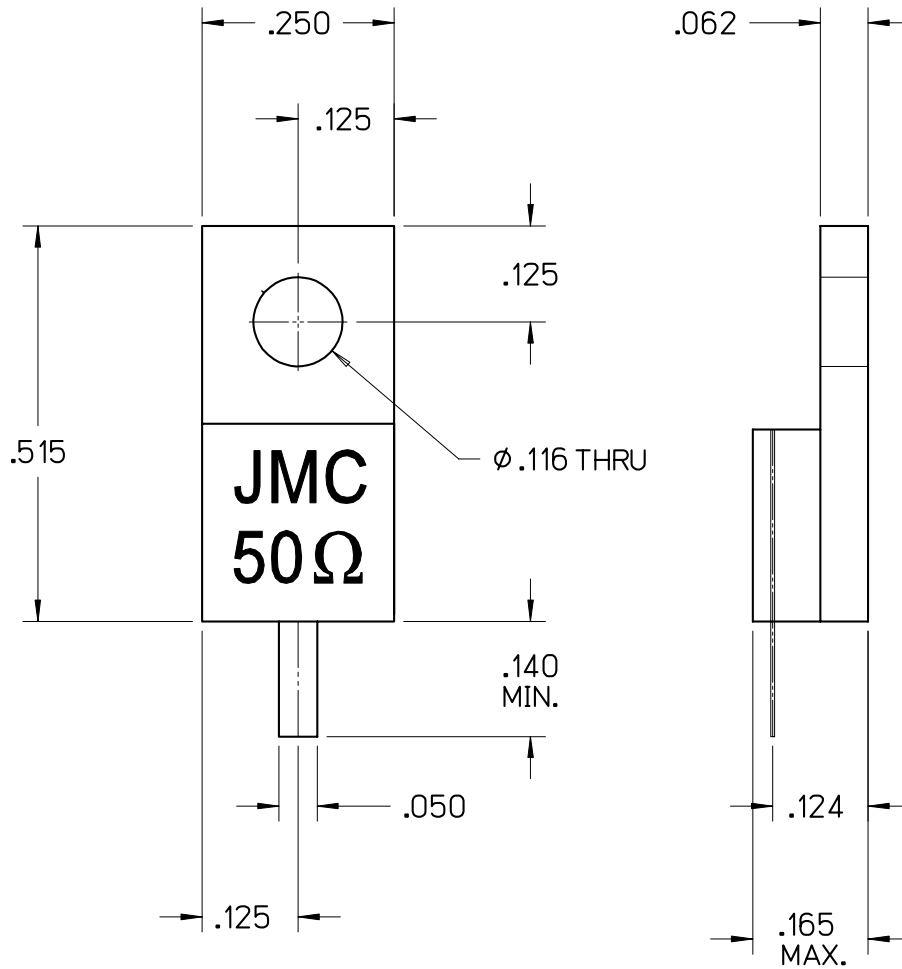


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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**TF075AB3L**

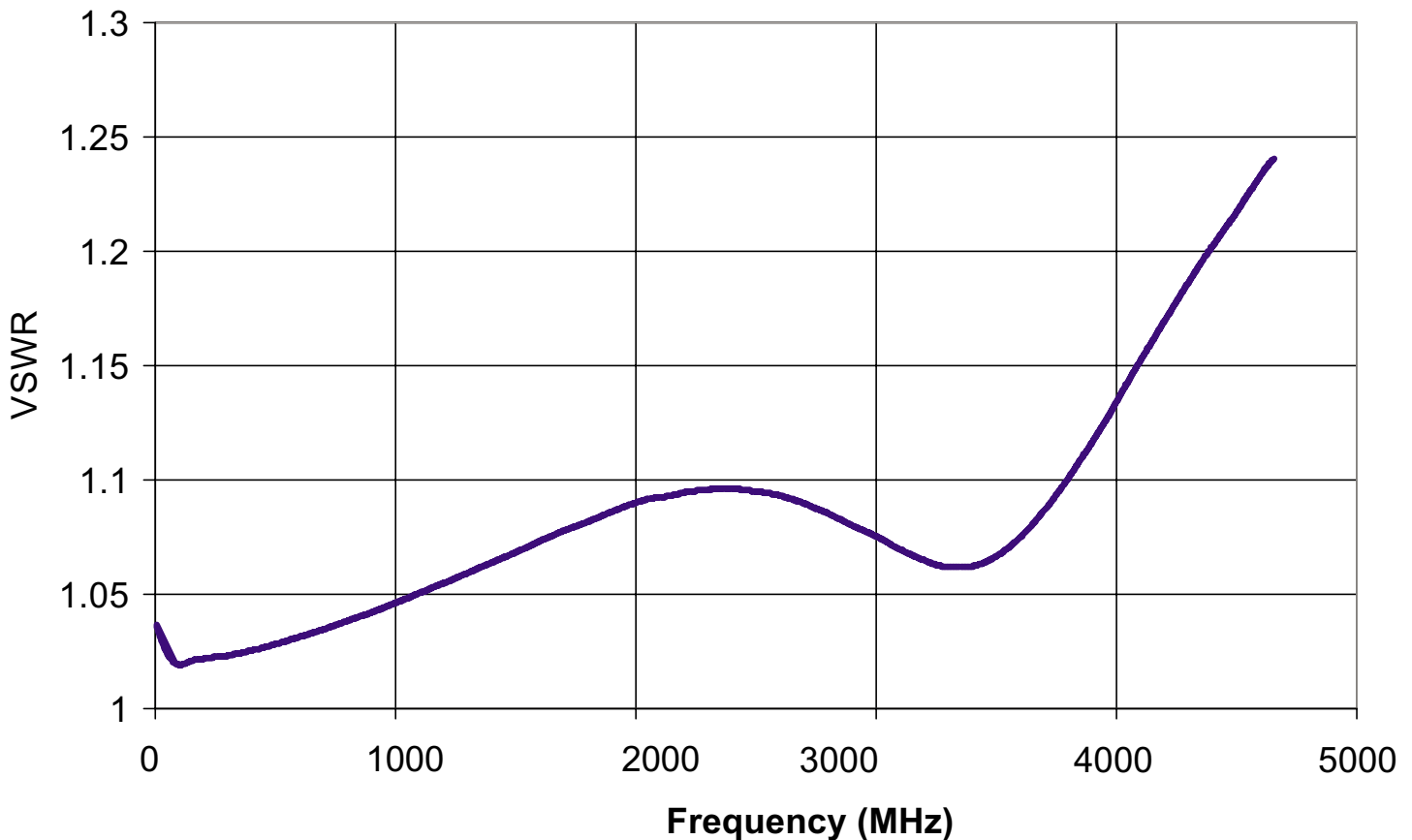
AIN Flanged Termination

**Power:** 75 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



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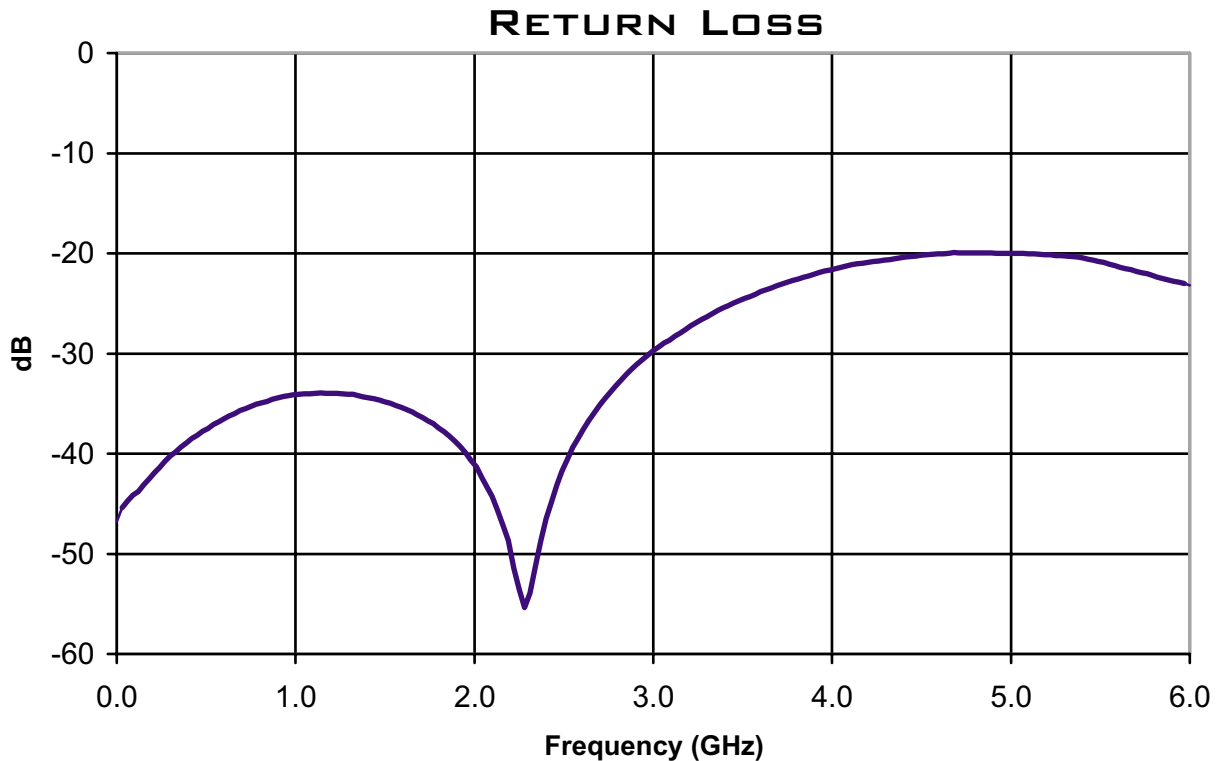
**TF060BB3R**

BeO Flanged Termination

**Power:** 60 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE



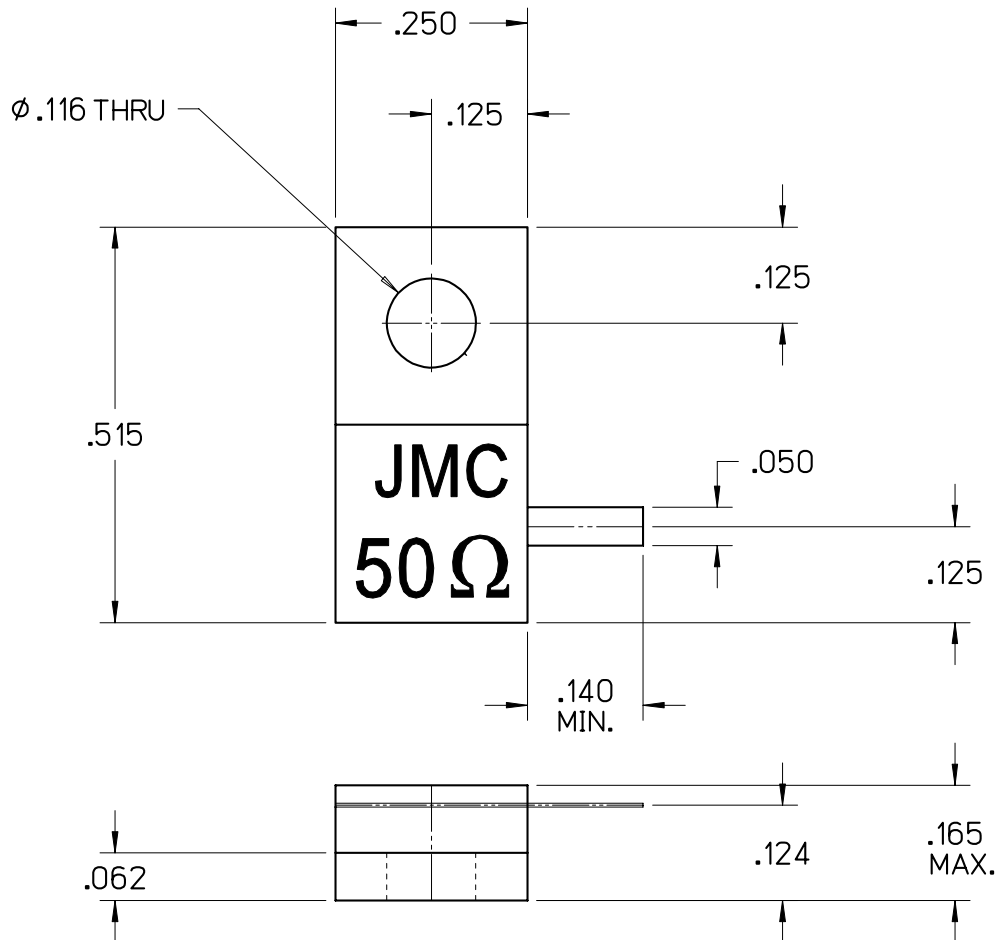
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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



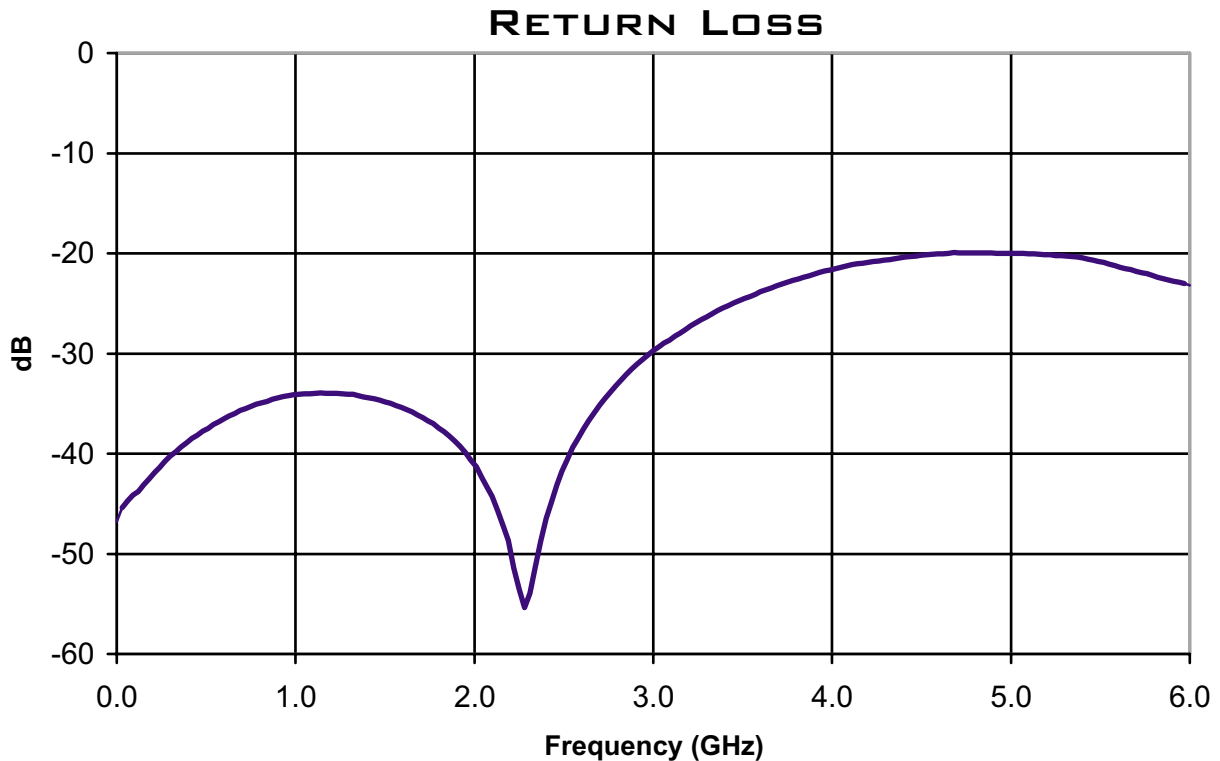
**TF060BB3L**

BeO Flanged Termination

**Power:** 60 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

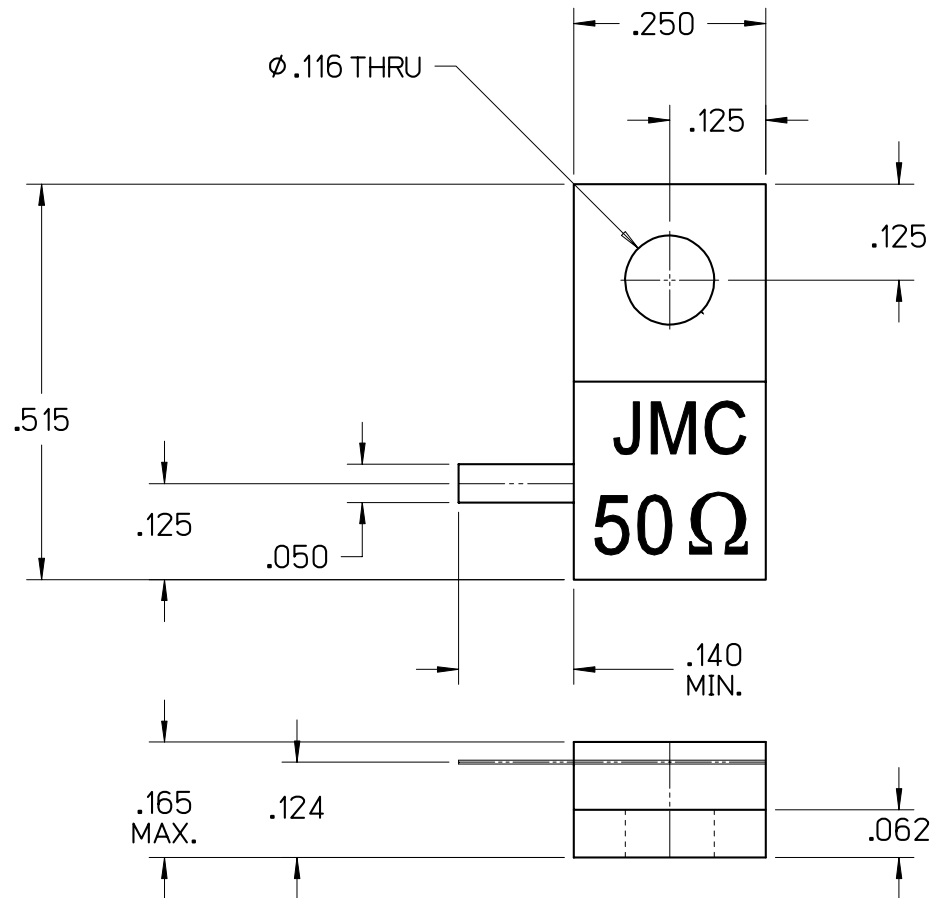


For detailed information regarding this product or sample request contact Johanson Sales



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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



**TF060AB3L**

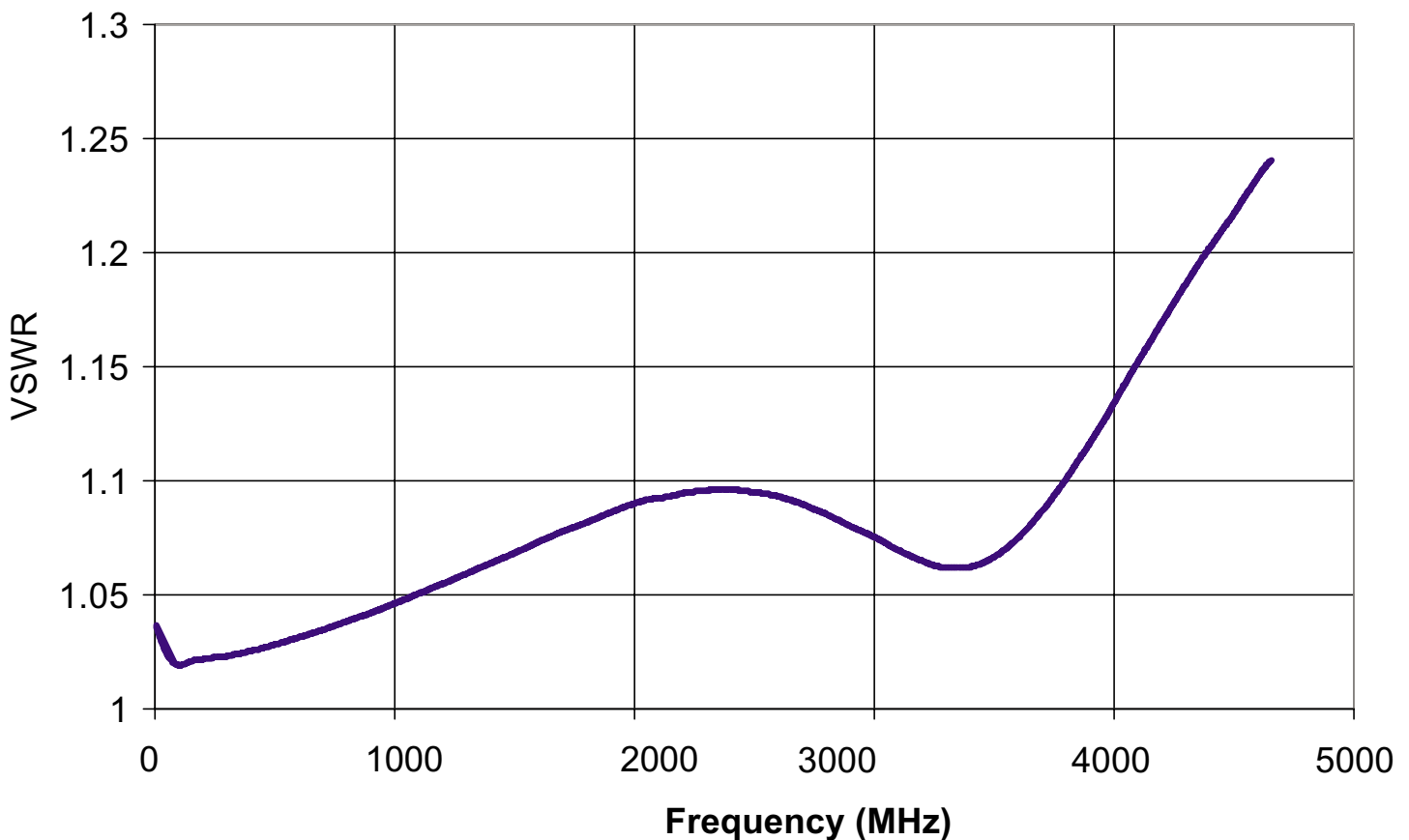
AIN Flanged Termination

**Power:** 60 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales

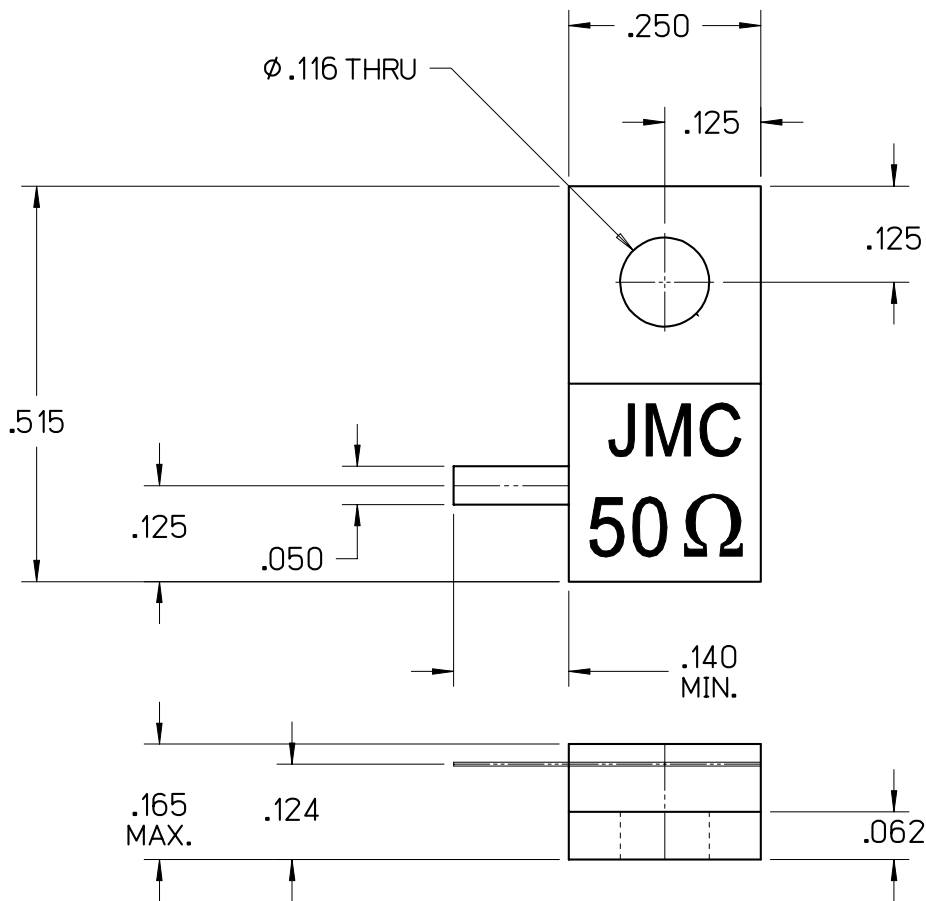


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# TF060AB3L

## AIN Flanged Termination



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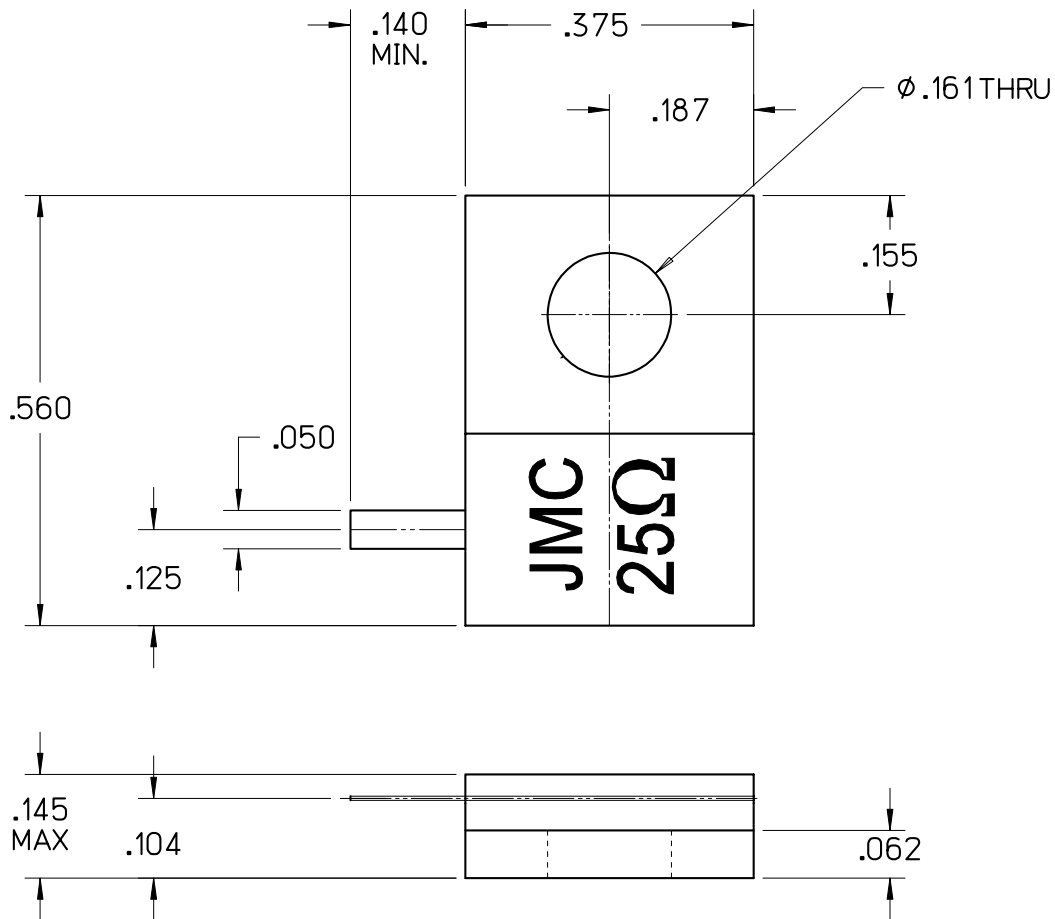
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# TF050BF6L

## BeO Flanged Termination

**Power:** 50 Watts (CW)  
**Resistance:**  $25 \Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



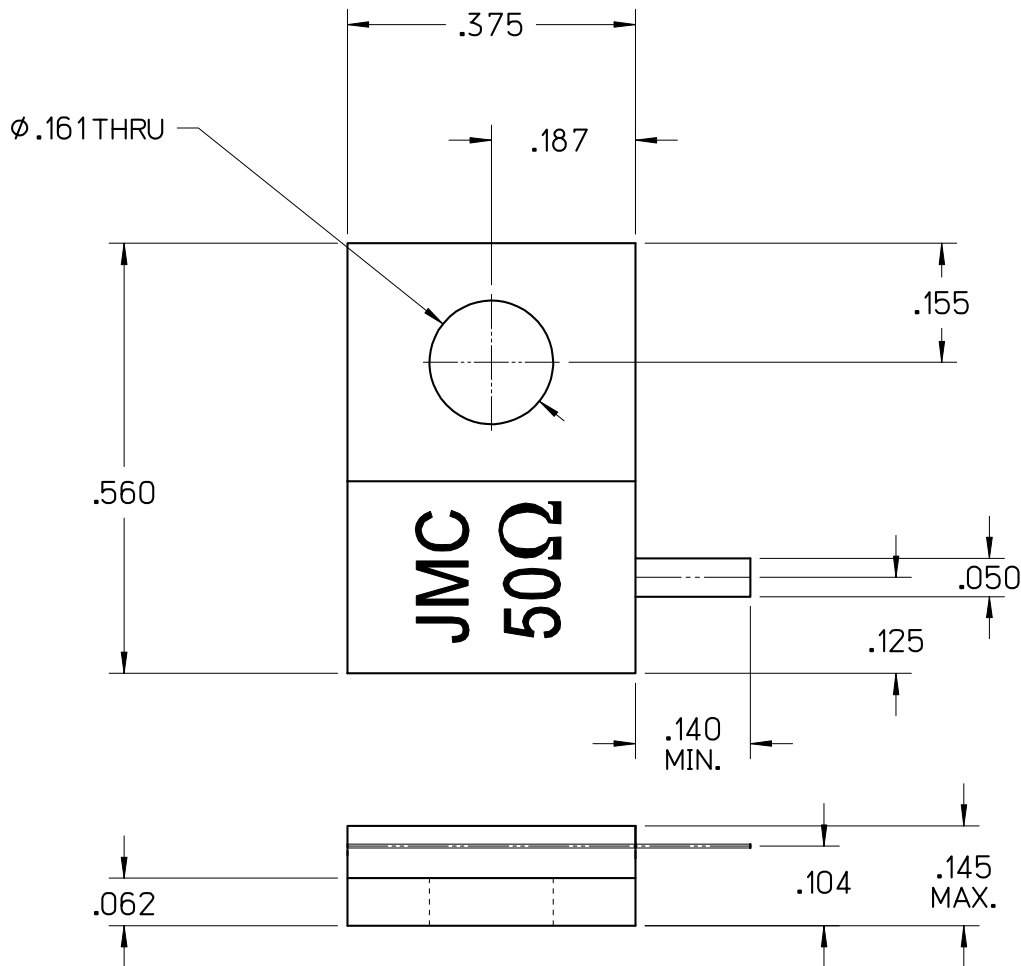
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# TF050BB6R

## BeO Flanged Termination

**Power:** 50 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



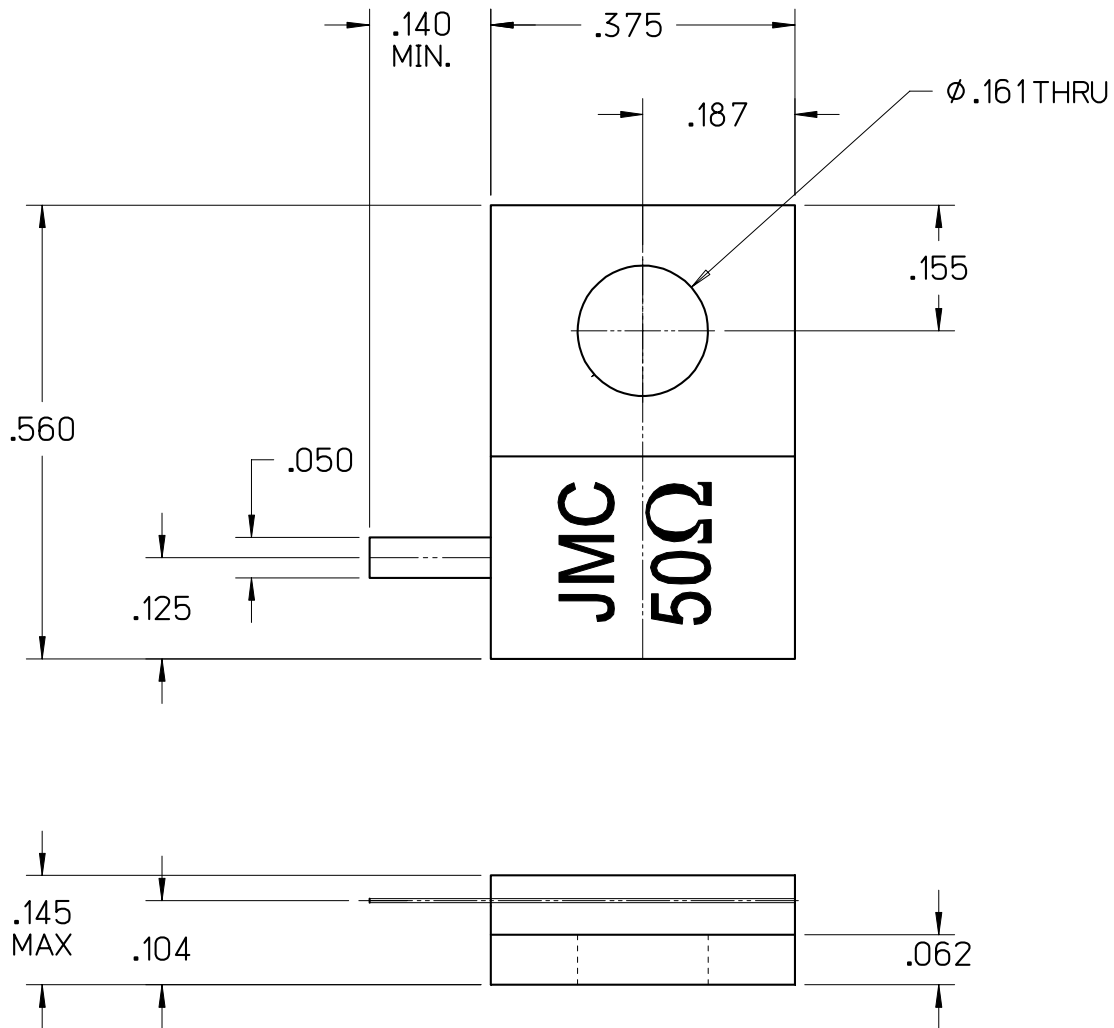
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TF050BB6L

BeO Flanged Termination

Power: 50 Watts (CW)  
Resistance: 50 Ω ± 5%  
Substrate: BeO



**CAUTION**  
THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

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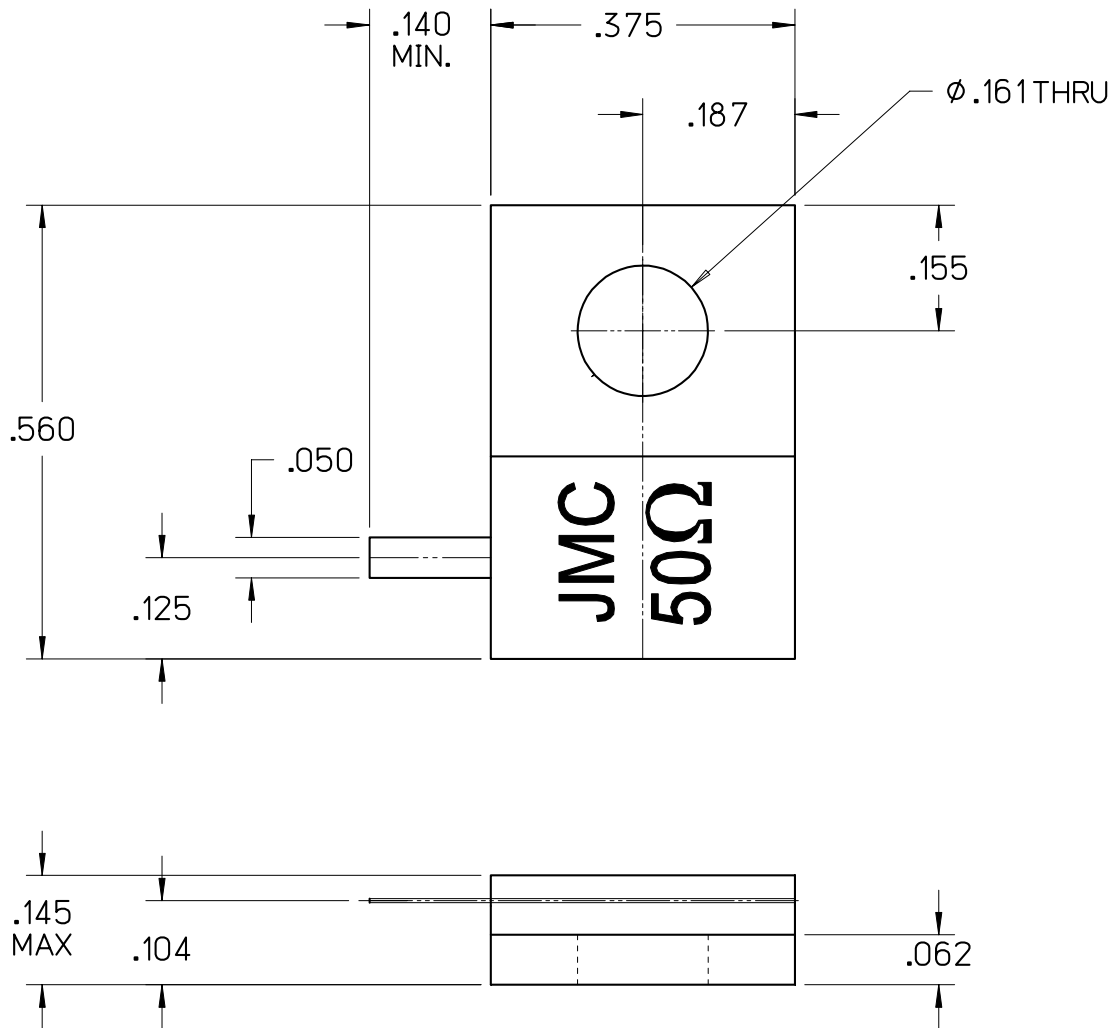




# TF050AB6L

## AlN Flanged Termination

**Power:** 50 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



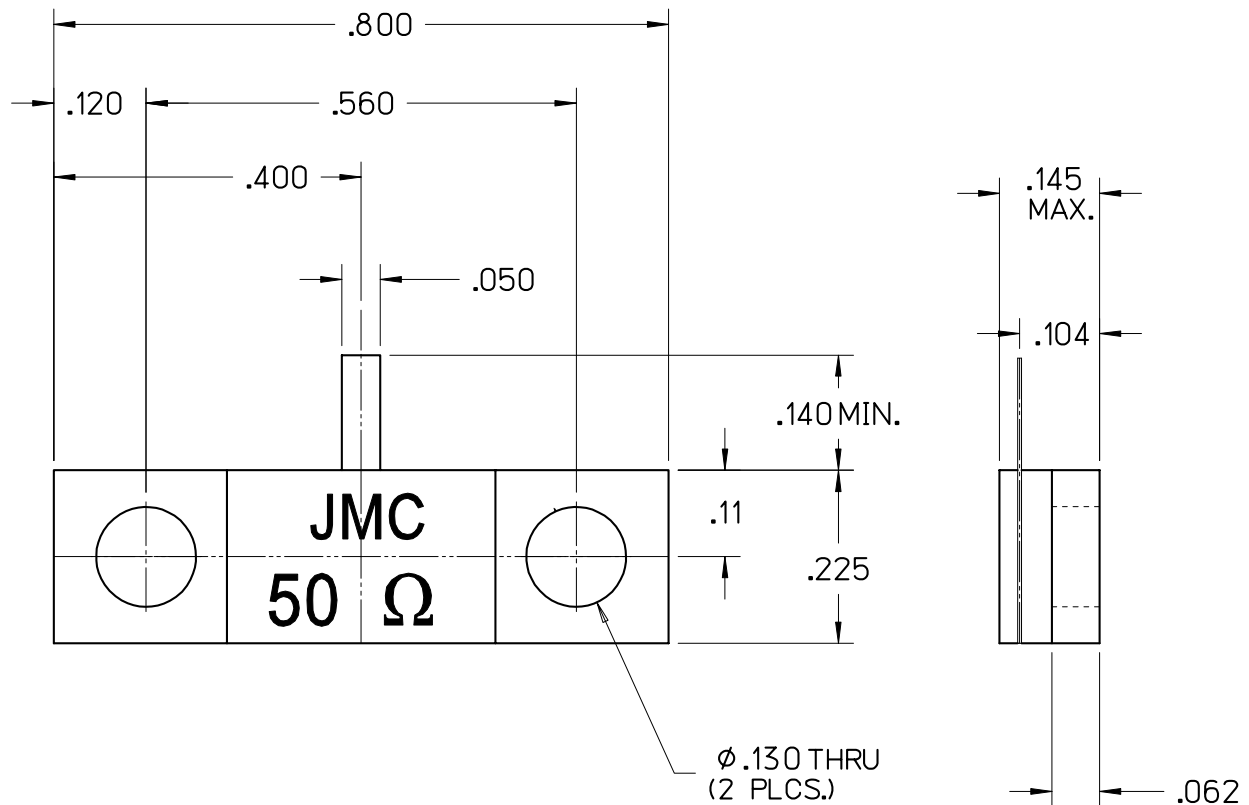
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**TF050AB04**

**AlN Flanged Termination**

**Power:** 50 Watts (CW)  
**Resistance:** 50 Ω ± 5%  
**Substrate:** AlN

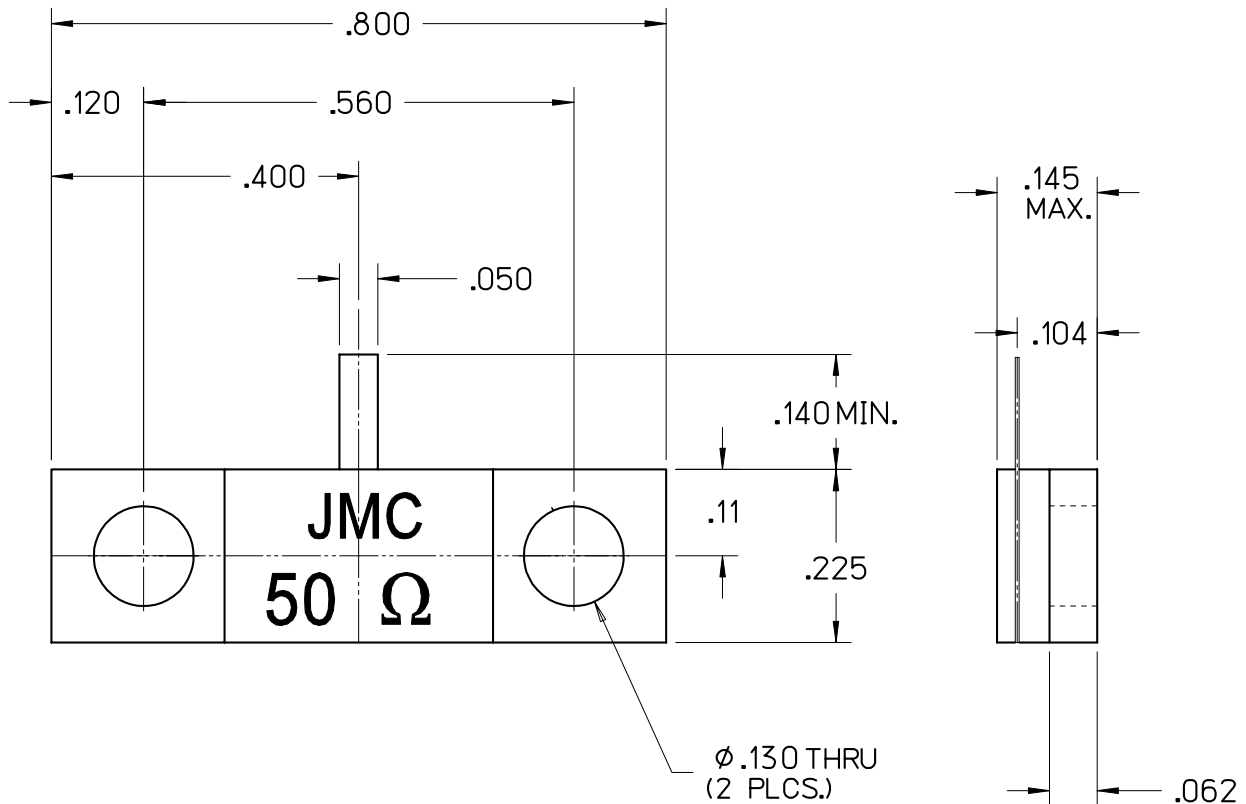


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**Power:** 40 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** BeO



**CAUTION**  
THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

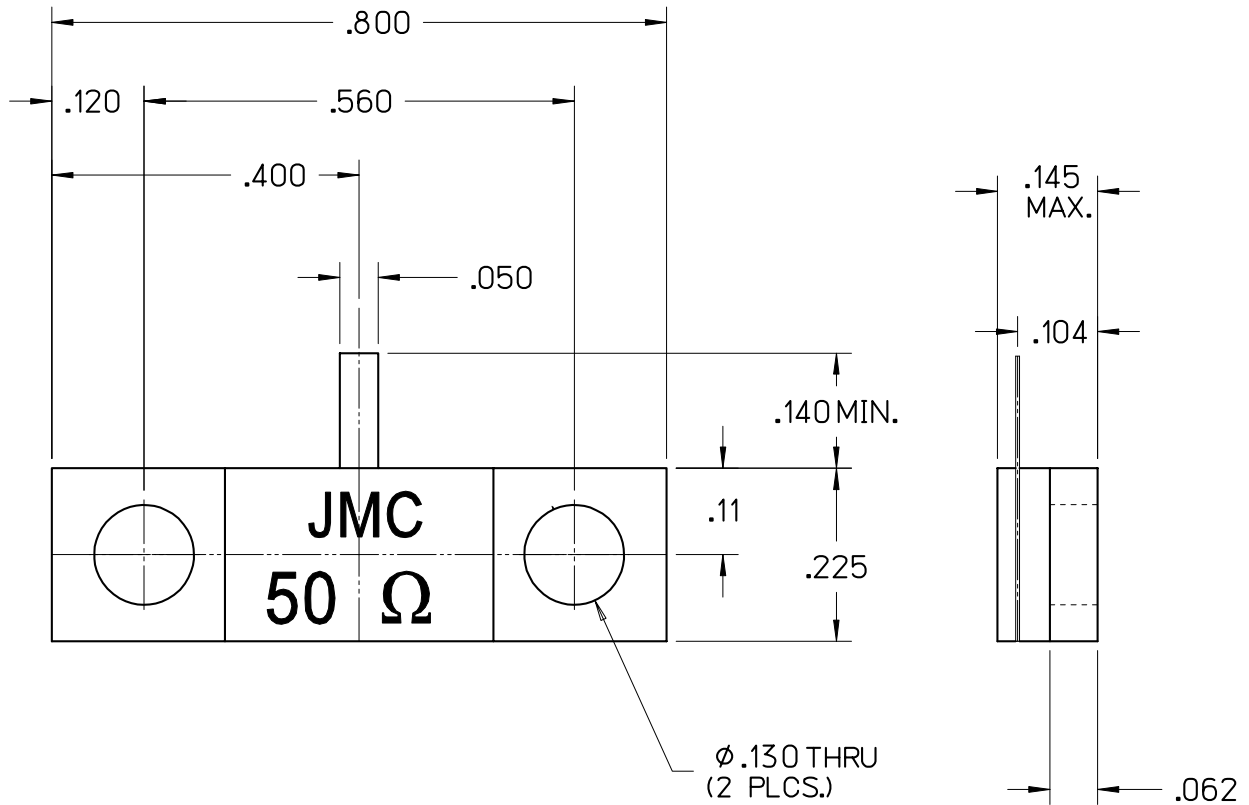
For detailed information regarding this product or sample request contact Johanson Sales



**TF040AB04**

**AlN Flanged Termination**

**Power:** 40 Watts (CW)  
**Resistance:** 50 Ω ± 5%  
**Substrate:** AlN



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**TF030AB3C**

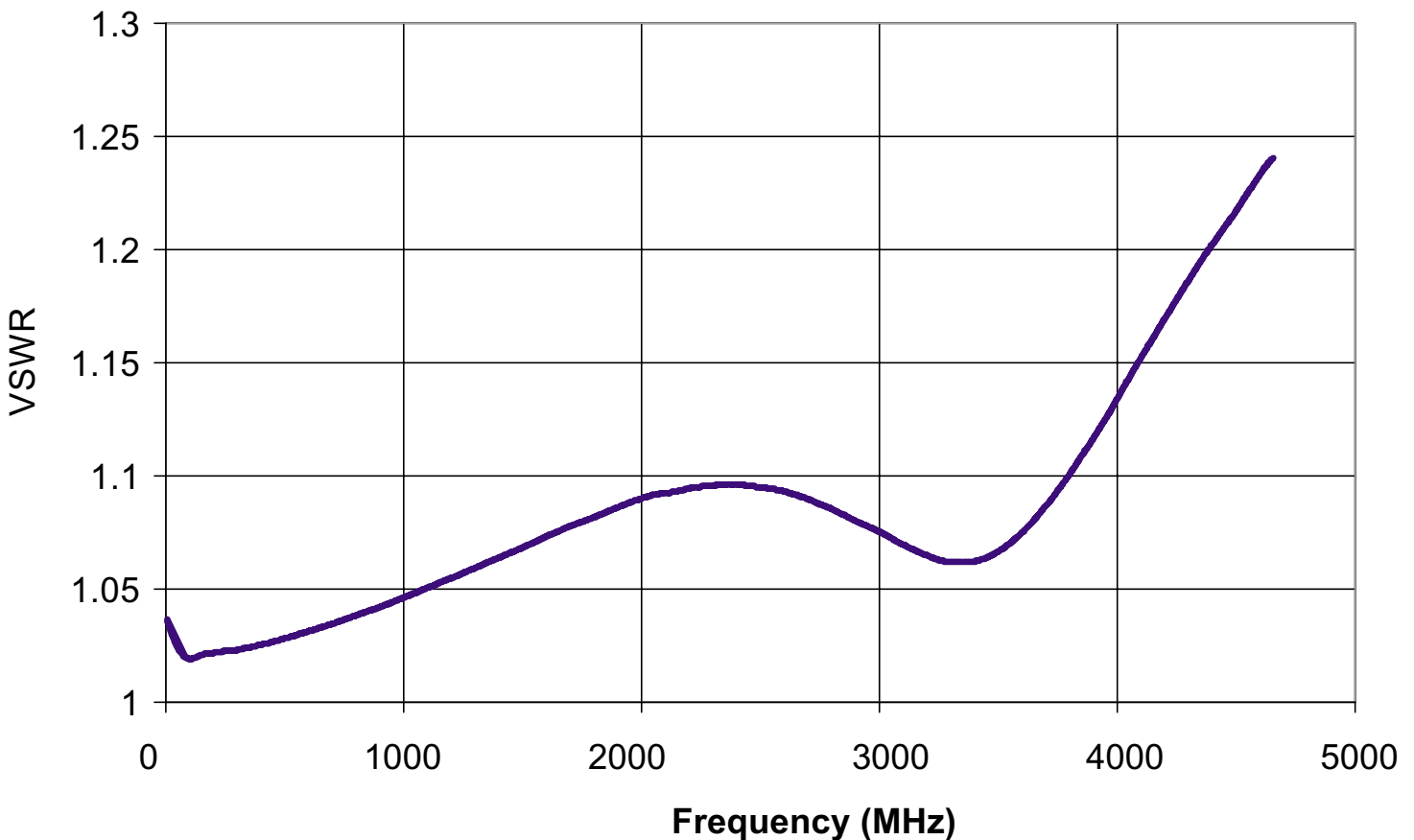
AlN Flanged Termination

**Power:** 30 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** AlN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales

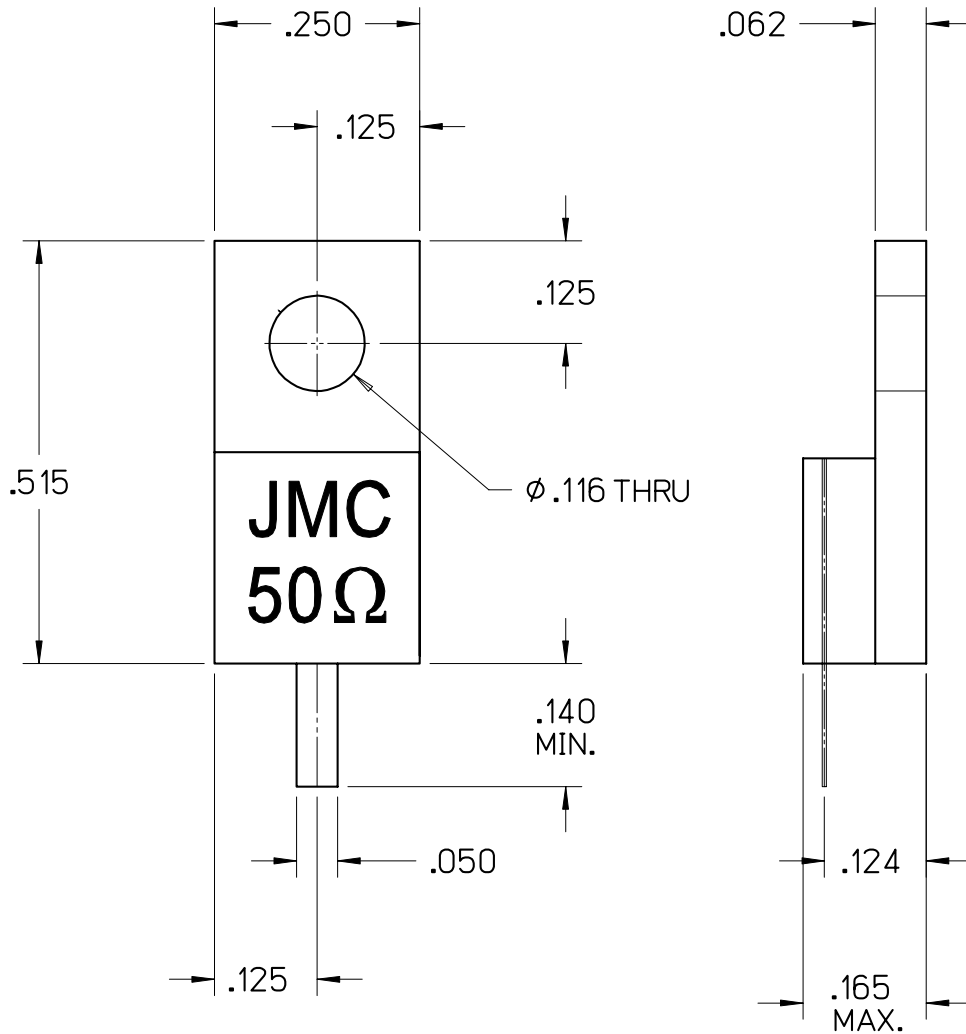


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# TF030AB3C

## AIN Flanged Termination



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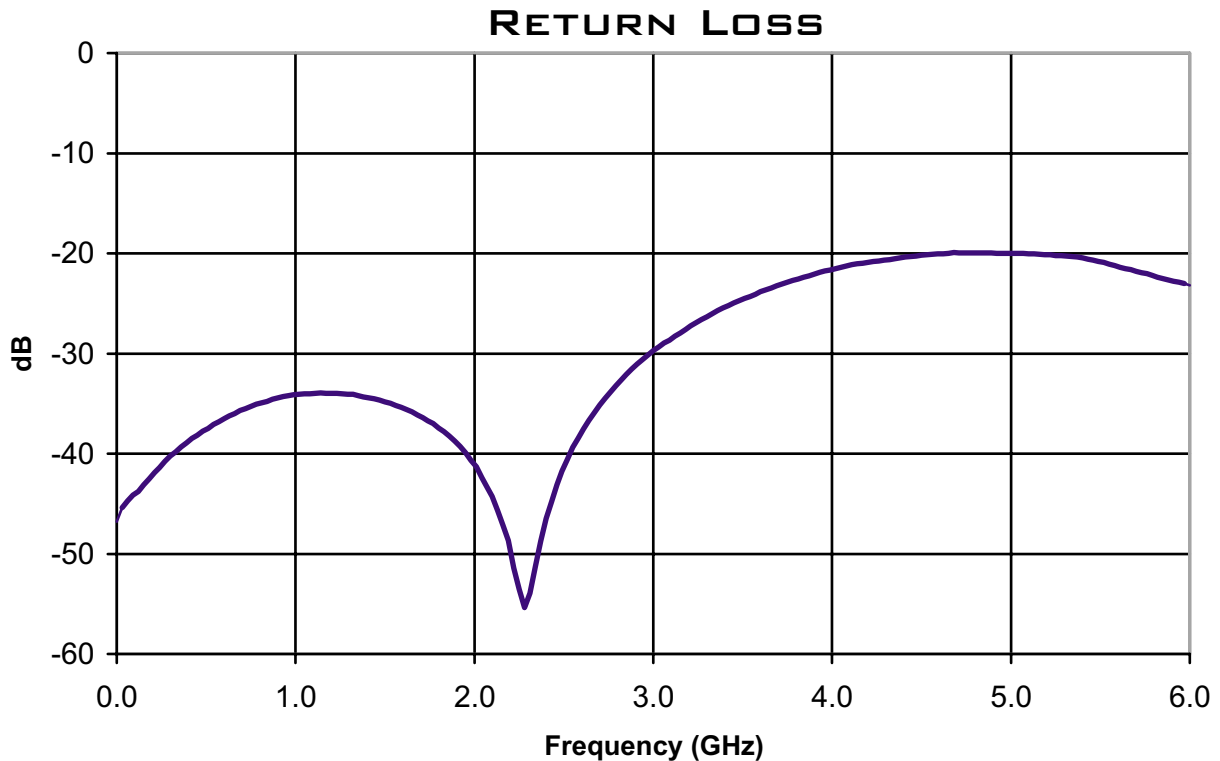
**TF020BB3R**

BeO Flanged Termination

**Power:** 20 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



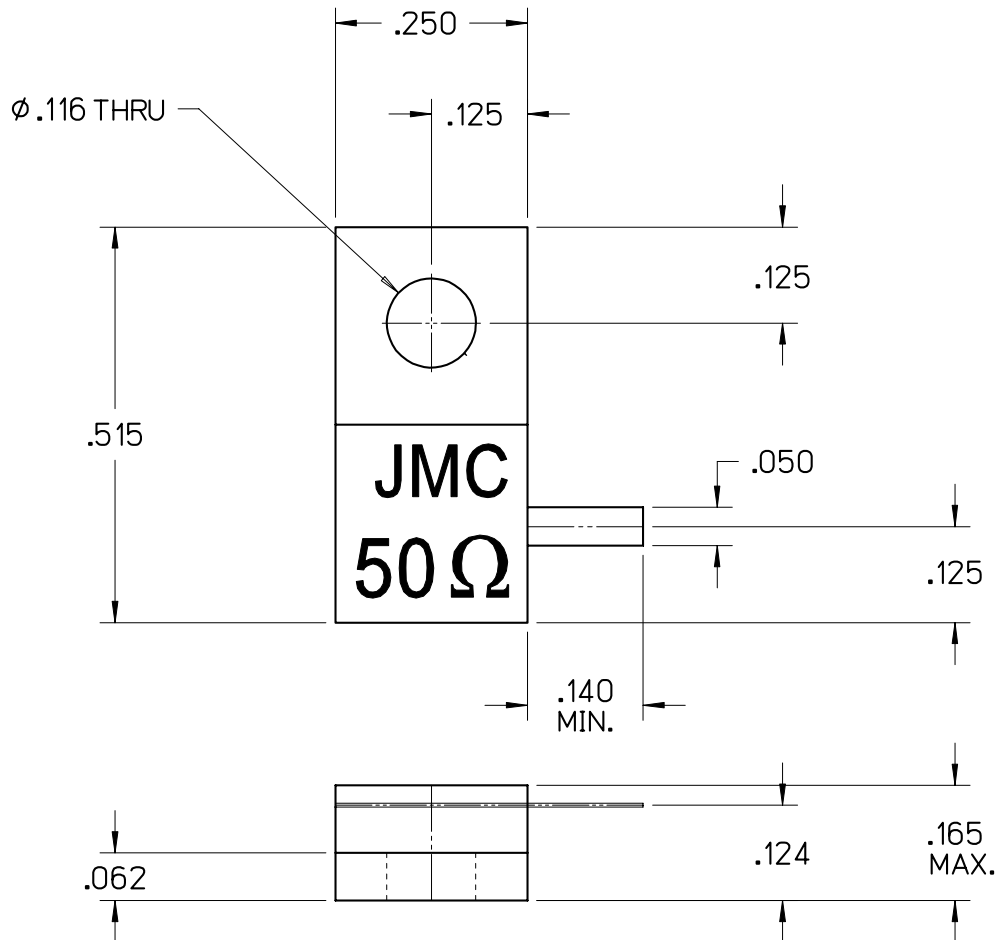
### TYPICAL PERFORMANCE



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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
 USE CARE WHEN HANDLING.  
 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales





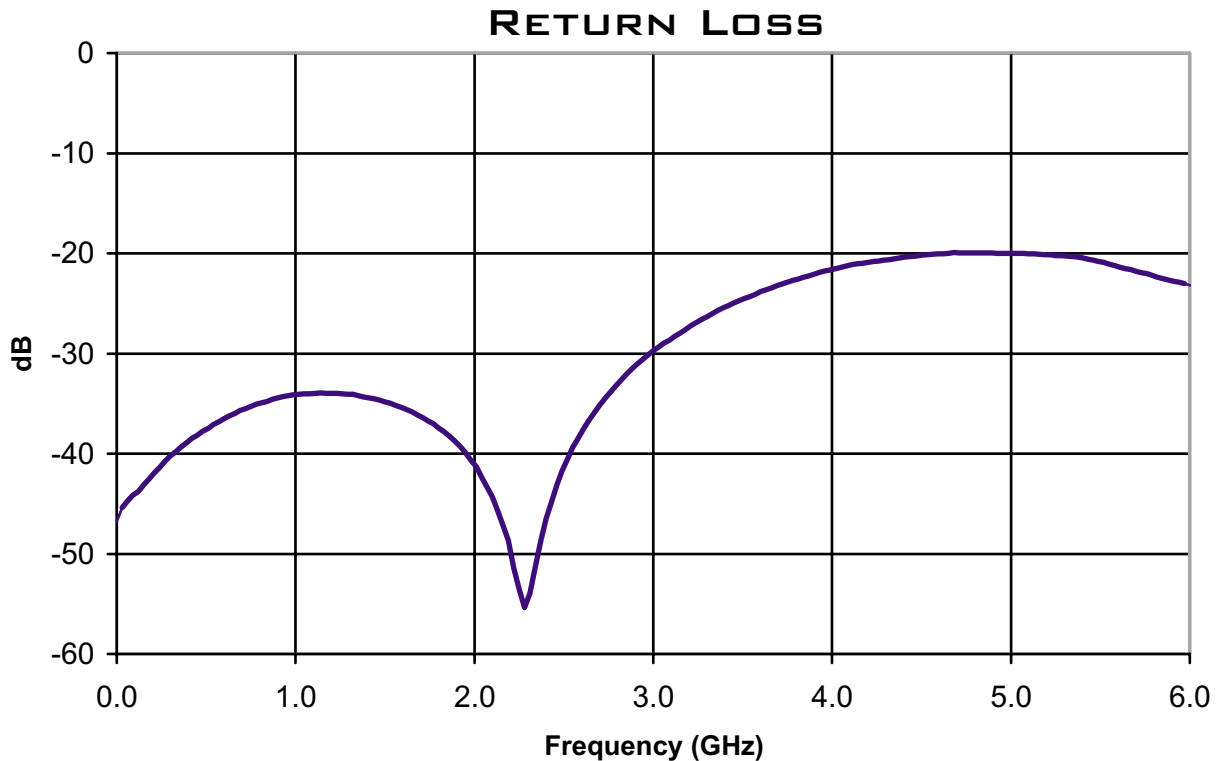
**TF020BB3L**

BeO Flanged Termination

**Power:** 20 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 6 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

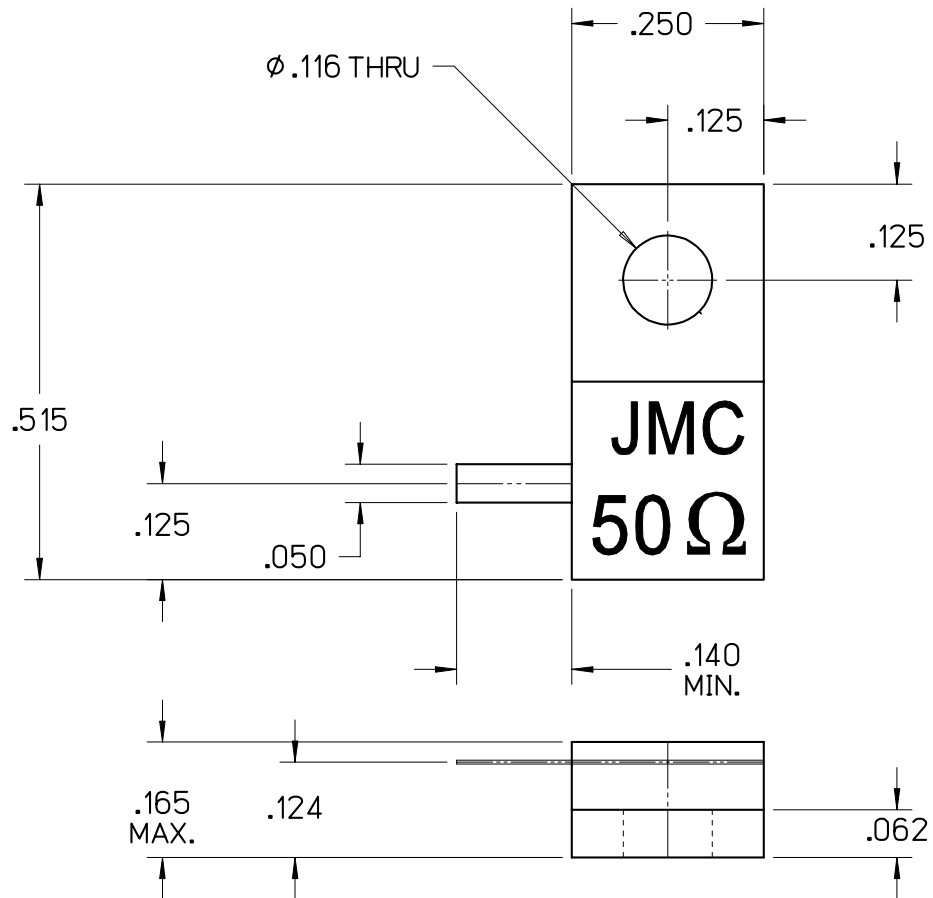


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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
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**TF020BB3C**

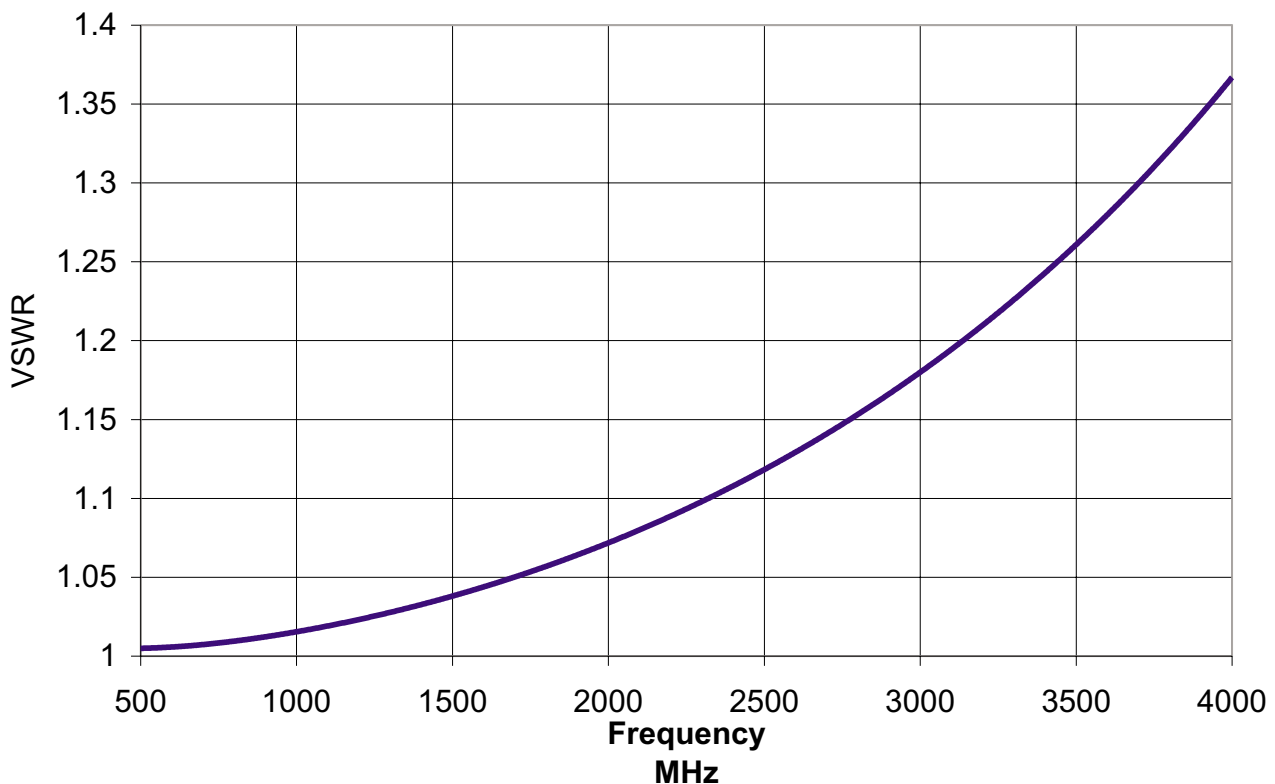
**BeO Flanged Termination**

**Power:** 20 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 3 GHz  
**Substrate:** BeO



### TYPICAL PERFORMANCE

#### VSWR

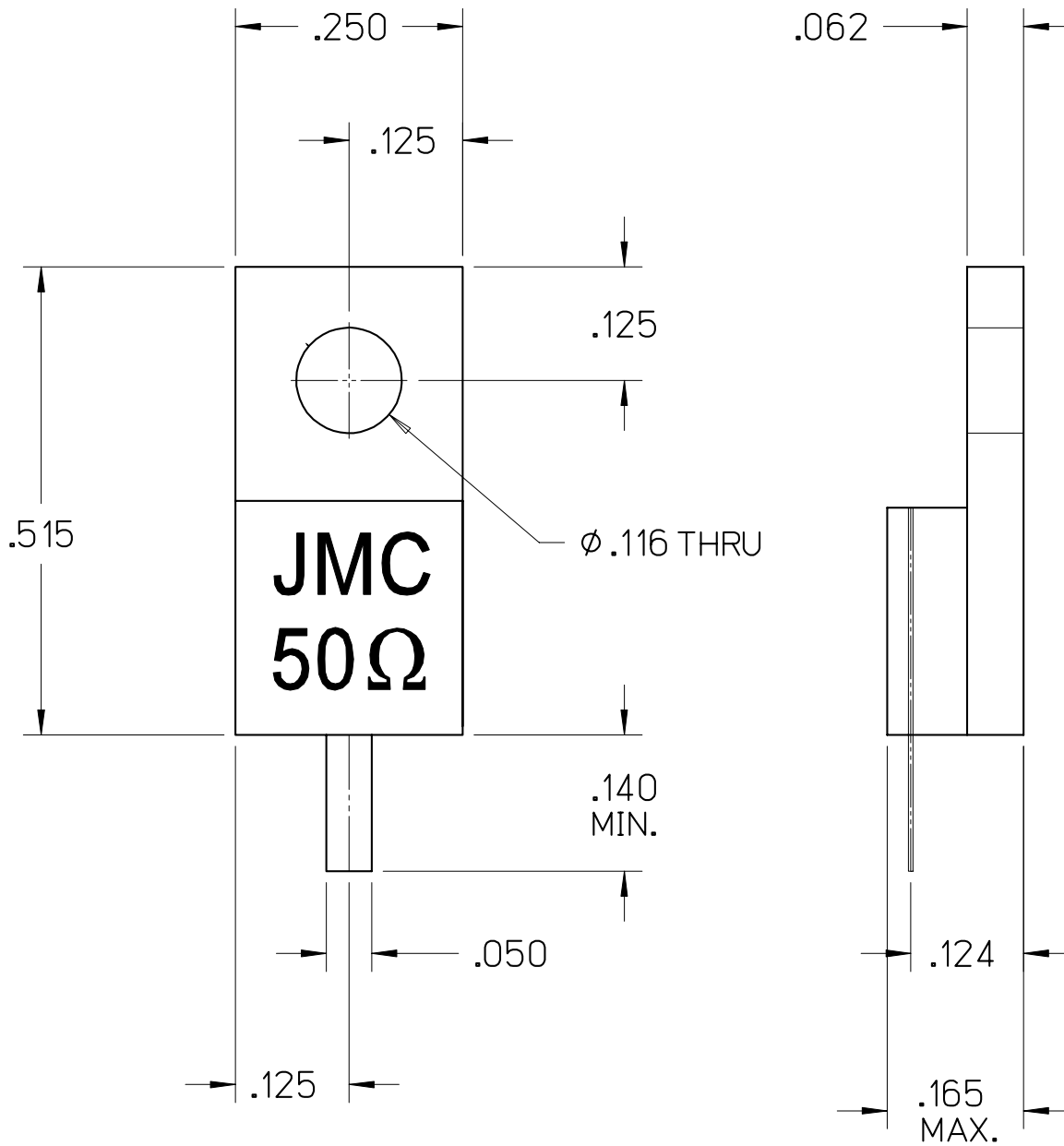


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## BeO Flanged Termination



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
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 DO NOT SCRATCH OR ABRASIVE  
 TRIM IN OPEN AREA.

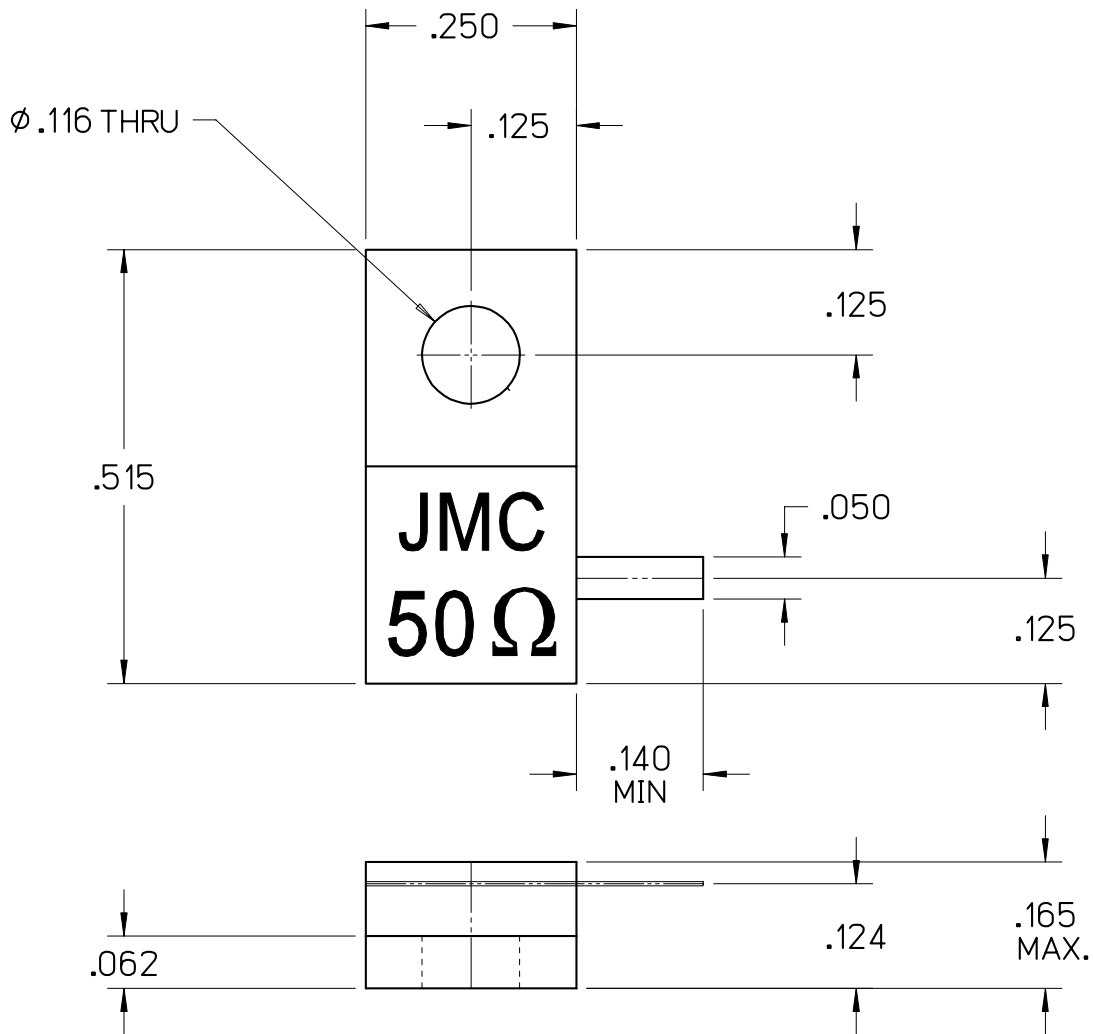
For detailed information regarding this product or sample request contact Johanson Sales



# TF020AB3R

## AlN Flanged Termination

**Power:** 20 Watts (CW)  
**Resistance:** 50 Ω ± 5%  
**Substrate:** AlN



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**TF020AB3L**

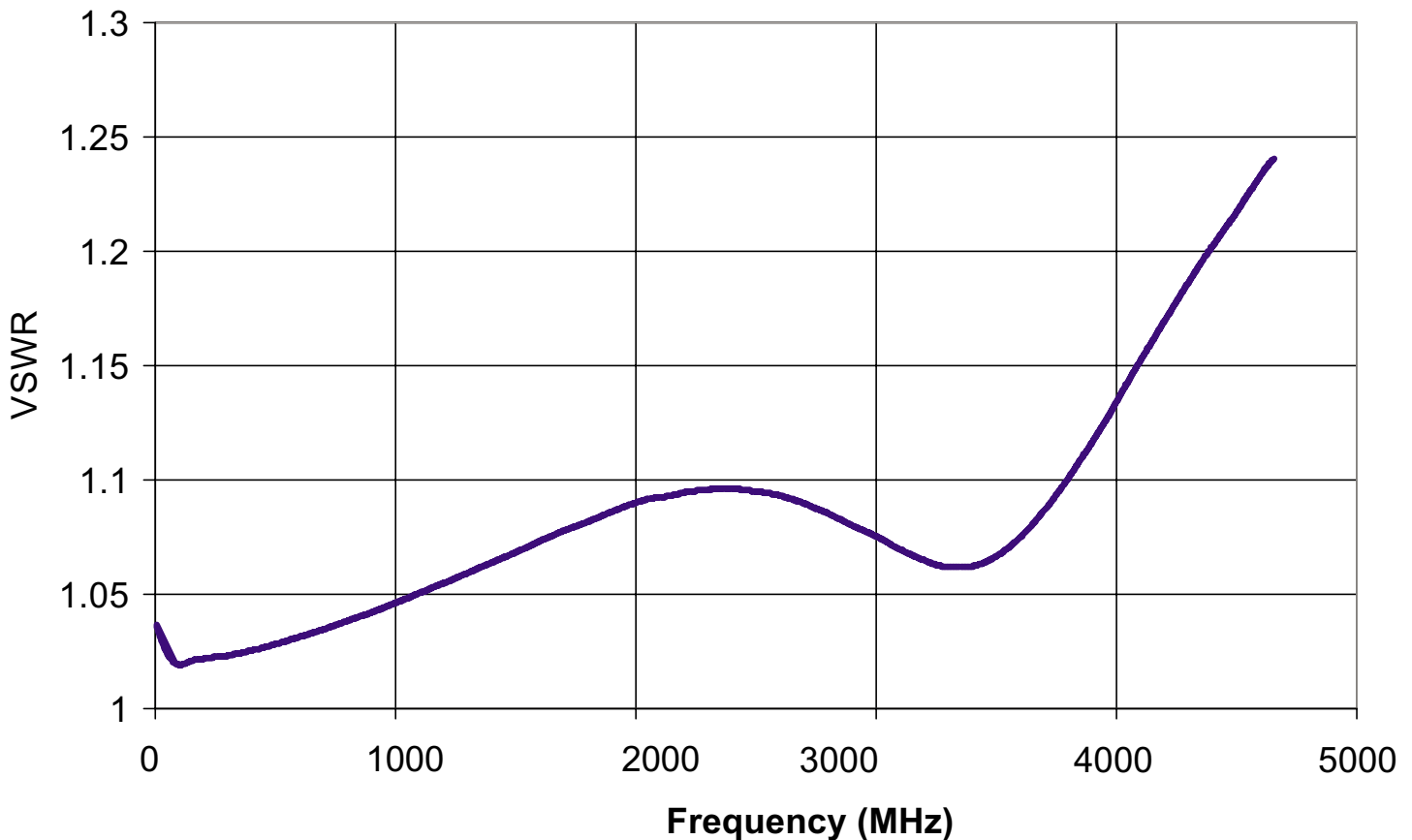
**AIN Flanged Termination**

**Power:** 20 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales

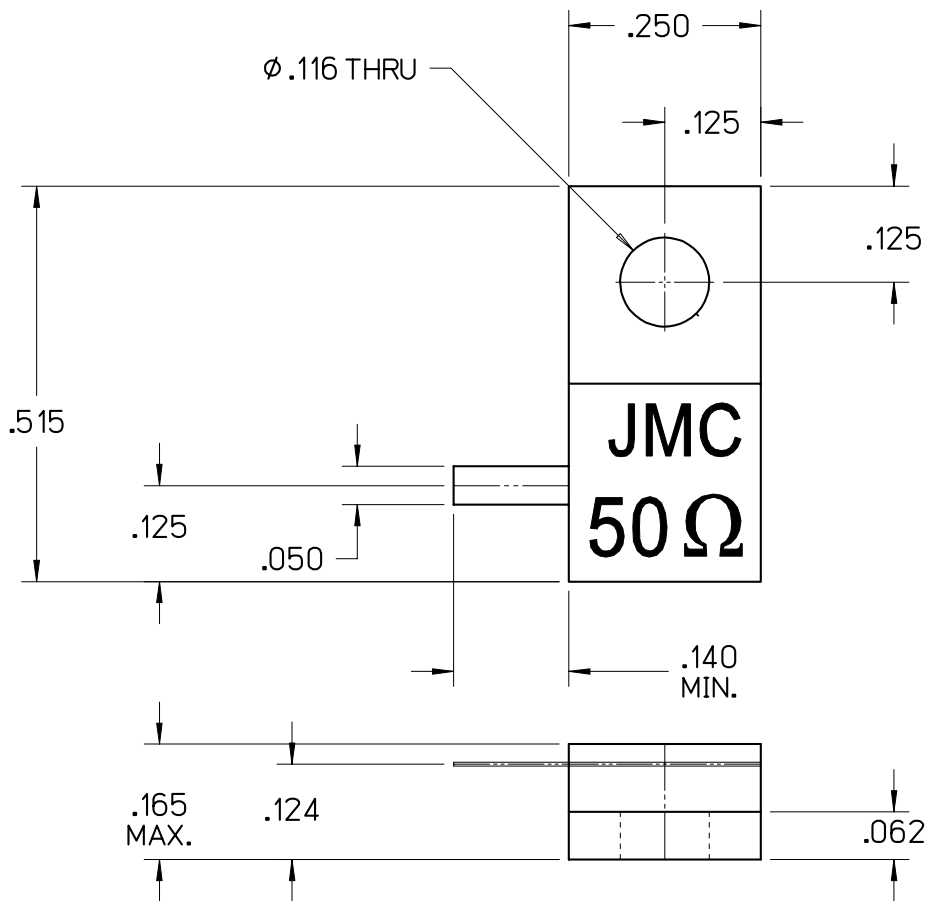


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## AIN Flanged Termination



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**TF020AB3C**

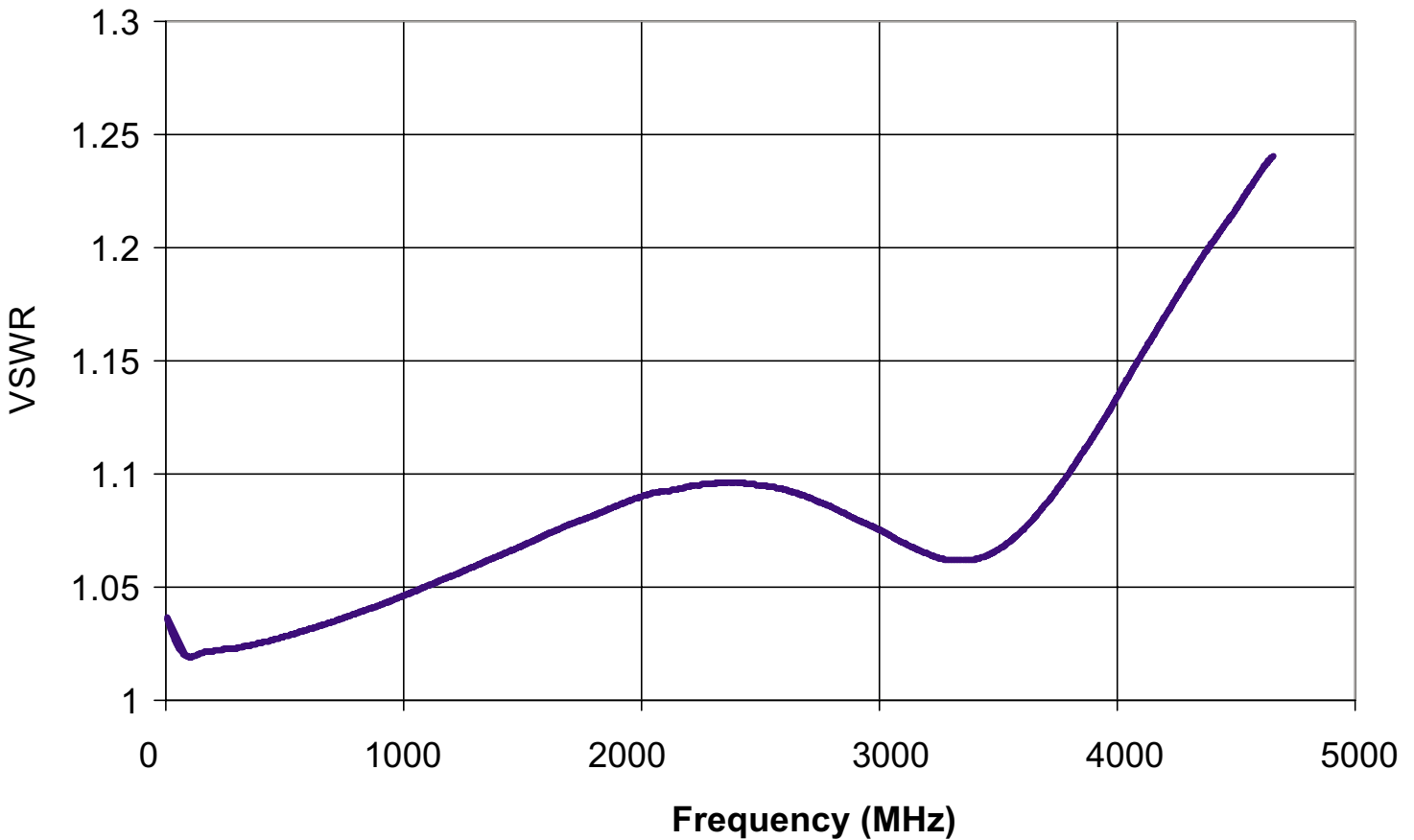
**AlN Flanged Termination**

**Power:** 20 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.2 :1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** AlN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales



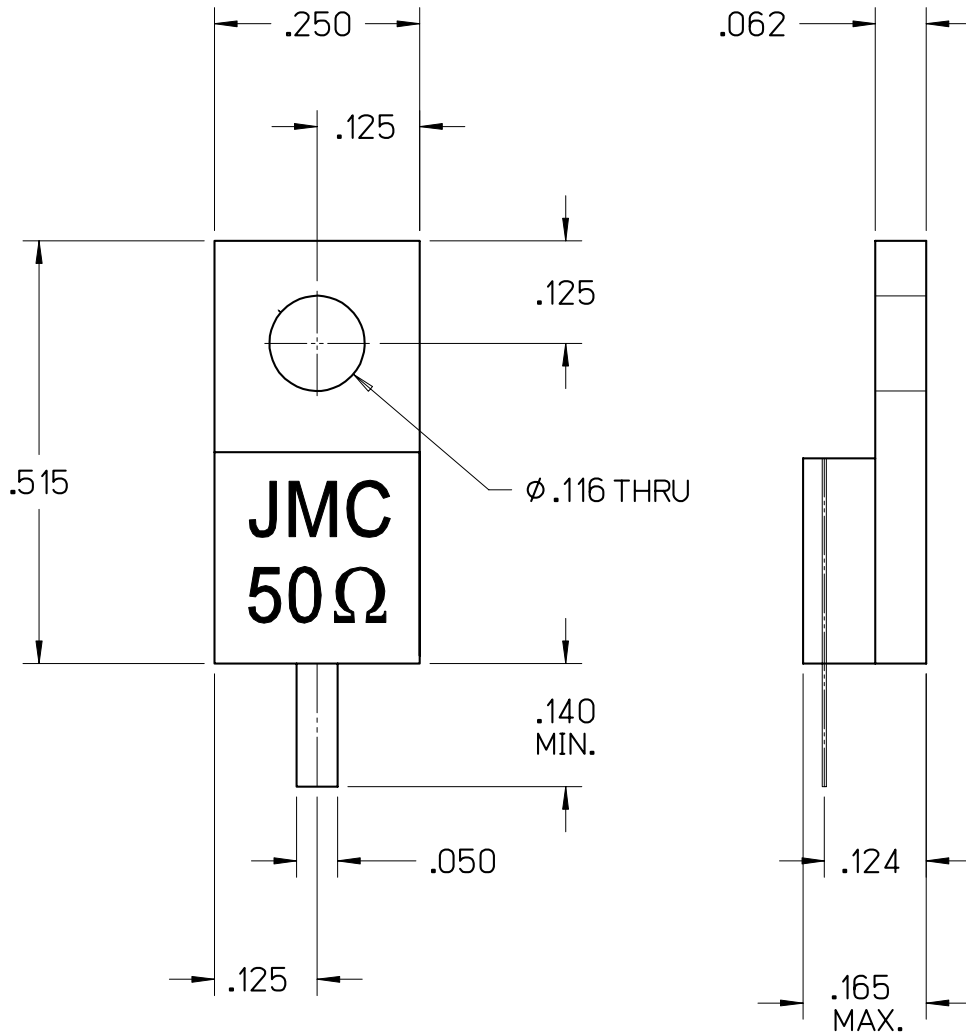
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TF020AB3C

AIN Flanged Termination



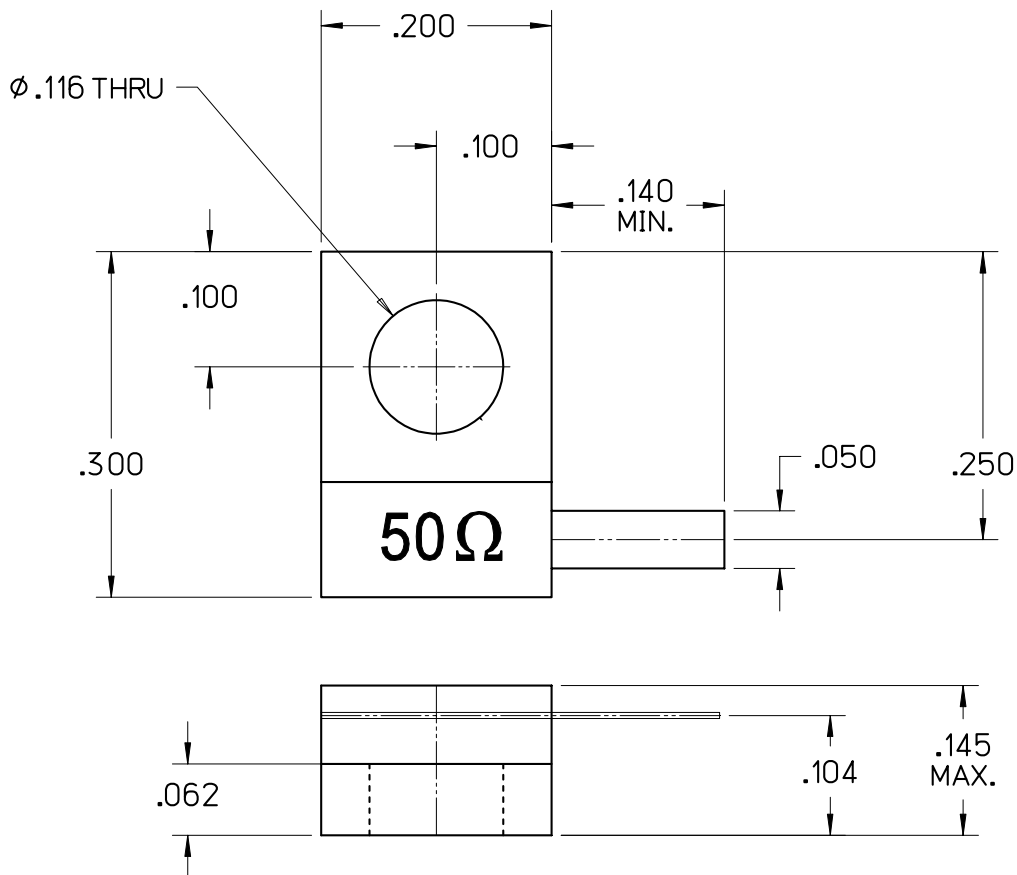
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**Power:** 10 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** BeO



### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



**TF010BB1L**

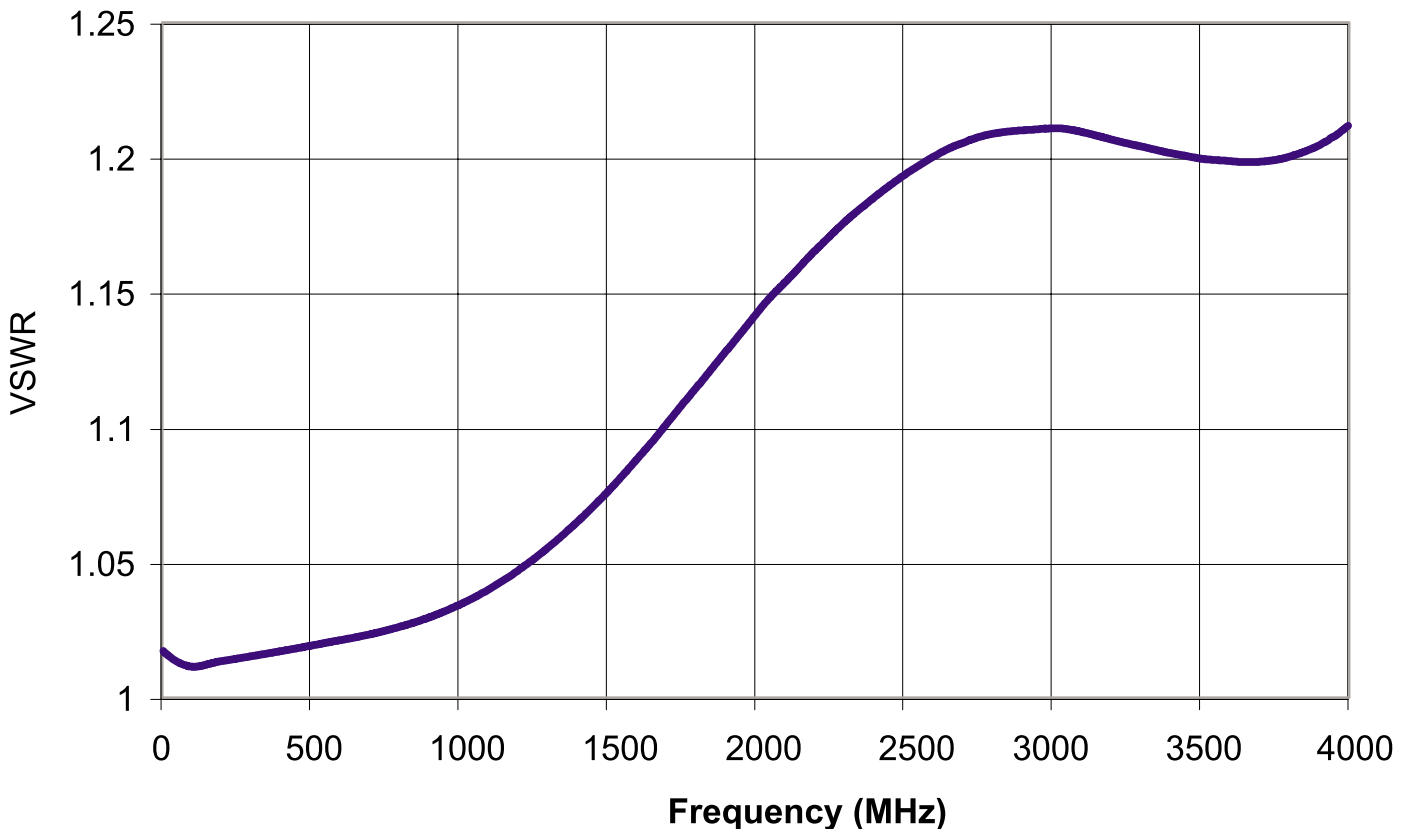
BeO Flanged Termination

**Power:** 10 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** BeO



## TYPICAL PERFORMANCE

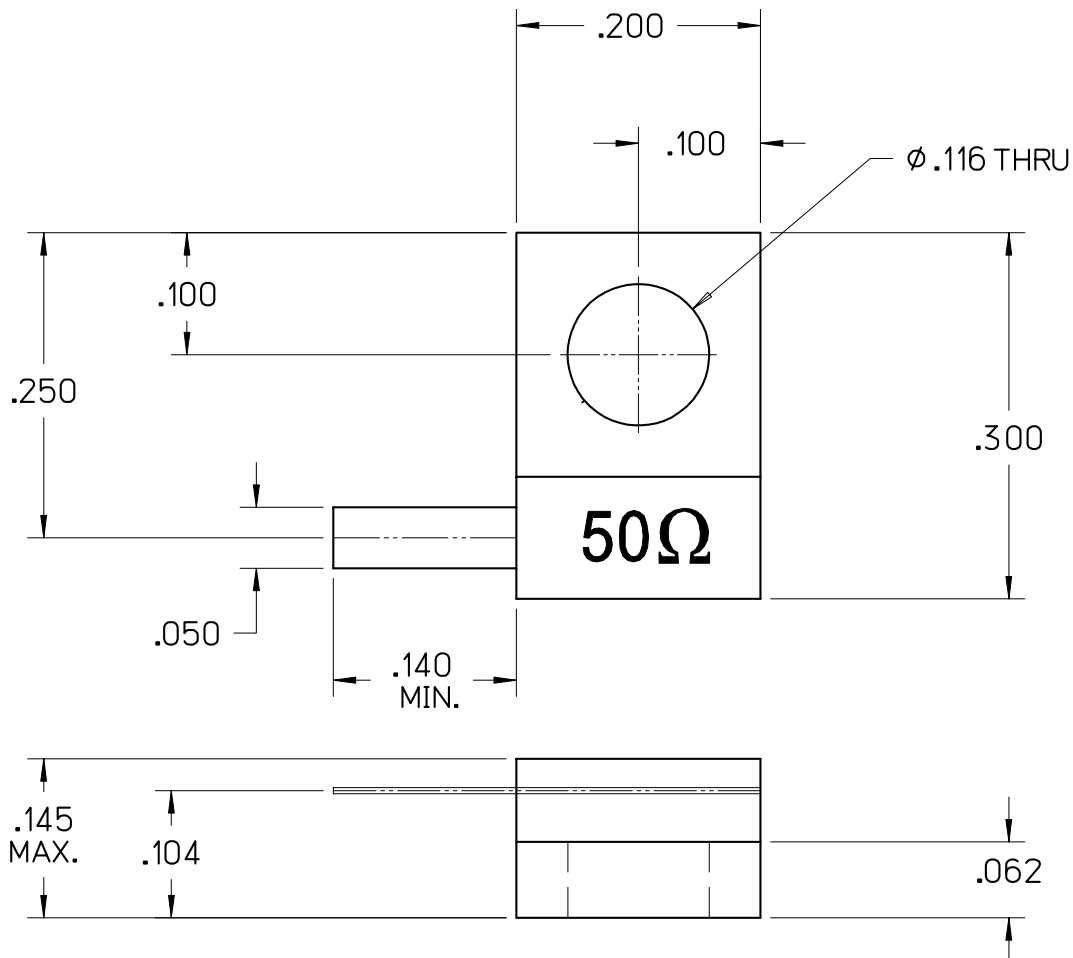
### VSWR



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### CAUTION

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

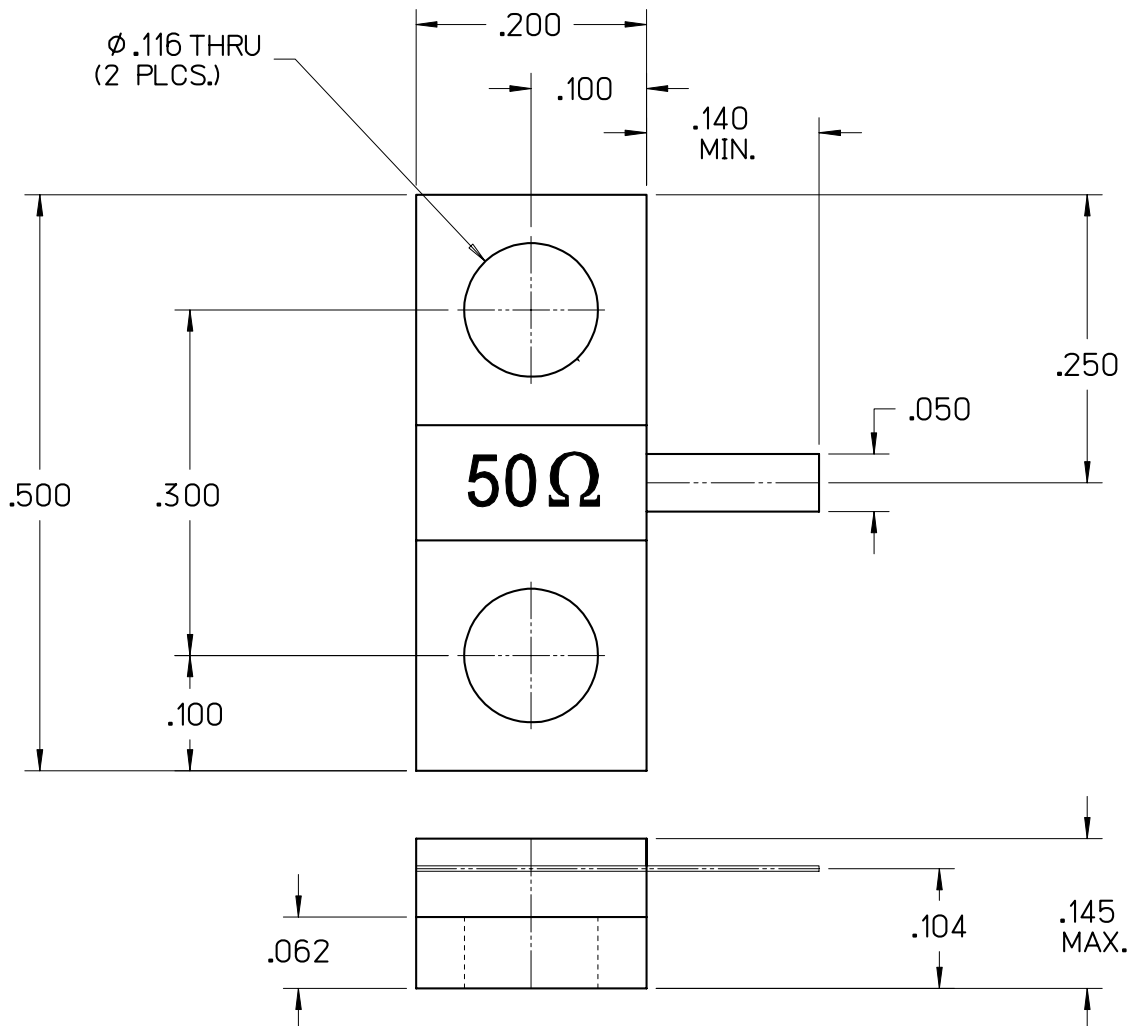
For detailed information regarding this product or sample request contact Johanson Sales



TF010AB02

AIN Flanged Termination

Power: 10 Watts (CW)  
Resistance: 50 Ω ± 5%  
Substrate: AIN



For detailed information regarding this product or sample request contact Johanson Sales



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**TF010AB1R**

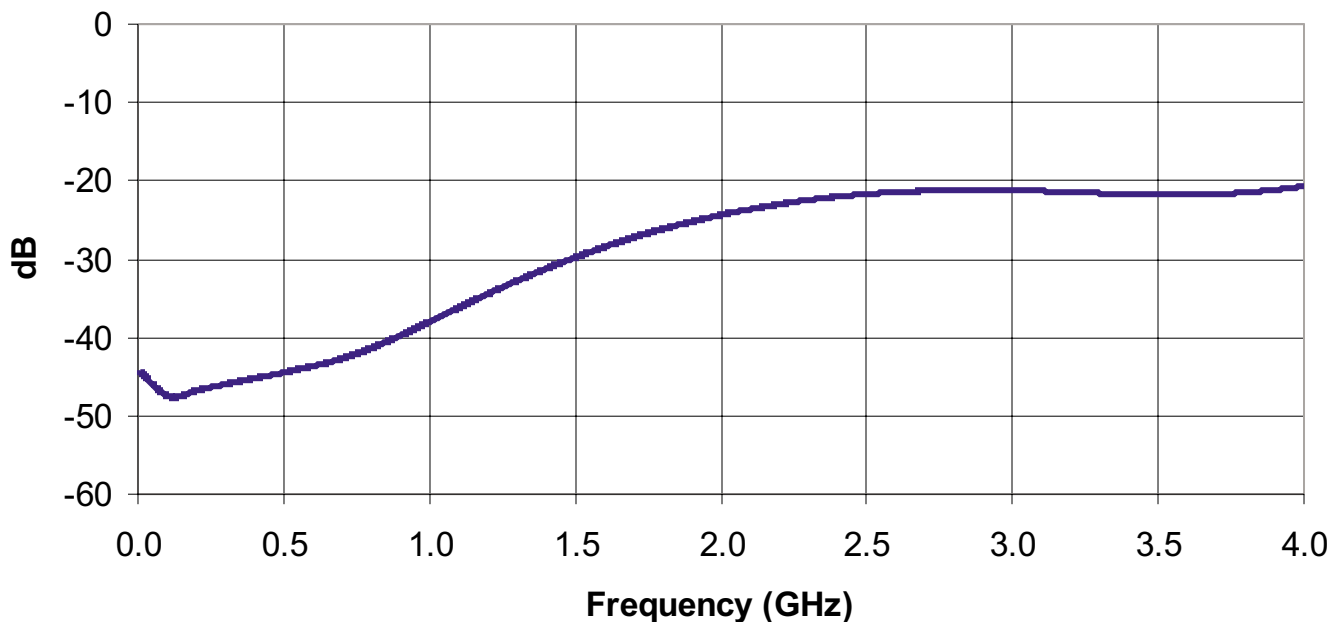
AIN Flanged Termination

**Power:** 10 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



## TYPICAL PERFORMANCE

### RETURN LOSS



For detailed information regarding this product or sample request contact Johanson Sales



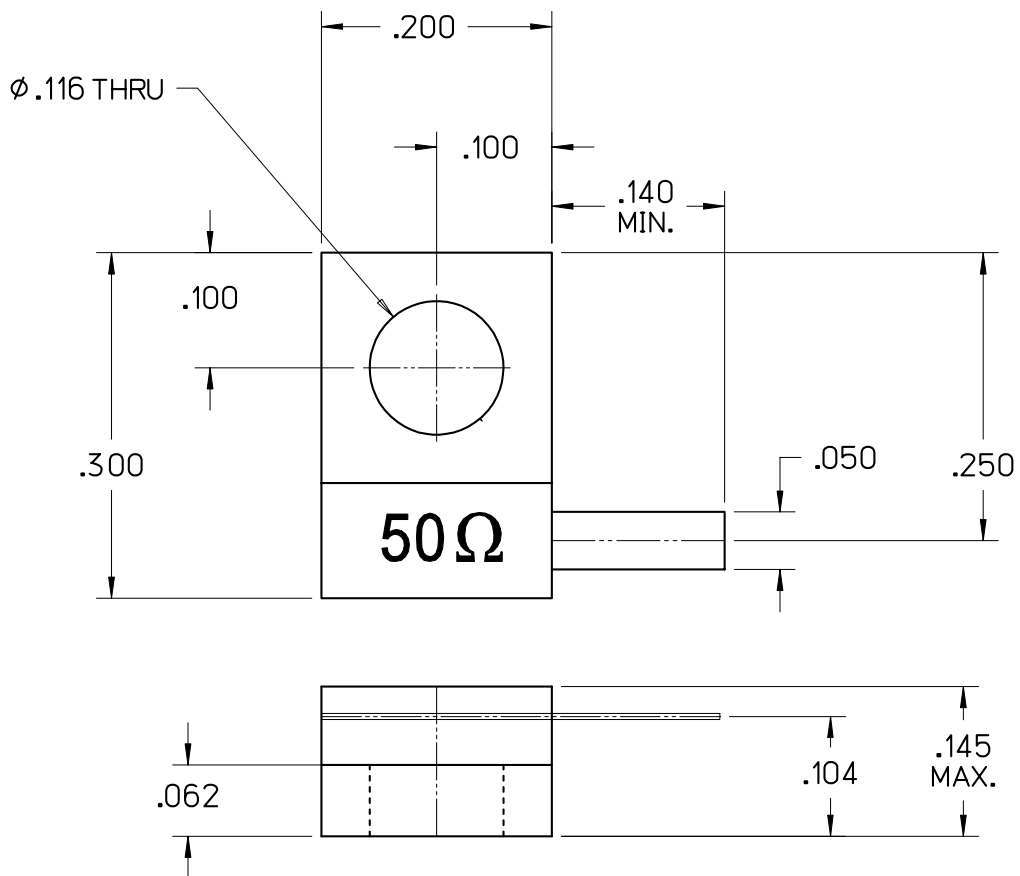
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**TF010AB1L**

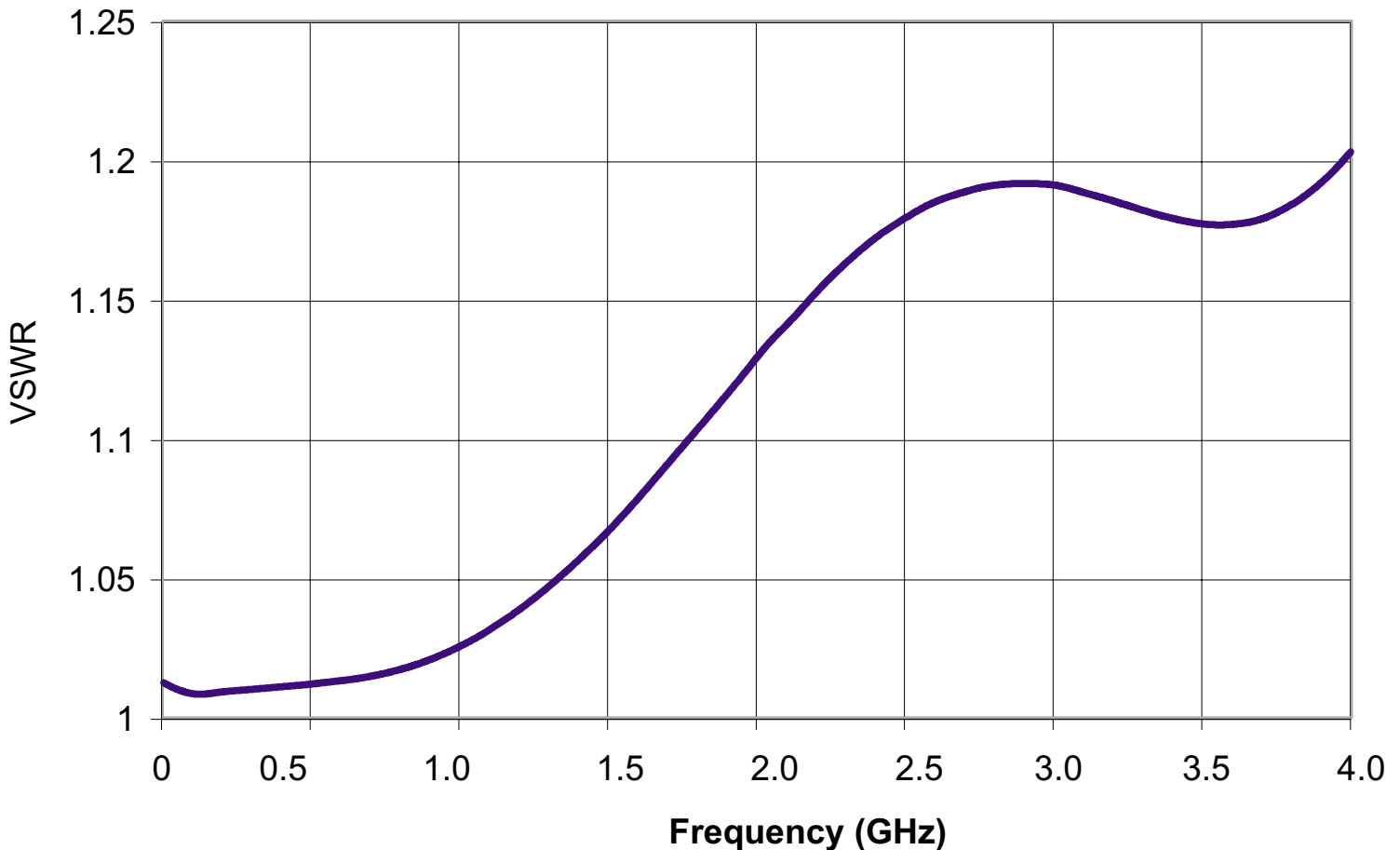
**AIN Flanged Termination**

**Power:** 10 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25:1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales



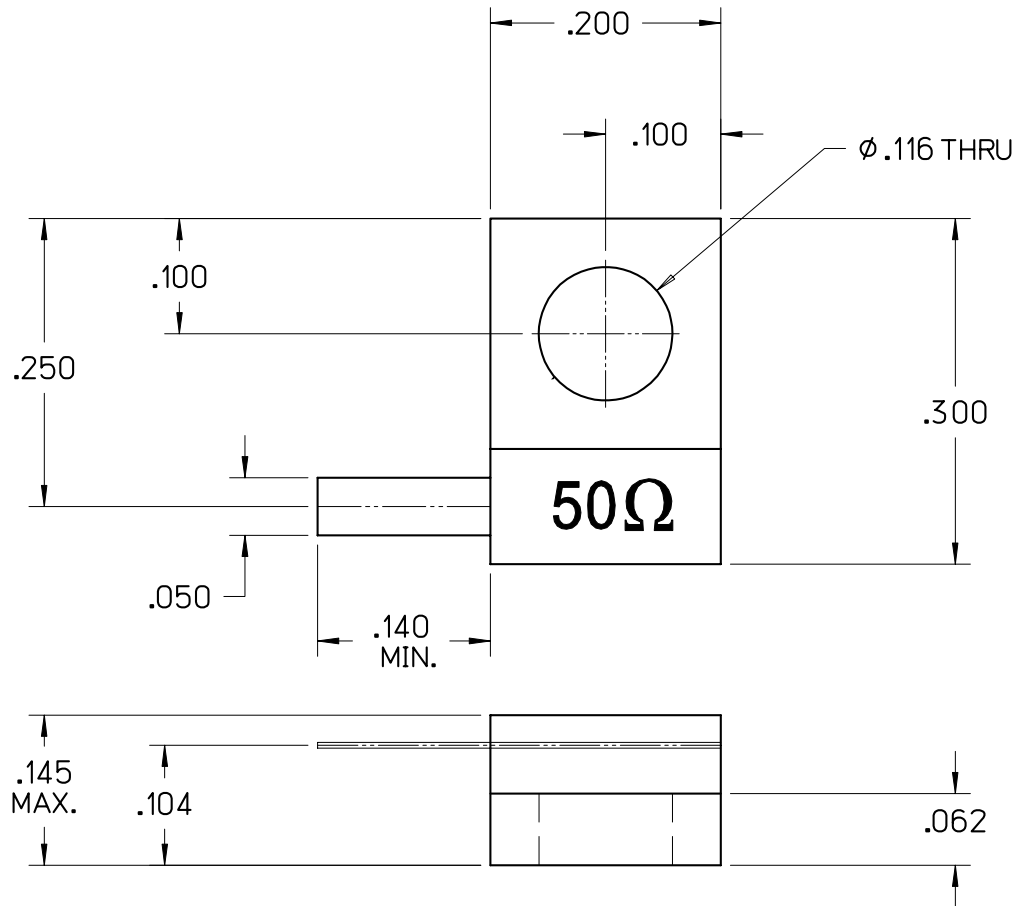
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# TF010AB1L

## AIN Flanged Termination



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**CT3725AB5C-03**

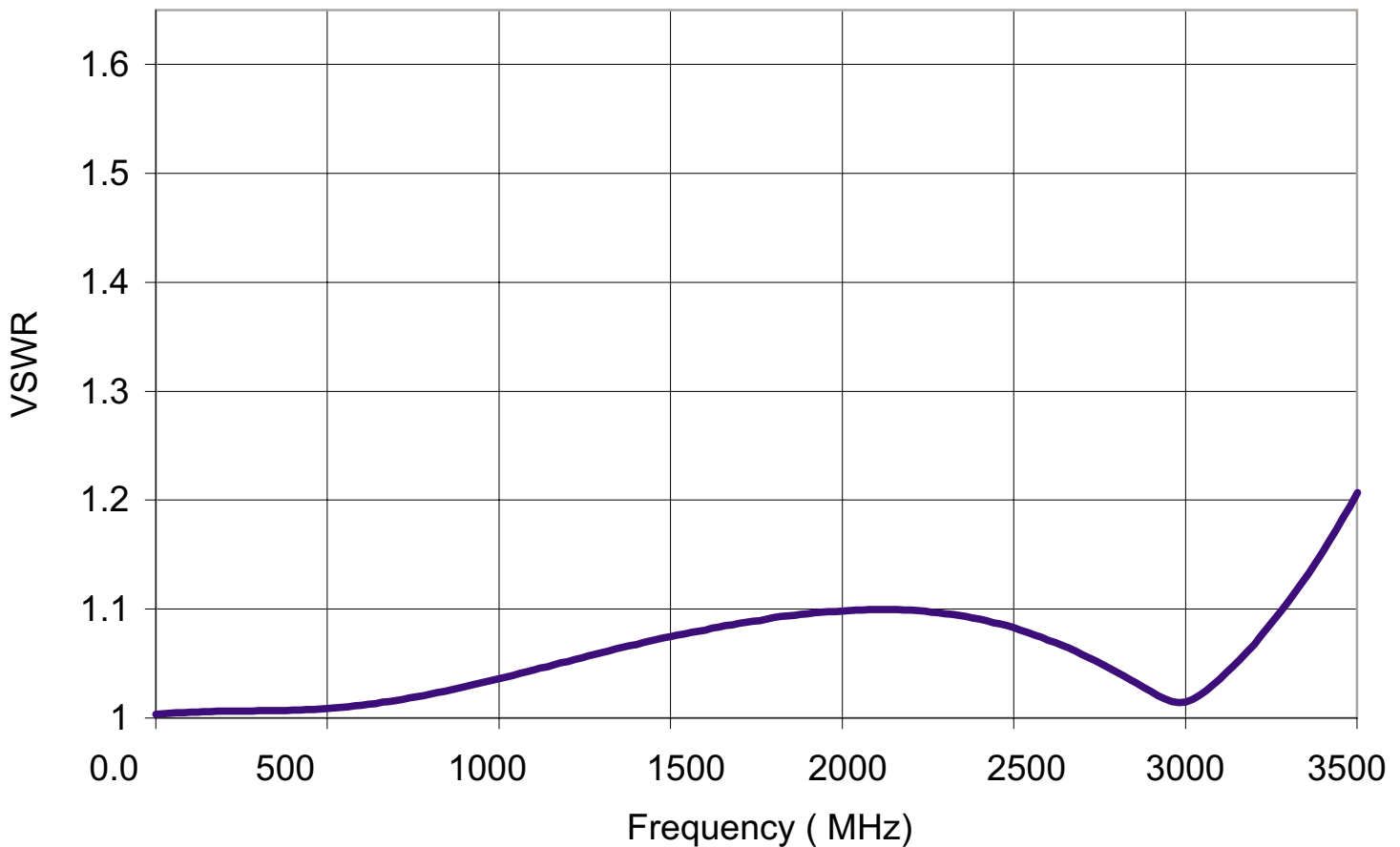
AIN Chip Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.25 :1  
**Frequency Range:** DC to 3.5 GHz  
**Substrate:** AIN



### TYPICAL PERFORMANCE

#### VSWR



For detailed information regarding this product or sample request contact Johanson Sales

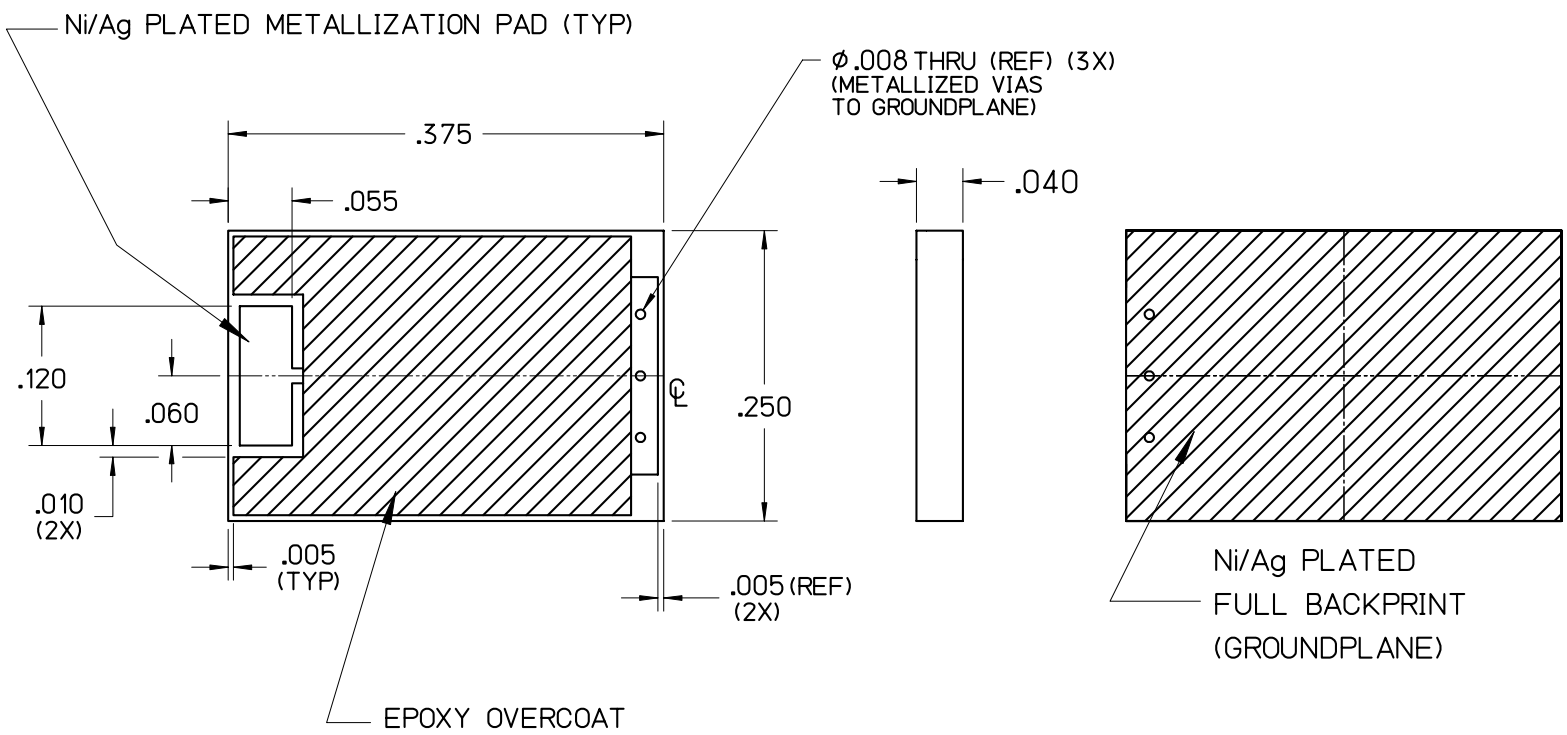


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# CT3725AB5C-03

## AlN Chip Termination



For detailed information regarding this product or sample request contact Johanson Sales



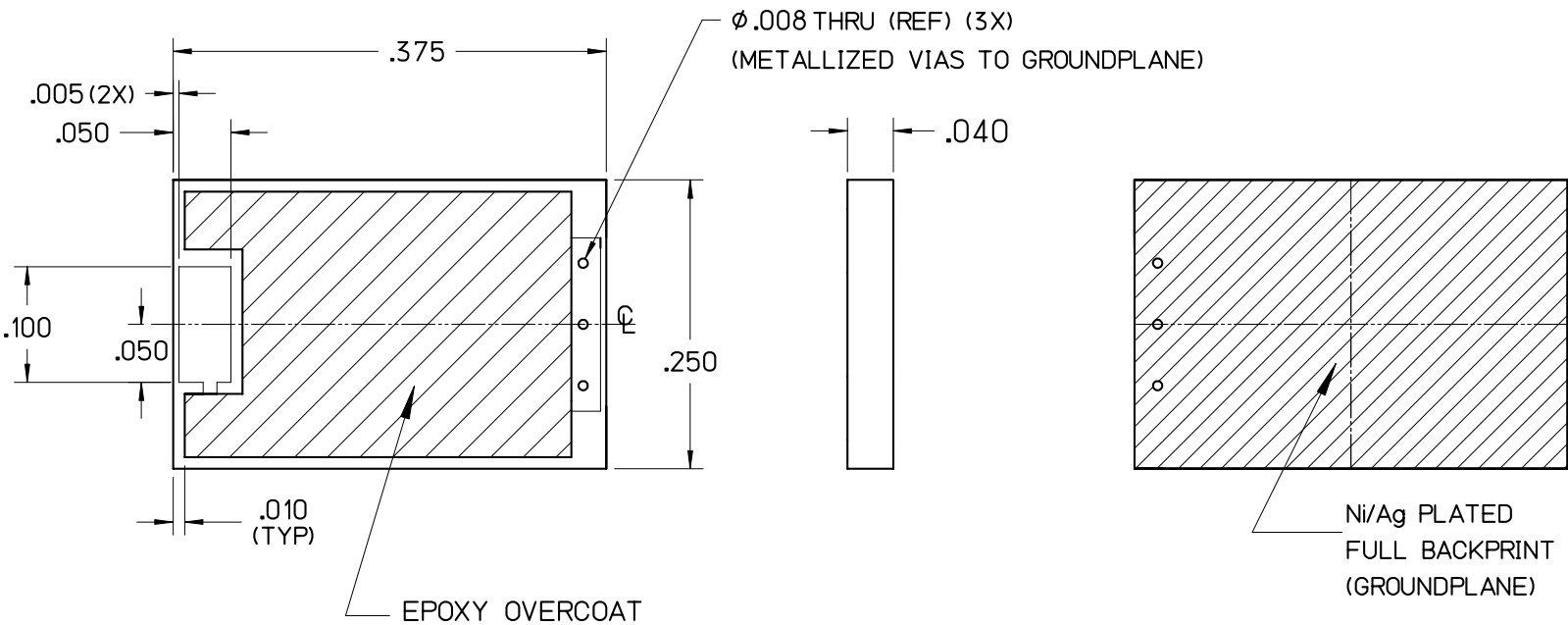
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# CT3725AB5C

## AlN Chip Termination

**Power:** 150 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



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# CT2525AB5C-02

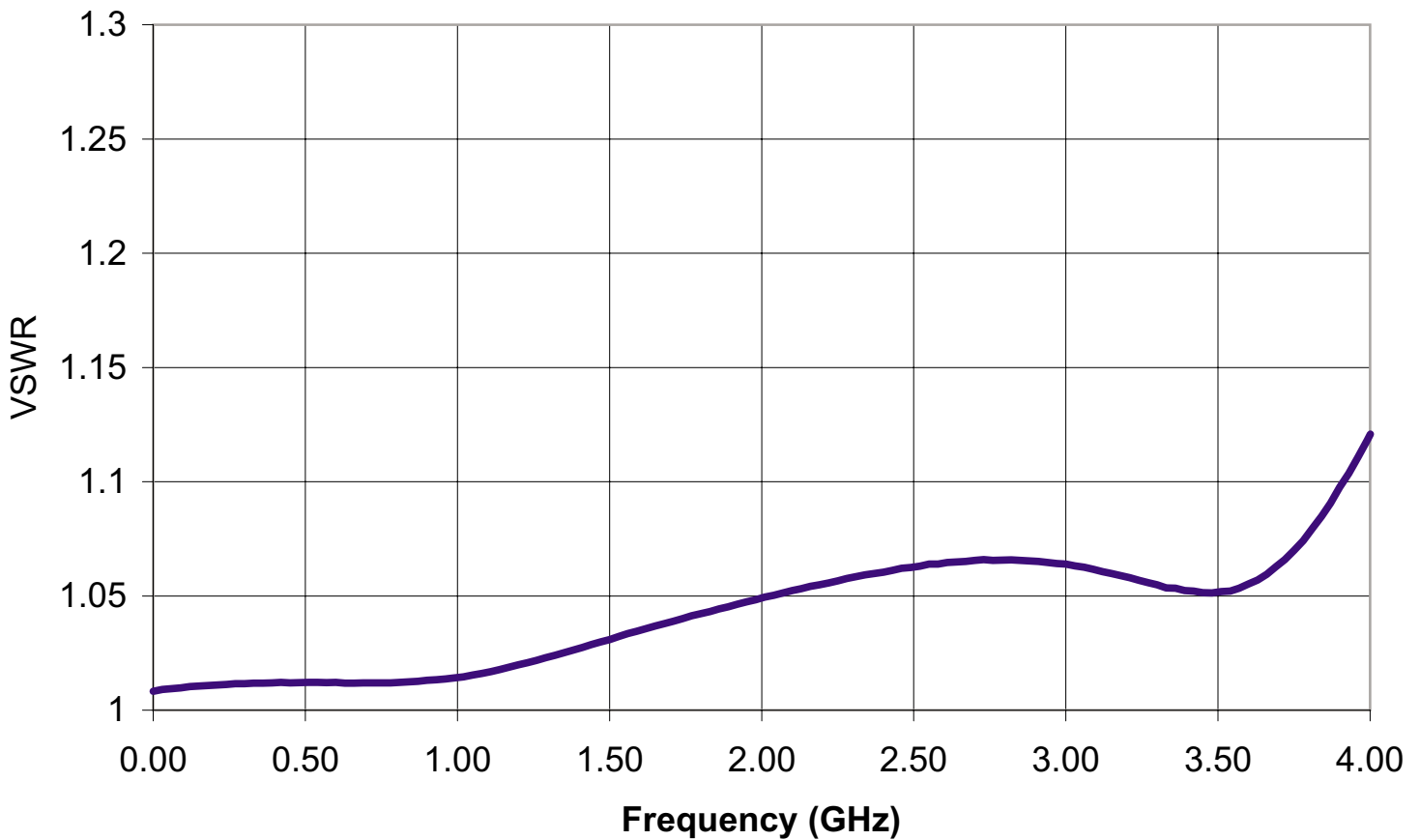
AIN Chip Termination

**Power:** 100 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**VSWR:** 1.15 : 1  
**Frequency Range:** DC to 4 GHz  
**Substrate:** AIN



## TYPICAL PERFORMANCE

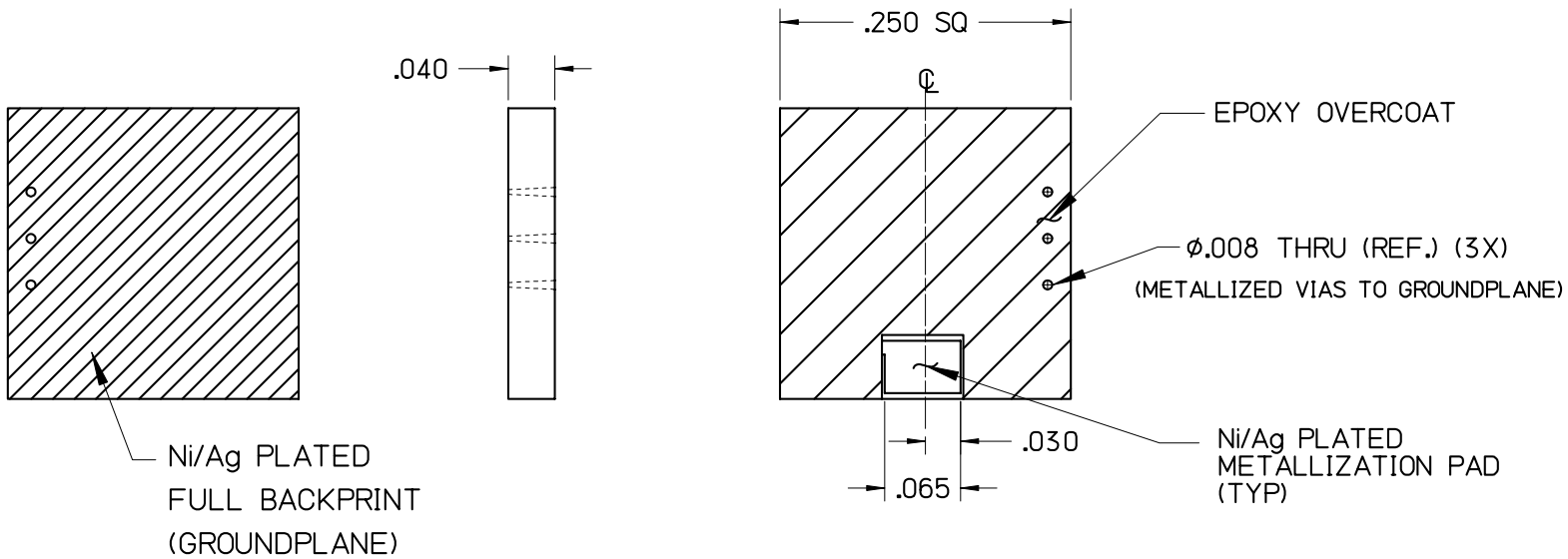
### VSWR



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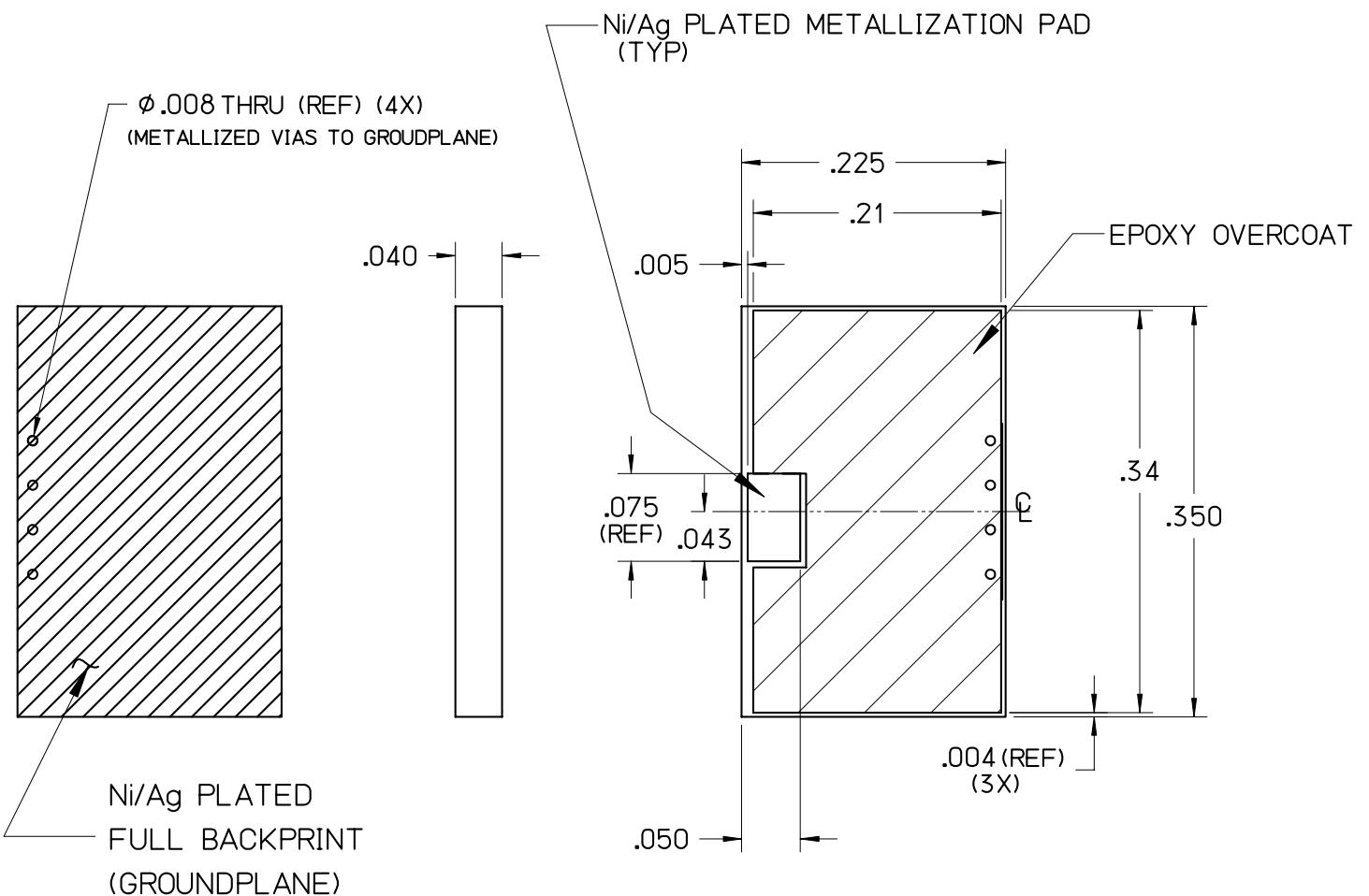
For detailed information regarding this product or sample request contact Johanson Sales



# CT2335AB5C

## AlN Chip Termination

**Power:** 100 Watts (CW)  
**Resistance:** 50  $\Omega \pm 5\%$   
**Substrate:** AlN



For detailed information regarding this product or sample request contact Johanson Sales



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**CT2010AB5C**

AIN Chip Termination

**Power:** 10 Watts (CW)

**Resistance:** 50  $\Omega \pm 5\%$

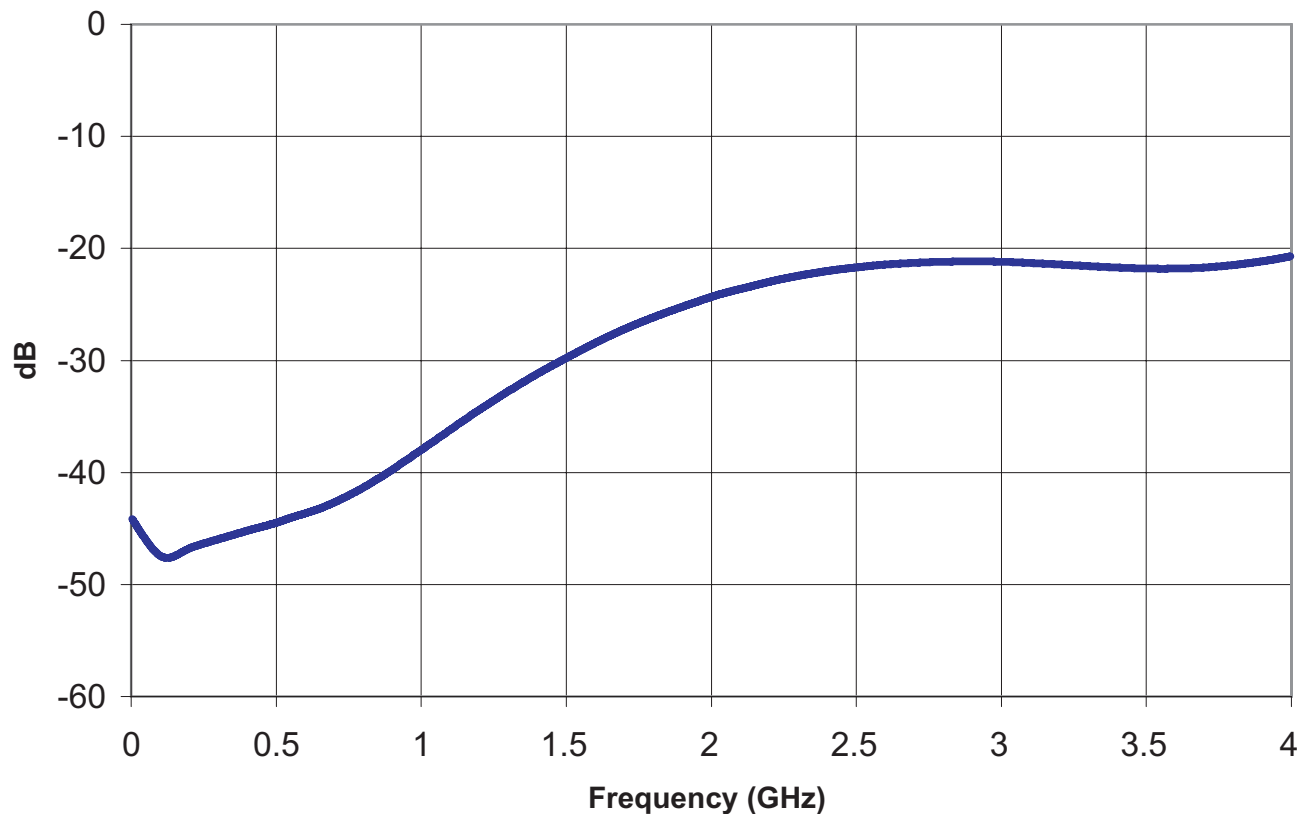
**VSWR:** 1.25:1

**Frequency Range:** DC to 4 GHz

**Substrate:** AIN



**TYPICAL PERFORMANCE**  
**RETURN LOSS**



For detailed information regarding this product or sample request contact Johanson Sales



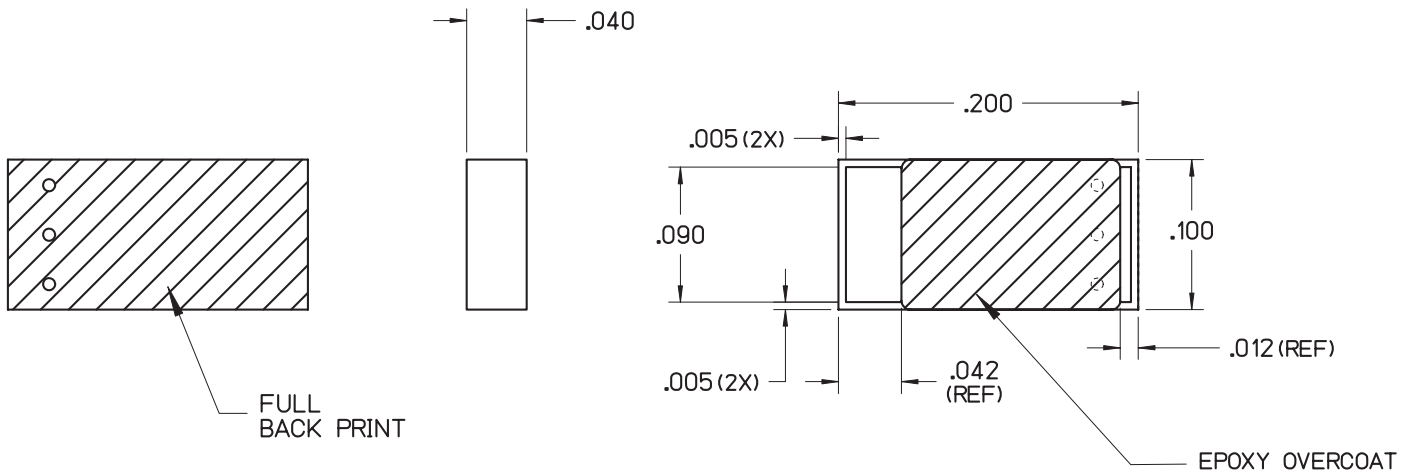
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# CT2010AB5C

## AIN Chip Termination



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# CT1206CB5C

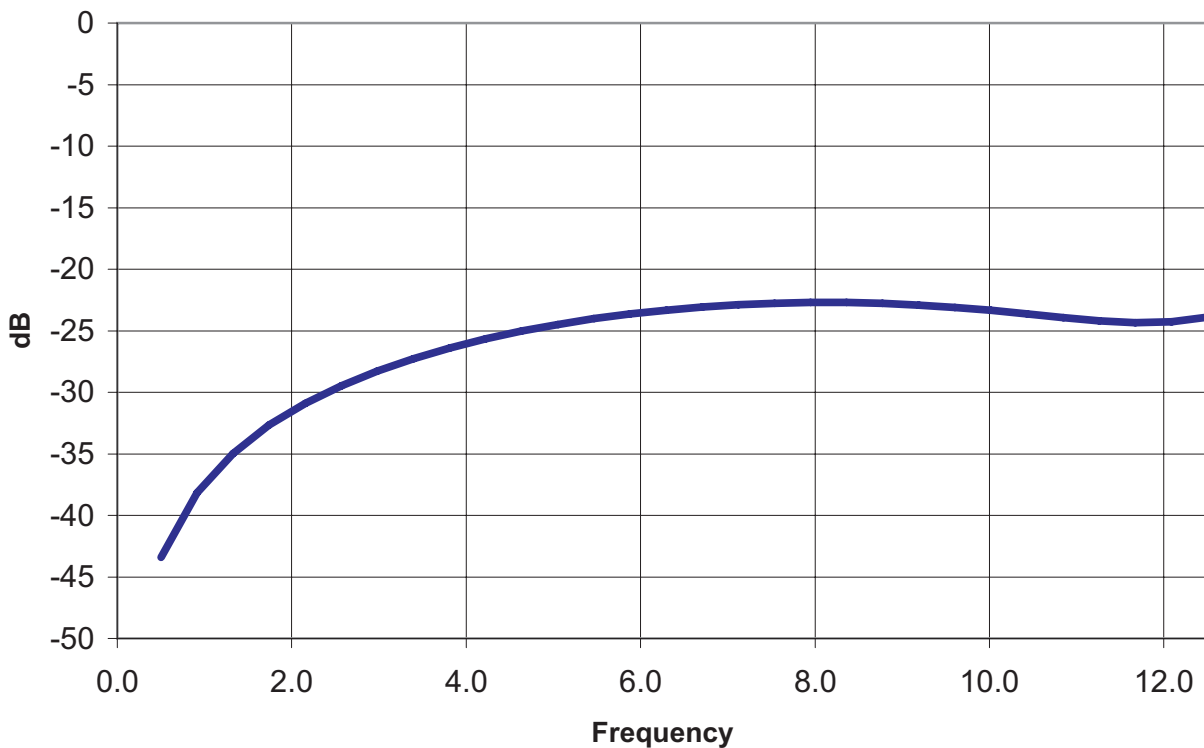
Al<sub>2</sub>O<sub>3</sub> Chip Termination

**Power:** 10 Watts (CW)  
**Resistance:** 50 Ω ± 5%  
**VSWR:** 1.20:1  
**Frequency Range:** DC to 12 GHz  
**Substrate:** Al<sub>2</sub>O<sub>3</sub>



## TYPICAL PERFORMANCE

Return Loss



For detailed information regarding this product or sample request contact Johanson Sales

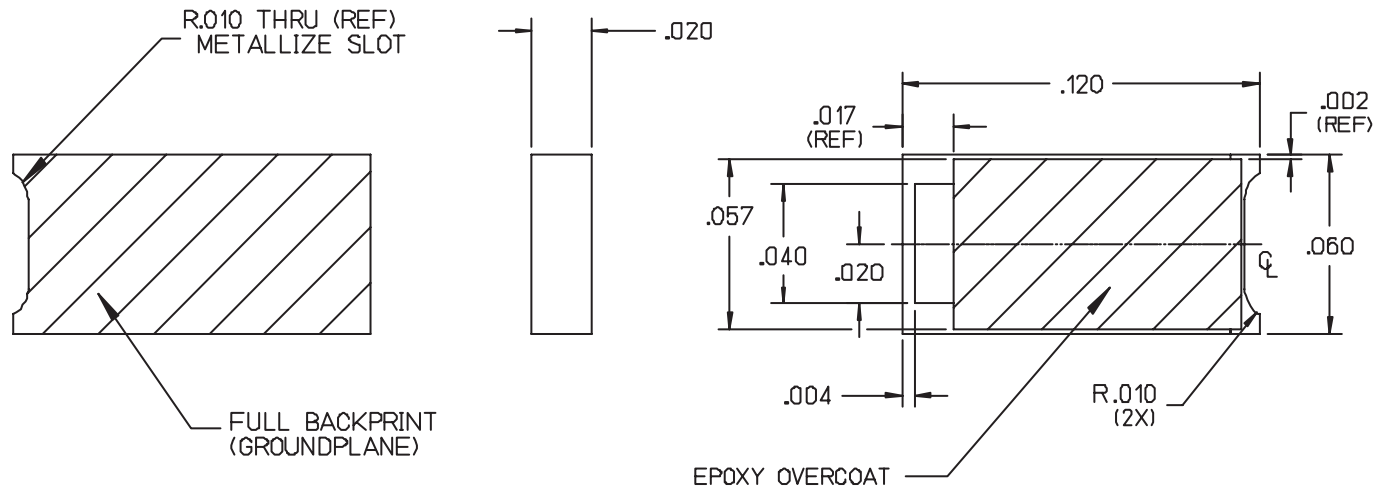


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# CT1206CB5C

Al<sub>2</sub>O<sub>3</sub> Chip Termination



For detailed information regarding this product or sample request contact Johanson Sales



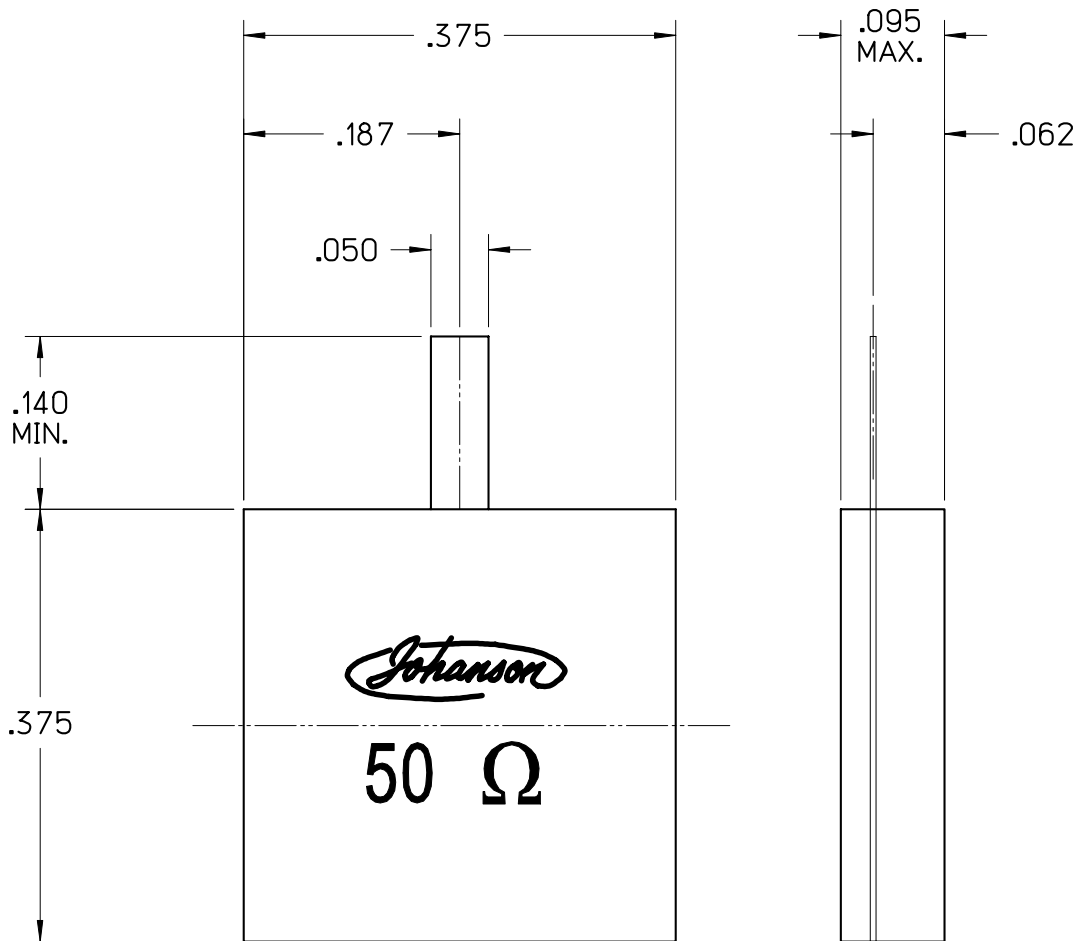
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TL300BB21

BeO Flangeless Termination

Power: 300 Watts (CW)  
Resistance:  $50\ \Omega \pm 5\%$   
Substrate: BeO



**CAUTION**

THIS SUBSTRATE USES BERYLLIUM OXIDE  
USE CARE WHEN HANDLING.  
DO NOT SCRATCH OR ABRASIVE  
TRIM IN OPEN AREA.

For detailed information regarding this product or sample request contact Johanson Sales



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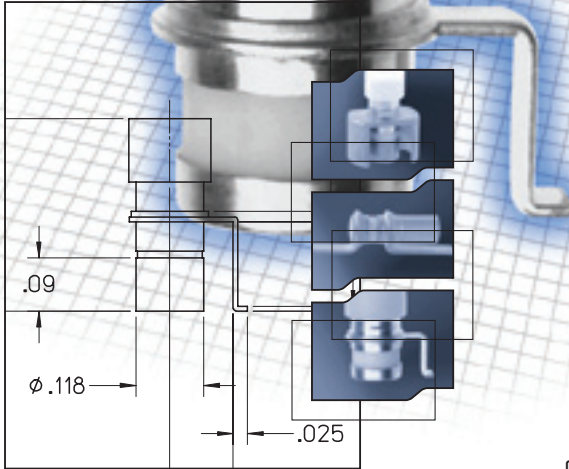
Nov 08

# GIGA-TRIM

Giga-Trims® are tiny trimmer capacitors which provide a straight-forward technique for fine RF and microwave circuits by eliminating time consuming methods of abrasive trimming, cut and try adjustment techniques, and interchange of fixed capacitors.

The design evolved from the need for a virtually indestructible miniature trimmer with superior electrical characteristics. Giga-Trim® capacitors withstand the rigors of soldering heat, excessive tuning and rough handling. As a result of the excellent dielectric and insulation properties of the sapphire housing, high breakdown voltage is achieved. Incorporating the patented self-locking constant torque drive mechanism\* which eliminates the need for external bushing slots, the new Giga-Trim® offers many improvements: a fixed length, increased Q, essentially zero tuning noise and reduced susceptibility to solder flux intrusion during installation.

A variety of mounting styles is available for vertical, printed circuit, panel, cavity and strip-line applications.



## APPLICATIONS

- RF amplifier
- Impedance matching
- Crystal trimming
- Interstage coupling
- Filter tuning

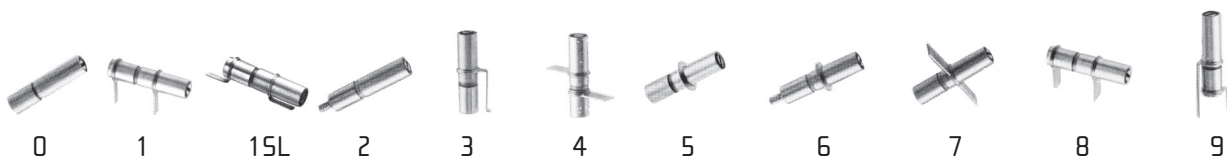
## CHARACTERISTICS

- Working Voltage: 500 VDC (1000 VDC Test)
- Long rotational life
- Insulation resistance: > 10<sup>6</sup> MΩ
- Temperature range: -65°C to +125°C
- RoHS compliant

CAPACITANCE RANGE	SERIES	Q @ 250 MHz	PAGE
0.3 TO 1.2 pF	27260	> 5000	2
0.4 TO 2.5 pF	27280	> 4000	2
	47280	> 4000	3
0.3 TO 2.3 pF	47480	> 2000	3
0.6 TO 4.5 pF	17270	> 2000	3
	27270	> 3000	3
	47270	> 3000	3
	57280	> 1000**	3
0.8 TO 8.0 pF	27290	> 3000*	4
	57270	> 1000*	4
2.0 TO 6.0 pF	47470	> 1500**	4

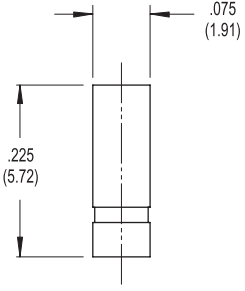
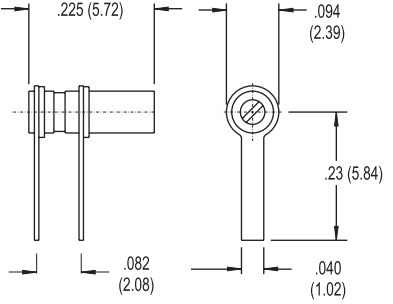
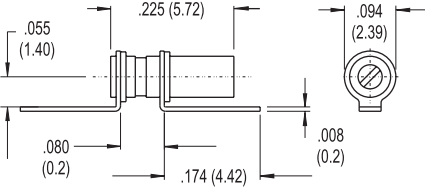
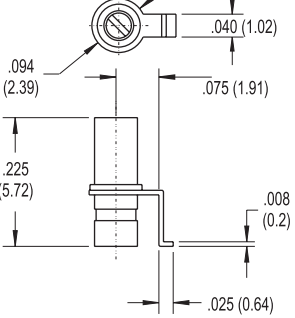
\* @ 100MHz \*\* @ 200 MHz

## TERMINAL CONFIGURATION



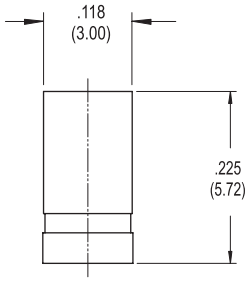
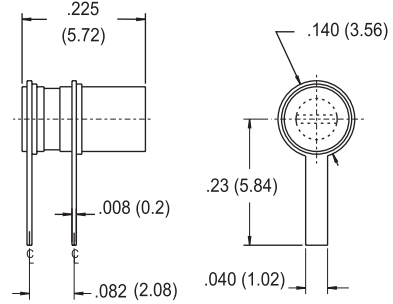
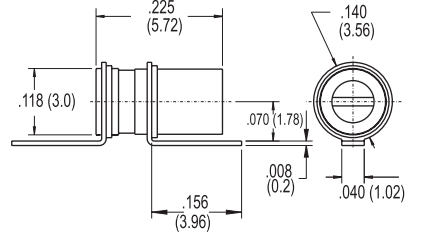
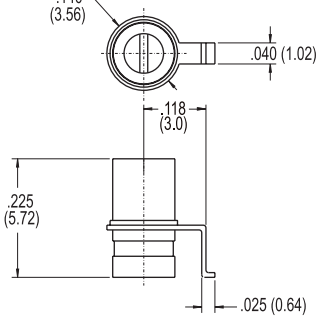
## 0.3 TO 1.2 pF

- Capacitance Range: 0.3 to 1.2 pF (>5 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 0.1 to 1 oz. In.
- Tuning Tool: 8762 or 8762-1
- Optional Seal Cap: P4445-1 or P4446-1
- RoHS Compliant

<p><b>27260</b> Q @ 250 MHz &gt;5000 Sapphire</p>	
<p><b>27261</b> Q @ 250 MHz &gt;5000 Sapphire</p>	
<p><b>27261SL</b> Q @ 250 MHz &gt;5000 Sapphire</p>	
<p><b>27263</b> Q @ 250 MHz &gt;5000 Sapphire</p> <p>Available in Tape/Reel 27263-2R2 1000 pcs/Reel</p>	

## 0.4 TO 2.5 pF

- Capacitance Range: 0.4 to 2.5 pF (>4 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 0.2 to 2 oz. In.
- Tuning Tool: 8766 or 8766-1
- Optional Seal Cap: P4445 or P4446
- RoHS Compliant

<p><b>27280</b> Q @ 250 MHz &gt;4000 Sapphire</p>	
<p><b>27281</b> Q @ 250 MHz &gt;4000 Sapphire</p>	
<p><b>27281SL</b> Q @ 250 MHz &gt;4000 Sapphire</p>	
<p><b>27283</b> Q @ 250 MHz &gt;4000 Sapphire</p> <p>Available in Tape/Reel 27283-2R10 750 pcs/Reel</p>	

## 0.4 TO 2.5 pF

<p><b>47283</b></p> <p>Q @ 250 MHz &gt;4000 Alumina</p> <p>Available in Tape/Reel 47283-R10 750 pcs/Reel</p>	
<p><b>47483</b></p> <p>(0.3 to 2.3 pF) Q @ 237 MHz &gt;2000 Alumina</p> <p>Available in Tape/Reel 47483-R10 750 pcs/Reel</p>	

## 0.6 TO 4.5 pF

<p><b>27271SL</b></p> <p>Q @ 250 MHz &gt;3000 Sapphire</p>	
<p><b>27273</b></p> <p>Q @ 250 MHz &gt;3000 Sapphire</p> <p>Available in Tape/Reel 27273-3R5 400 pcs/Reel</p>	

## 0.6 TO 4.5 pF

- Capacitance Range: 0.6 to 4.5 pF (>8 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 0.2 to 2 oz. In.
- Tuning Tool: 8766 or 8766-1
- Optional Seal Cap: P4445 or P4446
- RoHS Compliant

<p><b>17273</b></p> <p>Q @ 250 MHz &gt;2000 Alumina</p> <p>Available in Tape/Reel 17273R5 400 pcs/Reel</p>	
--	--

<p><b>27270</b></p> <p>Q @ 250 MHz &gt;3000 Sapphire</p>	
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<p><b>47273</b></p> <p>Q @ 250 MHz &gt;3000 Alumina</p> <p>Available in Tape/Reel 47273R5 400 pcs/Reel</p>	
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<p><b>27271</b></p> <p>Q @ 250 MHz &gt;3000 Sapphire</p>	
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<p><b>57283-1</b></p> <p>Q @ 200 MHz &gt;1000 Zirconia</p> <p>Available in Tape/Reel 57283-1R10 750 pcs/Reel</p>	
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## 0.8 TO 8.0 pF

- Capacitance Range: 0.8 to 8.0 pF (>16 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 0.2 to 2 oz. In.
- Tuning Tool: 8766 or 8766-1
- Optional Seal Cap: P4445 or P4446
- RoHS Compliant

<p><b>27290</b> Q @ 100 MHz &gt;3000 Sapphire</p>	
<p><b>27291</b> Q @ 100 MHz &gt;3000 Sapphire</p>	

<p><b>27291SL</b> Q @ 100 MHz &gt;3000 Sapphire</p>	
<p><b>27293</b> Q @ 100 MHz &gt;3000 Sapphire</p>	
<p><b>57273-1</b> Q @ 100 MHz &gt;2000 Zirconia</p> <p>Available in Tape/Reel <b>57273-1R5</b> 400 pcs/Reel</p>	

## 2.0 TO 6.0 pF

- Capacitance Range: 2.0 to 6.0 pF (>6 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 0.2 to 2 oz. In.
- Tuning Tool: 8766 or 8766-1
- RoHS Compliant

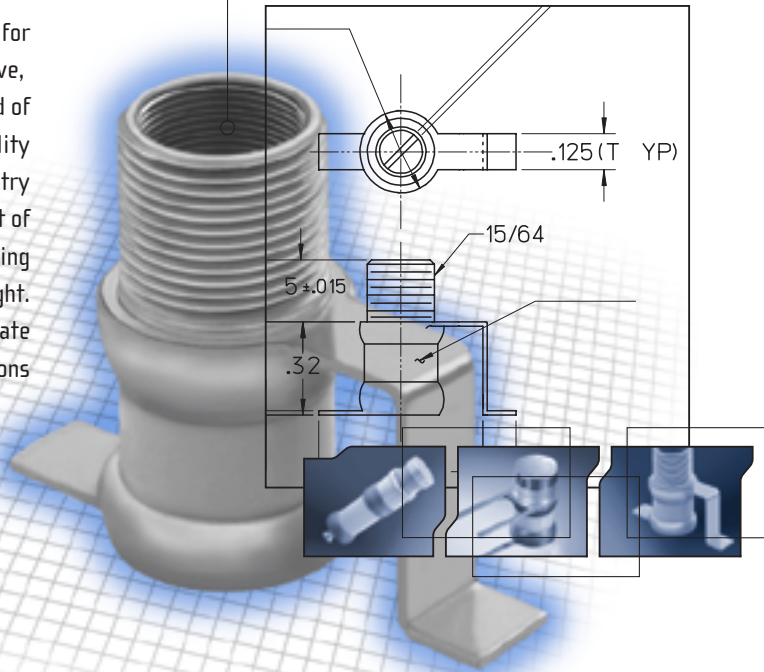
<p><b>47473</b> Q @ 213 MHz &gt;1500 Alumina</p> <p>Available in Tape/Reel <b>47473R5</b> 400 pcs/Reel</p>	
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# AIR CAPACITORS

Air Capacitors are designed specifically for RF applications, VHF through microwave, and have become the industry standard of excellence. High Q and temperature stability are a result of proper attention to geometry and choice of optimum materials. The heart of this trimmer is the one piece self-locking constant drive mechanism illustrated to the right. This mechanism utilizes transverse slots to create a spring effect between two threaded sections resulting in substantial contact areas which insure uniform torque, high Q and low dynamic tuning noise.



## APPLICATIONS

- RF amplifier and oscillators
- Impedance matching
- Interstage coupling
- Filter tuning
- Crystal trimming

## CHARACTERISTICS

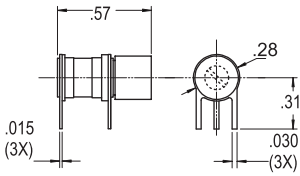
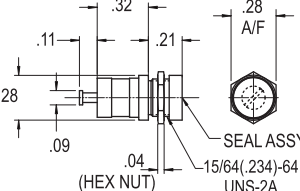
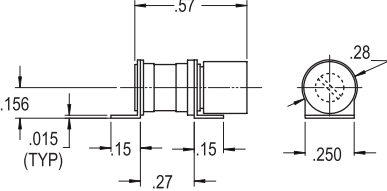
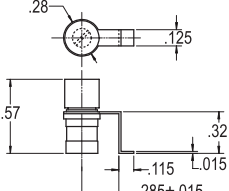
- Working Voltage: 250 VDC (500 VDC Test)
- Long Rotational life
- Insulation resistance: > 10<sup>6</sup> MΩ
- Temperature range: -65°C to +125°C
- RoHS Compliant

CAPACITANCE RANGE	SERIES	Q @ 250 MHZ	PAGE
0.35 TO 3.5 pF	5800	> 10000	2
0.5 TO 5 pF	5850	> 7500	2
0.6 TO 6 pF	5700	> 10000	2,3
0.8 TO 10 pF OR 1 TO 10 pF	1500	> 4000 @195MHz	2
	5200	> 5000	3
	5750	> 7500	3
	5300	> 2000	4
1 TO 14 pF	5400	> 3000	3,4
1 TO 16 pF	5450	> 3000	4
1 TO 20 pF	5500	> 1500	4
1 TO 30 pF	5600	> 800	4



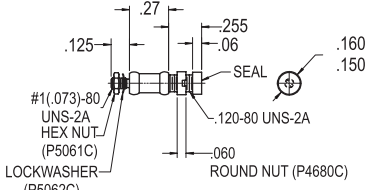
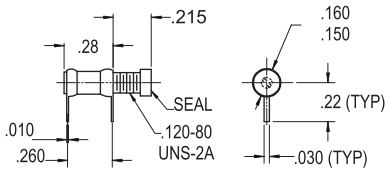
## 1 TO 10 pF

- Lead-Solderless design
- Capacitance Range: 1.0 to 10.0 pF (>8 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

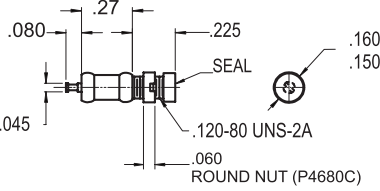
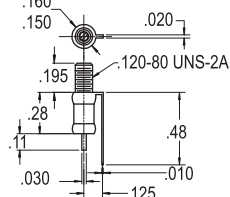
<p><b>1501</b></p> <p>Q @ 195 MHz &gt;4000</p>	
<p><b>1502</b></p> <p>Q @ 195 MHz &gt;4000</p>	
<p><b>1518</b></p> <p>Q @ 195 MHz &gt;4000</p>	
<p><b>1585</b></p> <p>Q @ 195 MHz &gt;4000</p>	

## 0.35 TO 3.5 pF

- Capacitance Range: .35 to 3.5 pF (>9 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: .3 to 3 oz. In.
- Tuning Tool: 8766
- RoHS Compliant

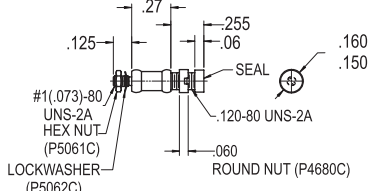
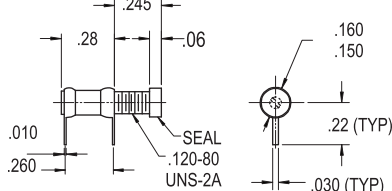
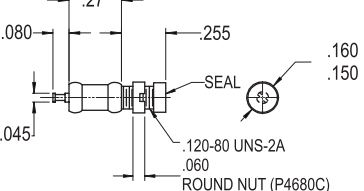
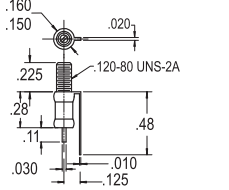
<p><b>5800</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>5801</b></p> <p>Q @ 100 MHz &gt;10000</p>	

## 0.35 TO 3.5 pF

<p><b>5802</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>8051</b></p> <p>(0.6 to 3.5 pF) Q @ 100 MHz &gt;10000</p>	

## 0.5 TO 5 pF

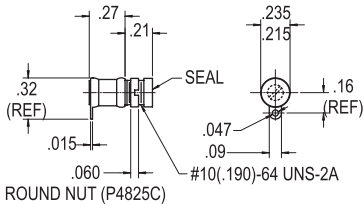
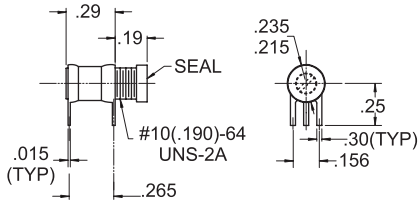
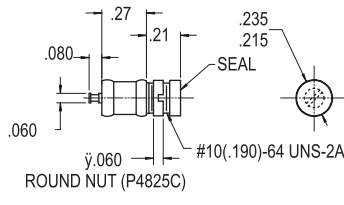
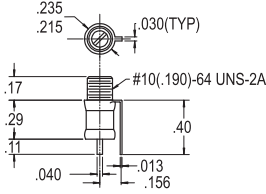
- Capacitance Range: .5 to 5 pF (>12 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: .3 to 3 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

<p><b>5850</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5851</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5852</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5853</b></p> <p>(0.6 to 5 pF) Q @ 100 MHz &gt;7500</p>	

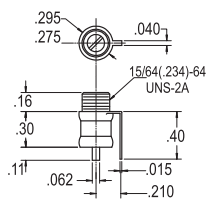
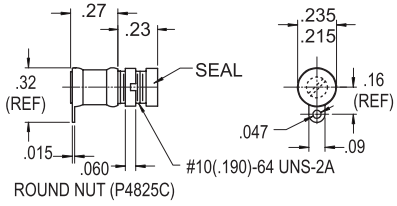
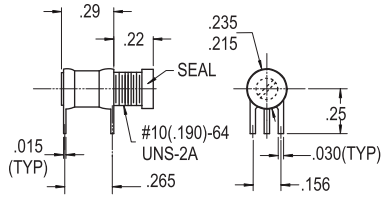
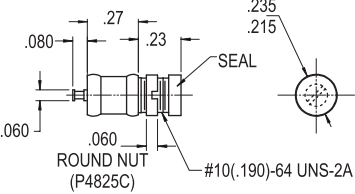
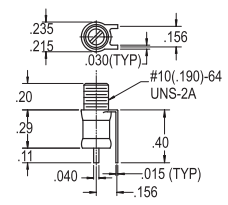
## 0.6 TO 6 pF

- Capacitance Range: .6 to 6 pF (>7 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: .4 to 4 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

## 0.6 TO 6 pF

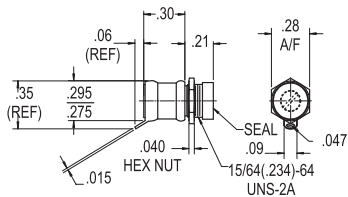
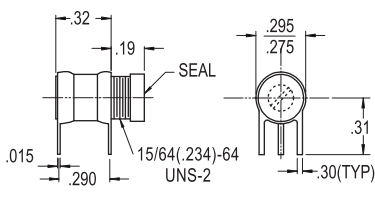
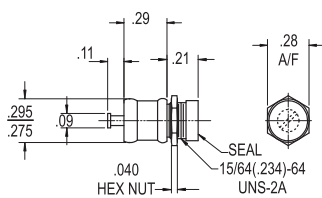
<p><b>5700</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>5701</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>5702</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>8050</b></p> <p>Q @ 100 MHz &gt;10000</p>	

## 0.8 TO 10 pF

<p><b>8052</b></p> <p>Q @ 100 MHz &gt;5000</p>	
<p><b>5750</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5751</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5752</b></p> <p>Q @ 100 MHz &gt;7500</p>	
<p><b>5753</b></p> <p>(0.6 to 5 pF)</p> <p>Q @ 100 MHz &gt;7500</p>	

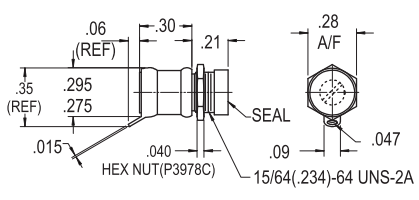
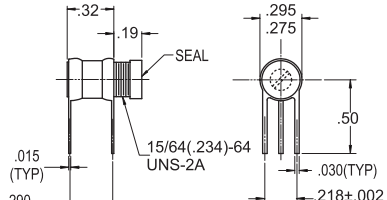
## 0.8 TO 10 pF

- Capacitance Range: .8 to 10 pF (>6 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5 oz. In. (52XX) or .4 to 4 oz. In. (575X)
- Tuning Tool: 8764
- RoHS Compliant

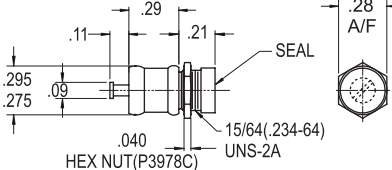
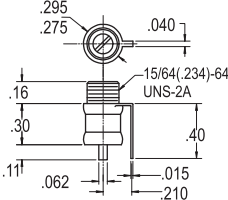
<p><b>5200</b></p> <p>Q @ 100 MHz &gt;5000</p>	
<p><b>5201</b></p> <p>Q @ 100 MHz &gt;5000</p>	
<p><b>5202</b></p> <p>Q @ 100 MHz &gt;5000</p>	

## 1 TO 14 pF

- Capacitance Range: 1 to 14 pF (>6 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

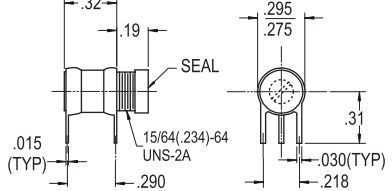
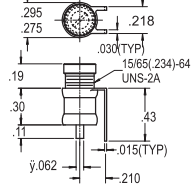
<p><b>5400</b></p> <p>Q @ 100 MHz &gt;3000</p>	
<p><b>5401</b></p> <p>Q @ 100 MHz &gt;3000</p>	

## 1 TO 14 pF

<p><b>5402</b></p> <p>Q @ 100 MHz &gt;3000</p>	
<p><b>8053</b></p> <p>(1.5 to 14 pF)</p> <p>Q @ 100 MHz &gt;1500</p>	

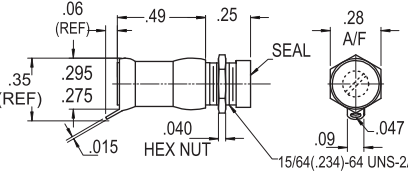
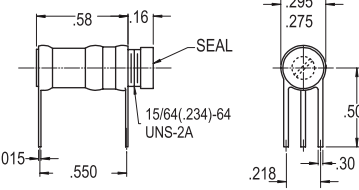
## 1 TO 16 pF

- Capacitance Range: 1 to 16 pF (>6 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

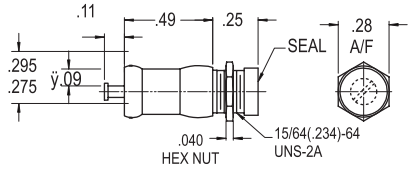
<p><b>5451</b></p> <p>Q @ 100 MHz &gt;3000</p>	
<p><b>5453</b></p> <p>Q @ 100 MHz &gt;3000</p>	

## 1 TO 20 pF

- Capacitance Range: 1 to 20 pF (>12 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

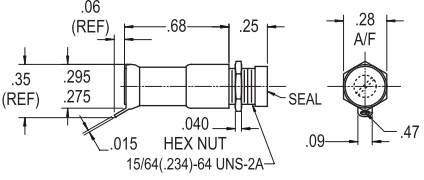
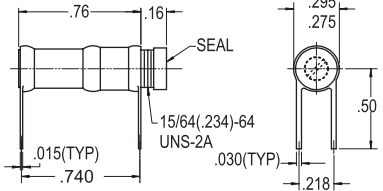
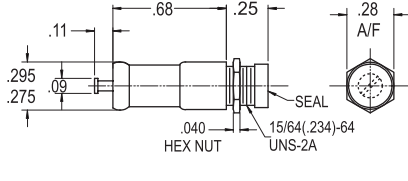
<p><b>5500</b></p> <p>Q @ 100 MHz &gt;1500</p>	
<p><b>5501</b></p> <p>Q @ 100 MHz &gt;1500</p>	

## 1 TO 20 pF

<p><b>5502</b></p> <p>Q @ 100 MHz &gt;1500</p>	
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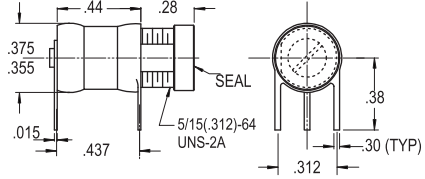
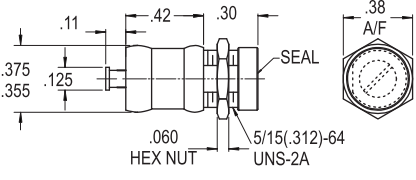
## 1 TO 30 pF

- Capacitance Range: 1.0 to 10.0 pF (>20 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

<p><b>5600</b></p> <p>Q @ 100 MHz &gt;800</p>	
<p><b>5601</b></p> <p>Q @ 100 MHz &gt;800</p>	
<p><b>5602</b></p> <p>Q @ 100 MHz &gt;800</p>	

## 1 TO 10 pF (500 VDC)

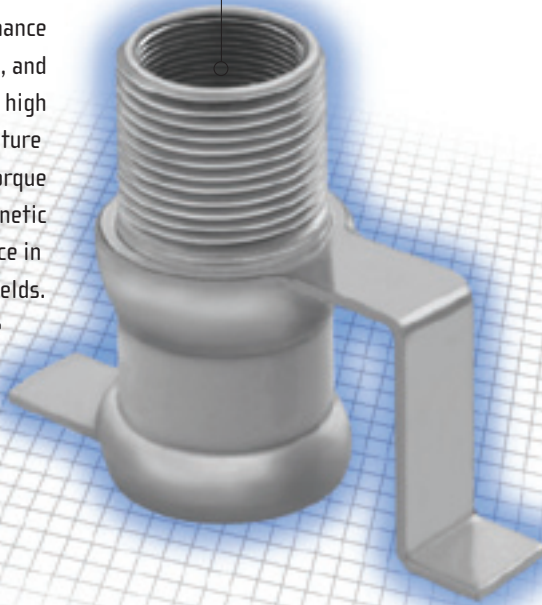
- Capacitance Range: 1.0 to 10.0 pF (>10 turns)
- Working Voltage: 500 VDC (1000 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- RoHS Compliant

<p><b>5301</b></p> <p>Q @ 100 MHz &gt;2000</p>	
<p><b>5302</b></p> <p>Q @ 100 MHz &gt;2000</p>	



# NON-MAGNETIC CAPACITORS

Non-magnetic Capacitors are specifically designed for low magnetic signature applications such as Magnetic Resonance Imaging, Nuclear Magnetic Resonance, and other medical applications. These high stability Non-magnetic Capacitors feature the one piece self locking constant torque mechanism along with special non-magnetic construction for superior performance in very high strength magnetic fields. Non-magnetic Capacitors are available in multi-turn and single turn styles and various configurations.



## CHARACTERISTICS

- Working Voltage: From 250 VDC to 5000 VDC
- Long Rotational life
- Insulation Resistance:  $> 10^6 M\Omega$
- Temperature range:  $-65^\circ\text{C}$  to  $+125^\circ\text{C}$
- RoHS Compliant

WORKING VOLTAGE	CAPACITANCE RANGE	SERIES	Q	PAGE
5000 VDC	1 TO 7.5 pF	5610	$> 1000$ @100MHz	2
1250 VDC	1.5 TO 10 pF	52H	$> 1400$ @195MHz	2
1000 VDC	1.5 TO 19 pF	55H	$> 1000$ @175MHz	2
	1 TO 25 pF	59H	$> 1000$ @175MHz	2,3
	2 TO 30 pF	56H	$> 1000$ @175MHz	3
250 VDC	.4 TO 3.5 pF	5860	$> 10000$ @100MHz	3
	.6 TO 6.0 pF	5760	$> 10000$ @100MHz	3,4
	.8 TO 10 pF	5240	$> 4000$ @100MHz	4
	1 TO 30 pF	5640	$> 800$ @100MHz	4
250 VDC (90° TO 180° RESOLUTION)	UP TO 50 pF	THIN-TRIM	SEE DATASHEET	THIN-TRIM
	UP TO 22 pF	CERA-TRIM	SEE DATASHEET	CERA-TRIM
	UP TO 50 pF	SEAL-TRIM	SEE DATASHEET	SEAL-TRIM



## 1000 VDC - 1 TO 25 pF

<p><b>59H01</b></p> <p>Q @ 175 MHz &gt;1000</p>	
<p><b>59H18</b></p> <p>Q @ 175 MHz &gt;1000</p>	

## 1000 VDC - 2 TO 30 pF

- Capacitance Range: 2 to 30 pF (>25 turns)
- Working Voltage: 1000 VDC (2000 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- Gold, Silver, Chromate Finish
- RoHS Compliant

<p><b>56H01</b></p> <p>Q @ 175 MHz &gt;1000</p>	
<p><b>56H02</b></p> <p>Q @ 175 MHz &gt;1000</p>	

## 250 VDC - 0.4 TO 3.5 pF

- Capacitance Range: .4 to 3.5 pF (>9 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: .3 to 3.0 oz. In.
- Tuning Tool: 8766
- Gold, Silver, Chromate Finish
- RoHS Compliant

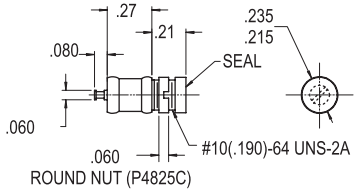
<p><b>5862</b></p> <p>Q @ 100 MHz &gt;10000</p>	
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## 250 VDC - 0.6 TO 6.0 pF

- Capacitance Range: .6 to 6 pF (>8 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: .4 to 4.0 oz. In.
- Tuning Tool: 8764
- Gold, Silver, Chromate Finish
- RoHS Compliant

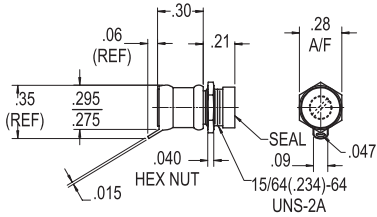
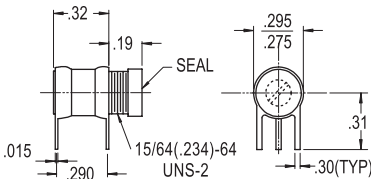
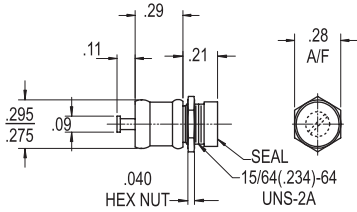
<p><b>5760</b></p> <p>Q @ 100 MHz &gt;10000</p>	
<p><b>5761</b></p> <p>Q @ 100 MHz &gt;10000</p>	

## 250 VDC - 0.6 TO 6 PF

<p><b>5762</b></p> <p>Q @ 100 MHz &gt;10000</p>	
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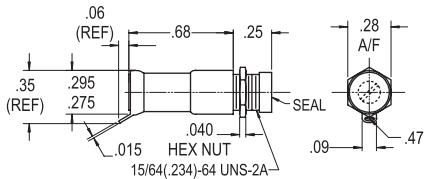
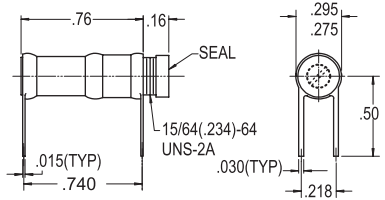
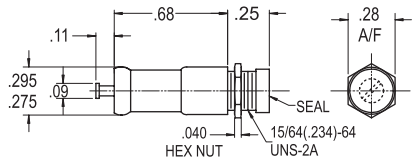
## 250 VDC - 0.8 TO 10 PF

- Capacitance Range: .8 to 10 pF (>6 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- Gold, Silver, Chromate Finish
- RoHS Compliant

<p><b>5240</b></p> <p>Q @ 100 MHz &gt;4000</p>	
<p><b>5241</b></p> <p>Q @ 100 MHz &gt;4000</p>	
<p><b>5242</b></p> <p>Q @ 100 MHz &gt;4000</p>	

## 250 VDC - 1 TO 30 PF

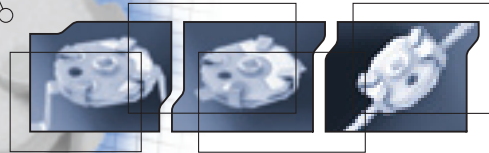
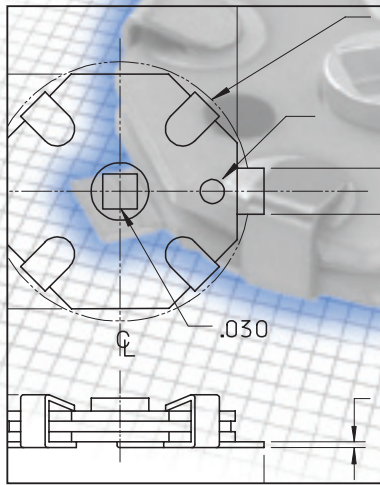
- Capacitance Range: 1 to 30 pF (>23 turns)
- Working Voltage: 250 VDC (500 VDC Test)
- Torque: 1 to 5.0 oz. In.
- Tuning Tool: 8764
- Gold, Silver, Chromate Finish
- RoHS Compliant

<p><b>5640</b></p> <p>Q @ 100 MHz &gt;800</p>	
<p><b>5641</b></p> <p>Q @ 100 MHz &gt;800</p>	
<p><b>5642</b></p> <p>Q @ 100 MHz &gt;800</p>	



# THIN-TRIM

Our Thin-Trim capacitors are ideal for applications where size and performance are most critical. These single-turn capacitors exhibit remarkable electrical characteristics for their small size. Useful up to 2 GHz, these trimmers are perfect for low-profile applications.



## CHARACTERISTICS

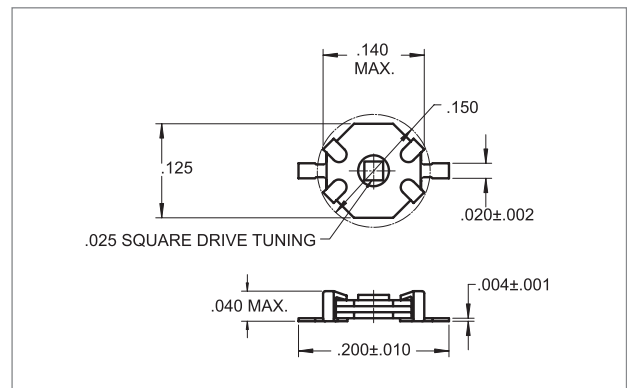
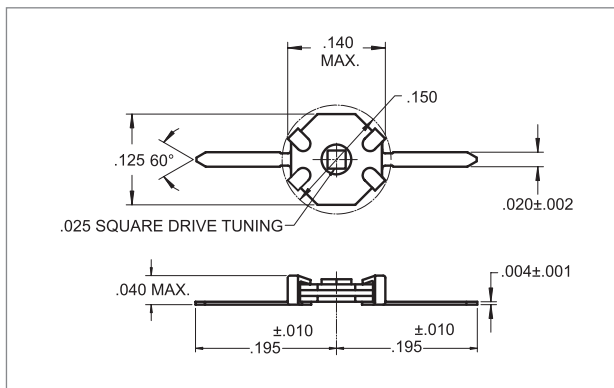
- Working Voltage: 250 VDC (500 VDC Test)
- Insulation Resistance: > 10<sup>4</sup> MΩ
- Temperature Range: -55°C to +125°C
- RoHS Compliant parts available

## APPLICATIONS

- RF amplifier
- LC Filters and Networks
- Broadband Wireless LAN
- Medical Devices
- Cordless and Cellular phones
- DR/Crystal Oscillator

SERIES	DISK SIZE	CAPACITANCE AVAILABLE	TUNING RESOLUTION
9401	.140" (3.56 mm)	.25 to 4.0 pF	90°
9402	.125" (3.18 mm)	.5 to 25 pF	180°
9410	.200" (5.08 mm)	1 to 50 pF	180°

## 9401 SERIES Tuning Tool: 4194

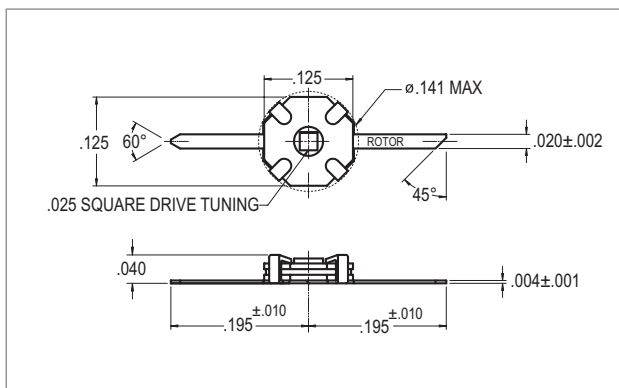


JMC P/N	JMC RoHS P/N	RANGE PF	MIN Q @ 100MHZ
9401-0	9701-0	0.25 TO 0.7	>1000
9401-1	9701-1	0.5 TO 1.3	>1000
9401-2	9701-2	0.6 TO 2.0	>1000
9401-4	9701-4	1.5 TO 4.0	>500

JMC P/N	JMC RoHS P/N	RANGE PF	MIN Q @ 100MHZ
9401-05L1	9701-05L1	0.25 TO 0.7	>1000
9401-15L1	9701-15L1	0.5 TO 1.3	>1000
9401-25L1	9701-25L1	0.6 TO 2.0	>1000
9401-45L1	9701-45L1	1.5 TO 4.0	>500

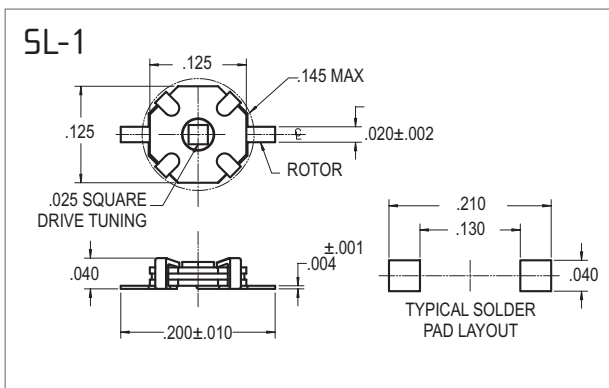
Available in Tape/Reel: 1500 per reel, add suffix R3

# 9402/9702 SERIES TUNING TOOL: 4194



JMC P/N	RANGE PF	MIN Q @ 100MHZ	
9402-0	9402-OSL-1	0.5 to 2.5	>3000
9402-1	9402-1SL-1	1.0 to 5.0	>1000
9402-2	9402-2SL-1	2.5 to 10.0	>1000
9402-4	9402-4SL-1	3.0 to 12.0	>500
9402-6	9402-6SL-1	6.0 to 25.0	>300
9402-8	9402-8SL-1	5.0 to 15.0	>750
9402-9	9402-9SL-1	5.0 to 18.0	>500

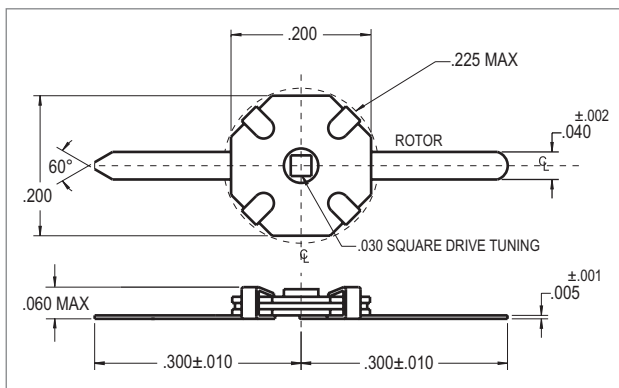
SL-1 AVAILABLE IN TAPE/REEL: 1500 PER REEL, ADD SUFFIX R3



ROHS	Pb	RANGE PF	MIN Q @ 100MHZ
9702-0	9702-OSL-1	0.5 to 2.5	>3000
9702-1	9702-1SL-1	1.0 to 5.0	>1000
9702-2	9702-2SL-1	2.5 to 10.0	>1000
9702-4	9702-4SL-1	3.0 to 12.0	>500
9702-6	9702-6SL-1	8.0 to 25.0	>300
9702-8	9702-8SL-1	5.0 to 15.0	>750
9702-9	9702-9SL-1	7.0 to 18.0	>500

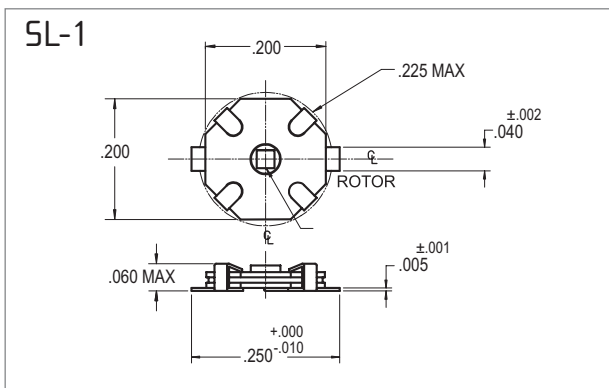
SL-1 AVAILABLE IN TAPE/REEL: 1500 PER REEL, ADD SUFFIX R3

# 9410/9710 SERIES TUNING TOOL: 4193



JMC P/N	RANGE PF	MIN Q @ 100MHZ	
9410-0	9410-OSL-1	1.0 to 4.5	>1000
9410-1	9410-1SL-1	2.5 to 10.0	>1000
9410-2	9410-2SL-1	4.0 to 18.0	>700
9410-3	9410-3SL-1	6.0 to 35.0	>200
9410-4	9410-4SL-1	7.0 to 40.0	>200
9410-5	9410-5SL-1	8.0 to 50.0	>250
9410-25	9410-25SL-1	5.0 to 25.0	>200

AVAILABLE IN TAPE/REEL: 3000 PER REEL, ADD SUFFIX R7



ROHS	Pb	RANGE PF	MIN Q @ 100MHZ
9710-0	9710-OSL-1	1.0 to 4.5	>1000
9710-1	9710-1SL-1	2.5 to 10.0	>1000
9710-2	9710-2SL-1	4.0 to 18.0	>700
9710-3	9710-3SL-1	6.0 to 35.0	>200
9710-4	9710-4SL-1	7.0 to 40.0	>200
9710-5	9710-5SL-1	10.0 to 50.0	>250
9710-25	9710-25SL-1	5.0 to 25.0	>200

AVAILABLE IN TAPE/REEL: 3000 PER REEL, ADD SUFFIX R7

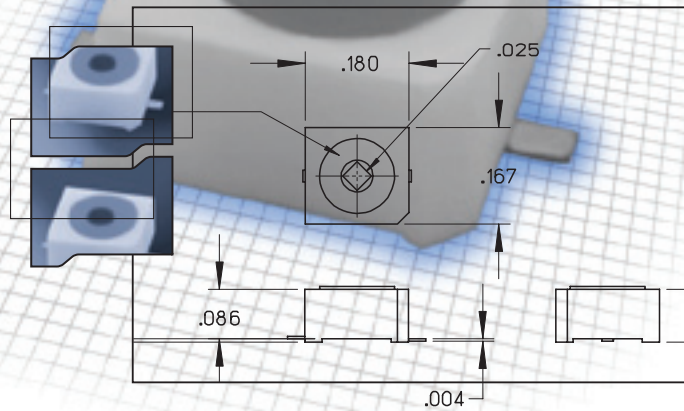


# CERA-TRIM

Based around our Thin-Trim capacitors, Johanson's Cera-Trims are designed for use in harsh environments.

The ceramic housing and color-coded epoxy seal protect the capacitor from solder fluxes and cleaning solvents.

In use, the housing continues to protect the trimmer and provide rugged reliability.



## APPLICATIONS

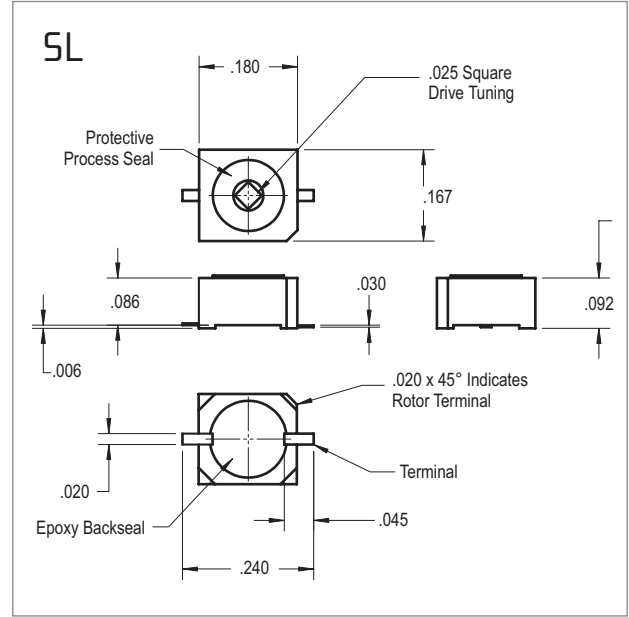
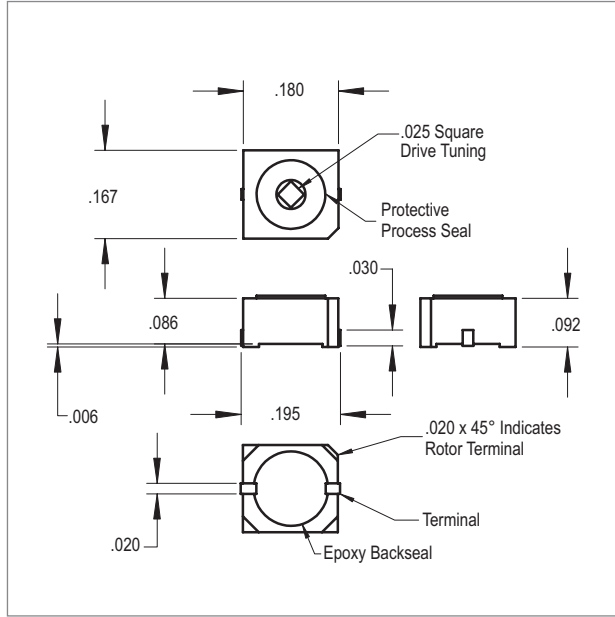
- RF amplifier
- LC Filters and Networks
- Broadband Wireless LAN
- Medical Devices
- Cordless and Cellular phones
- DR/Crystal Oscillator
- Microstrip line filters

## CHARACTERISTICS

- Working Voltage: 250 VDC (500 VDC Test)
- Insulation Resistance:  $> 10^4$  M $\Omega$
- Temperature Range: -55°C to +125°C
- Tuning Tool: 4192
- RoHS Compliant parts available

## PACKAGING

- Add suffix to JMC P/N for reel packaging  
R1=500 per reel, R2=2500 per reel



JMC P/N	RANGE PF	MIN Q @ 100 MHz	
2320-0	2320-0SL	0.6 to 2.5	3000
2320-1	2320-1SL	1.0 to 5.0	1000
2320-2	2320-2SL	2.5 to 10.0	1000
2320-3	2320-3SL	5.0 to 18.0	500
2320-4	2320-4SL	6.5 to 25.0	300

ROHS	RANGE PF	MIN Q @ 100 MHz	
2322-0G	2322-0GSL	0.6 to 2.5	3000
2322-1G	2322-1GSL	1.0 to 5.0	1000
2322-2G	2322-2GSL	2.5 to 10.0	1000
2322-3G	2322-3GSL	7.5 to 18.0	500
2322-4G	2322-4GSL	8.5 to 25.0	300

**IMPORTANT INFORMATION: STORAGE INSTRUCTIONS FOR CERA-TRIM®**

Sealed Cera-Trim® Capacitors are packed with a 1/6 unit of desiccant and must remain in their original packing as long as possible before soldering. Care should be taken to make sure the re-sealable outer bag is completely sealed after each use.

All Cera-Trims, with or without process seals, should be stored in a temperature and humidity controlled environment.

If sealed Cera-Trims need to be re-packed then they must be packed in a re-sealable poly/metal anti-static bag with a fresh 1/6 unit of desiccant.

If sealed Cera-Trims have been inadvertently left exposed to ambient humidity for more than 1 hour, then dry the units per the following procedure:

**For sealed units that are not in tape & reel packaging**

Place units in an oven at 35 ± 5°C for 8 hours minimum or faster drying may be done at 125 ± 5°C for 60 to 90 minutes. Re-pack using fresh desiccant packs after drying.

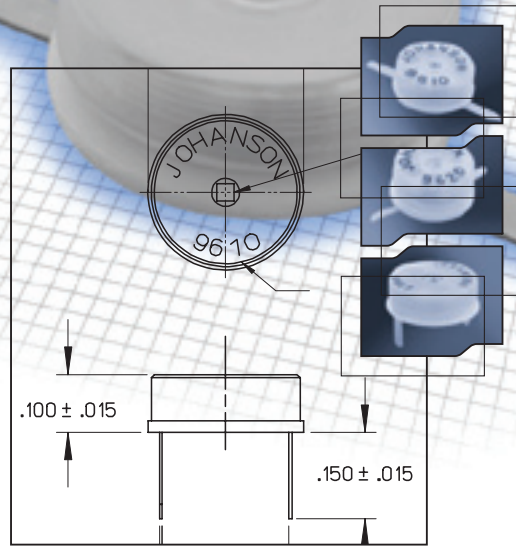
**For sealed units that are in tape & reel packaging**

Place units in an oven at 35 ± 5°C for 8 hours minimum. Re-pack using fresh desiccant packs after drying.



# SEAL-TRIM

Our Seal-Trims are also built around the Thin-Trim capacitors. These capacitors are encased in a high performance polymer housing that is wave solderable and protects the trimmer from contamination.



## APPLICATIONS

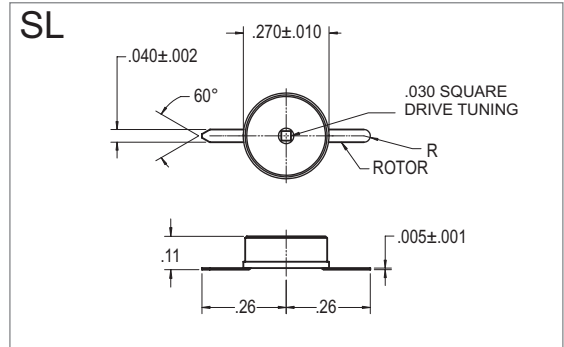
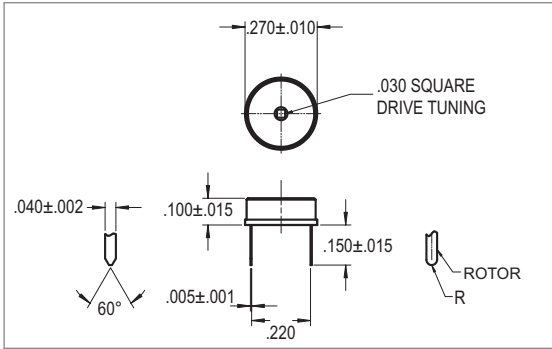
- RF amplifier
- LC Filters and Networks
- Broadband Wireless LAN
- Medical Devices
- Cordless and Cellular phones
- DR/Crystal Oscillator
- Microstrip line filters

## CHARACTERISTICS

- Working Voltage: 250 VDC (500 VDC Test)
- Long Rotational life
- Insulation Resistance:  $> 10^4$  M $\Omega$
- Temperature Range: -55°C to +125°C
- RoHS Compliant parts available

SERIES	DISK SIZE	CAPACITANCE AVAILABLE	TUNING RESOLUTION
9610/9810	.270" (6.86 mm)	1 to 50 pF	180°
9620/9820	.180" (4.57 mm)	.5 to 25 pF	180°

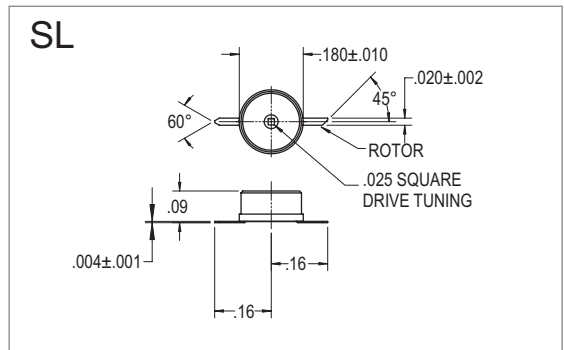
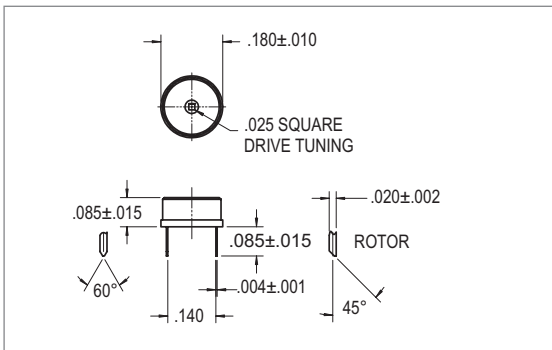
**9610 SERIES** TUNING TOOL: 4193



JMC P/N	RANGE PF	MIN Q @ 100MHZ
9610	1.5 TO 4.5	>1000
9611	2.5 TO 10.0	>1000
9612	4.0 TO 18.0	>700
9613	6.0 TO 35.0	>200
9614	7.0 TO 40.0	>200
9615	5.0 TO 25.0	>200
9616	8.0 TO 50.0	>200

ROHS	Pb	RANGE PF	MIN Q @ 100MHZ
9810	9810SL	1.5 TO 4.5	>1000
9811	9811SL	2.5 TO 10.0	>1000
9812	9812SL	4.0 TO 18.0	>700
9813	9813SL	6.0 TO 35.0	>200
9814	9814SL	7.0 TO 40.0	>200
9815	9815SL	5.0 TO 25.0	>200
9816	9816SL	10.5 TO 50.0	>200

**9620 SERIES** TUNING TOOL: 4192



JMC P/N	RANGE PF	MIN Q @ 100MHZ
9620	0.5 TO 2.5	>1000
9621	1.0 TO 5.0	>1000
9622	2.5 TO 10.0	>1000
9626	8.5 TO 25.0	>300
9628	5.0 TO 15.0	>750
9629	7.5 TO 18.0	>500

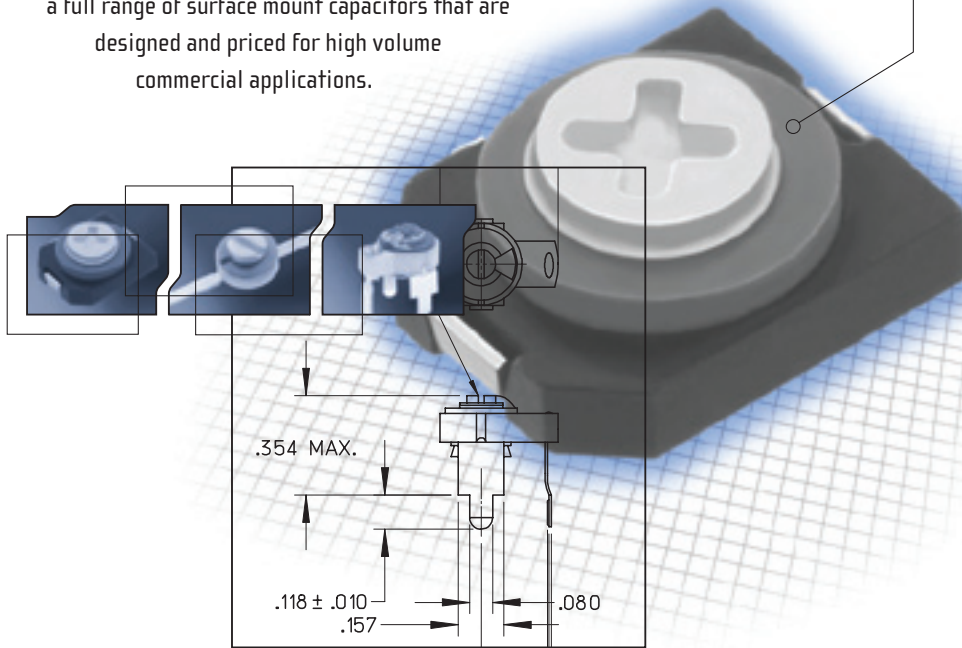
ROHS	Pb	RANGE PF	MIN Q @ 100MHZ
9820	9820SL	0.5 TO 2.5	>1000
9821	9821SL	1.0 TO 5.0	>1000
9822	9822SL	2.5 TO 10.0	>1000
9826	9826SL	8.5 TO 25.0	>300
9828	9828SL	5.0 TO 15.0	>750
9829	9829SL	7.5 TO 18.0	>500



VALUE PRICED

# CERAMIC TRIMMERS

In addition to Johanson's high performance line of low profile trimmers, Johanson Manufacturing offers a full range of surface mount capacitors that are designed and priced for high volume commercial applications.

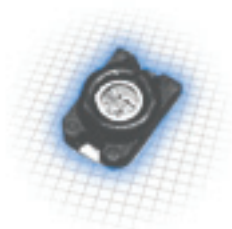


## 9350 SERIES

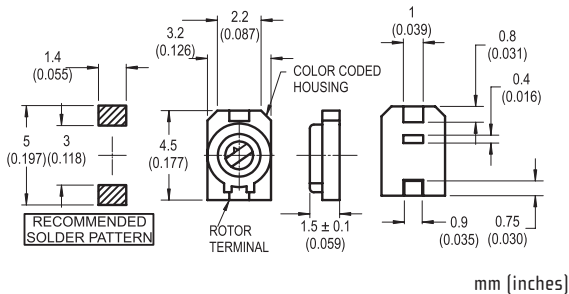
The 9350 Series trimmers are single turn, ceramic dielectric capacitors designed for high volume commercial applications.

### CHARACTERISTICS

- Working Voltage: See Table
- Insulation Resistance:  $> 10^4 M\Omega$
- Temperature Range:  $-25^\circ C$  to  $+85^\circ C$
- Tuning Tool: 2194
- Packaging: 1000 Pieces in a 7" Reel
- RoHS Compliant



JMC P/N	RANGE PF	MIN Q @ 1 MHz	WORKING VOLTAGE	COLOR CODE
9350-1R1	1.5 TO 3.0	>500	100 VDC	BLACK
9350-2R1	2.0 TO 6.0	>500	100 VDC	BLUE
9350-3R1	3.0 TO 10.0	>500	50 VDC	IVORY
9350-4R1	5.0 TO 20.0	>500	50 VDC	PINK
9350-5R1	8.0 TO 30.0	>500	50 VDC	GREEN



## 9344 SERIES

The 9344 Series trimmers are single turn, ceramic dielectric capacitors designed for high volume commercial applications.

### CHARACTERISTICS

- Working Voltage: 100 VDC (220 VDC Test)
- Insulation Resistance:  $> 10^4 M\Omega$
- Temperature Range:  $-25^{\circ}C$  to  $+85^{\circ}C$
- Tuning Tool: 8764
- Packaging: 1000 Pieces in a 7" Reel
- RoHS Compliant



JMC P/N	RANGE PF	MIN Q @1 MHz	COLOR CODE
9344-1R1	1.4 TO 3.0	>500	BLACK
9344-2R1	2.0 TO 6.0	>500	BLUE
9344-3R1	3.0 TO 10.0	>500	NONE
9344-4R1	4.5 TO 20.0	>300	RED
9344-5R1	6.0 TO 30.0	>300	GREEN

## 9343 SERIES

These trimmer capacitors are single turn, ceramic dielectric and ideal for high volume commercial applications. These capacitors are sealed and suitable for reflow soldering.

### CHARACTERISTICS

- Working Voltage: 50 VDC (110 VDC Test)
- Insulation Resistance:  $> 10^4 M\Omega$
- Temperature Range:  $-25^{\circ}C$  to  $+85^{\circ}C$
- Tuning Tool: 2191
- Packaging: 1000 Pieces in a 7" Reel
- RoHS Compliant



JMC P/N	RANGE PF	MIN Q @1 MHz
9343-11R1	1.0 TO 3.0	>300
9343-12R1	1.5 TO 5.0	>300
9343-13R1	2.0 TO 5.0	>300
9343-14R1	1.5 TO 10.0	>300
9343-15R1	2.5 TO 10.0	>300
9343-16R1	3.0 TO 10.0	>300
9343-17R1	5.0 TO 20.0	>300
9343-18R1	5.0 TO 30.0	>300
9343-19R1	5.0 TO 40.0	>300

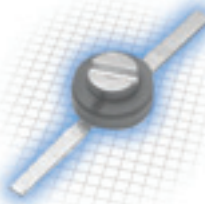


## 9341 SERIES

The 9341 Series offers a wide range of capacitance, ideal for applications where small size is a design criterion.

### CHARACTERISTICS

- Working Voltage: 50 VDC (110 VDC Test)
- Insulation Resistance:  $> 10^4 M\Omega$
- Temperature Range:  $-25^{\circ}C$  to  $+85^{\circ}C$
- Tuning Tool: 8766
- RoHS Compliant



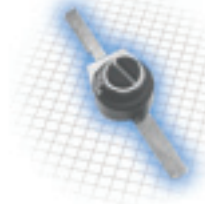
JMC P/N	RANGE PF	MIN Q @1 MHz
9341-15L	1.0 to 3.0	>200
9341-25L	1.5 to 5.0	>200
9341-35L	1.5 to 10.0	>200
9341-45L	2.5 to 10.0	>200
9341-55L	5.0 to 20.0	>200
9341-65L	5.0 to 25.0	>200
9341-75L	5.0 to 30.0	>200
9341-85L	5.0 to 35.0	>200
9341-95L	6.0 to 40.0	>200

## 9385 SERIES

The 9385 ceramic trimmer capacitor offers the advantages of high frequency operation, miniature size, and remarkable cost effectiveness.

### CHARACTERISTICS

- Working Voltage: 50 VDC (110 VDC Test)
- Insulation Resistance:  $> 10^4 M\Omega$
- Temperature Range:  $-30^{\circ}C$  to  $+85^{\circ}C$
- Tuning Tool: 8777
- RoHS Compliant



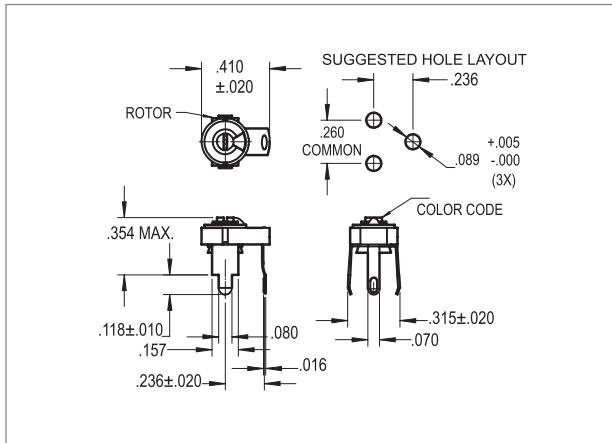
JMC P/N	RANGE PF	MIN Q @10 MHz	COLOR CODE	JMC P/N	RANGE PF	MIN Q @10 MHz	COLOR CODE
9385-15L	1.2 to 3.0	>500	BLACK	9385-1PC	1.2 to 3.0	>500	BLACK
9385-25L	1.4 to 5.0	>500	RED	9385-2PC	1.4 to 5.0	>500	RED
9385-35L	1.8 to 9.0	>300	NONE	9385-3PC	1.8 to 9.0	>300	NONE
9385-45L	2.8 to 18.0	>300	BLUE	9385-4PC	2.8 to 18.0	>300	BLUE
9385-55L	4.0 to 28.0	>200	YELLOW	9385-5PC	4.0 to 28.0	>200	YELLOW

# 9300 SERIES

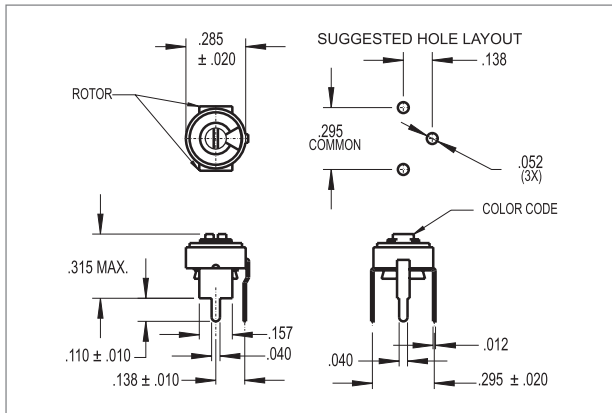
These ceramic trimmer capacitors are designed for broadband applications, from audio 500 MHz, and afford an ideal low cost means of trimming circuitry.

## CHARACTERISTICS

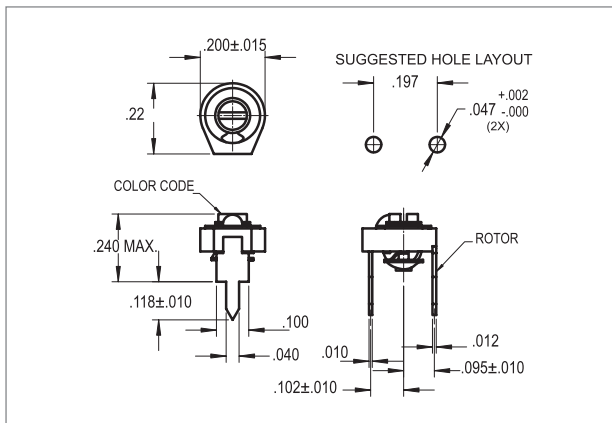
- Working Voltage: 250 VDC (500 VDC Test)
- Insulation Resistance: > 10<sup>4</sup> MΩ
- Temperature Range: -55°C to +85°C
- Tuning Tool: 8764
- Packaging: Bulk
- RoHS Compliant



JMC P/N	RANGE PF	MIN Q @10 MHz	COLOR CODE
9300	2.8 TO 8.0	>300	RED
9301	2.0 TO 12.0	>300	NONE
9302	2.5 TO 23.0	>300	BLUE
9303	4.0 TO 34.0	>300	ORANGE
9304	5.5 TO 45.0	>200	BROWN
9305	6.0 TO 55.0	>200	GREEN
9314	6.0 TO 60.0	>200	PINK
9315	6.0 TO 70.0	>200	GRAY
9328	12.0 TO 100.0	>200 @ 1 MHz	WHITE



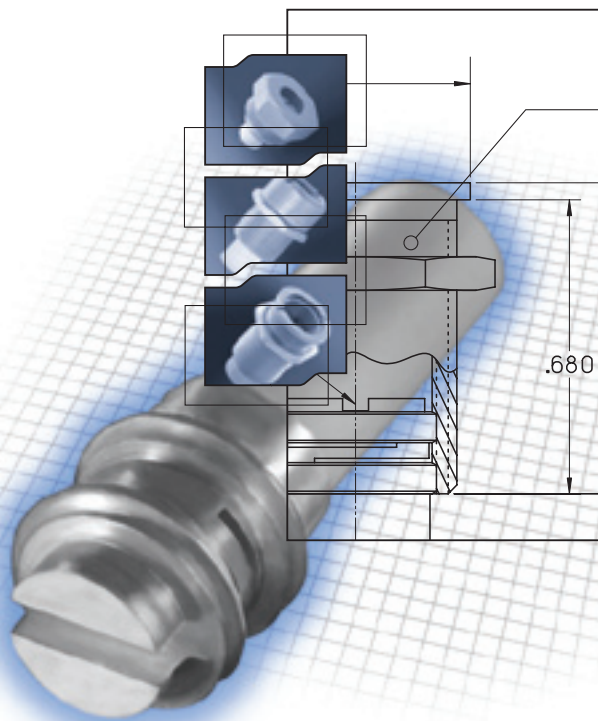
JMC P/N	RANGE PF	MIN Q @10 MHz	COLOR CODE
9306	2.0 TO 8.0	>300	RED
9307	2.0 TO 12.0	>300	NONE
9308	2.5 TO 23.0	>300	BLUE
9309	4.0 TO 34.0	>300	ORANGE
9310	5.5 TO 45.0	>200	BROWN
9311	6.0 TO 55.0	>200	GREEN



JMC P/N	RANGE PF	MIN Q @10 MHz	COLOR CODE
9371	1.8 TO 5.0	>300	BLACK
9372	3.0 TO 10.0	>300	NONE
9373	3.5 TO 18.0	>300	BLUE
9374	5.0 TO 25.0	>300	PURPLE
9376	9.0 TO 50.0	>200 @ 1 MHz	GREEN



# TUNING ELEMENTS



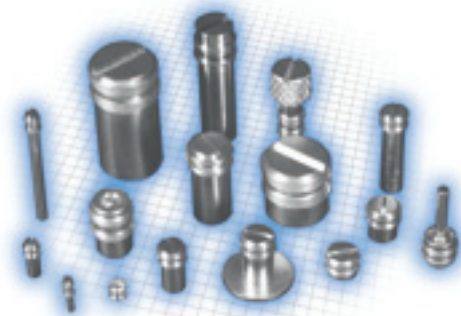
Microwave Tuning Elements are a very cost effective method for the precision tuning of microwave filters, oscillators, and other resonant structures. They are excellent for applications requiring precision, low loss tuning permitting costly mechanical and electrical tolerances to be relaxed. The self-locking design eliminates the need for locking nuts and assures stable, noise-free adjustments in applications from L to Ka band.

## FEATURES

- One handed adjusting/tuning
- Self-Locking/Constant torque mechanism
- Eliminates need for "jam" nuts
- Produced with fine-pitched threads for high resolution zero back lash positioning from 24 TPI to 108 TPI
- Basic thread diameters available from 0.060" to 1.00", SI & US customary threads
- Excellent electrical conduction (Contact resistance < 0.01  $\Omega$ )
- Capable of re-tuning/re-positioning
- Available with Gold, Silver, Nickel Plating and Chromate Finish
- Can be assembled with other materials, (Ceramic, Ferrites, Sapphire, Glass, etc.)
- Available as a set, to provide a positive stop or extended travel range
- Available in copper or ferrous alloys
- Custom torque designs available

## TYPICAL APPLICATIONS

- Micro Wave Filter Positioning
- Fiber Optic Alignment
- Metering Valve Adjustment
- X Y Z Stage Positioning
- Self Locking Fastener
- Limit Switch/Sensor Positioning

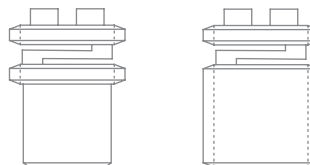


New Slotted Positioning Devices  
Patent Pending



Threaded Inserts

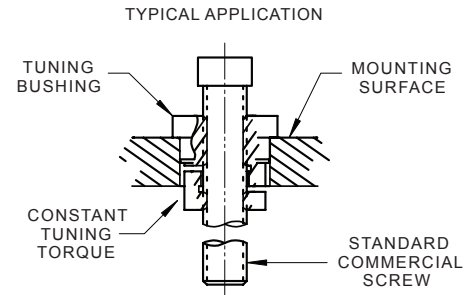
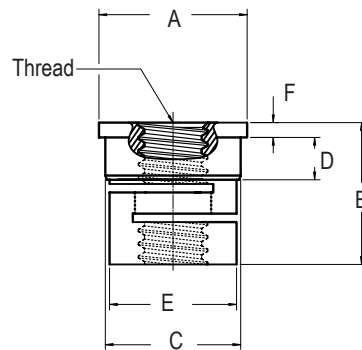
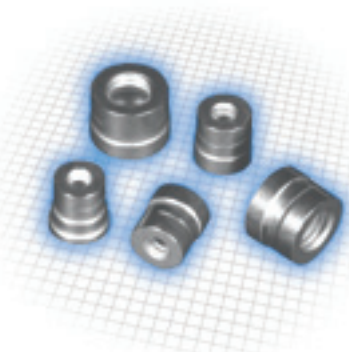
Original Slotted Positioning Devices  
Patented by Johanson  
Ref. Original US Patent No. 30,406



Threaded Elements

# POSI-TORQUE®

Posi-Torque Bushings are precision devices designed for applications requiring precision, low loss high resolution tuning. The self-locking, constant torque drive mechanism eliminates the need for locking nuts and assures stable, noise free adjustment in RF to Microwave frequencies. Posi-Torque Bushings are universal and can be used with standard SI and US customary screws.



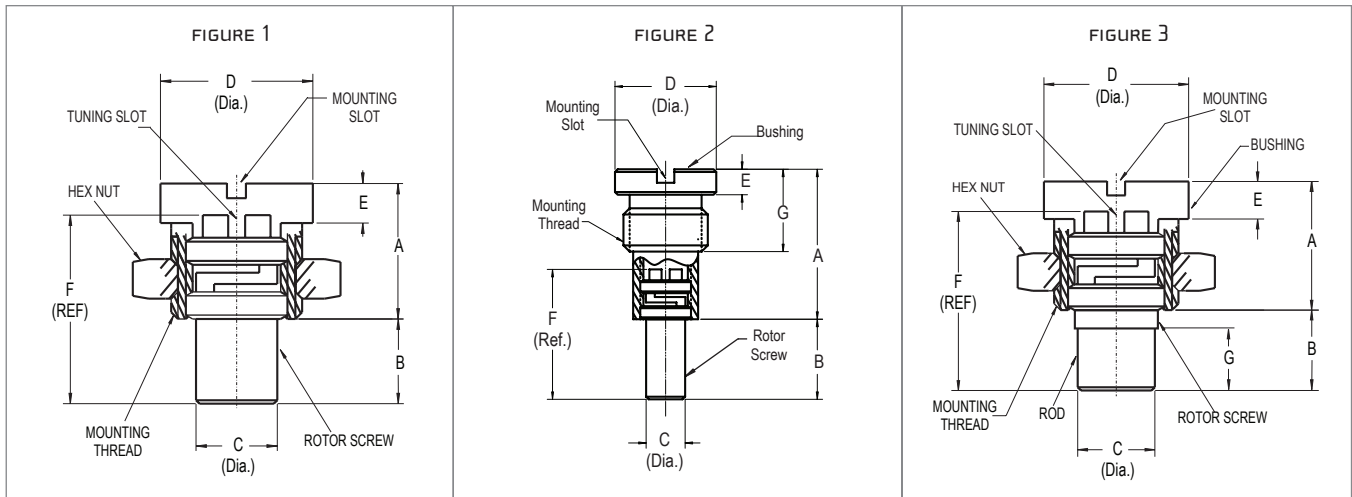
P/N	THREAD SIZE	A	B	C	D	E	F
LB1020-1	#0(.060)-80 UNF-2B	.145	.130	.1247	.035	.112	.030
LB1021-1	#2(.086)-56 UNC-2B	.175	.150	.1552	.035	.140	.030
LB1022-1	#4(.112)-40 UNC-2B	.300	.300	.2697	.090	.250	.035
LB1023-1	#6(.138)-32 UNC-2B	.330	.335	.2997	.100	.280	.035
LB1024-1	#10(.190)-32 UNF-2B	.380	.335	.3497	.100	.330	.035
LB1025-1	1/4(.250)-28 UNF-2B	.440	.335	.4097	.100	.390	.035
LB1026-1	#8(.164)-32 UNC-2B	.350	.335	.3197	.100	.300	.035

Custom design available upon request.

## TAPS

P/N	THREAD SIZE	H#	# OF FLUTES (REF)	RECOMMENDED TAP DRILL
7053	#0 (.060)-80 UNF-2	H2	2	3/64 (.0469)
7054	#2 (.086)-56 UNC-2		2	#51 (.067)
7056	3/8 (.375)-64 UNS-2		4	23/64 (.3594)
7057	.200-80 UNS-2	H3	4	3/16 (.1875)
7059	5/32 (.156)-64 UNS-2		4	9/64 (.1406)
7060	.120-80 UNS-2		3	#36 (.1065)
7061	#10 (.190)-64 UNS-2		4	#17 (.173)
7062	15/64 (.234)-64 UNS-2		4	7/32 (.2187)
7063	1/4 (.250)-64 UNS-2		4	15/64 (.2344)
7064	3/32 (.094)-80 UNS-2		3	#45 (.082)
7065	5/16 (.312)-64 UNS-2		4	19/64 (.2969)

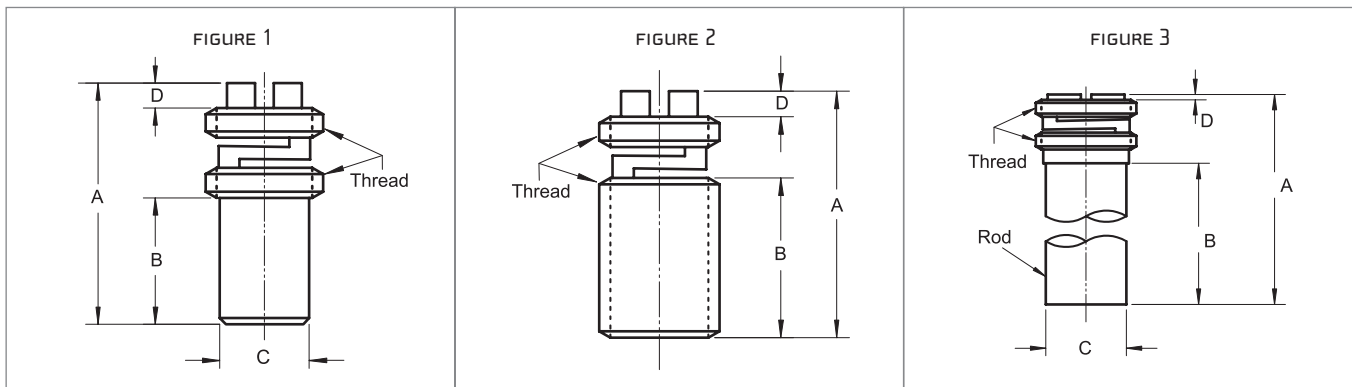
# TUNING ELEMENTS



P/N	FIG.	A	B	C	D	E	F	G	THD (UNS-2A)	ROD MAT'L
6924-10	1	.120	.075	.072	.135	.035	.167		.120-80	BRASS
6924-11		.120								
6925-4		.250	.148	.125	.210	.037	.250		.190-64	
6925-5		.125	.023							
6926-13		.210	.106	.160	.267	.035	.210		.234-64	
6926-17			.180							
6927-2		.360	.250	.265	.145	.360		.234-64		
6927-3			.255							
6928-6		.450	.345	.267	.240	.450		.190-64		
6929-2		.552	.450						.125	
6965-1	.720	.500	.345	.531	.040	.720		.469-32		
6939-2	2	.482	.148	.072	.187	.045	.240	.230	.156-64	
6940-1		.555	.450	.125	.265		.552		.234-64	
6941-1		1.230	.350	.160	.280		.450		.250-64	
6933-4	3	.240	.168	.062	.135	.035	.260	.138	.120-80	SAPPHIRE
6934-4		.359	1.105	.152	.267	.144	1.209	1.075	.234-64	ALUMINA
6934-6		.210	.115			.035	.219	.085		SAPPHIRE
6935-11		.359	.265	.144	.369	.235	ALUMINA			
6950-2		.240	.168	.062	.135	.035	.260	.138	.120-80	ECCOSORB
6952-2		.359	.185	.152	.267	.144	.289	.155	.234-64	

Custom dimensions are available upon request. Please contact the factory.

# TUNING ROTORS



P/N	FIG.	A	B	C	D	THD (UNS-2A)	TAP	ROD MAT'L	
6316-1	1	.165	.075	.072	.018	.120-80	7060		
6316-2	2	.223	.155	—	.020				7054
L6994-2		.175	.090	—					
L6995-0	1	.122	.030	.072		.156-64	7064		
L6995-1		.167	.075						
L6996-1		.250	.148	.125	7059				
L6996-5		.295	.193						
L6997-0	1	.554	.450	.160	.190-64	7061			
L6997-17		.146	.042						
6930-10	3	.369	.235	.152			SAPPHIRE		
6930-14							ALUMINA		

Custom dimensions are available upon request. Please contact the factory.







# DYNA-TRIM – DRO TUNERS

P/N	A	ROD MAT'L	DISK MAT'L	NOM FREQ (GHZ)
4010-1	.970	INVAR	BRASS	2
4011-1	.750			3
4012-1	.500			4
4012-2	.625			4
4014-1	.250	INVAR [1 PIECE]		9

Custom dimensions are available upon request. Please contact the factory.



# HARDWARE

		JOHANSON P/N		
		MOUNTING THREAD (UNS-2)		
		.234-64	.190-64	.120-80
MOUNTING TORQUE, OZ. IN.		50	30	10
	STANDARD SEAL ASSEMBLY	P3978	P4674	P6775
	NON-MAGNETIC TYPE	P8877	P8876	P8875
	SLOTTED SEAL ASSEMBLY	P4613	P6486	P6487
	MIN. STOP SEAL ASSEMBLY	P3237	P3236	P3235
	NON-MAGNETIC TYPE	P8877-1	P8876-1	P8875-1
	HEX NUT	P3469	P4537	P6389
	NON-MAGNETIC TYPE	P8882	P8881	—
	ROUND NUT	P6546	P4825	P4680
	NON-MAGNETIC TYPE	—	P8879	P8880
	LOCKWASHER (NON-MAGNETIC)	P1999	P1994	P1993

Some parts require a plating suffix for different plating option. Please contact factory for detail



# SAMPLE KITS



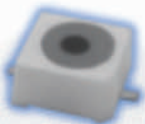
**AIR CAPACITOR  
SAMPLE KIT (RoHS COMPLIANT)**

<b>JK-500</b>	QUANTITY	RANGE (pF)
5201	2	0.8 to 10
5202	2	0.8 to 10
5701	3	0.6 to 6
5702	3	0.6 to 6
5801	3	0.35 to 3.5
5802	3	0.35 to 3.5
8777	1	Tuning Tool



**GIGA-TRIM®  
SAMPLE KIT (RoHS COMPLIANT)**

<b>JK-272SMD</b>	QUANTITY	RANGE (pF)
27263	2	0.3 to 1.2
27273	2	0.6 to 4.5
27283	3	0.4 to 2.5
47273	3	0.6 to 4.5
47473	3	2 to 6
47483	3	0.3 to 2.3
8762	1	Tuning Tool
8777	1	Tuning Tool



**CERA-TRIM®  
SAMPLE KITS**

## CERA-TRIM® 2320 SAMPLE KIT

<b>JK-023</b>	QUANTITY	RANGE (pF)
2320-0	4	0.6 to 2.5
2320-1	4	1.0 to 5.0
2320-2	4	2.5 to 10
2320-3	4	5.0 to 18
2320-4	4	6.5 to 25
4192	1	Tuning Tool
	1	12 mm Tape Sample

## RoHS COMPLIANT CERA-TRIM® 2322 SERIES SAMPLE KIT

<b>JK-023-1</b>	QUANTITY	RANGE (pF)
2320-0G	4	0.6 to 2.5
2320-1G	4	1.0 to 5.0
2320-2G	4	2.5 to 10
2320-3G	4	5.0 to 18
2320-4G	4	8.5 to 25
4192	1	Tuning Tool
	1	12 mm Tape Sample



**THIN-TRIM®  
SAMPLE KITS**

## THIN-TRIM® 9402 SERIES SAMPLE KIT

<b>JK-941</b>	<b>JK-941SL</b>	QUANTITY	RANGE (pF)
9401-0	9401-0SL-1	5	0.25 to 0.7
9401-1	9401-1SL-1	5	0.5 to 1.3
9401-2	9401-2SL-1	5	0.6 to 2.0
9401-4	9401-4SL-1	5	1.5 to 4.0
4194	4194	1	Tuning Tool

## RoHS COMPLIANT THIN-TRIM® 9701 SERIES SAMPLE KIT

<b>JK-941-1</b>	<b>JK-941SL-1</b>	QUANTITY	RANGE (pF)
9701-0	9701-0SL-1	5	0.25 to 0.7
9701-1	9701-1SL-1	5	0.5 to 1.3
9701-2	9701-2SL-1	5	0.6 to 2.0
9701-4	9701-4SL-1	5	1.5 to 4.0
4194	4194	1	Tuning Tool

## THIN-TRIM® 9402 SERIES SAMPLE KIT

<b>JK-942</b>	<b>JK-942SL</b>	QUANTITY	RANGE (pF)
9402-0	9402-0SL-1	4	0.5 to 2.5
9402-1	9402-1SL-1	4	1.0 to 5.0
9402-2	9402-2SL-1	4	2.5 to 10
9402-6	9402-6SL-1	4	6.0 to 25
9402-8	9402-8SL-1	4	5.0 to 15
9402-9	9402-9SL-1	4	5.0 to 18
4194	4194	1	Tuning Tool

## RoHS COMPLIANT THIN-TRIM® 9702 SERIES SAMPLE KIT

<b>JK-942-1</b>	<b>JK-942SL-1</b>	QUANTITY	RANGE (pF)
9702-0	9702-0SL-1	4	0.5 to 2.5
9702-1	9702-1SL-1	4	1.0 to 5.0
9702-2	9702-2SL-1	4	2.5 to 10
9702-6	9702-6SL-1	4	6.0 to 25
9702-8	9702-8SL-1	4	5.0 to 15
9702-9	9702-9SL-1	4	5.0 to 18
4194	4194	1	Tuning Tool

## THIN-TRIM® 9410 SERIES SAMPLE KIT

<b>JK-940</b>	<b>JK-940SL</b>	QUANTITY	RANGE (pF)
9410-0	9410-0SL-1	5	1.0 to 4.5
9410-1	9410-1SL-1	5	2.5 to 10
9410-2	9410-2SL-1	5	4.0 to 18
9410-3	9410-3SL-1	5	6.0 to 35
4193	4193	1	Tuning Tool

## RoHS COMPLIANT THIN-TRIM® 9710 SERIES SAMPLE KIT

<b>JK-940-1</b>	<b>JK-940SL-1</b>	QUANTITY	RANGE (pF)
9710-0	9710-0SL-1	5	1.0 to 4.5
9710-1	9710-1SL-1	5	2.5 to 10
9710-2	9710-2SL-1	5	4.0 to 18
9710-3	9710-3SL-1	5	6.0 to 35
4193	4193	1	Tuning Tool





# SAMPLE KITS



SEAL-TRIM®  
SAMPLE KITS

## SEAL-TRIM® 9610 SAMPLE KIT

JK-960	QUANTITY	RANGE (pF)
9610	3	1.0 to 4.5
9611	3	2.5 to 10
9612	3	4.0 to 18
9613	3	6.0 to 35
9614	3	7.0 to 40
9615	3	5.0 to 25
4193	1	Tuning Tool

## RoHS COMPLIANT SEAL-TRIM® 9810 SERIES SAMPLE KIT

JK-960-1	QUANTITY	RANGE (pF)
9810	3	1.0 to 4.5
9811	3	2.5 to 10
9812	3	4.0 to 18
9813	3	6.0 to 35
9814	3	7.0 to 40
9815	3	5.0 to 25
4193	1	Tuning Tool

## SEAL-TRIM® 9620 SAMPLE KIT

JK-962	QUANTITY	RANGE (pF)
9620	4	0.5 to 2.5
9621	4	1.0 to 5.0
9622	4	2.5 to 10
9629	4	5.0 to 18
4193	1	Tuning Tool

## RoHS COMPLIANT SEAL-TRIM® 9820 SERIES SAMPLE KIT

JK-962-1	QUANTITY	RANGE (pF)
9820	4	0.5 to 2.5
9821	4	1.0 to 5.0
9822	4	2.5 to 10
9829	4	5.0 to 18
4193	1	Tuning Tool



9300 SERIES  
SAMPLE KIT (RoHS COMPLIANT)

JK-930	QUANTITY	RANGE (pF)
9308	5	2.5 to 23
9309	5	4.0 to 34
9310	5	5.5 to 45
9372	10	3.0 to 10
9374	10	5.0 to 25
9382	3	3.5 to 20
8777	1	Tuning Tool



9350 SERIES  
SAMPLE KIT (RoHS COMPLIANT)

JK-9350	QUANTITY	RANGE (pF)
9350-1	5	1.5 to 3.0
9350-2	5	2.0 to 6.0
9350-3	5	3.0 to 10
9350-4	5	5.0 to 20
9350-5	5	8.0 to 30
2194	1	Tuning Tool



9344 SERIES  
SAMPLE KIT (RoHS COMPLIANT)

JK-944	QUANTITY	RANGE (pF)
9344-1	5	1.4 to 3.0
9344-2	5	2.0 to 6.0
9344-3	5	3.0 to 10
9344-4	5	4.5 to 20
9344-5	5	6.0 to 30
2191	1	Tuning Tool



9343 SERIES  
SAMPLE KIT (RoHS COMPLIANT)

JK-943L	QUANTITY	RANGE (pF)
9343-11R1	5	1.0 to 3.0
9343-12R1	5	1.5 to 5.0
9343-13R1	5	2.0 to 5.0
9343-14R1	5	1.5 to 10
9343-16R1	5	3.0 to 10
9343-18R1	5	5.0 to 30
2191	1	Tuning Tool

JK-943H	QUANTITY	RANGE (pF)
9343-12R1	5	1.5 to 5.0
9343-14R1	5	1.5 to 10
9343-16R1	5	3.0 to 10
9343-17R1	5	5.0 to 20
9343-18R1	5	5.0 to 30
9343-19R1	5	5.0 to 40
2191	1	Tuning Tool

