

# Radar Pulsed Power Transistor 25W, 2.7-2.9 GHz, 100µs Pulse, 10% Duty

M/A-COM Products Released, 29 Jun 07

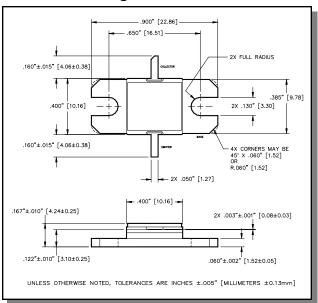
#### **Features**

- NPN silicon microwave power transistors
- Common base configuration
- Broadband Class C operation
- · High efficiency inter-digitized geometry
- · Diffused emitter ballasting resistors
- · Gold metallization system
- Internal input and output impedance matching
- Hermetic metal/ceramic package
- RoHS compliant

## Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	$V_{CES}$	60	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	I <sub>C</sub>	4.0	Α
Power Dissipation @ +25°C	P <sub>TOT</sub>	70	W
Storage Temperature	T <sub>STG</sub>	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

#### **Outline Drawing**



## Electrical Specifications: T<sub>C</sub> = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 10mA		$BV_CES$	60	-	V
Collector-Emitter Leakage Current	V <sub>CE</sub> = 40V		I <sub>CES</sub>	-	1.5	mA
Thermal Resistance	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	R <sub>TH(JC)</sub>	-	1.25	°C/W
Output Power	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	P <sub>OUT</sub>	25	-	W
Power Gain	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	G <sub>P</sub>	9.2	-	dB
Collector Efficiency	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	ης	45	-	%
Input Return Loss	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 36V, Pin = 3.0W	F = 2.7, 2.8, 2.9 GHz	VSWR-S	-	1.5:1	-

Commitment to produce in volume is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298
Visit www.macomtech.com for additional data sheets and product information.

<sup>•</sup> **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300

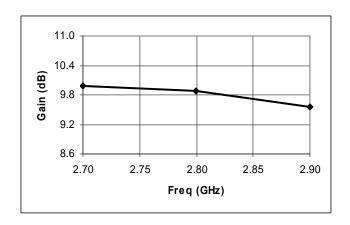


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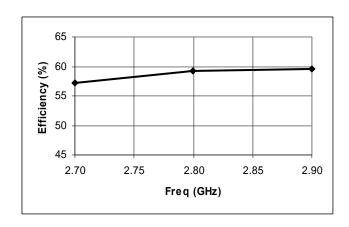
### **Typical RF Performance**

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
2.7	3.0	29.9	9.98	1.45	57.2	-13.9	S	Р
2.8	3.0	29.1	9.87	1.37	59.2	-19.6	S	Р
2.9	3.0	27.1	9.56	1.26	59.6	-19.3	S	Р

#### Gain vs. Frequency

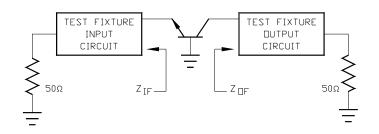


### Collector Efficiency vs. Frequency



### **RF Test Fixture Impedance**

F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)		
2.7	38.0 - j14.4	17.1 - j8.7		
2.8	35.0 - j16.3	15.0 - j8.7		
2.9	33.0 - j17.8	13.3 - j8.3		



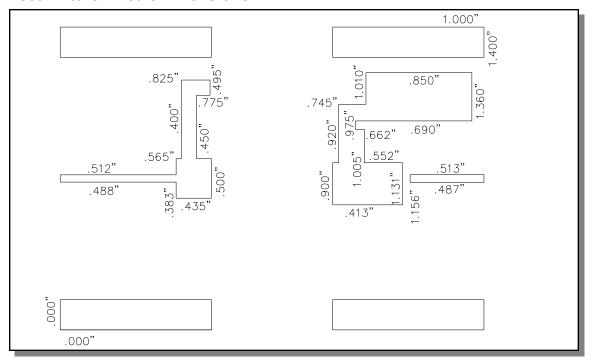
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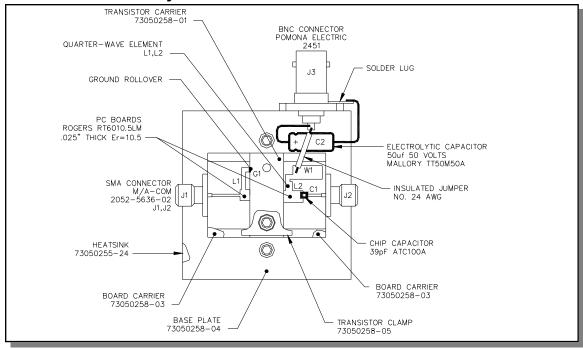


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#### **Test Fixture Circuit Dimensions**



# **Test Fixture Assembly**



- North America Tel: 800.366.2266 / Fax: 978.366.2266
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- Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298
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