



2931-60

60Watts, 36 Volts, 100us, 10%
Radar 2900-3100 MHz

GENERAL DESCRIPTION

The 2931-60 is an internally matched, COMMON BASE bipolar transistor capable of providing 60Watts of pulsed RF output power at 100us pulse width, 10% duty factor across the 2900 to 3100 MHz band. This ceramic sealed transistor is specifically designed for S-band radar applications. It utilizes gold metallization and emitter ballasting to provide high reliability and supreme ruggedness.

CASE OUTLINE Common Base

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25°C¹ 90 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces}) 65 V

Emitter to Base Voltage (BV_{ebo}) 3.0 V

Peak Collector Current (I_c) 7 A

Maximum Temperatures

Storage Temperature -65 to +200 °C

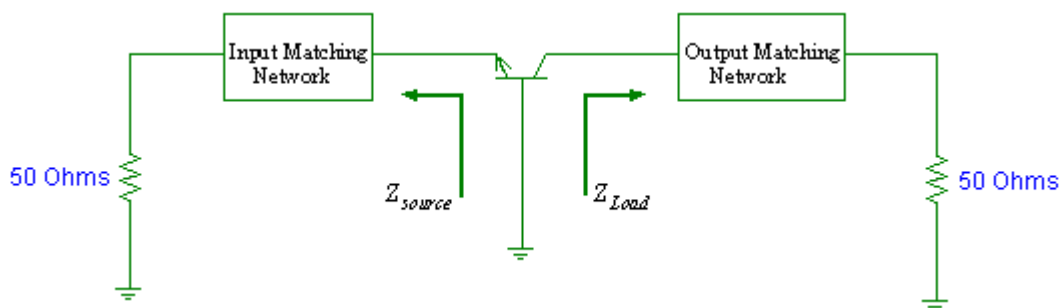
Operating Junction Temperature +200 °C

ELECTRICAL CHARACTERISTICS @ 25°C

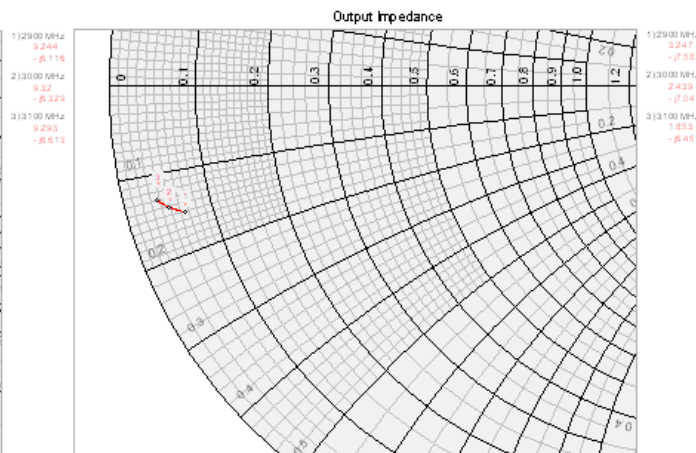
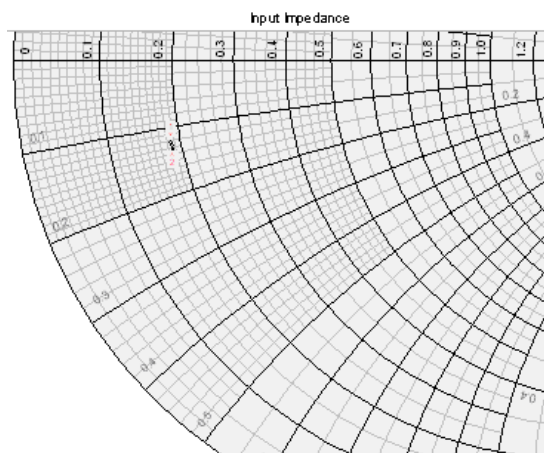
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Output	F=2900-3100 MHz	60			W
P _g	Power Gain	Pulse Width = 100us	7.6			dB
η _c	Collector Efficiency	Duty Factor = 10 %	40			%
R _l	Return Loss	Power Input = 10.3W	-7			dB
VSWR-S	Load Mismatch Stability	V _{cc} = +36V			1.5:1	
VSWR-T	Load Mismatch Tolerance	F = 2900, 3000, 3100 MHz			2:1	

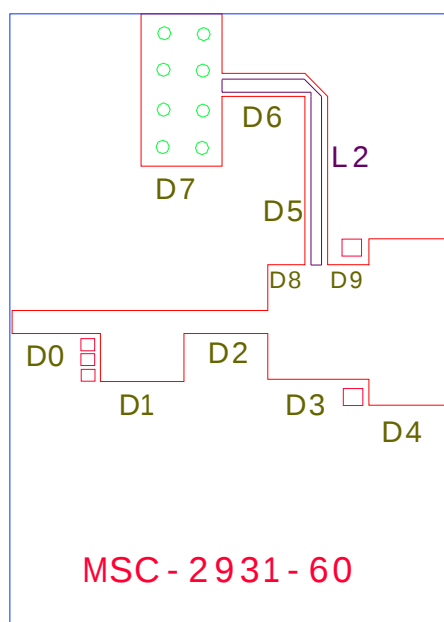
FUNCTIONAL CHARACTERISTICS @ 25°C

I _{ces}	Collector to Emitter Leakage	V _{ce} =40V			7.5	mA
BV _{ces}	Collector to Emitter Breakdown	I _c = 30 mA	65			V
θ _{jc} ¹	Thermal Resistance				0.45	°C/W

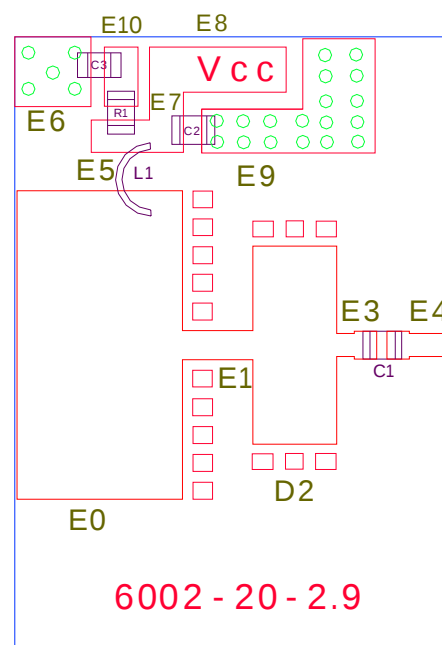

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Broadband Test Fixture Impedance

Impedance Data		
Freq (GHz)	Z _s	Z _L
2.9	9.244-j6.116	3.247-j7.583
3.0	9.320-j6.329	2.439-j7.041
3.1	9.293-j6.613	1.853-j6.457




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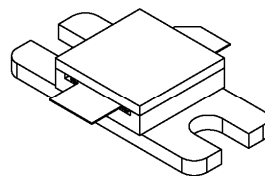
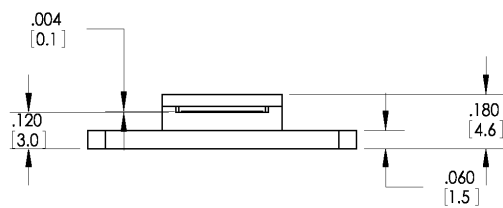
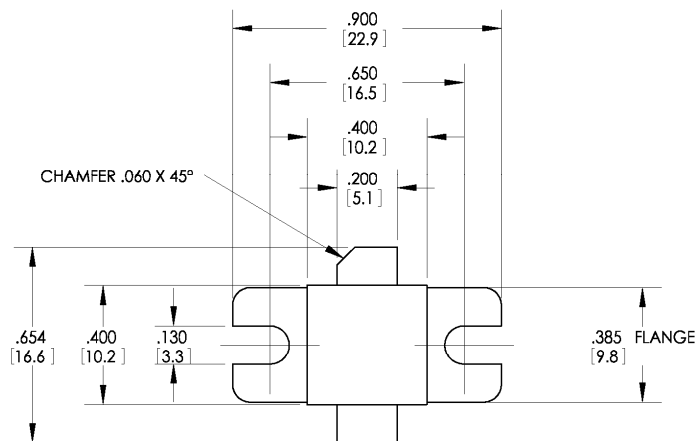
F



F

Destination	Value
C1	9.1pF
C2	200pF
C3	10,000pF
R1	8.2 ohm
L1	20 AWG, 570 mils
L2	20 AWG, 570 mils
Material	6002 @ 20 mils, Er=2.9

Physical Circuit Dimension (Unit: Mil)					
Item	L	W	Item	L	W
D0	200	52	E0	376	700
D1	190	161	E1	166	66
D2	190	52	E2	190	450
D3	230	260	E3	90	52
D4	180	378	E4	150	52
D5	380	52	E5	210	74
D6	240	52	E6	74	158
D7	184	364	E7	64	76
D8	84		E8	100	310
D9	94		E9	390	100
F	1000	1400	E10	134	76



DWG NO.

A57