MAPRST0002

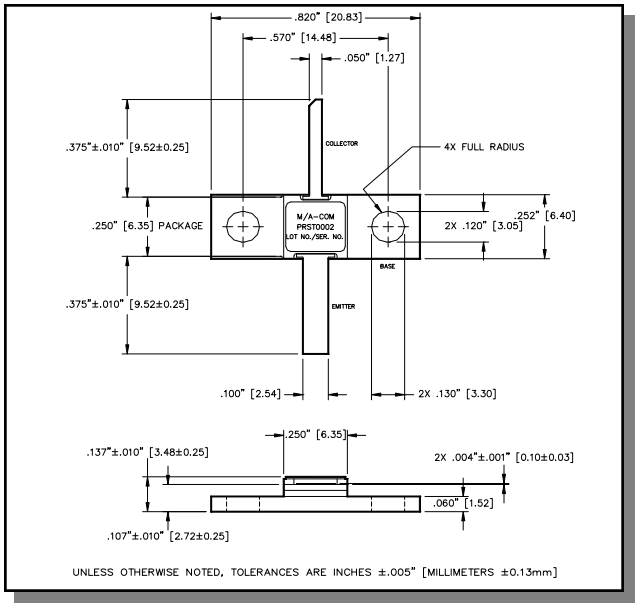
Radar Pulsed Power Transistor
50W, 1.2-1.4 GHz, 150µs Pulse, 10% Duty

M/A-COM Products
Released, 30 May 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

Outline Drawing



Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	70	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	3.5	A
Power Dissipation @ +25°C	P_{TOT}	100	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 15mA		BV_{CES}	70	-	V
Collector-Emitter Leakage Current	V_{CE} = 40V		I_{CES}	-	3.5	mA
Thermal Resistance	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	$R_{TH(JC)}$	-	1.8	°C/W
Output Power	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	P_{OUT}	50	-	W
Power Gain	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	G_P	9.5	-	dB
Collector Efficiency	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	η_C	50	-	%
Input Return Loss	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	RL	-	-9	dB
Load Mismatch Tolerance	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 40V, Pin = 5.6W	F = 1.2, 1.3, 1.4 GHz	VSWR-S	-	1.5:1	-

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

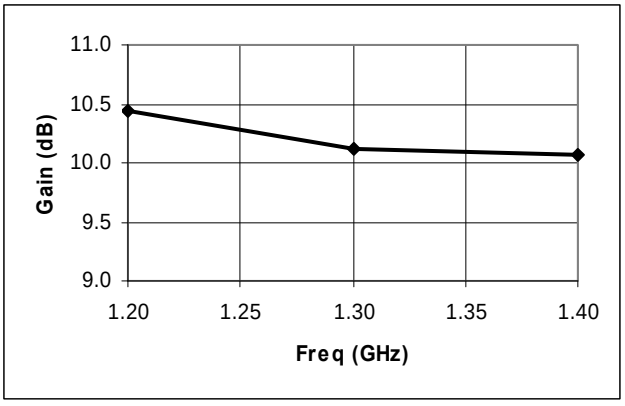
Visit www.macomtech.com for additional data sheets and product information.

Typical RF Performance

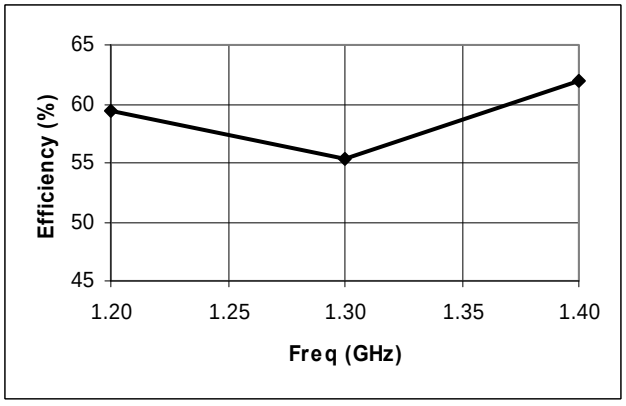
Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	ΔGain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)	P1dB Overdrive	
										Pout	Δ Po
1.2	5.6	62.0	10.44	-	2.61	59.4	-14.7	S	P	68.6	0.44
1.3	5.6	57.6	10.11	-	2.60	55.3	-20.6	S	P	70.5	0.88
1.4	5.6	57.1	10.07	0.36	2.31	61.9	-13.9	S	P	62.2	0.37

Note: **ΔPo(dB)** is the difference between Pout at 1dB overdrive and Pout at Pin = 5.6W.

Gain vs. Frequency

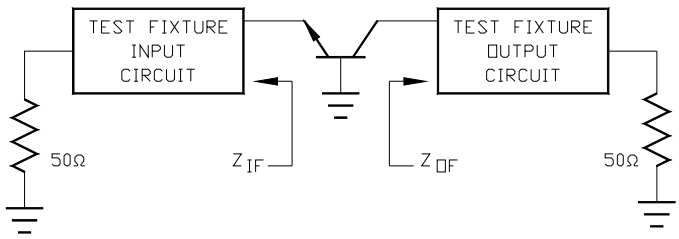


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1.2	3.7 - j4.6	4.4 + j0.8
1.3	3.5 - j4.5	3.7 - j1.0
1.4	3.1 - j4.5	2.2 - j1.1



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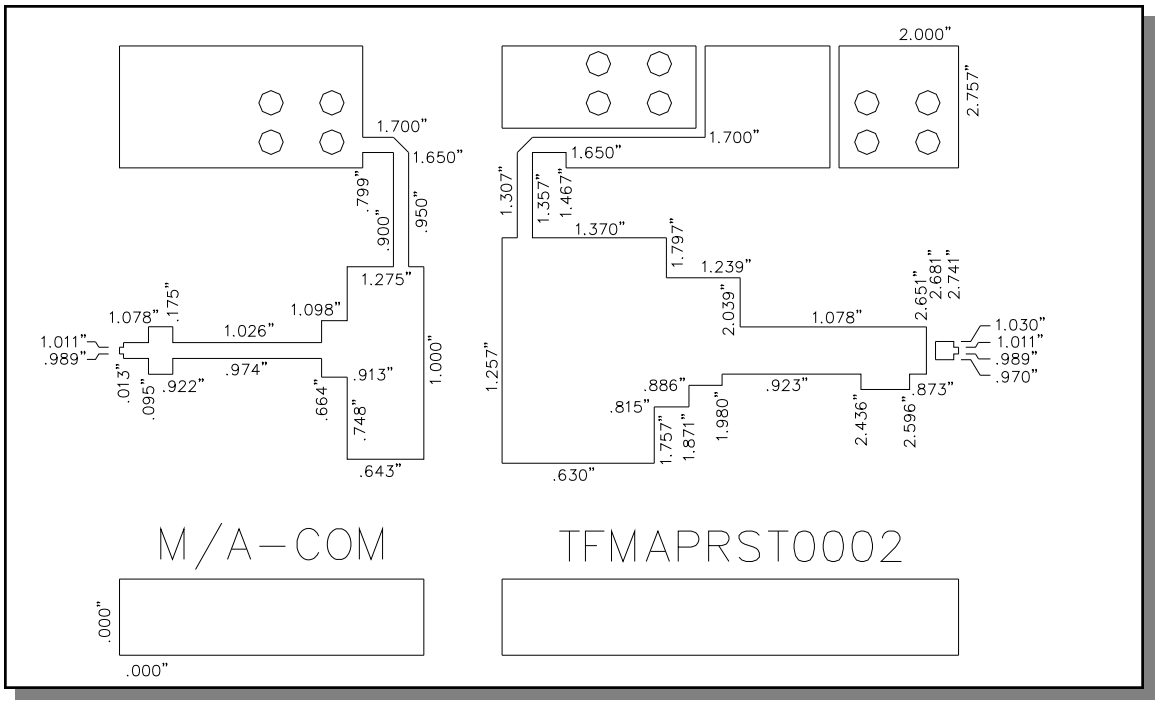
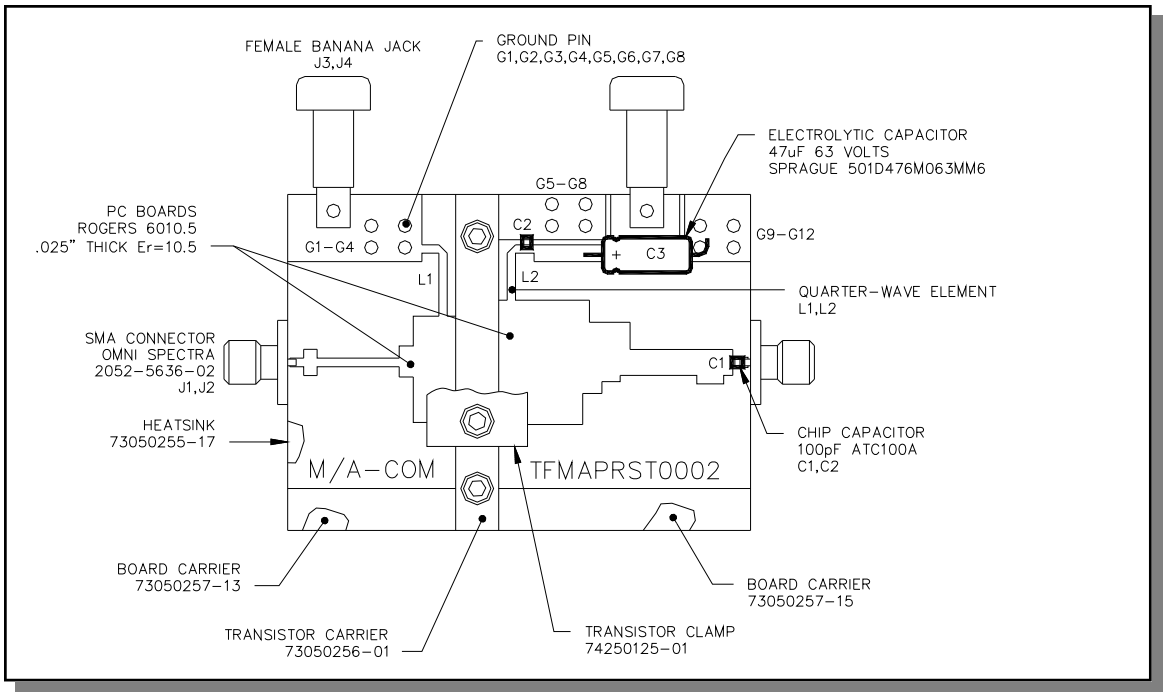
Test Fixture Circuit Dimensions



Test Fixture Assembly



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