

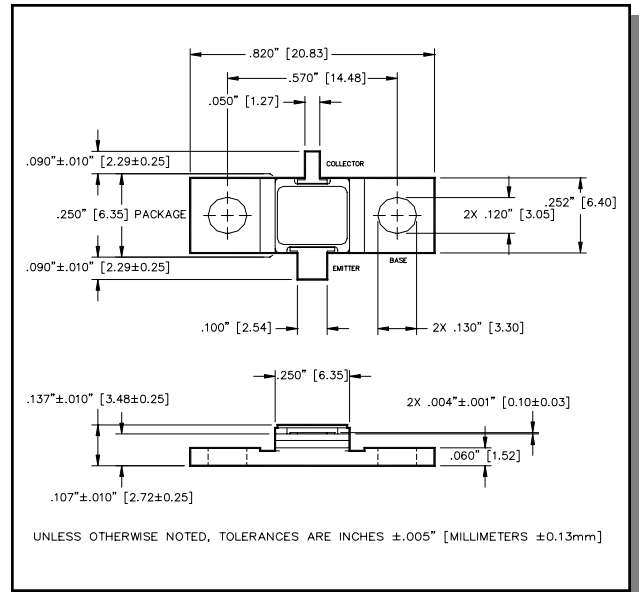
Radar Pulsed Power Transistor
4W, 1.2-1.4 GHz, 100µs Pulse, 10% Duty

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}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	.88	A
Power Dissipation @ +25°C	P_{TOT}	20	W
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: $T_C = 25 \pm 5^\circ\text{C}$ (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	$I_C = 8\text{mA}$		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	$V_{CE} = 40\text{V}$		I_{CES}	-	1.0	mA
Thermal Resistance	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	$R_{TH(JC)}$	-	8.6	°C/W
Output Power	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	P_{OUT}	4.0	-	W
Power Gain	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	G_P	7.0	-	dB
Collector Efficiency	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	η_C	40	-	%
Input Return Loss	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	RL	-	-6	dB
Load Mismatch Tolerance	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	$V_{CC} = 28\text{V}$, $P_{in} = 0.80\text{W}$	F = 1.2, 1.3, 1.4 GHz	VSWR-S	-	1.5:1	-

1

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.
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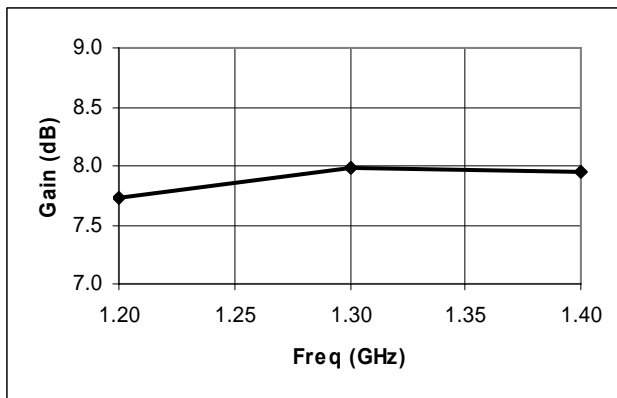
Visit www.macomtech.com for additional data sheets and product information.

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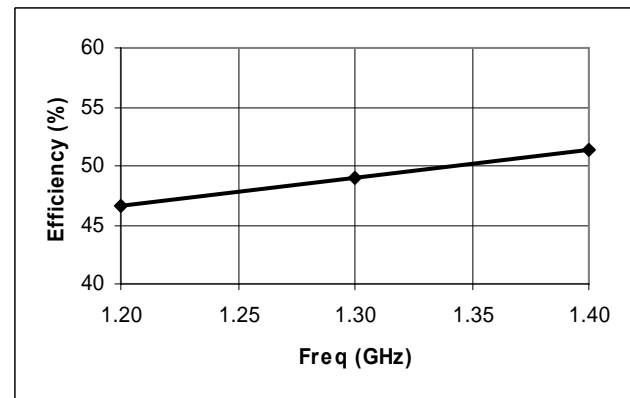
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1.2	0.40	4.7	7.72	0.36	46.7	-11.3	S	P
1.3	0.40	5.0	7.98	0.37	48.9	-13.6	S	P
1.4	0.40	5.0	7.95	0.35	51.3	-8.6	S	P

Gain vs. Frequency

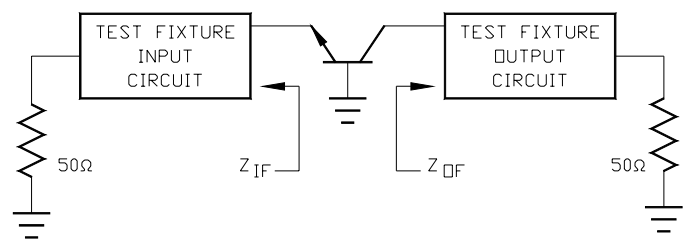


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

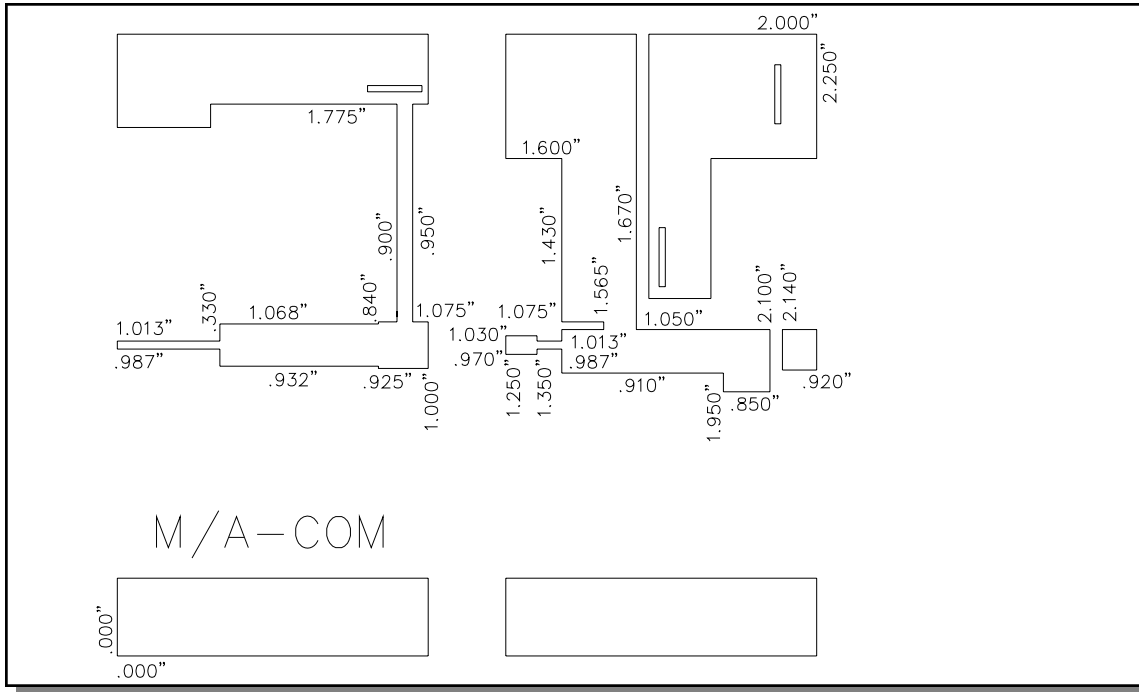
F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
1.2	7.0 - j4.5	12.0 + j24.0
1.3	6.4 - j3.0	12.5 + j21.0
1.4	6.0 - j1.5	10.5 + j24.0



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Test Fixture Circuit Dimensions



Test Fixture Assembly

