

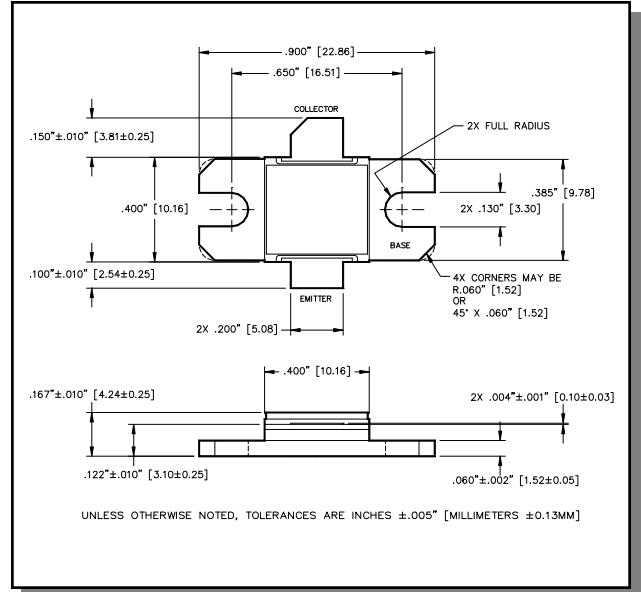
Radar Pulsed Power Transistor
75W, 2.7-3.1 GHz, 300µs Pulse, 10% Duty

M/A-COM Products
Released, 10 Aug 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	7.0	A
Power Dissipation @ +25°C	P_{TOT}	220	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	$I_C = 50\text{mA}$		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	$V_{CE} = 36\text{V}$		I_{CES}	-	7.5	mA
Thermal Resistance	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	$R_{TH(JC)}$	-	0.8	°C/W
Output Power	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	P_{IN}	-	13.5	W
Power Gain	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	G_P	7.45	-	dB
Collector Efficiency	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	η_C	38	-	%
Input Return Loss	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	RL	-	-6	dB
Load Mismatch Tolerance	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	VSWR-T	-	3:1	-
Load Mismatch Stability	$V_{CC} = 36\text{V}$, $P_{out} = 75\text{W}$	$F = 2.7, 2.9, 3.1\text{ GHz}$	VSWR-S	-	1.5:1	-

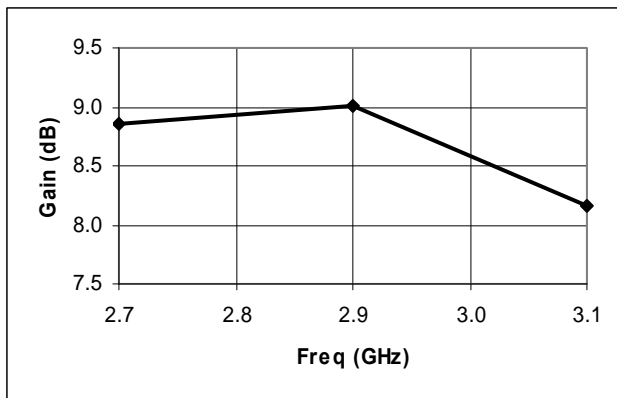
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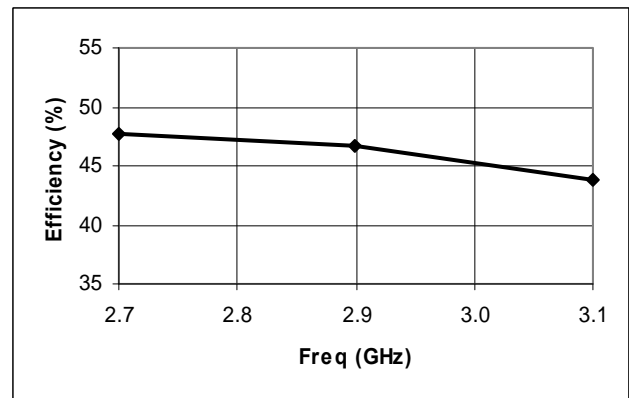
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
2.7	9.8	75	8.86	4.40	47.8	-11.0	S	P
2.9	9.4	75	9.01	4.50	46.7	-18.5	S	P
3.1	11.5	75	8.16	4.80	43.8	-17.7	S	P

Gain vs. Frequency

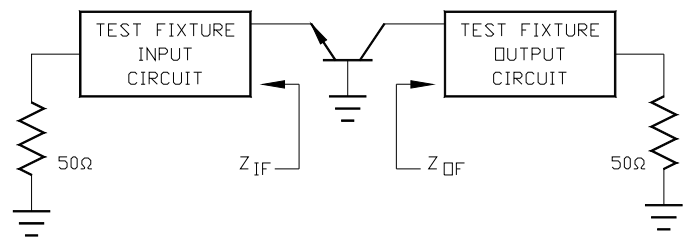


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

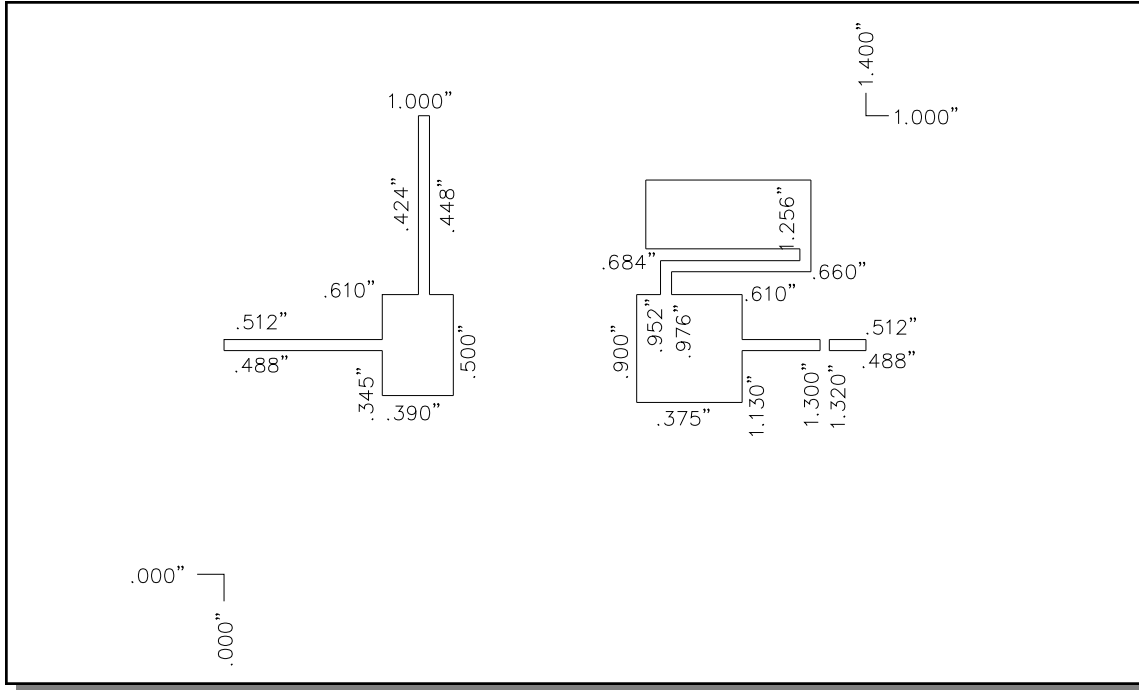
F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
2.7	6.9 - j12.2	4.5 - j6.8
2.9	6.0 - j11.7	3.9 - j6.1
3.1	5.2 - j10.0	3.4 - j4.8



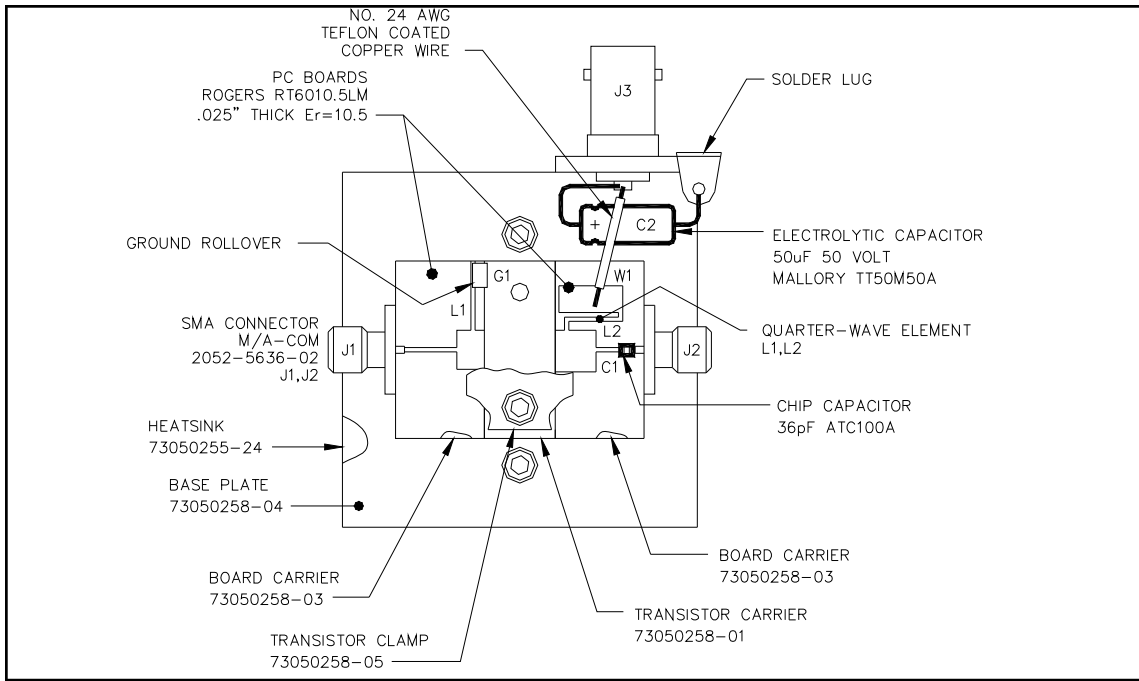
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Test Fixture Circuit Dimensions



Test Fixture Assembly



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