

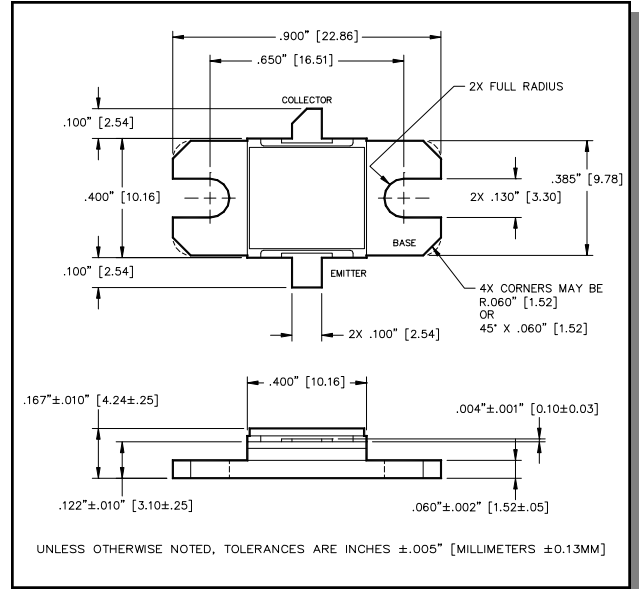
Radar Pulsed Power Transistor
30W, 3.1-3.5 GHz, 100µs Pulse, 10% Duty

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	3.6	A
Power Dissipation @ +25°C	P_{TOT}	250	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	$I_C = 20\text{mA}$		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	$V_{CE} = 40\text{V}$		I_{CES}	-	3.0	mA
Thermal Resistance	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	$R_{TH(JC)}$	-	0.7	°C/W
Output Power	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	P_{OUT}	30	-	W
Power Gain	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	G_P	7.0	-	dB
Collector Efficiency	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	η_C	35	-	%
Input Return Loss	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	RL	-	-6	dB
Load Mismatch Tolerance	$V_{CC} = 36\text{V}$, $P_{in} = 6.0\text{W}$	$F = 3.1, 3.3, 3.5 \text{ GHz}$	VSWR-T	-	2:1	-

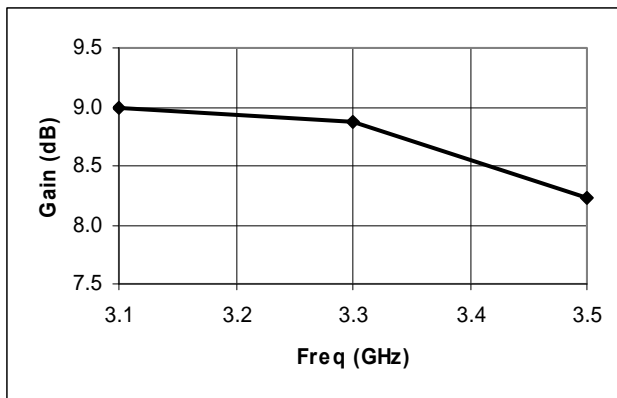
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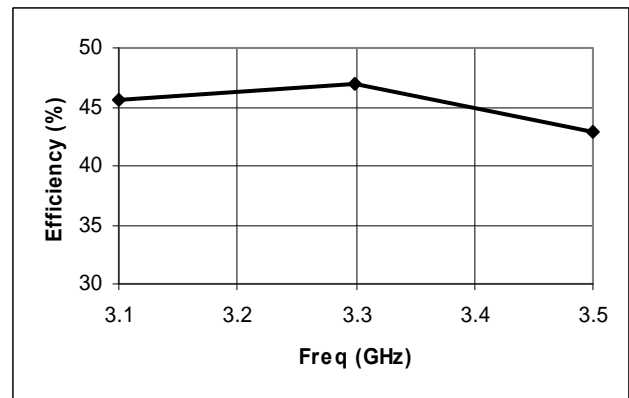
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (2:1)	VSWR-T (3:1)
3.1	6.0	47.7	9.00	2.90	45.6	-9.5	S	P
3.3	6.0	46.4	8.88	2.74	47.0	-13.3	S	P
3.5	6.0	39.9	8.23	2.58	42.9	-15.4	S	P

Gain vs. Frequency

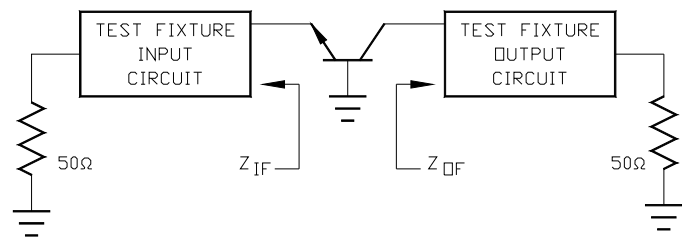


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

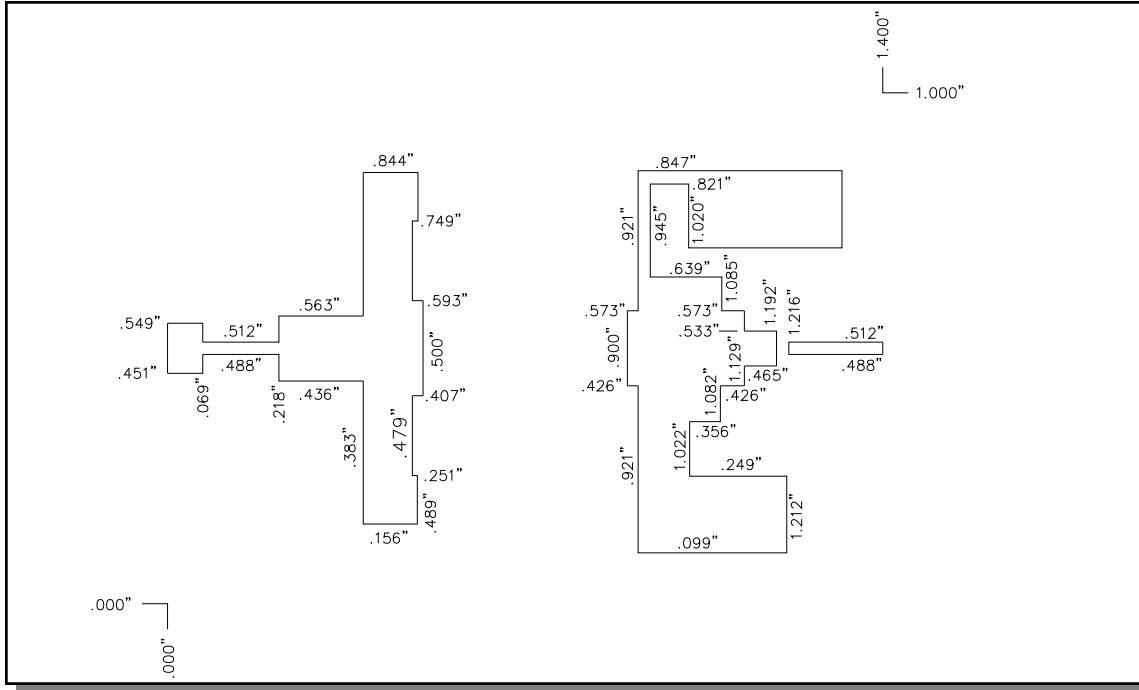
F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
3.1	21 + j2.0	13.8 - j11.7
3.3	19 - j2.4	7.7 - j8.2
3.5	16 - j5.1	5.3 - j5.3



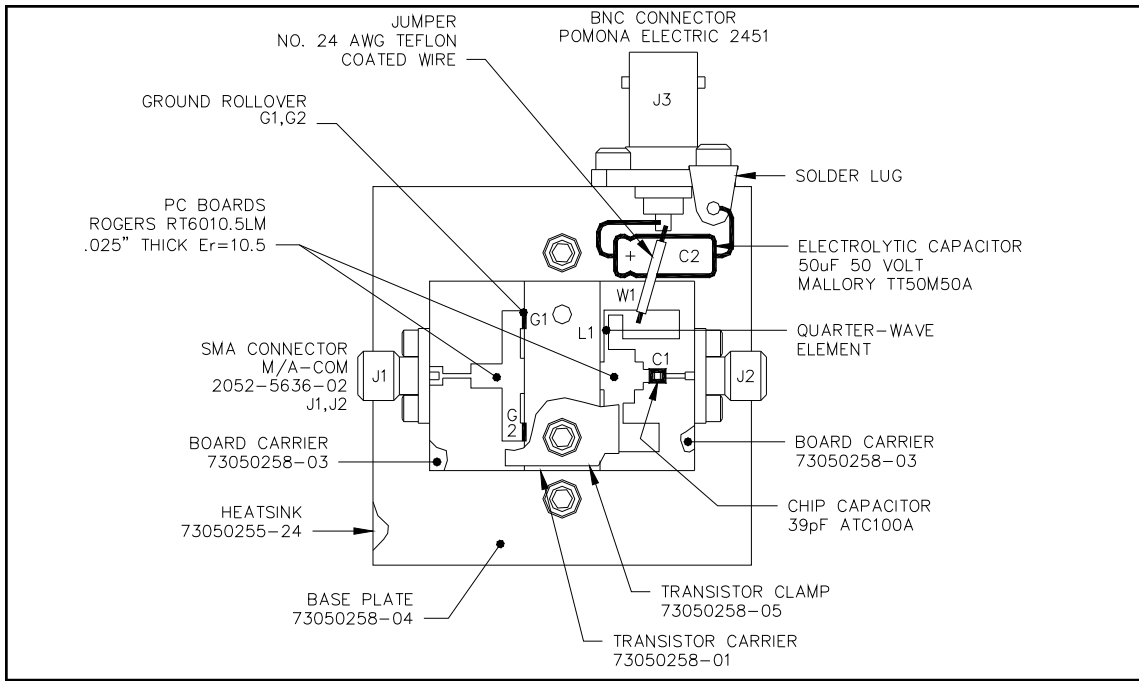
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Test Fixture Circuit Dimensions



Test Fixture Assembly



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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