

## Radar Pulsed Power Transistor

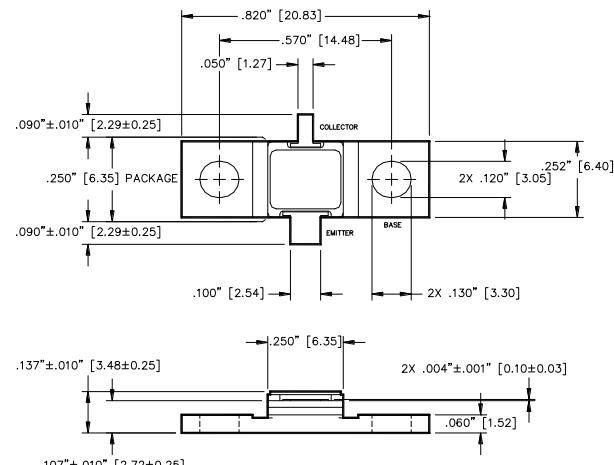
### 10W, 3.1-3.4 GHz, 100μs Pulse, 10% Duty

Rev. V1

#### 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	$V_{CES}$	60	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	$I_C$	1.2	A
Power Dissipation @ +25°C	$P_{TOT}$	70	W
Storage Temperature	$T_{STG}$	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" [MILLIMETERS ±0.13mm]

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

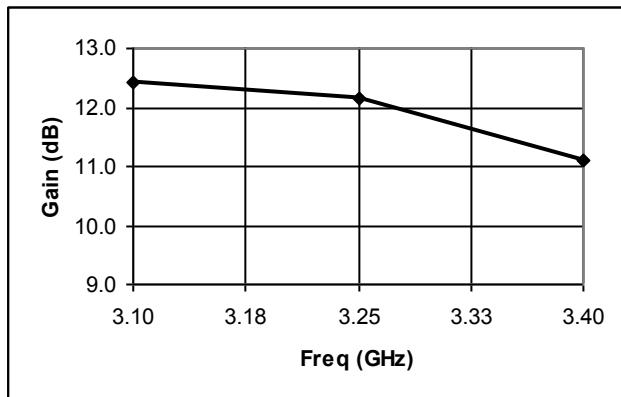
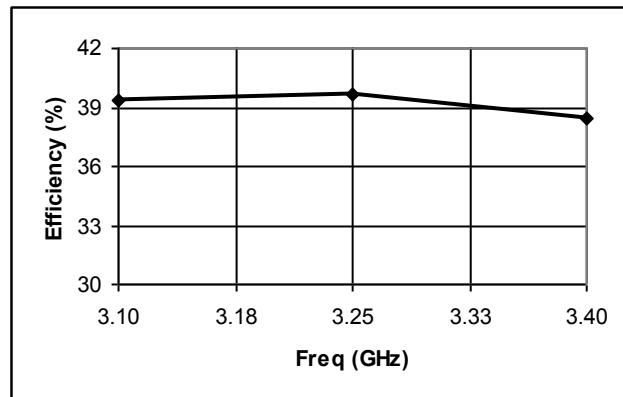
Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	$I_C = 12.5\text{mA}$		$BV_{CES}$	60	-	V
Collector-Emitter Leakage Current	$V_{CE} = 36\text{V}$		$I_{CES}$	-	1.25	mA
Thermal Resistance	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$R_{TH(JC)}$	-	2.5	°C/W
Input Power	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$P_{IN}$	-	1.6	W
Power Gain	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$G_P$	8.0	-	dB
Collector Efficiency	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$\eta_C$	35	-	%
Input Return Loss	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$RL$	-	-6	dB
Load Mismatch Tolerance	$V_{CC} = 36\text{V}$ , $P_{out} = 10\text{W}$	$F = 3.1, 3.25, 3.4 \text{ GHz}$	$VSWR-T$	-	2:1	-

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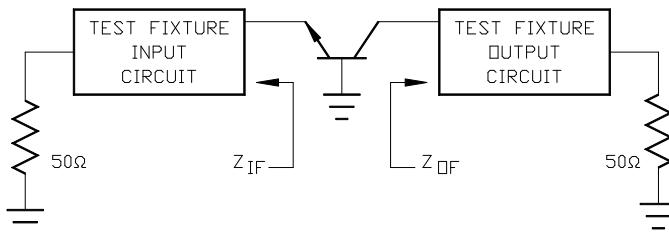
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**Typical RF Performance**

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
3.10	0.58	10.0	12.42	0.705	39.4	-13.5	-
3.25	0.61	10.0	12.14	0.701	39.6	-16.7	P
3.40	0.78	10.0	11.11	0.723	38.4	-16.3	-

**Gain vs. Frequency**

**Collector Efficiency vs. Frequency**

**RF Test Fixture Impedance**

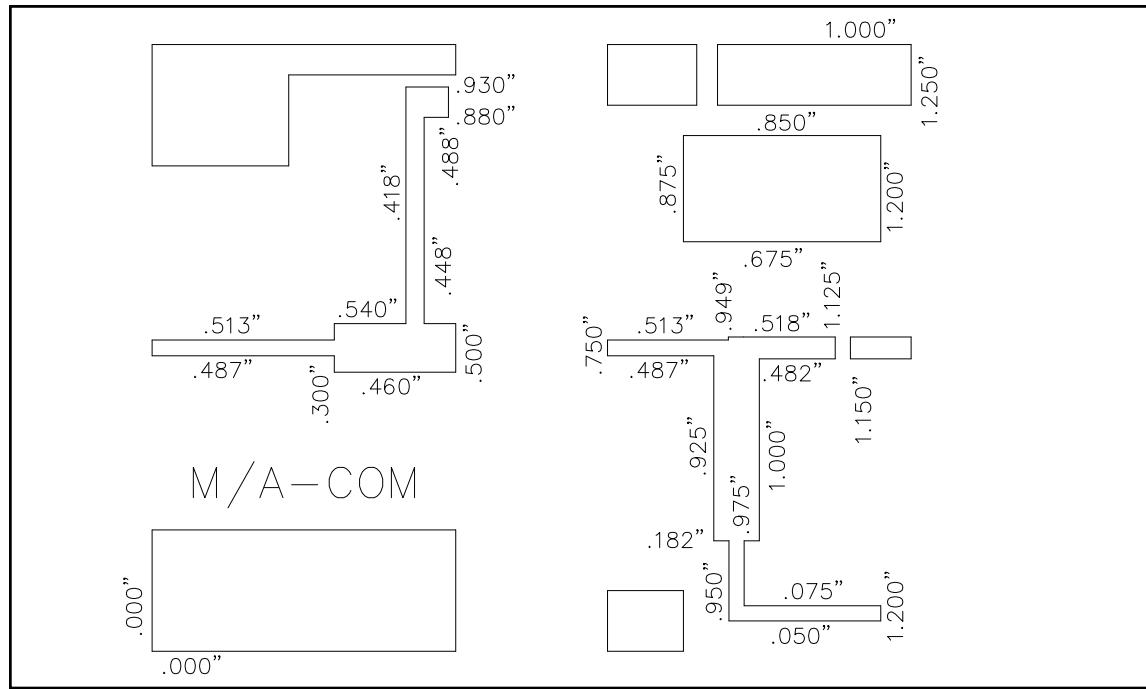
F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
3.10	17.5 - j8.5	90 + j37
3.25	15.0 - j8.2	58 + j7.0
3.40	13.0 - j8.0	30 + j14.5



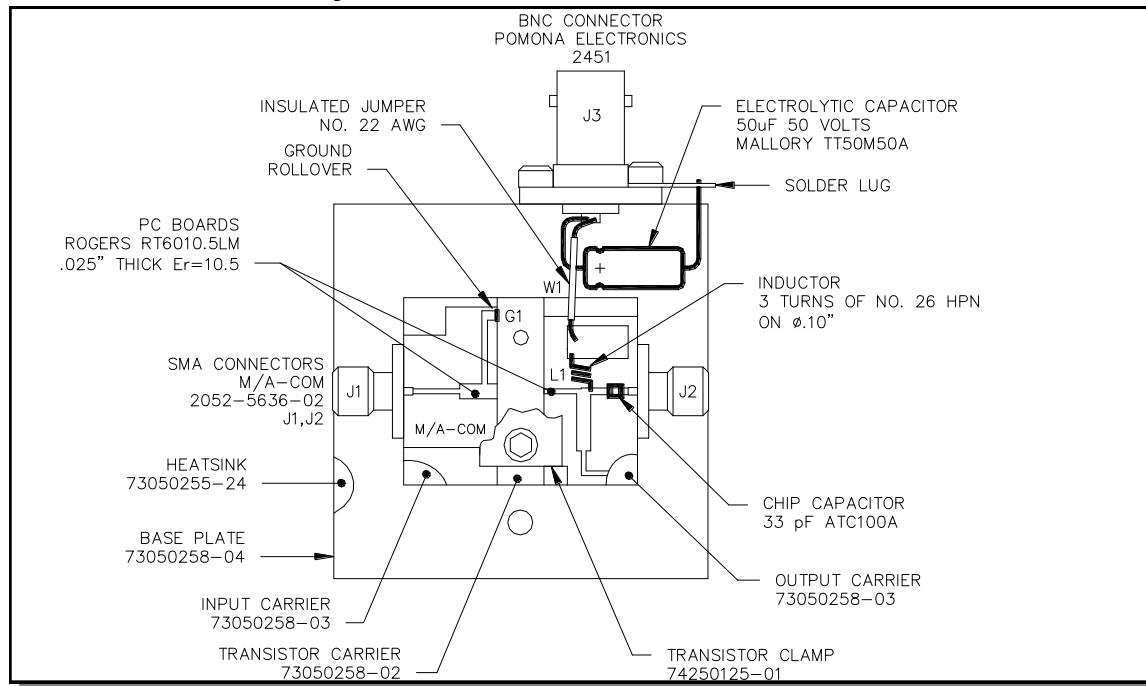
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**Test Fixture Circuit Dimensions**



**Test Fixture Assembly**



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