

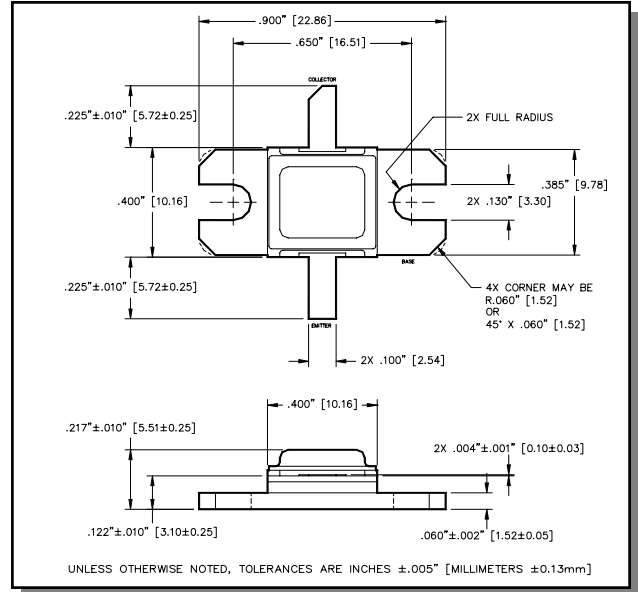
**Radar Pulsed Power Transistor**  
**80W, 1.2-1.4 GHz, 150µs Pulse, 10% Duty**

**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)	$I_C$	6.4	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	$I_C = 35\text{mA}$		$BV_{CES}$	70	-	V
Collector-Emitter Leakage Current	$V_{CE} = 40\text{V}$		$I_{CES}$	-	3.5	mA
Thermal Resistance	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	$R_{TH(JC)}$	-	0.8	°C/W
Output Power	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	$P_{OUT}$	80	-	W
Power Gain	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	$G_P$	7.9	-	dB
Collector Efficiency	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	$\eta_C$	50	-	%
Input Return Loss	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	RL	-	-9	dB
Load Mismatch Tolerance	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	VSWR-T	-	3:1	-
Load Mismatch Stability	$V_{CC} = 40\text{V}, P_{in} = 13\text{W}$	$F = 1.2, 1.3, 1.4 \text{ GHz}$	VSWR-S	-	1.5:1	-

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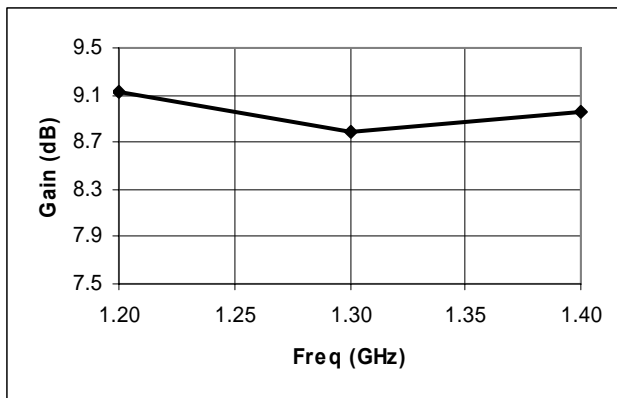
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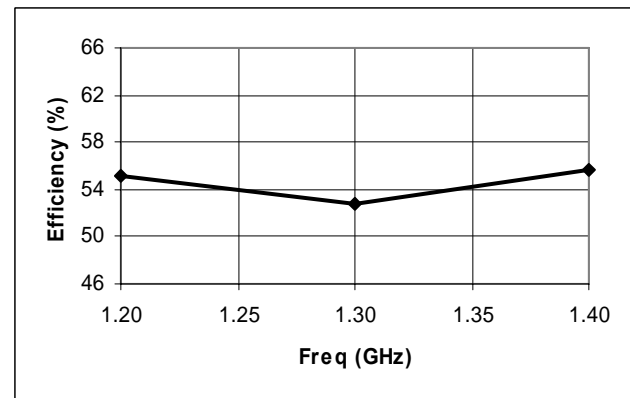
## Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1.2	13	106	9.13	4.83	55.1	-15.4	S	P
1.3	13	98	8.78	4.66	52.7	-15.5	S	P
1.4	13	102	8.96	4.61	55.6	-14.9	S	P

## Gain vs. Frequency

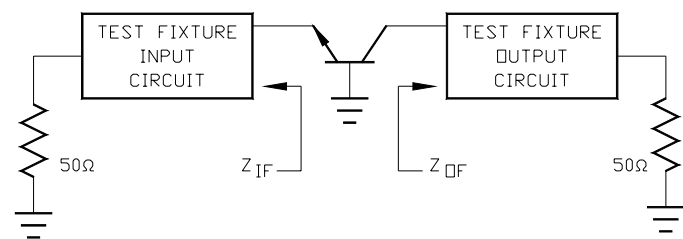


## Collector Efficiency vs. Frequency



## RF Test Fixture Impedance

F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
1.2	9.4 - j4.5	7.0 - j2.8
1.3	8.3 - j2.8	4.5 - j3.2
1.4	7.9 - j1.3	3.0 + j2.1



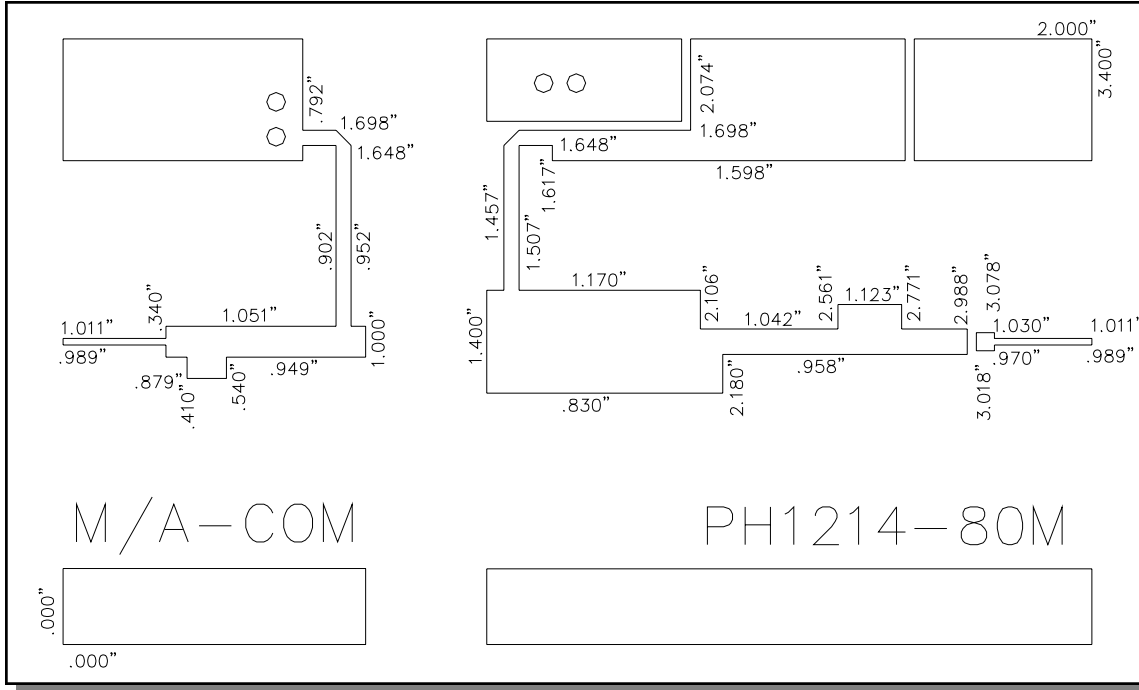
# PH1214-80M



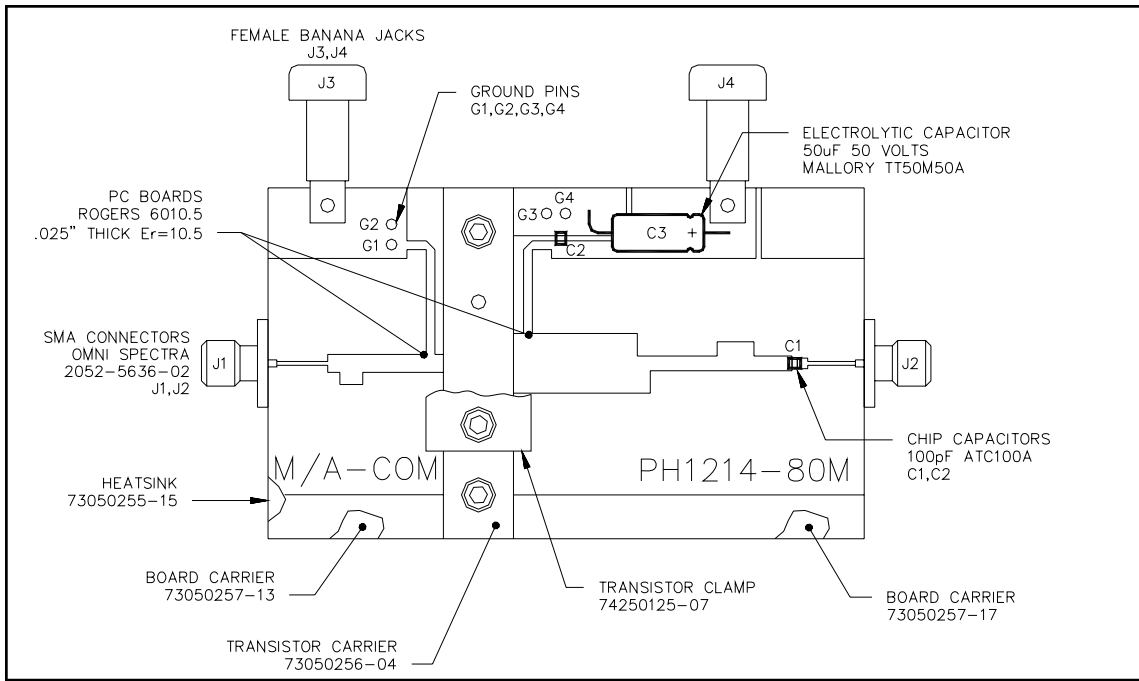
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## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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