

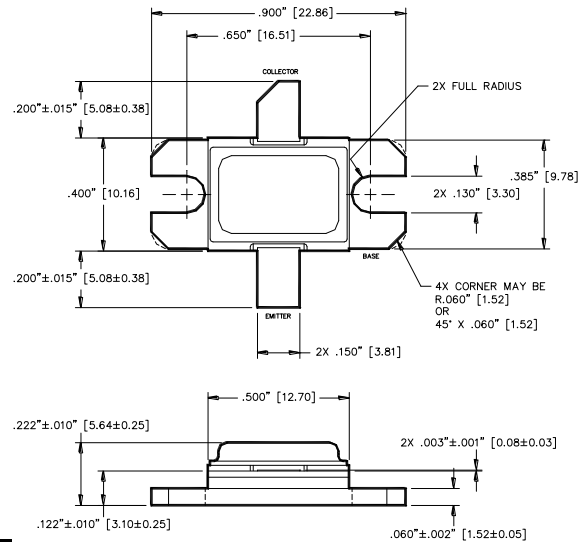
## Radar Pulsed Power Transistor 110W, 1.2-1.4 GHz, 150µs Pulse, 10% Duty

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



UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005\"/>

### 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)	$I_C$	10.5	A
Power Dissipation @ +25°C	$P_{TOT}$	350	W
Storage Temperature	$T_{STG}$	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

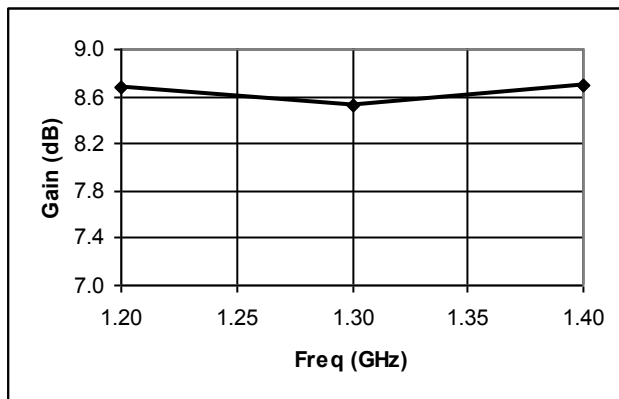
### Electrical Specifications: $T_C = 25 \pm 5^\circ\text{C}$ (Room Ambient )

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	$I_C = 100\text{mA}$		$BV_{CES}$	70	-	V
Collector-Emitter Leakage Current	$V_{CE} = 40\text{V}$		$I_{CES}$	-	5.5	mA
Thermal Resistance	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	$R_{TH(JC)}$	-	0.5	°C/W
Output Power	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	$P_{OUT}$	110	-	W
Power Gain	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	$G_P$	7.4	-	dB
Collector Efficiency	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	$\eta_C$	50	-	%
Input Return Loss	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	RL	-	-9	dB
Load Mismatch Tolerance	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	$V_{CC} = 40\text{V}$ , $P_{in} = 20\text{W}$	F = 1.2, 1.3, 1.4 GHz	VSWR-S	-	1.5:1	-

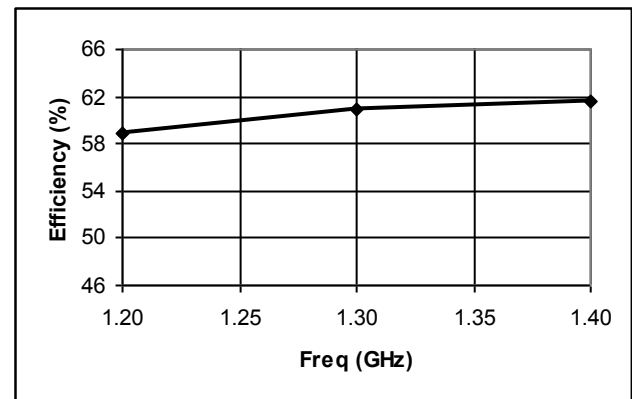
## Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1.2	20	148	8.68	6.26	59.0	-10.0	S	P
1.3	20	143	8.53	5.86	60.8	-11.0	S	P
1.4	20	148	8.69	6.00	61.7	-25.6	S	P

## Gain vs. Frequency

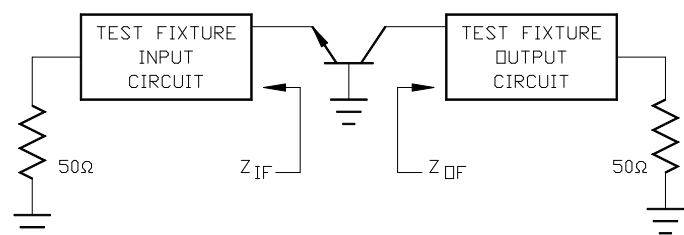


## Collector Efficiency vs. Frequency



## RF Test Fixture Impedance

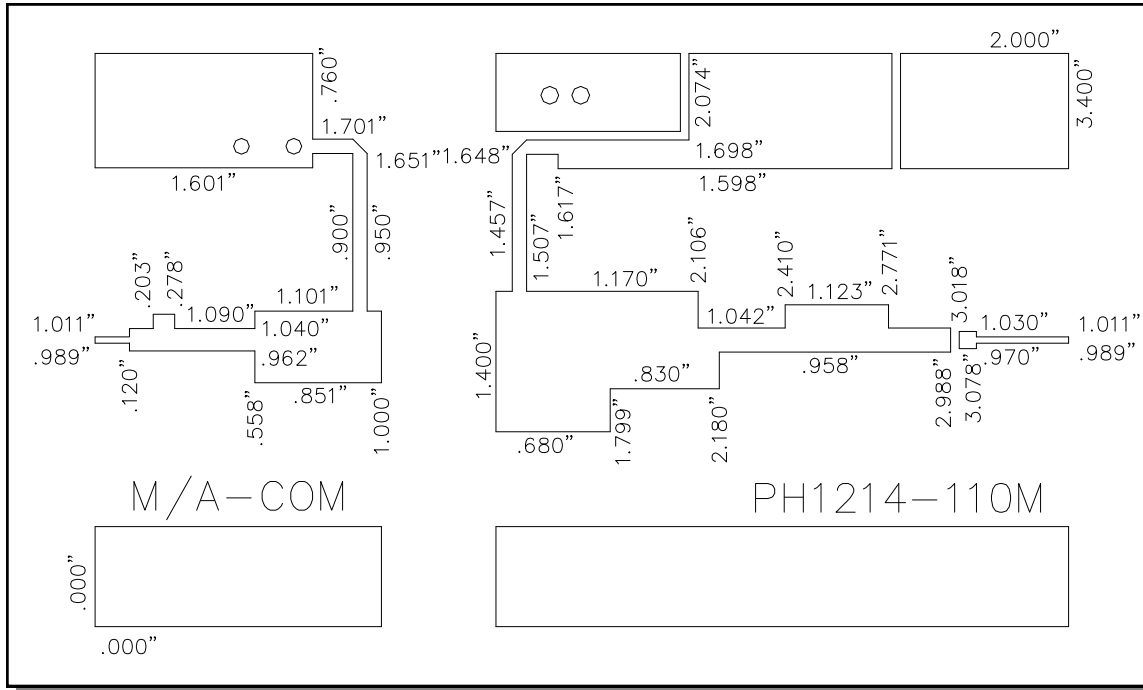
F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
1.2	4.7 - j4.4	4.4 - j3.3
1.3	4.5 - j3.3	3.0 - j2.8
1.4	4.5 - j2.3	2.3 - j1.8



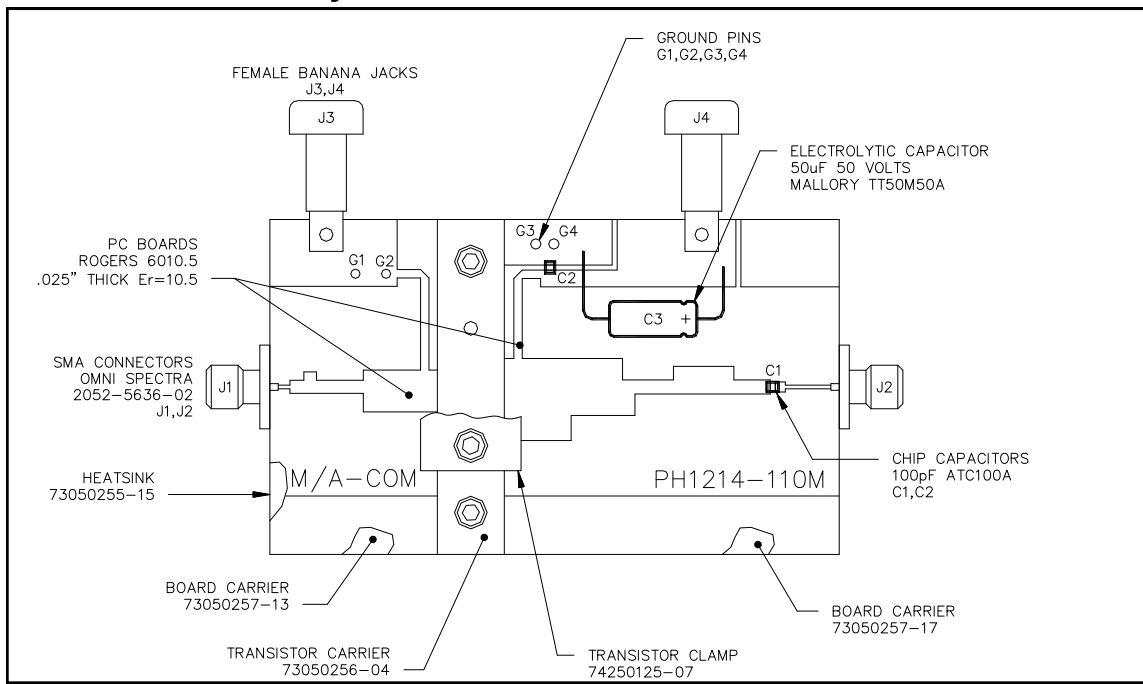
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### Test Fixture Circuit Dimensions



### Test Fixture Assembly



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