

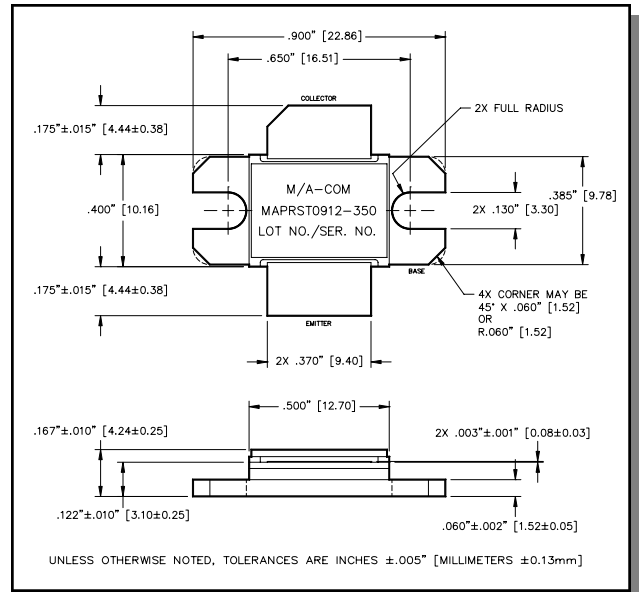
Avionics Pulsed Power Transistor  
350W, 960-1215 MHz, 10µs Pulse, 10% Duty

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	$V_{CES}$	65	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	$I_C$	32.5	A
Power Dissipation @ +25°C	$P_{TOT}$	1.34	kW
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	$V_{CE} = 50\text{V}$		$I_{CES}$	-	15	mA
Thermal Resistance	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	$R_{TH(JC)}$	-	0.13	°C/W
Output Power	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	$P_O$	350	-	W
Power Gain	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	$G_P$	9.4	-	dB
Collector Efficiency	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	$\eta_C$	45	-	%
Input Return Loss	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	RL	-	-9	dB
Load Mismatch Stability	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960 MHz	VSWR-T	-	10:1	-
Load Mismatch Tolerance	$V_{CC} = 50\text{V}$ , $P_{in} = 40\text{W}$	F = 960, 1090, 1215 MHz	VSWR-S	-	1.5:1	-

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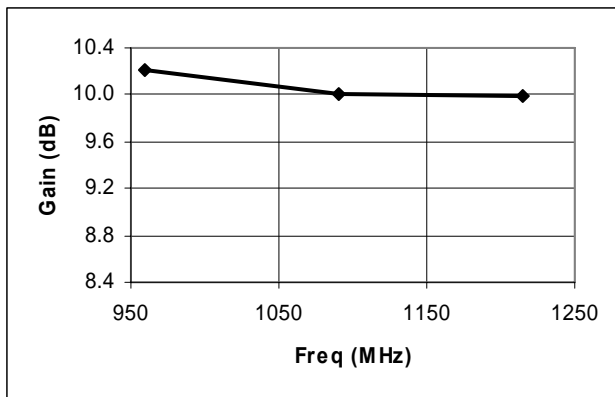
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## Typical RF Performance

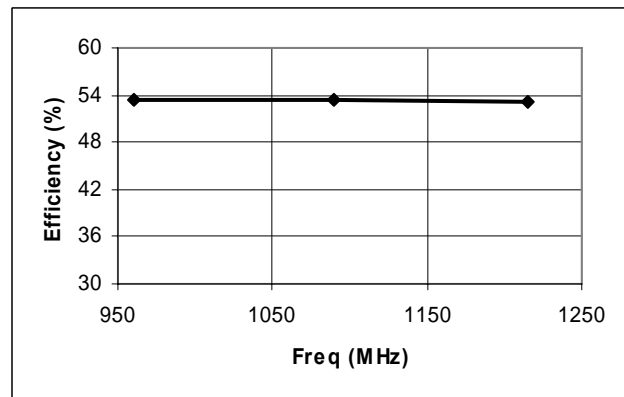
Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	$\Delta$ Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)	P1dB Overdrive	
										Pout	$\Delta$ Po
960	40	421	10.22	-	15.7	53.4	-19.9	S	P	496	0.72
1090	40	401	10.01	-	15.0	53.4	-18.5	S	-	469	0.69
1215	40	399	9.99	0.23	15.0	53.2	-21.5	S	-	421	0.22

Note:  $\Delta$ Po(dB) is the difference between Pout at 1dB overdrive and Pout at Pin = 40W.

## Gain vs. Frequency



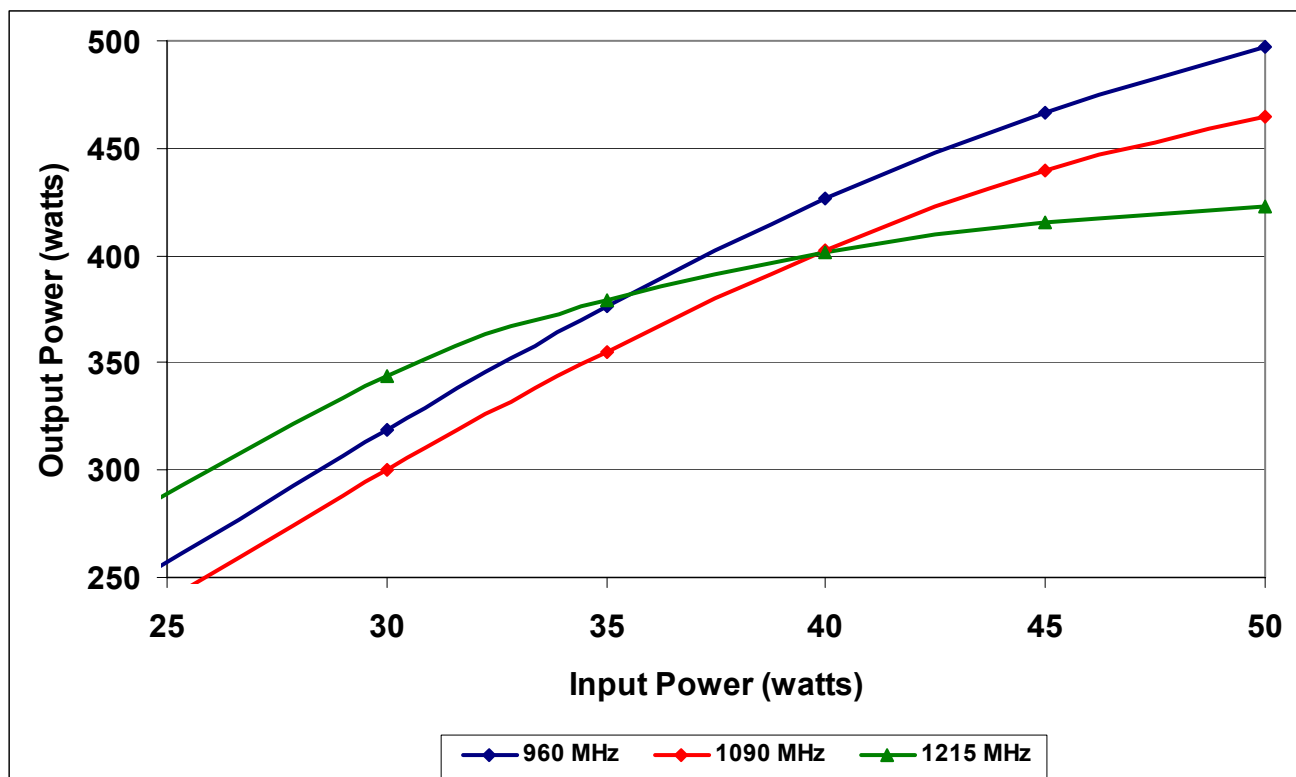
## Collector Efficiency vs. Frequency



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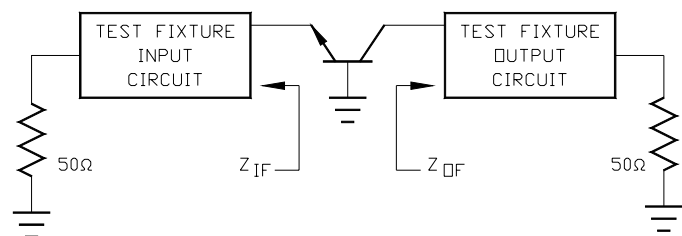
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## RF Power Transfer Curve (Output Power Vs. Input Power)



## Broadband Test Fixture Impedance

F (MHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
960	1.8 - j1.7	1.7 - j1.7
1030	1.7 - j1.4	1.8 - j1.2
1090	1.6 - j1.2	1.9 - j0.8
1150	1.4 - j1.0	1.9 - j0.6
1215	1.2 - j0.8	2.0 - j0.2



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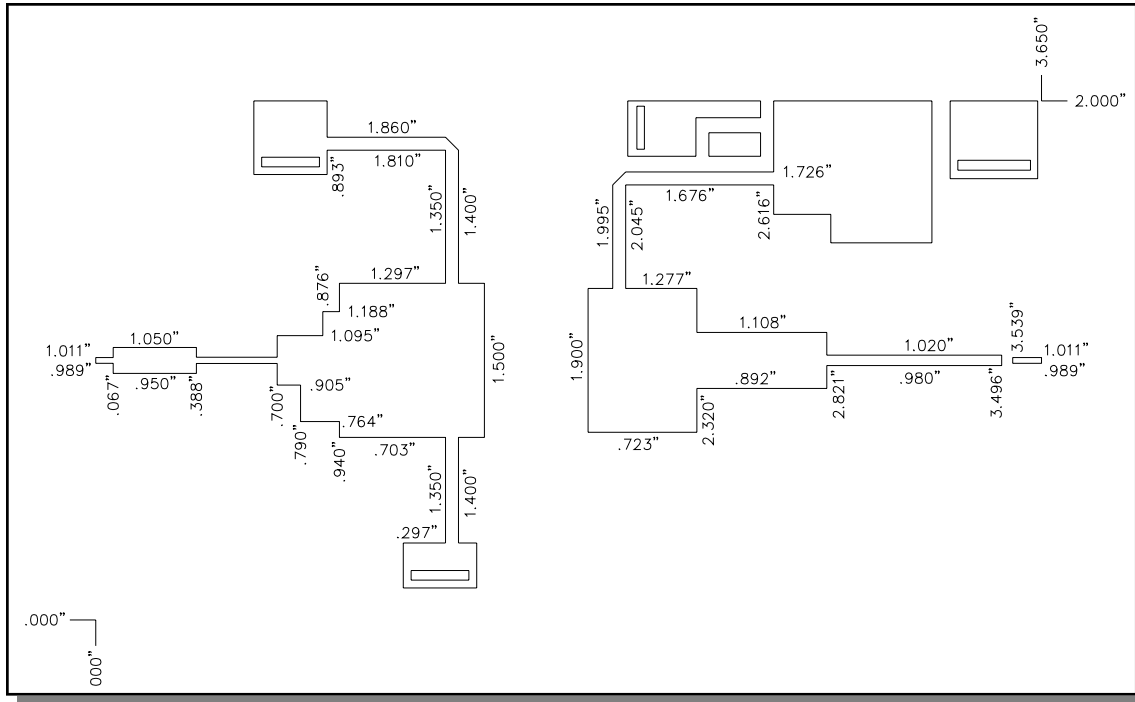
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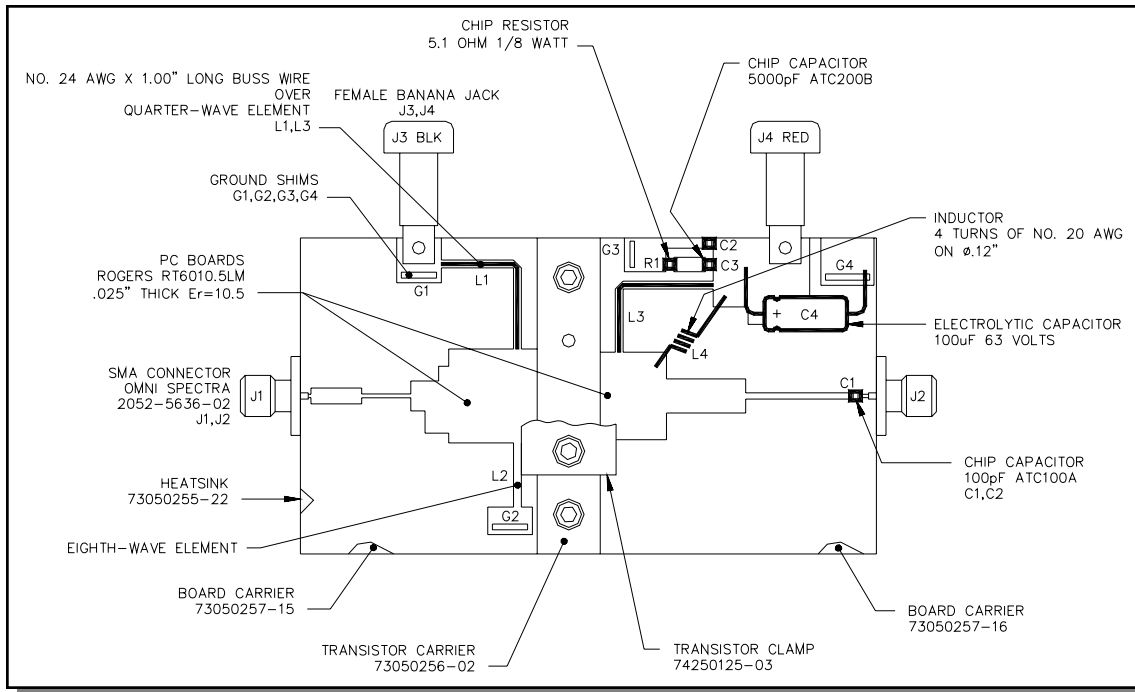
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## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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