

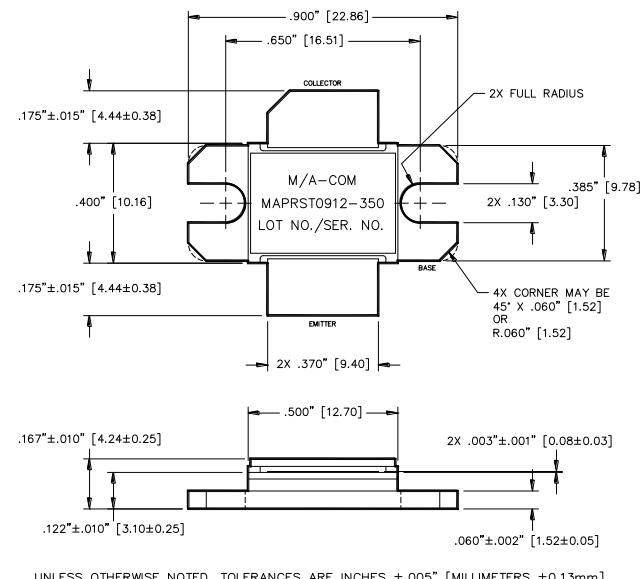
## Avionics Pulsed Power Transistor 350 W, 960 - 1215 MHz, 10 $\mu$ s Pulse, 10 % Duty

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 @ +25°C

Parameter	Symbol	Rating
Collector-Emitter Voltage	$V_{CES}$	65 V
Emitter-Base Voltage	$V_{EBO}$	3 V
Collector Current (Peak)	$I_C$	32.5 A
Power Dissipation	$P_{TOT}$	1.34 kW
Storage Temperature	$T_{STG}$	-65°C to +200°C
Junction Temperature	$T_J$	+200°C

### Electrical Specifications: $V_{CC} = 50$ V, $P_{IN} = 40$ W, $T_A = 25 \pm 5$ °C (unless otherwise noted)

Parameter	Symbol	Test Conditions	Units	Min.	Max.
Collector-Emitter Breakdown Voltage	$BV_{CES}$	$I_C = 50$ mA	V	65	-
Collector-Emitter Leakage Current	$I_{CES}$	$V_{CE} = 50$ V	mA	-	15
Thermal Resistance	$R_{TH(JC)}$	$F = 960, 1090, 1215$ MHz	°C/W	-	0.13
Output Power	$P_O$	$F = 960, 1090, 1215$ MHz	W	350	-
Power Gain	$G_P$	$F = 960, 1090, 1215$ MHz	dB	9.4	-
Collector Efficiency	$h_C$	$F = 960, 1090, 1215$ MHz	%	45	-
Input Return Loss	RL	$F = 960, 1090, 1215$ MHz	dB	-	-9
Load Mismatch Stability	VSWR-T	$F = 960$ MHz	-	-	10:1
Load Mismatch Tolerance	VSWR-S	$F = 960, 1090, 1215$ MHz	-	-	1.5:1

\* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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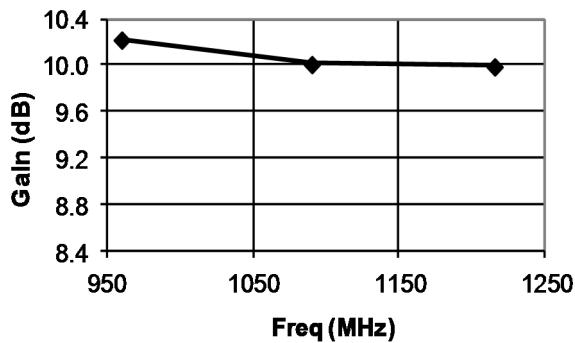
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### Typical RF Performance

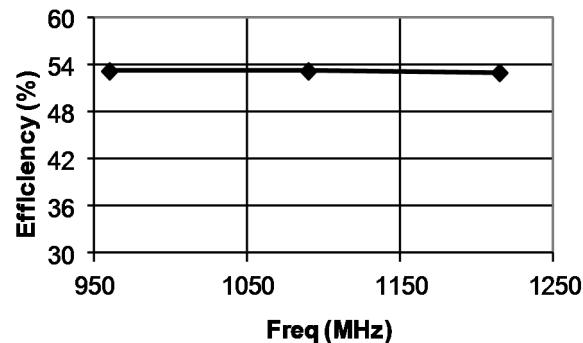
Freq. (MHz)	P <sub>IN</sub> (W)	P <sub>OUT</sub> (W)	Gain (dB)	$\Delta$ Gain (dB)	I <sub>C</sub> (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)	P1dB Overdrive	
										P <sub>OUT</sub> (W)	$\Delta$ P <sub>O</sub> (dB)
960	40	421	10.22	—	15.7	53.4	-19.9	S	P	496	0.72
1090	40	401	10.01	—	15.0	53.4	-18.5	S	—	469	0.69
1215	40	399	9.99	0.23	15.0	53.2	-21.5	S	—	421	0.22

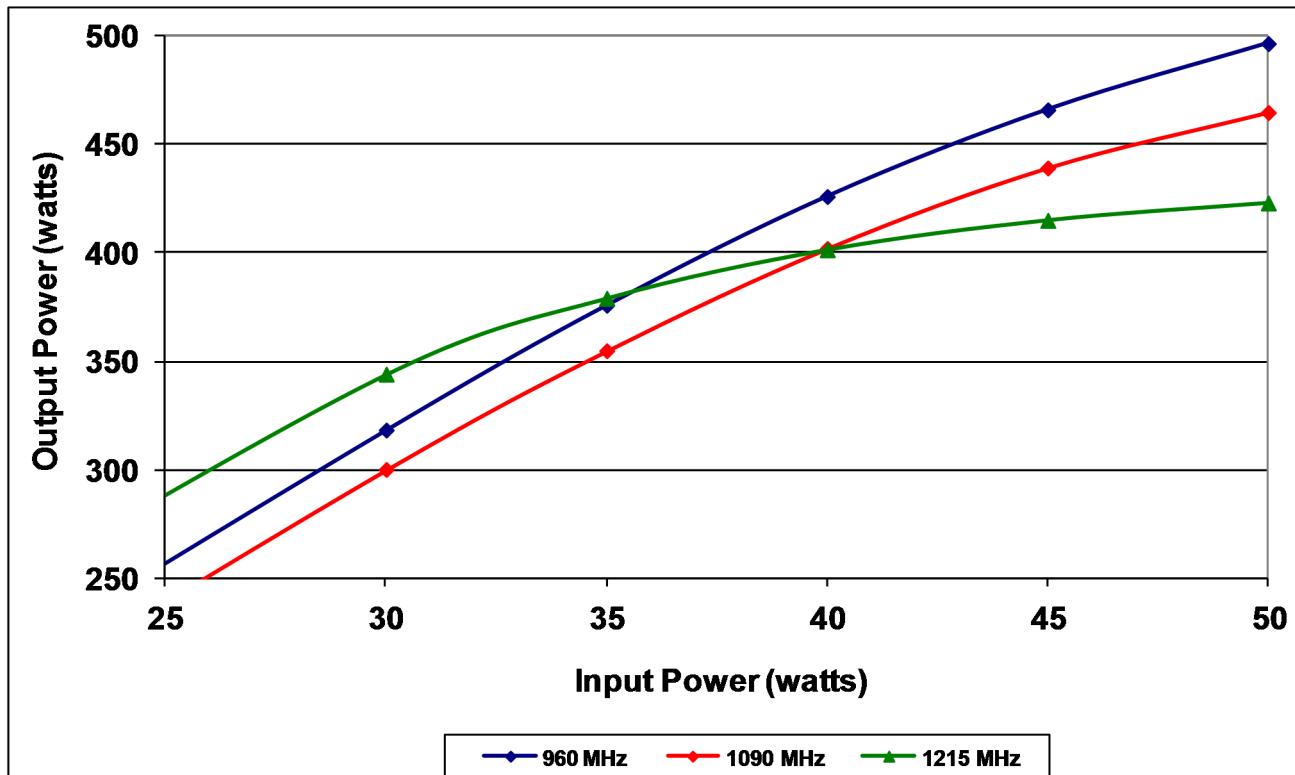
Note:  $\Delta$ P<sub>O</sub>(dB) is the difference between P<sub>OUT</sub> at 1dB overdrive and P<sub>OUT</sub> at P<sub>IN</sub> = 40W.

### Gain vs. Frequency



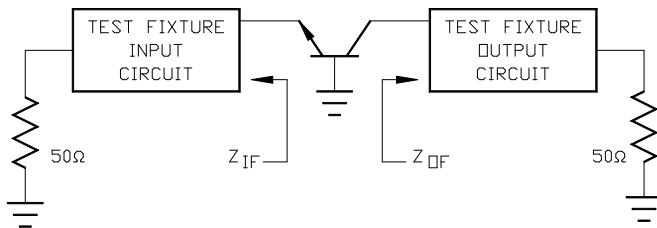
### Collector Efficiency vs. Frequency



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

## Broadband Test Fixture Impedance

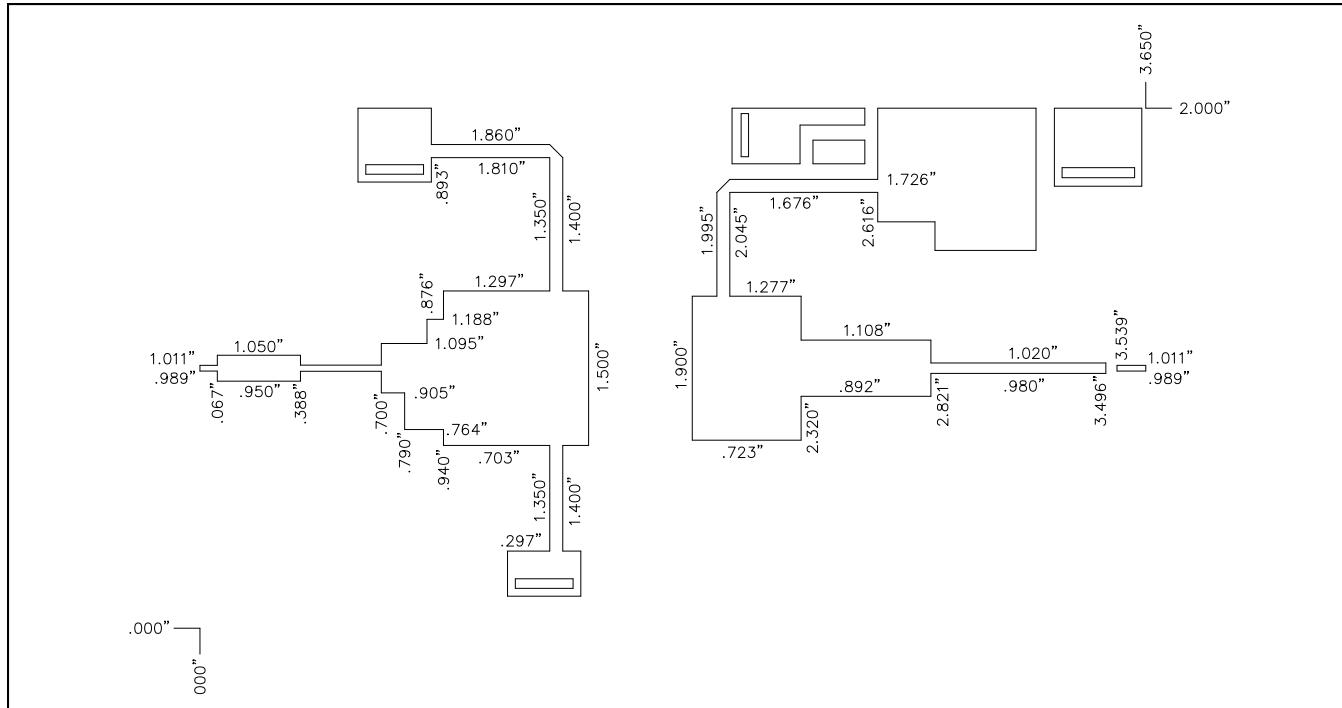
F (MHz)	$Z_{IF}$ ( $\Omega$ )	$Z_{OF}$ ( $\Omega$ )
960	$1.8 - j1.7$	$1.7 - j1.7$
1030	$1.7 - j1.4$	$1.8 - j1.2$
1090	$1.6 - j1.2$	$1.9 - j0.8$
1150	$1.4 - j1.0$	$1.9 - j0.6$
1215	$1.2 - j0.8$	$2.0 - j0.2$



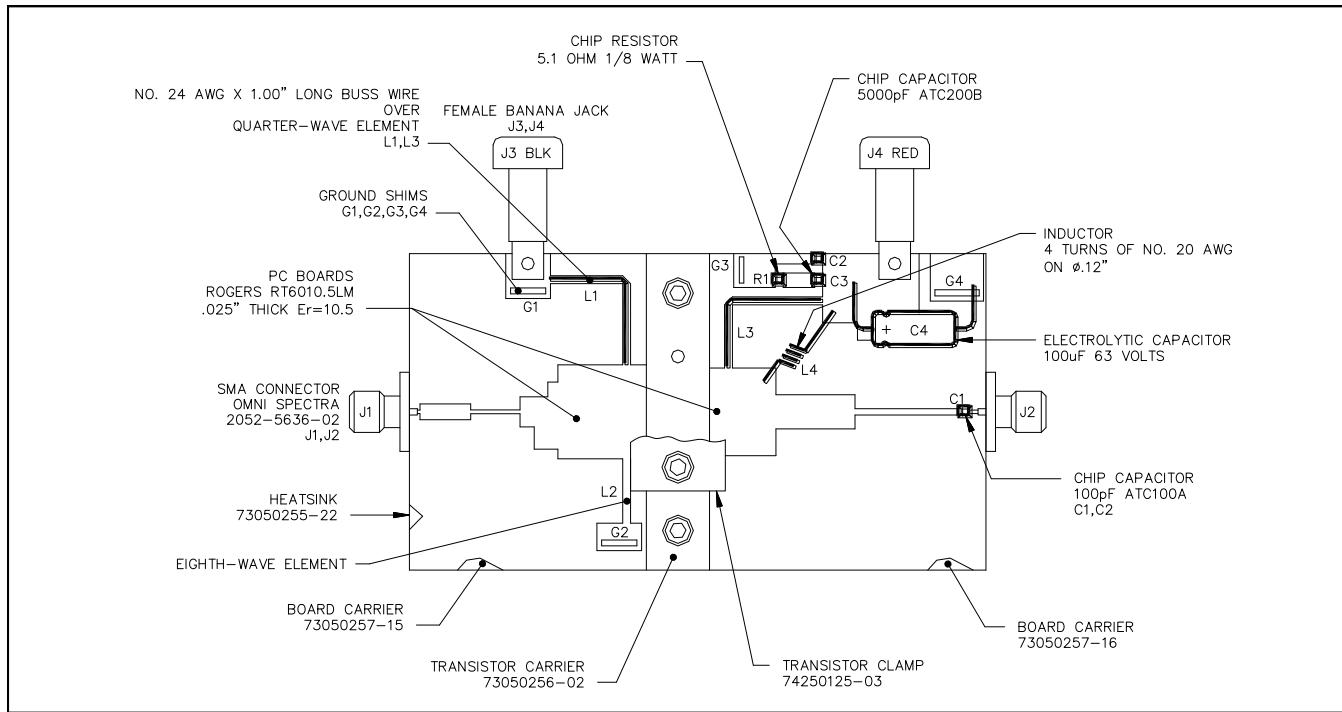
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## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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