

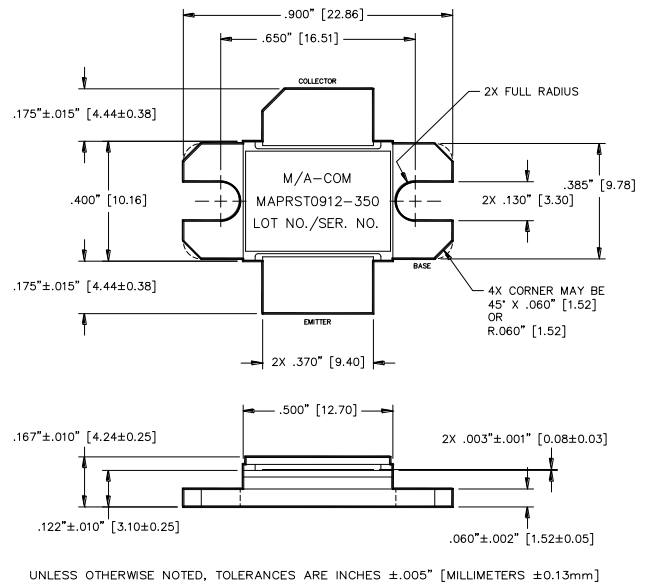
## Avionics Pulsed Power Transistor 350 W, 960 - 1215 MHz, 10 $\mu$ s Pulse, 10 % Duty

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, $T_A = 25 \pm 5^\circ$ 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

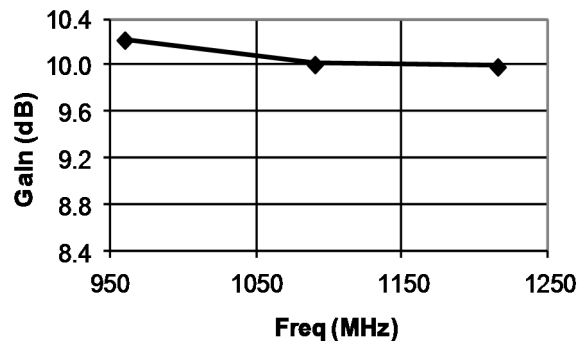
\* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

## Typical RF Performance

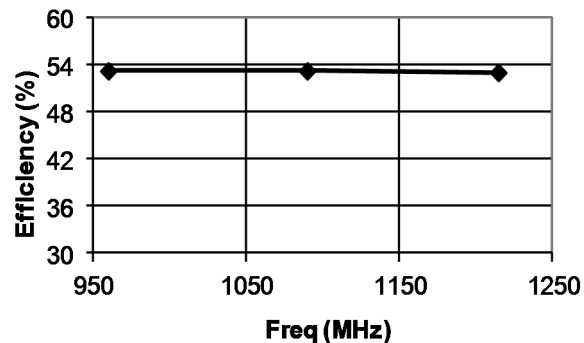
Freq. (MHz)	P <sub>IN</sub> (W)	P <sub>OUT</sub> (W)	Gain (dB)	$\Delta$ Gain (dB)	I <sub>c</sub> (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)	P1dB Overdrive	
										P <sub>OUT</sub> (W)	$\Delta$ P <sub>O</sub> (dB)
960	40	421	10.22	—	15.7	53.4	-19.9	S	P	496	0.72
1090	40	401	10.01	—	15.0	53.4	-18.5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

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

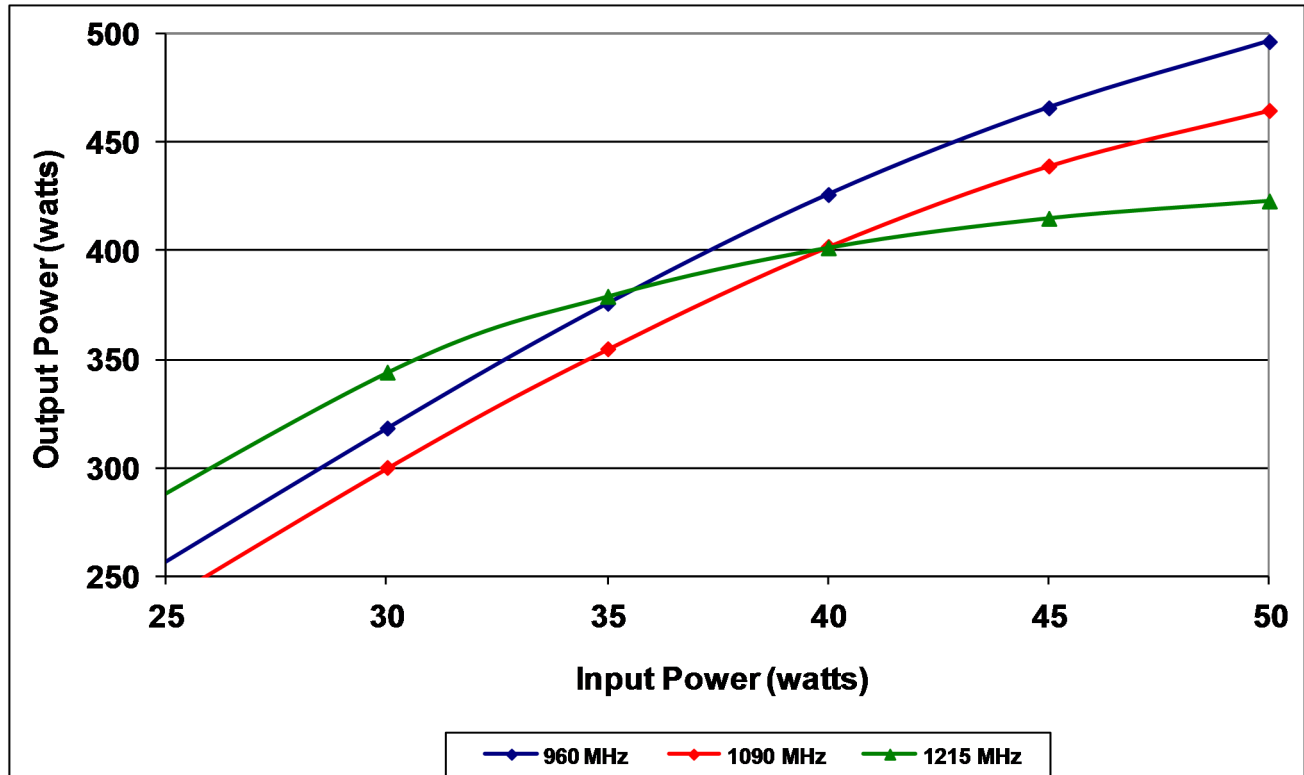
### Gain vs. Frequency



### Collector Efficiency vs. Frequency

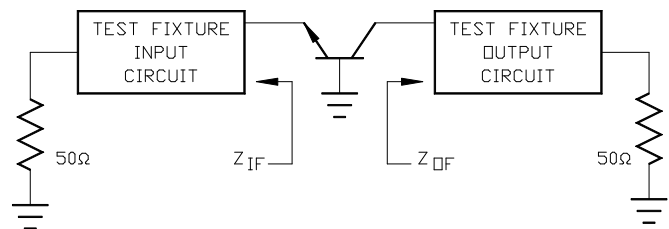


## RF Power Transfer Curve (Output Power Vs. Input Power)

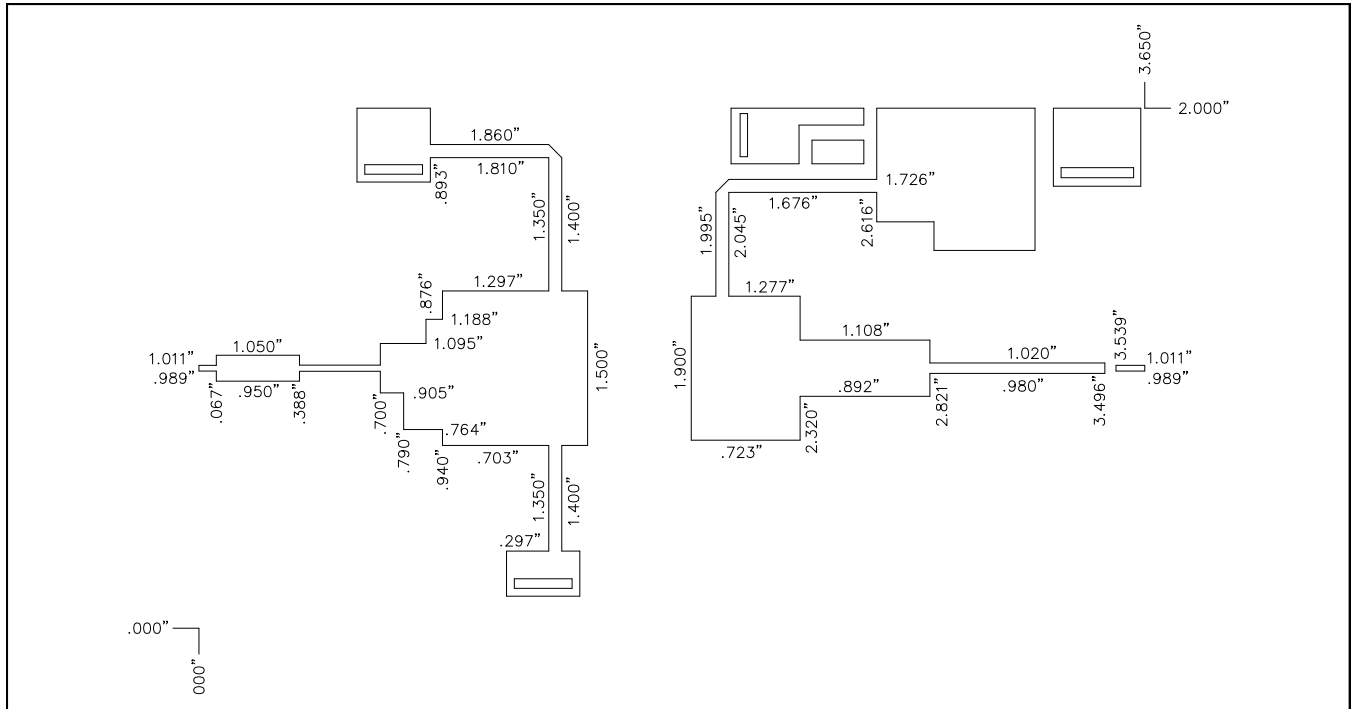


## Broadband Test Fixture Impedance

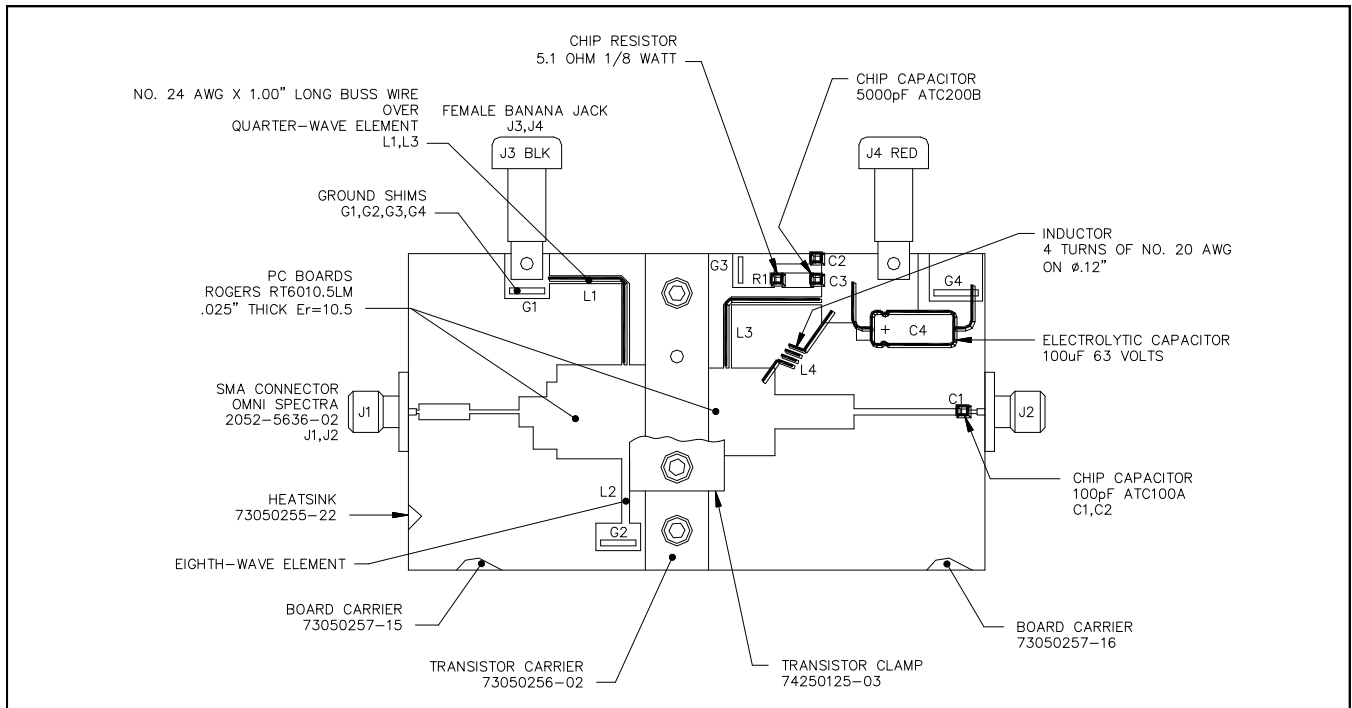
F (MHz)	Z <sub>IF</sub> ( $\Omega$ )	Z <sub>OF</sub> ( $\Omega$ )
960	1.8 - j1.7	1.7 - j1.7
1030	1.7 - j1.4	1.8 - j1.2
1090	1.6 - j1.2	1.9 - j0.8
1150	1.4 - j1.0	1.9 - j0.6
1215	1.2 - j0.8	2.0 - j0.2



## Test Fixture Circuit Dimensions



## Test Fixture Assembly



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