AVIONICS PULSED POWER TRANSISTOR
50 WATTS, 960-1215 MHz, 10us PULSE, 10% DUTY

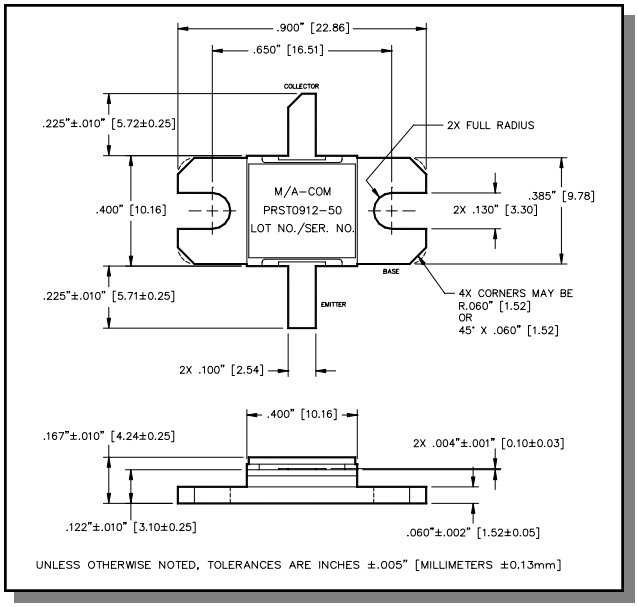
MAPRST0912-50

01 Nov 2006

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	5.3	A
Power Dissipation @ +25°C	P_{TOT}	220	kW
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Electrical Specifications: T_C = 25 ± 5°C (ROOM AMBIENT)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 15mA		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	V_{CE} = 40V		I_{CES}	-	2.0	mA
Thermal Resistance	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	$R_{TH(JC)}$	-	0.80	°C/W
Output Power	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	P_O	50	-	W
Power Gain	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	G_P	9.1	-	dB
Collector Efficiency	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	η_C	40	-	%
Input Return Loss	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	RL	-	-9	dB
Load Mismatch Stability	Vcc = 50V, Pin = 6.2W	F = 960 MHz	VSWR-T	-	10:1	-
Load Mismatch Tolerance	Vcc = 50V, Pin = 6.2W	F = 960, 1090, 1215 MHz	VSWR-S	-	1.5:1	-

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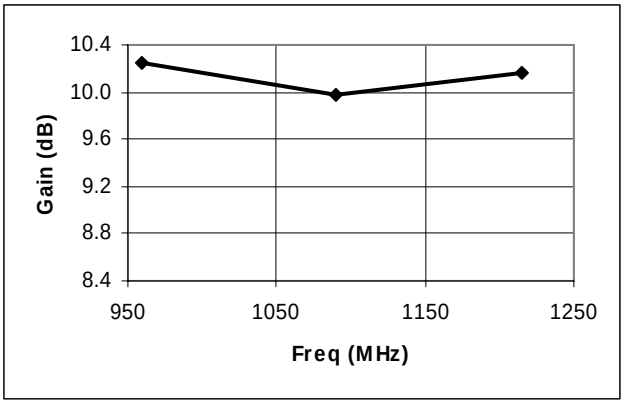
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Typical RF Performance

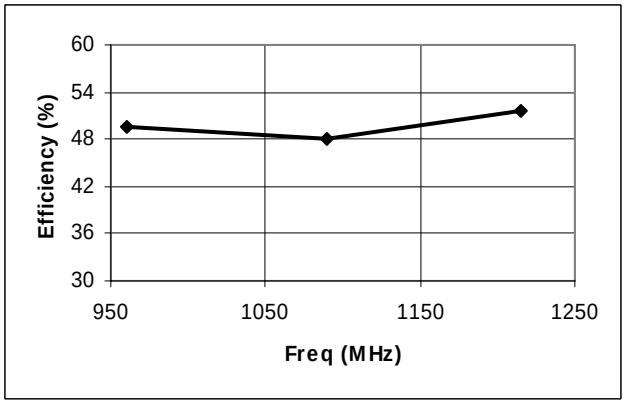
Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	ΔGain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)	P1dB Overdrive	
										Pout	Δ Po
960	6.2	65.9	10.25	-	2.66	49.6	-22.2	S	P	73.4	0.48
1090	6.2	61.9	9.98	-	2.58	48.0	-15.2	S	-	68.7	0.45
1215	6.2	64.6	10.16	0.35	2.50	51.6	-15.9	S	-	74.8	0.63

Note: **ΔPo(dB)** is the difference between Pout at 1dB overdrive and Pout at Pin = 6.2W.

Gain vs. Frequency



Collector Efficiency vs. Frequency

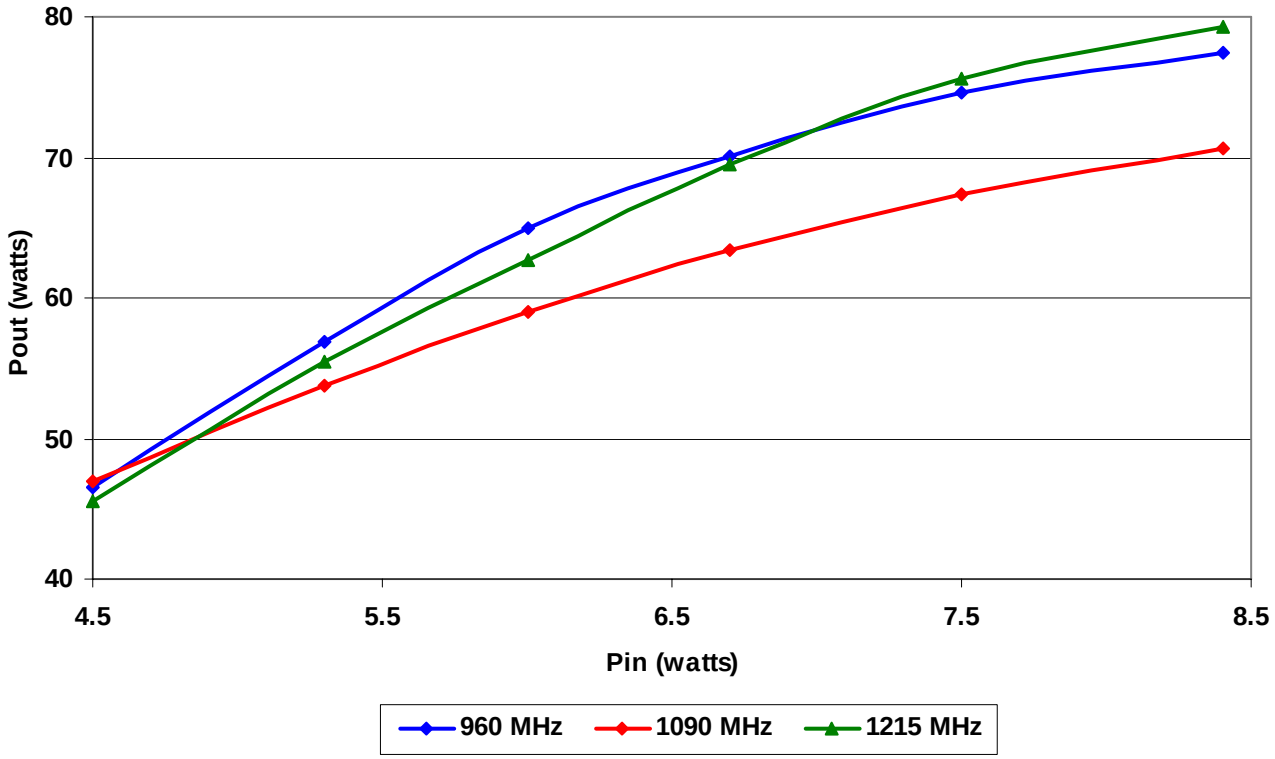


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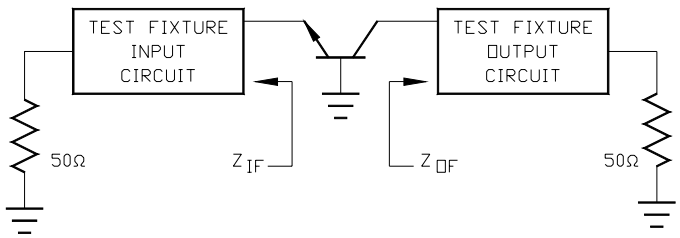
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RF Power Transfer Curve
(Output Power Vs. Input Power)



Broadband Test Fixture Impedance

F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
960	3.5 - j7.5	12.0 - j7.8
1030	3.8 - j7.0	11.1 - j6.4
1090	3.9 - j6.8	10.6 - j5.1
1150	3.9 - j6.8	10.8 - j3.8
1215	3.6 - j7.0	11.1 - j3.2



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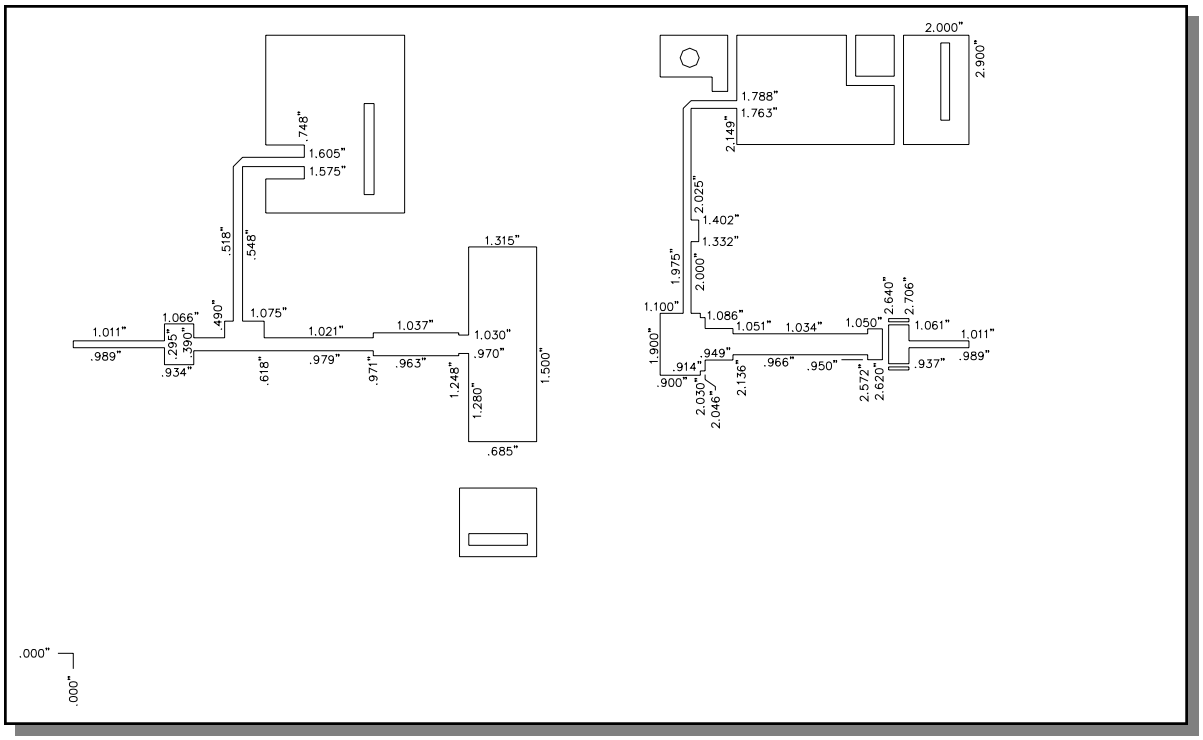
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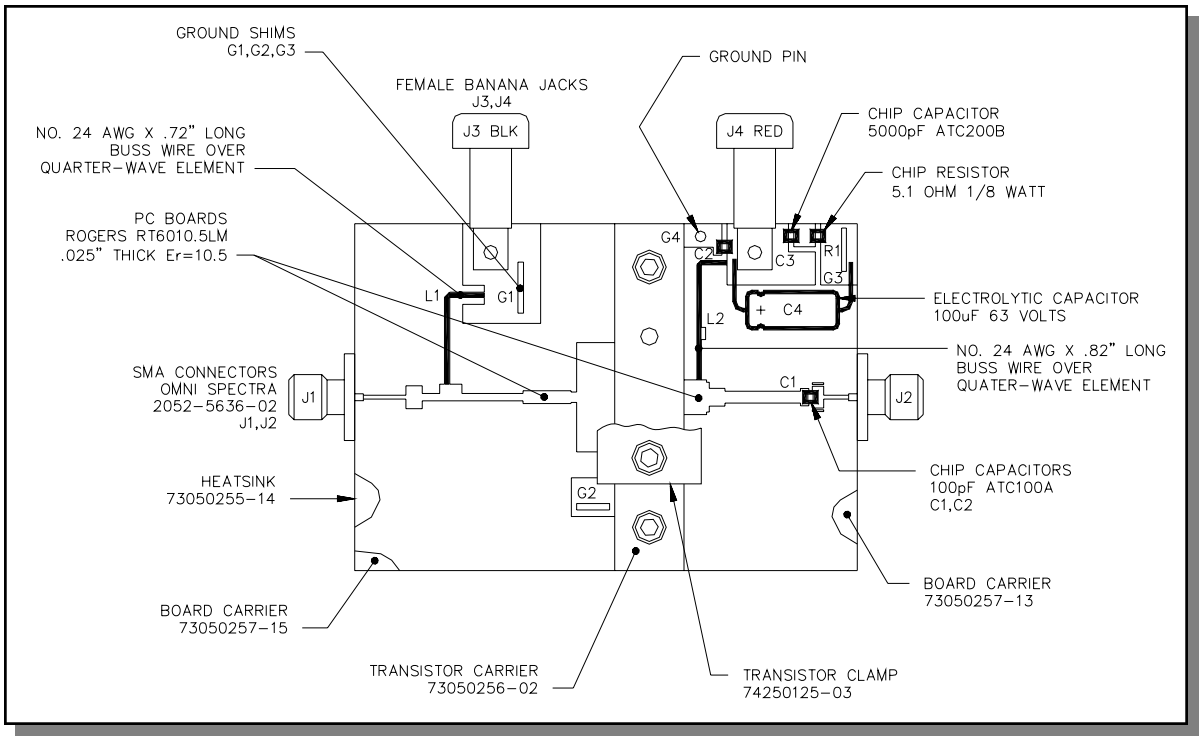
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Test Fixture Circuit Dimensions



Test Fixture Assembly



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