MAPRST0912-350

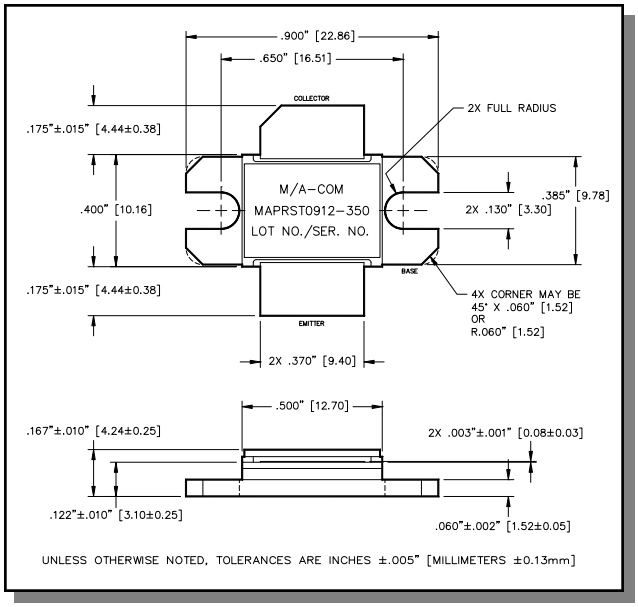
Avionics Pulsed Power Transistor
350W, 960-1215 MHz, 10µs Pulse, 10% Duty

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 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I_C = 50mA		BV_{CES}	65	-	V
Collector-Emitter Leakage Current	V_{CE} = 50V		I_{CES}	-	15	mA
Thermal Resistance	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	$R_{TH(JC)}$	-	0.13	°C/W
Output Power	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	P_O	350	-	W
Power Gain	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	G_P	9.4	-	dB
Collector Efficiency	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	η_C	45	-	%
Input Return Loss	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	RL	-	-9	dB
Load Mismatch Stability	Vcc = 50V, Pin = 40W	F = 960 MHz	VSWR-T	-	10:1	-
Load Mismatch Tolerance	Vcc = 50V, Pin = 40W	F = 960, 1090, 1215 MHz	VSWR-S	-	1.5:1	-

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

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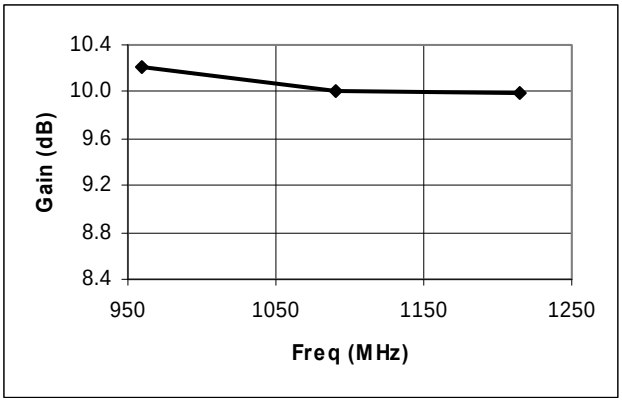
Typical RF Performance

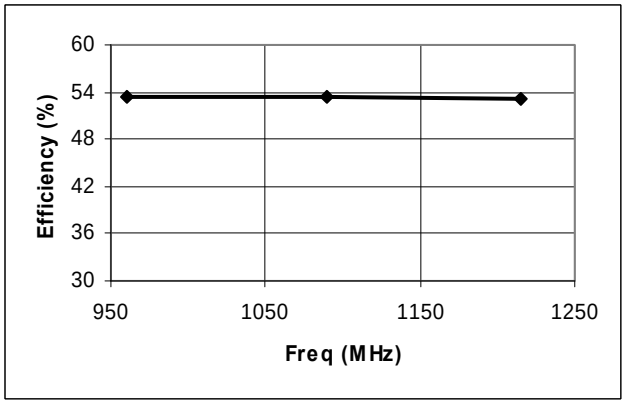
Freq. (MHz)	Pin (W)	Pout (W)	Gain (dB)	ΔGain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (10:1)	P1dB Overdrive	
										Pout	Δ Po
960	40	421	10.22	-	15.7	53.4	-19.9	S	P	496	0.72
1090	40	401	10.01	-	15.0	53.4	-18.5	S	-	469	0.69
1215	40	399	9.99	0.23	15.0	53.2	-21.5	S	-	421	0.22

Note: **ΔPo(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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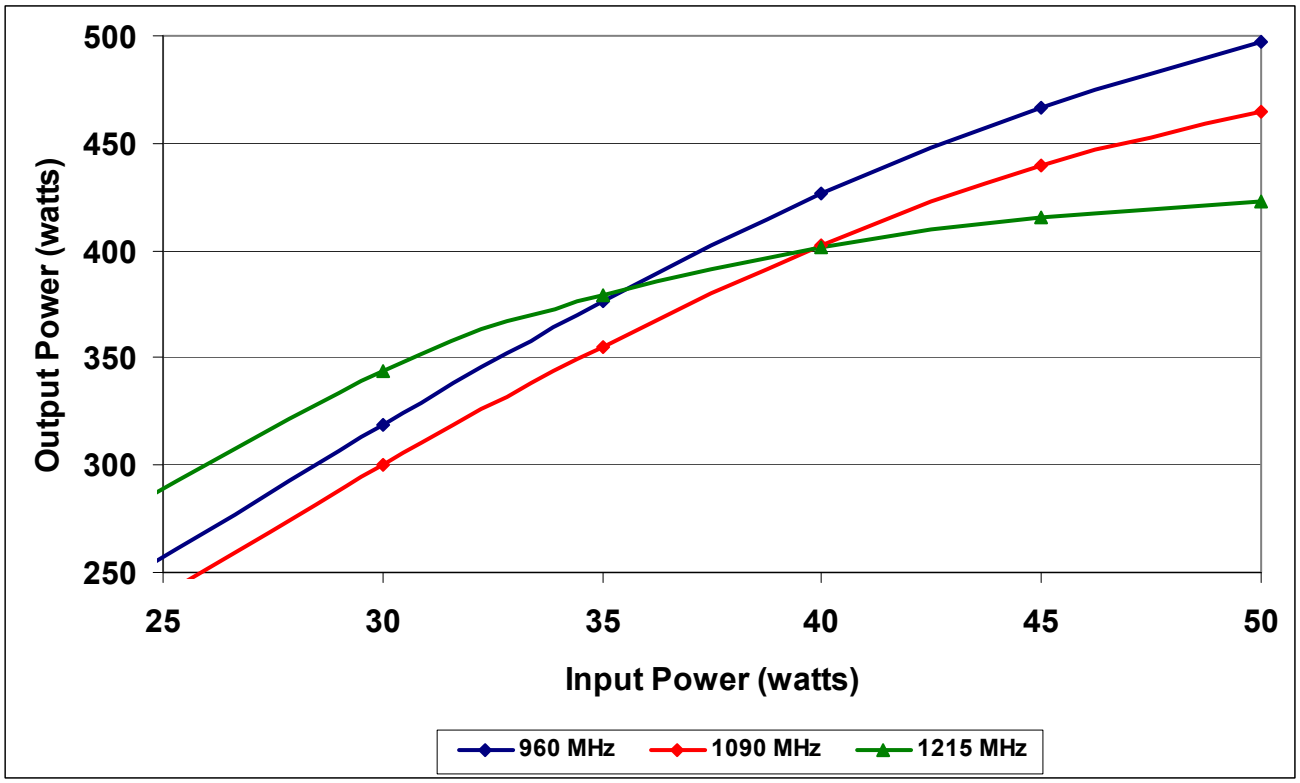
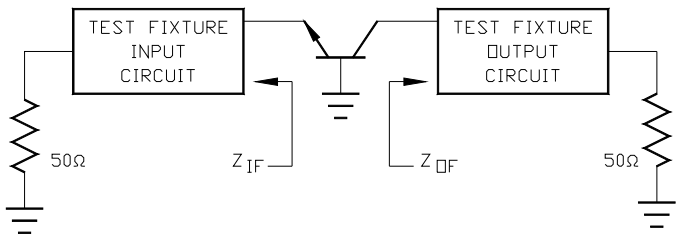
RF Power Transfer Curve
(Output Power Vs. Input Power)



Broadband Test Fixture Impedance

F (MHz)	Z_{IF} (Ω)	Z_{OF} (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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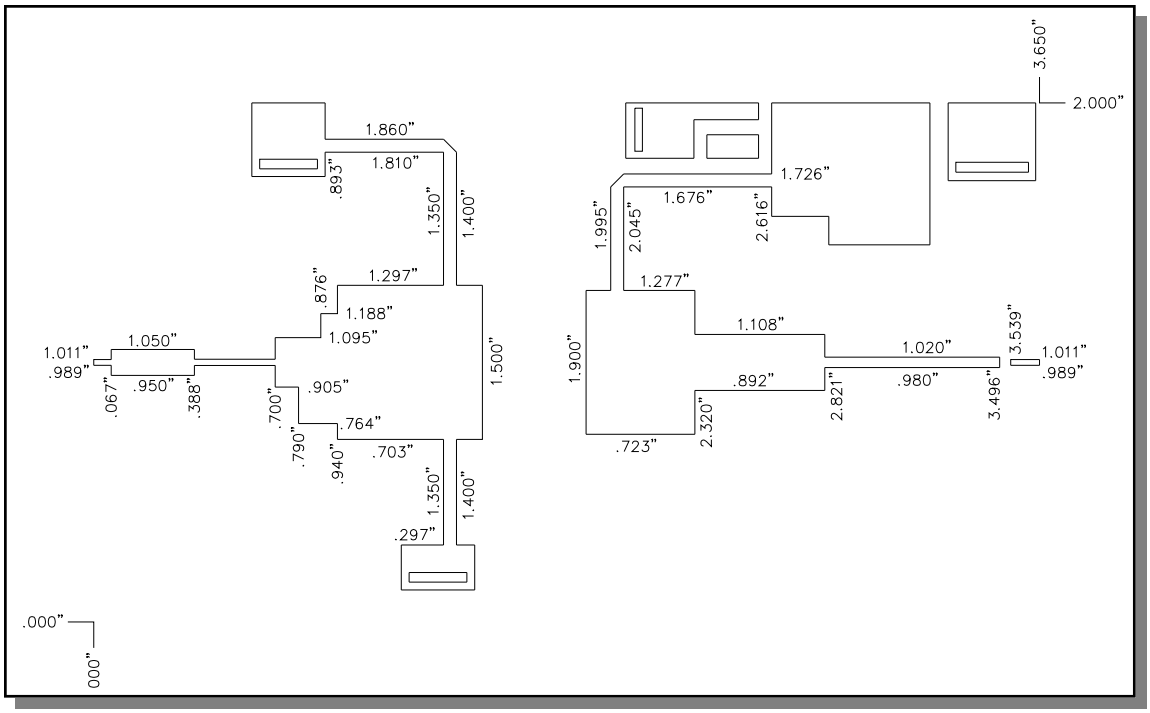
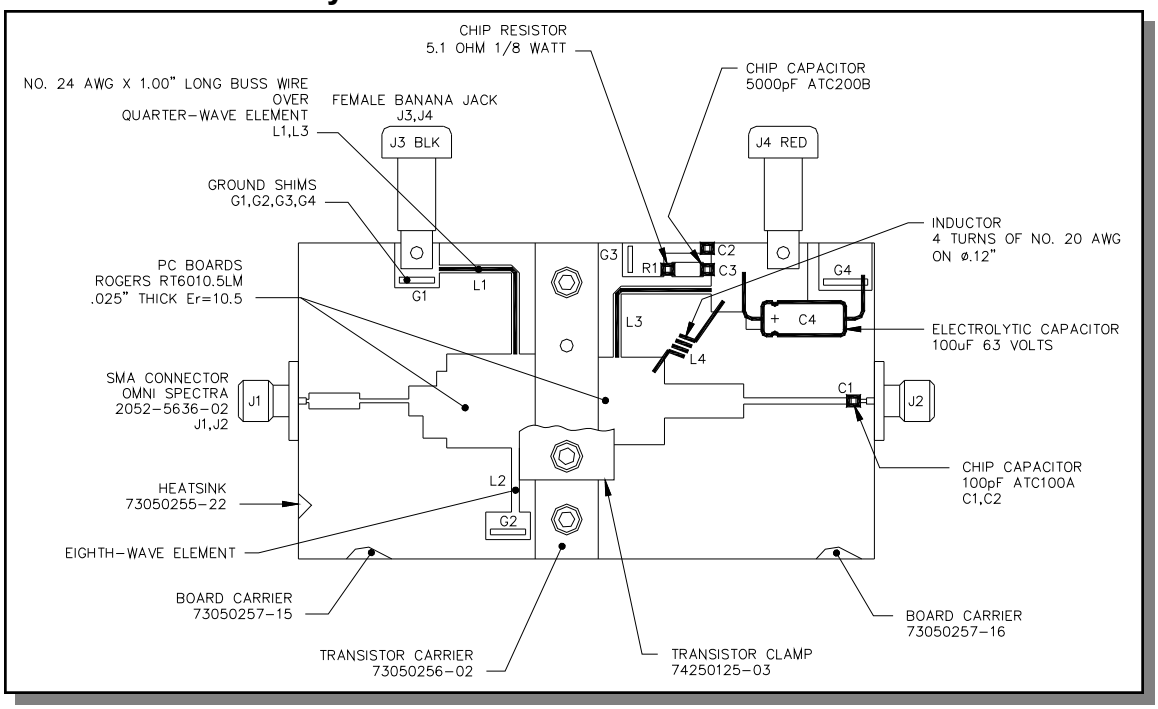
Test Fixture Circuit Dimensions



Test Fixture Assembly



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