MAPRST1214-150UF

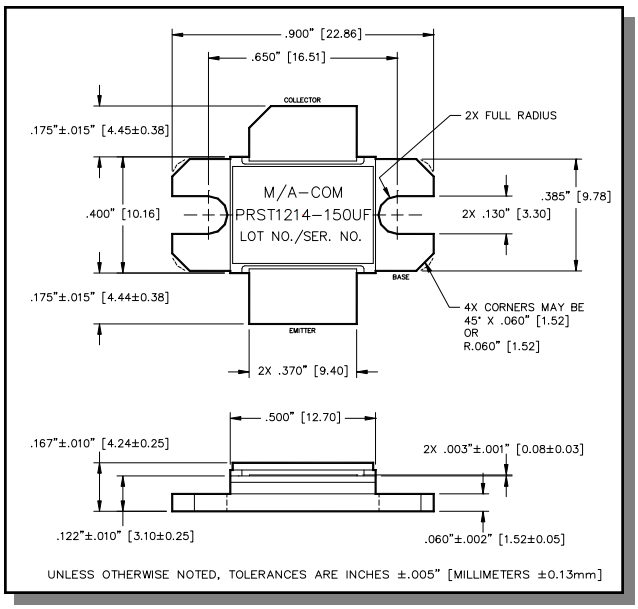
Radar Pulsed Power Transistor
150W, 1.2-1.4 GHz, 6ms Pulse, 25% Duty

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}	70	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current (Peak)	I_C	19.5	A
Power Dissipation @ +25°C	P_{TOT}	580	W
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 = 10mA		BV_{CES}	70	-	V
Collector-Emitter Leakage Current	V_{CE} = 40V		I_{CES}	-	4.0	mA
Thermal Resistance	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	$R_{TH(JC)}$	-	0.3	°C/W
Output Power	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	P_{OUT}	150	-	W
Power Gain	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	G_P	7.4	-	dB
Gain Flatness	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	ΔG	-	1.25	dB
Collector Efficiency	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	η_C	45	-	%
Input Return Loss	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	RL	-	-9	dB
Pulse Droop	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	Droop	-	0.5	dB
Load Mismatch Tolerance	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 36V, Pin = 27W	F = 1.2, 1.3, 1.4 GHz	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

Visit www.macomtech.com for additional data sheets and product information.

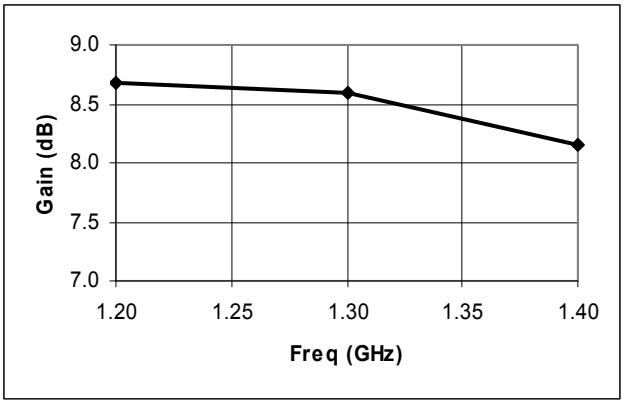
Radar Pulsed Power Transistor
150W, 1.2-1.4 GHz, 6ms Pulse, 25% Duty

M/A-COM Products
Released, 30 May 07

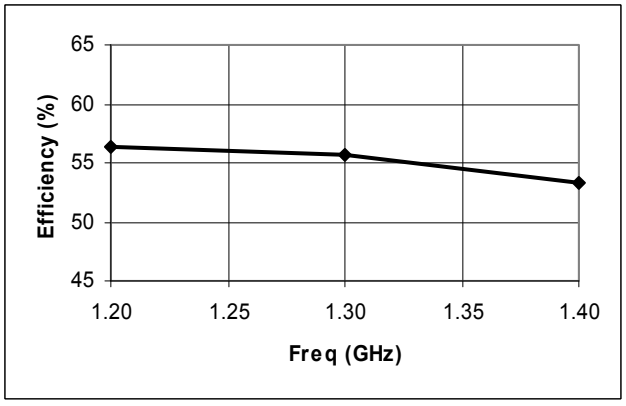
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	Droop (dB)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1.2	27	199	8.67	9.81	56.4	0.08	-11.3	S	P
1.3	27	196	8.60	9.76	55.8	0.13	-18.8	S	P
1.4	27	176	8.15	9.19	53.3	0.12	-16.0	S	P

Gain vs. Frequency



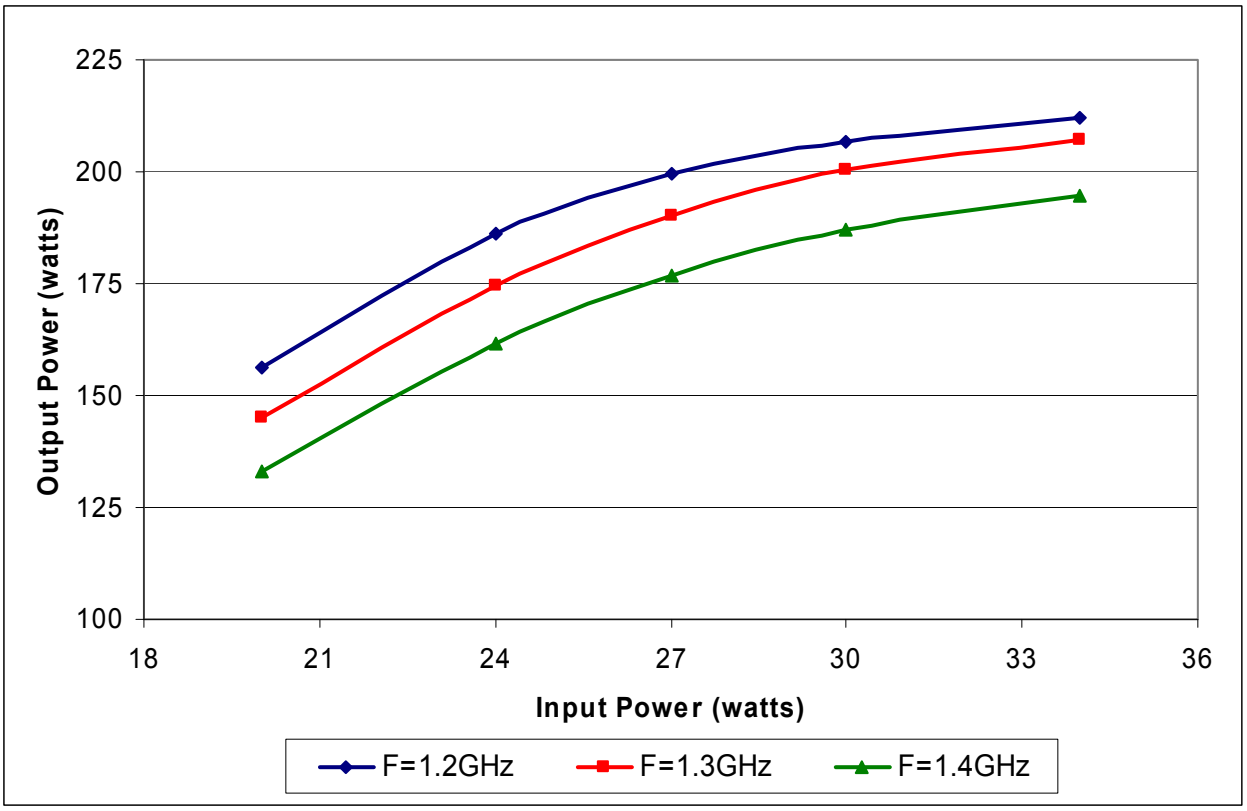
Collector Efficiency vs. Frequency



- **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

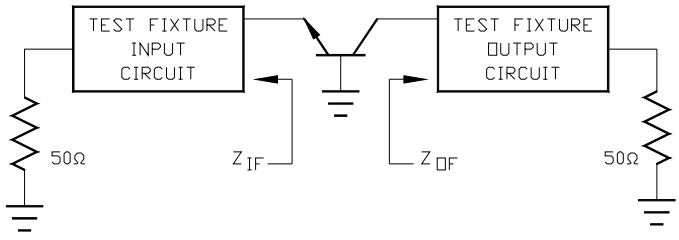
Visit www.macomtech.com for additional data sheets and product information.

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



RF Test Fixture Impedance

F (GHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1.2	1.7 - j1.8	2.0 - j2.3
1.3	1.6 - j1.3	1.95 - j2.0
1.4	1.4 - j1.0	1.8 - j1.85



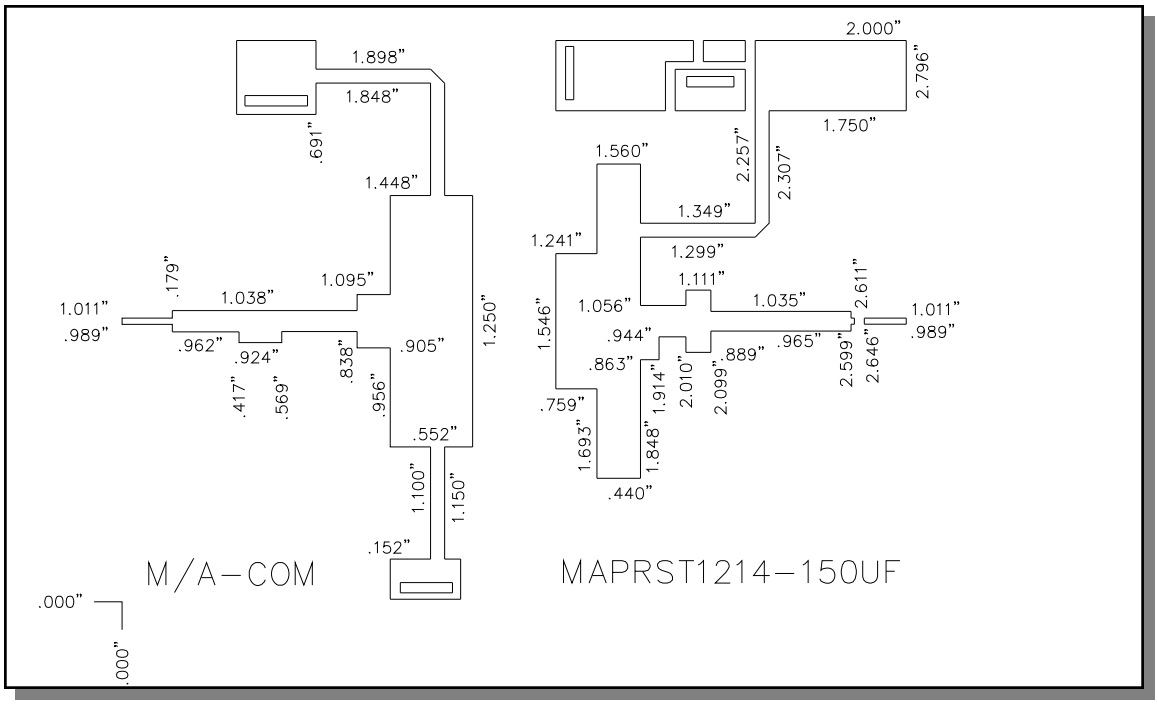
- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macomtech.com for additional data sheets and product information.

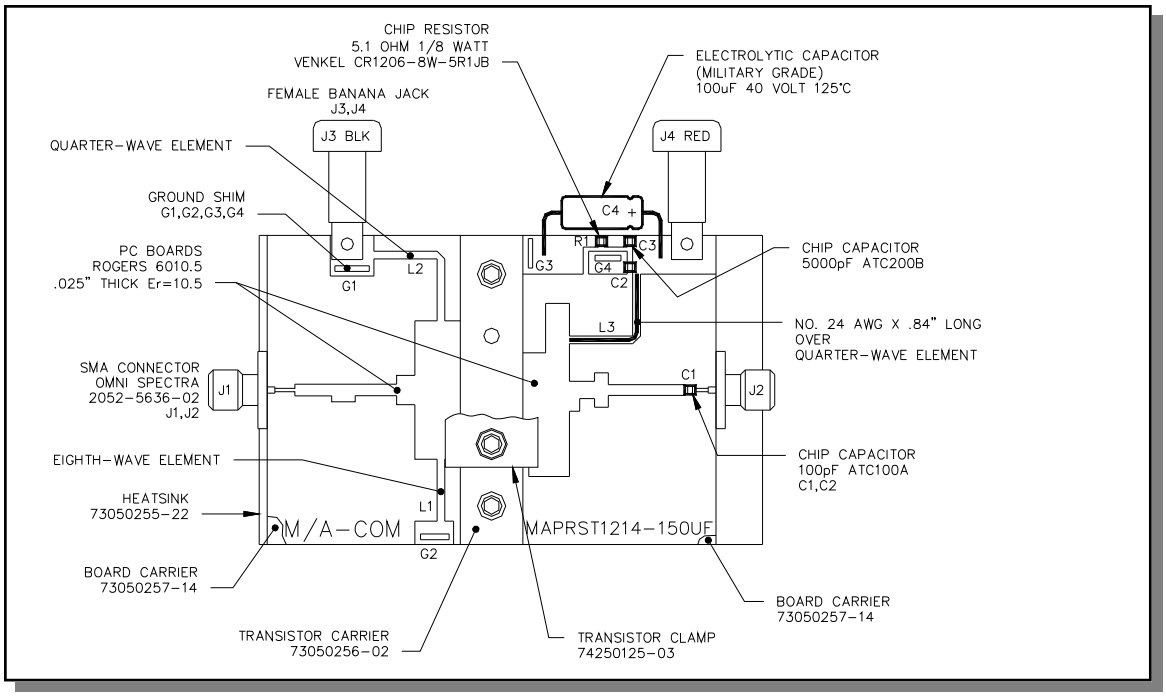
Radar Pulsed Power Transistor
150W, 1.2-1.4 GHz, 6ms Pulse, 25% Duty

M/A-COM Products
Released, 30 May 07

Test Fixture Circuit Dimensions



Test Fixture Assembly



- **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
  Visit www.macomtech.com for additional data sheets and product information.