

Avionics Pulsed Power Transistor 500W, 960-1215 MHz, 10µs Pulse, 10% Duty

M/A-COM Products Released, 30 May 07

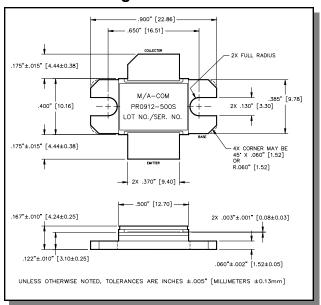
Features

- 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

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	80	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	Ic	52.5	Α
Power Dissipation @ +25°C	P _{TOT}	2.2	kW
Storage Temperature	T _{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Outline Drawing



Electrical Specifications: T_C = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I _C = 80mA		BV_CES	80	-	V
Collector-Emitter Leakage Current	V _{CE} = 40V		I _{CES}	-	15	mA
Thermal Resistance	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	R _{TH(JC)}	-	0.08	°C/W
Output Power	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	P _{OUT}	500	=	W
Power Gain	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	G_{P}	9.0	=	dB
Collector Efficiency	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	ης	45	i	%
Input Return Loss	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	RL	1	-9	dB
Load Mismatch Tolerance	Vcc = 50V, Pin = 63W	F = 960 MHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 50V, Pin = 63W	F = 960, 1090, 1215 MHz	VSWR-S	-	1.5:1	-

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300



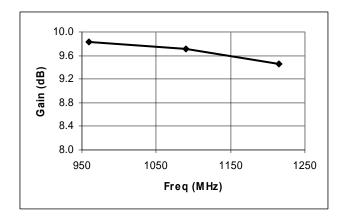
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Typical RF Performance

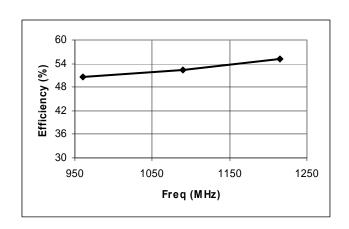
Freq.	Pin	Pout	Gain	∆Gain	lc	Eff	RL	VSWR-S (1.5:1)	VSWR-T	P1dB Overdrive		
(MHz)	(W)	(W)	(dB)	(dB)	(A)	(%)	(dB)		(3:1)	Pout	Δ Ρο	
960	63	598	9.77	,	23.5	50.9	-17.1	S	Р	675	0.52	
1090	63	582	9.65		21.9	53.1	-21.8	S		677	0.66	
1215	63	554	9.44	0.33	19.7	56.1	-16.8	S	-	619	0.48	

Note: ΔPo(dB) is the difference between Pout at 1dB overdrive and Pout at Pin = 63W.

Gain vs. Frequency



Collector Efficiency vs. Frequency



typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

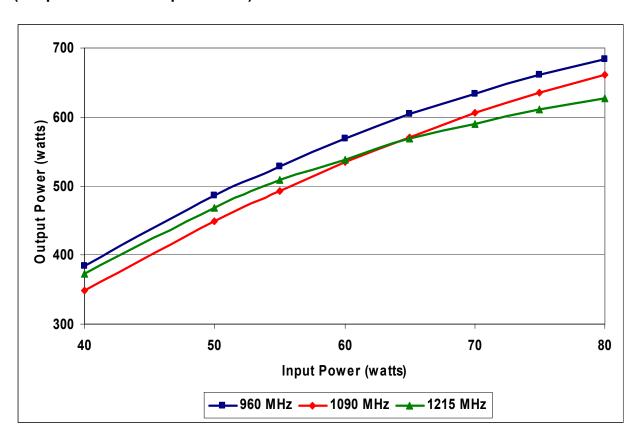
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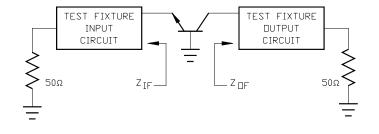
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RF Power Transfer Curve (Output Power Vs. Input Power)



Broadband Test Fixture Impedance

F (MHz)	Z _{IF} (Ω)	Z _{OF} (Ω)		
960	1.3 - j1.4	1.2 - j1.4		
1025	1.3 - j1.1	1.2 - j1.1		
1090	1.2 - j0.9	1.3 - j0.9		
1150	1.2 - j0.8	1.4 - j0.7		
1215	1.0 - j0.8	1.3 - j0.6		



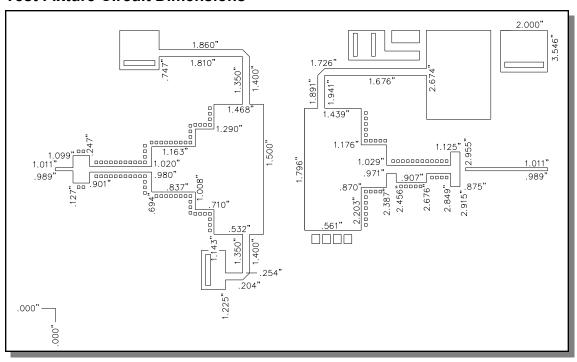
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 Visit www.macomtech.com for additional data sheets and product information.

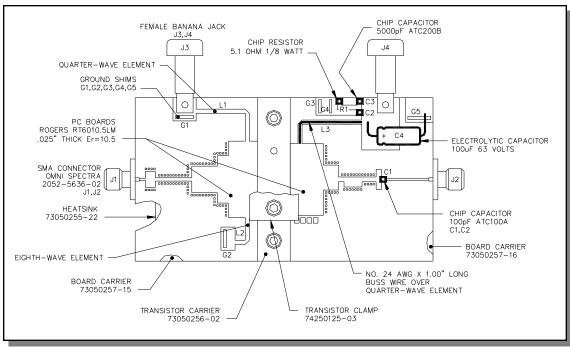


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Test Fixture Circuit Dimensions



Test Fixture Assembly



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