

Radar Pulsed Power Transistor 40W, 1.2-1.4 GHz, 150µs Pulse, 10% Duty

M/A-COM Products Released, 30 May 07

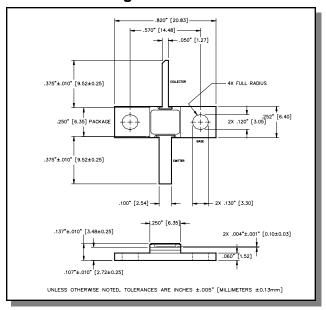
Features

- 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}	70	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	Ι _C	3.0	Α
Power Dissipation @ +25°C	P _{TOT}	100	W
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 = 15mA		BV _{CES}	70	-	V
Collector-Emitter Leakage Current	V _{CE} = 40V		I _{CES}	-	2.0	mA
Thermal Resistance	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	R _{TH(JC)}	-	1.7	°C/W
Output Power	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	P _{IN}	-	5.65	W
Power Gain	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	G _P	8.5	-	dB
Collector Efficiency	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	ης	50	1	%
Input Return Loss	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	VSWR-T	-	3:1	-
Load Mismatch Stability	Vcc = 40V, Pout = 40W	F = 1.2, 1.3, 1.4 GHz	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.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are 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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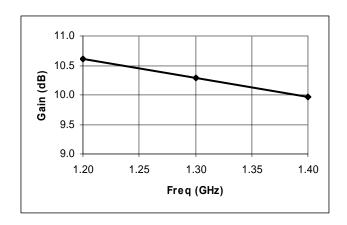


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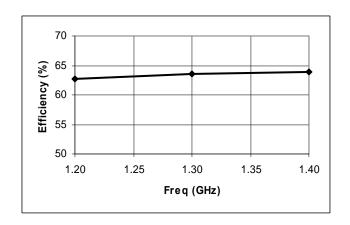
Typical RF Performance

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (3:1)
1.2	3.48	40	10.60	1.60	62.7	-11.0	S	Р
1.3	3.75	40	10.28	1.57	63.5	-12.2	S	Р
1.4	4.04	40	9.96	1.56	63.9	-12.9	S	Р

Gain vs. Frequency

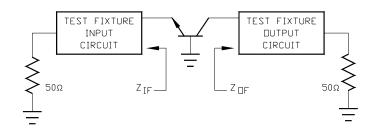


Collector Efficiency vs. Frequency



RF Test Fixture Impedance

F (GHz)	Z _{IF} (Ω)	Z _{OF} (Ω)
1.2	2.6 - j4.7	2.8 - j0.7
1.3	2.5 - j4.1	3.3 - j0.2
1.4	2.3 - j3.7	3.0 + j0.4



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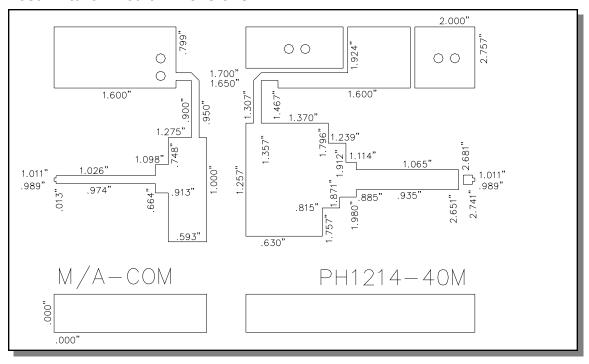
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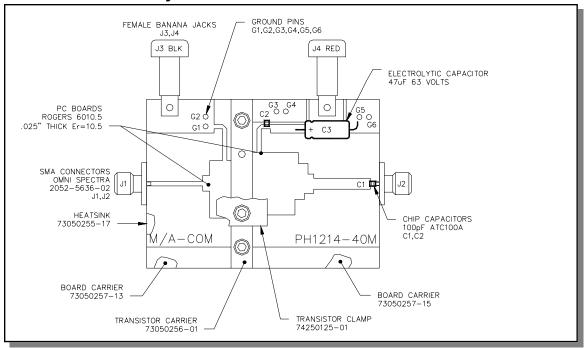


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Test Fixture Circuit Dimensions



Test Fixture Assembly



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