

# Radar Pulsed Power Transistor 25W, 3.1-3.4 GHz, 100µs Pulse, 10% Duty

# M/A-COM Products Released, 10 Jul 07

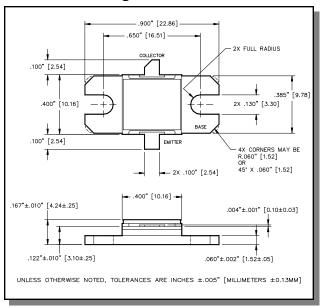
#### **Features**

- 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	$V_{CES}$	65	V
Emitter-Base Voltage	$V_{EBO}$	3.0	V
Collector Current (Peak)	I <sub>C</sub>	3.0	Α
Power Dissipation @ +25°C	P <sub>TOT</sub>	159	W
Storage Temperature	T <sub>STG</sub>	-65 to +200	°C
Junction Temperature	$T_J$	200	°C

#### **Outline Drawing**



# Electrical Specifications: T<sub>C</sub> = 25 ± 5°C (Room Ambient)

Parameter	Test Conditions	Frequency	Symbol	Min	Max	Units
Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 10mA		BV <sub>CES</sub>	65	-	V
Collector-Emitter Leakage Current	V <sub>CE</sub> = 40V		I <sub>CES</sub>	-	1.5	mA
Thermal Resistance	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	R <sub>TH(JC)</sub>	-	1.1	°C/W
Input Power	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	P <sub>IN</sub>	-	4.45	W
Power Gain	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	G <sub>P</sub>	7.5	=	dB
Collector Efficiency	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	ης	35	-	%
Input Return Loss	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	RL	-	-6	dB
Load Mismatch Tolerance	Vcc = 36V, Pout = 25W	F = 3.1, 3.25, 3.4 GHz	VSWR-T	-	2:1	-

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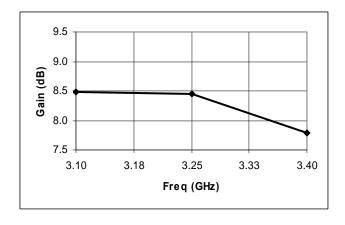


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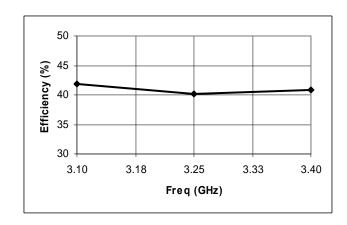
### **Typical RF Performance**

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-T (2:1)
3.10	3.54	25.0	8.49	1.66	41.8	-10.0	-
3.25	3.57	25.0	8.45	1.73	40.1	-10.8	Р
3.40	4.16	25.0	7.79	1.70	40.8	-17.6	-

### Gain vs. Frequency

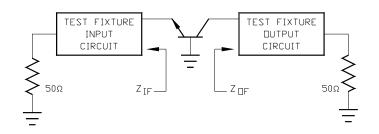


# Collector Efficiency vs. Frequency



### **RF Test Fixture Impedance**

F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
3.10	16.0 + j5.0	19.0 + j3.0
3.25	14.5 + j2.0	15.5 - j2.0
3.40	11.5 + j0.0	10.0 - j3.5



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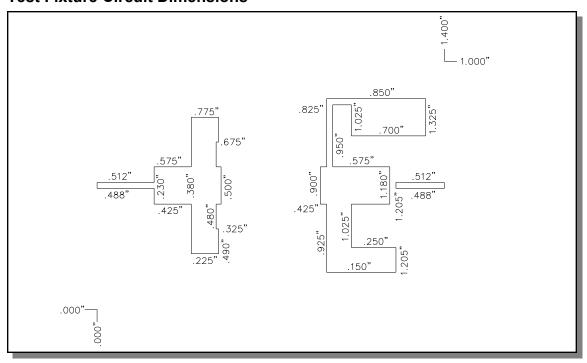
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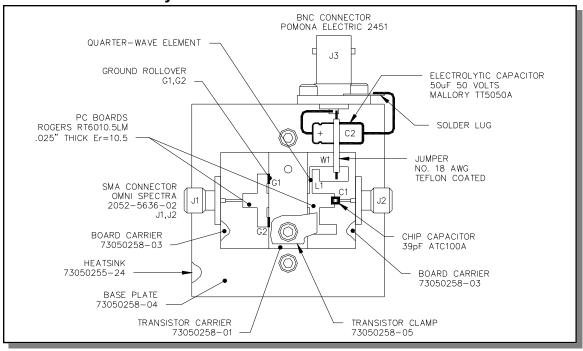
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#### **Test Fixture Circuit Dimensions**



# **Test Fixture Assembly**



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