# MAPR-002729-170M00



### Radar Pulsed Power Transistor 170W, 2.7-2.9 GHz, 100µs Pulse, 10% Duty

M/A-COM Products Released, 29 Jun 07

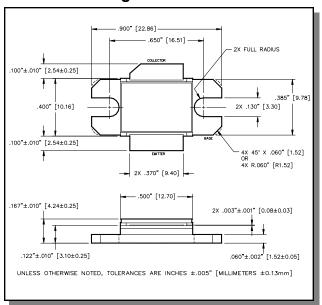
#### **Features**

- 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>	27	Α
Power Dissipation @ +25°C	P <sub>TOT</sub>	500	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> = 250mA		BV <sub>CES</sub>	65	-	V
Collector-Emitter Leakage Current	V <sub>CE</sub> = 40V		I <sub>CES</sub>	-	10	mA
Thermal Resistance	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	R <sub>TH(JC)</sub>	-	0.35	°C/W
Output Power	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	P <sub>OUT</sub>	170	-	W
Power Gain	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	$G_{P}$	8.5	-	dB
Collector Efficiency	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	ης	40	-	%
Input Return Loss	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	RL	-	-10	dB
Load Mismatch Tolerance	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 GHz	VSWR-T	-	2:1	-
Load Mismatch Stability	Vcc = 36V, Pin = 24W	F = 2.7, 2.8, 2.9 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.

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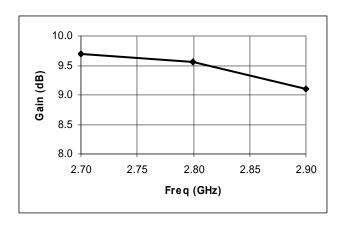


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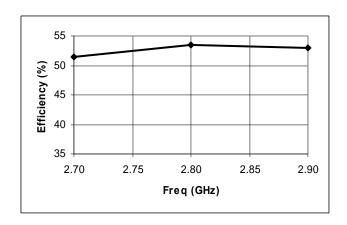
#### **Typical RF Performance**

Freq. (GHz)	Pin (W)	Pout (W)	Gain (dB)	Ic (A)	Eff (%)	RL (dB)	VSWR-S (1.5:1)	VSWR-T (2:1)
2.7	24	224	9.69	12.1	51.4	-15.6	S	Р
2.8	24	217	9.56	11.3	53.4	-14.7	S	Р
2.9	24	196	9.11	10.3	53.0	-10.6	S	Р

### Gain vs. Frequency

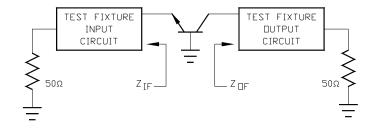


#### Collector Efficiency vs. Frequency



#### **RF Test Fixture Impedance**

F (GHz)	Z <sub>IF</sub> (Ω)	Z <sub>OF</sub> (Ω)
2.7	5.1 - j5.1	1.8 - j2.1
2.8	5.2 - j4.7	1.8 - j1.8
2.9	5.3 - j4.3	1.8 - j1.4



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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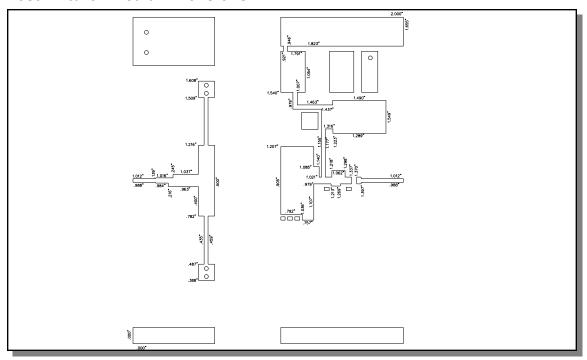
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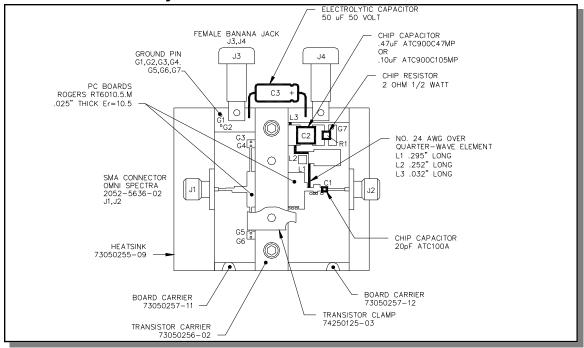


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#### **Test Fixture Circuit Dimensions**



#### **Test Fixture Assembly**



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