

Radar Pulsed Power Transistor
2.7-2.9GHz, 36V, 100µsec, 170W

MAPR-002729-170M00
Preliminary 1/2007

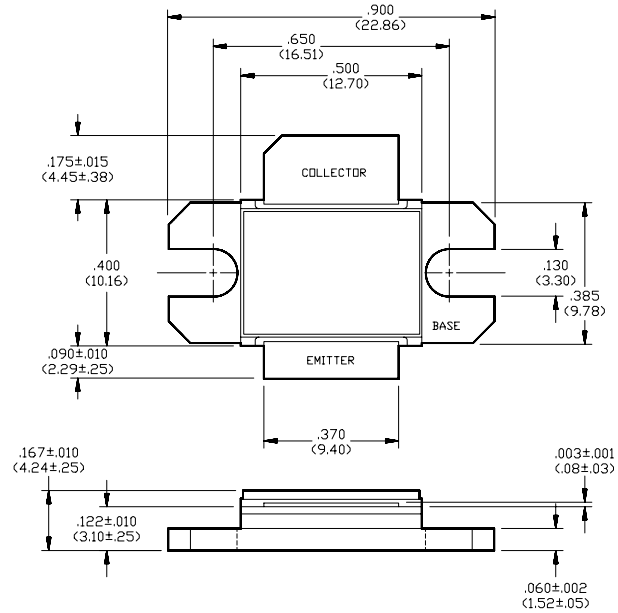
Features

- 190W, 53% efficiency, typical RF performance
- 36V, 24W nominal RF input drive
- Designed for ATC radar applications
- NPN silicon microwave power transistor
- Common base, Class-C configuration
- High efficiency inter-digitated geometry
- Gold metallization system
- Internal input and output pre-matching
- Hermetic metal/ceramic package

MAXIMUM RATINGS

Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	27	A
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

OUTLINE DRAWING

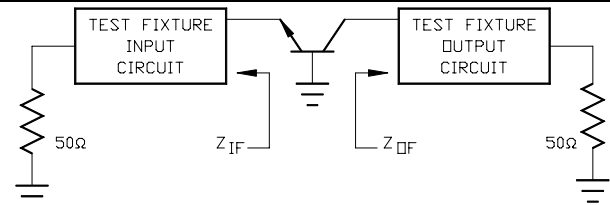


ELECTRICAL CHARACTERISTICS AT 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Collector-Emitter Breakdown Voltage	BV_{CES}	65	-	V	$I_C=50mA$
Collector-Emitter Leakage Current	I_{CES}	-	15	mA	$V_{CE}=36V$
Thermal Resistance	R_{TH}	-	0.35	°C/W	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Power Output	P_{out}	170	-	Wpk	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Power Gain	G_P	8.5	-	dB	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Collector Efficiency	η_C	40	-	%	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Input Return Loss	RL	10	-	dB	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Load Mismatch Stability	VSWR-S	-	1.5:1	-	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$
Load Mismatch Tolerance	VSWR-T	-	2:1	-	$V_{CC}=36V, P_{in}=24W, F=2.7, 2.8$ and $2.9GHz$

BROADBAND TEST FIXTURE IMPEDANCE

F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
2700	5.1 – 5.1j	1.8 – 2.1j
2800	5.2 – 4.7j	1.8 – 1.8j
2900	5.3 – 4.3j	1.8 – 1.4j



* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

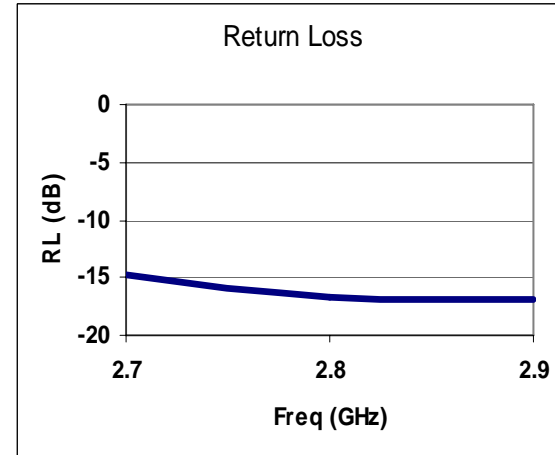
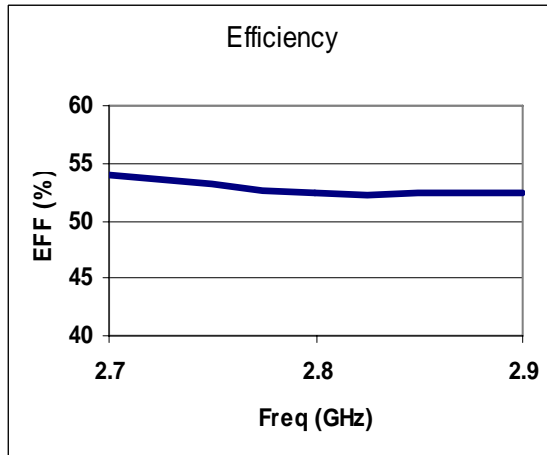
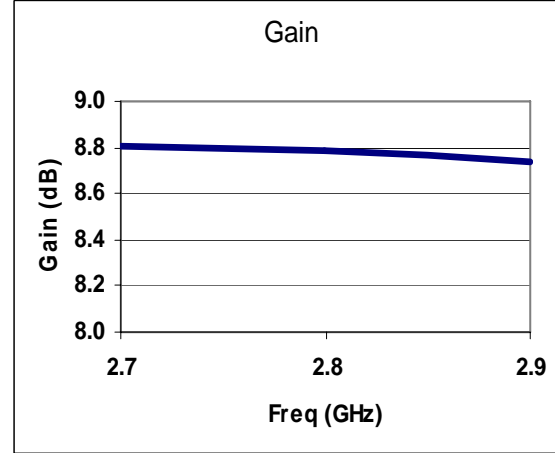
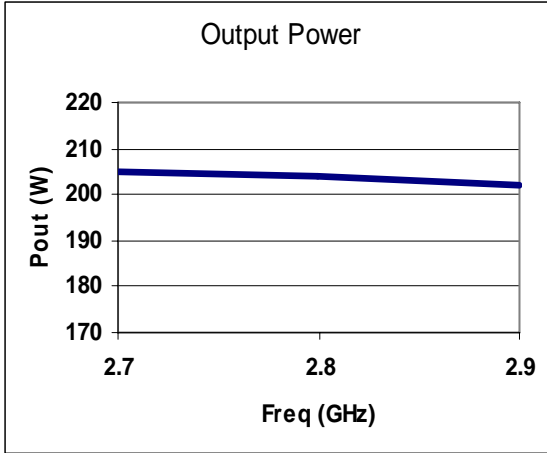
M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

- **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.macom.com for additional data sheets and product information.

PRELIMINARY: Datasheets contain information regarding a product M/A-COM 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.

Measured RF Performance



M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

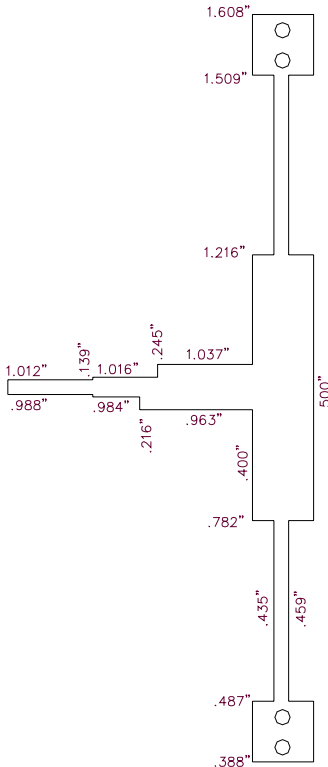
- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

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

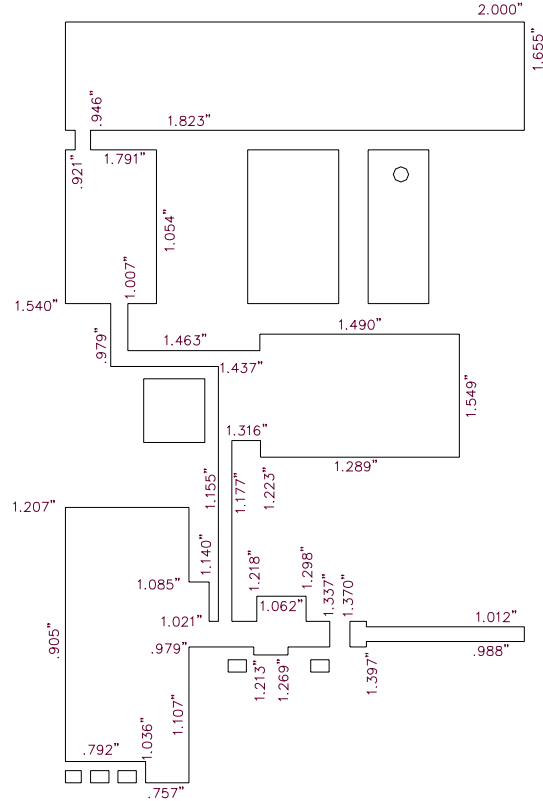
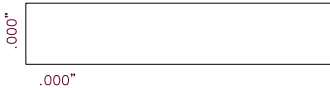
PRELIMINARY: Datasheets contain information regarding a product M/A-COM has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

**Radar Pulsed Power Transistor
2.7-2.9GHz, 36V, 100µsec, 170W**

**MAPR-002729-170M00
Preliminary 1/2007**



M/A-COM



TFMAPRST
2729-170M



**Droid 6010.5
Dielectric Constant Er = 10.5
Dielectric Thickness h = 25mils**

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

- **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

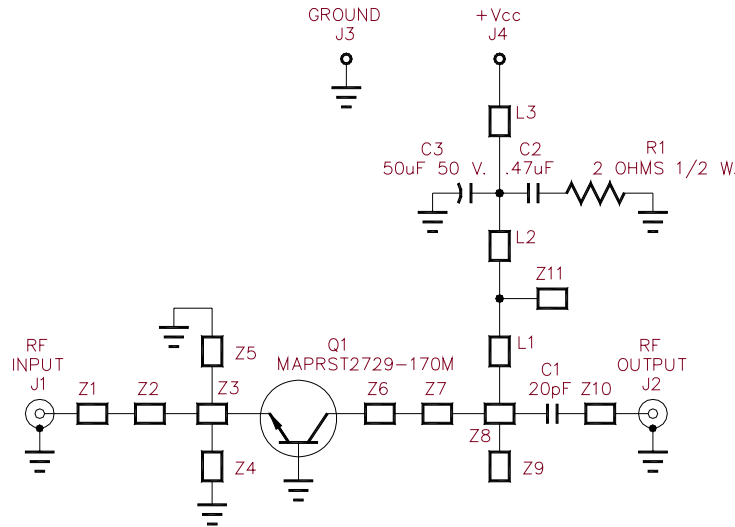
Visit www.macom.com for additional data sheets and product information.

PRELIMINARY: Datasheets contain information regarding a product M/A-COM 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.

**Radar Pulsed Power Transistor
2.7-2.9GHz, 36V, 100µsec, 170W**

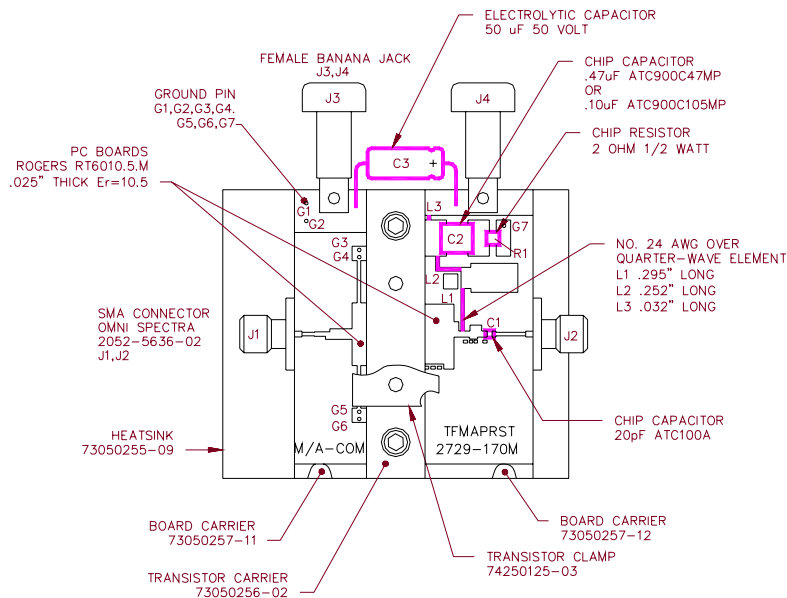
MAPR-002729-170M00

Preliminary 1/2007



- L1 NO. 24 AWG X .292" LONG OVER QUARTER-WAVE ELEMENT
- L2 NO. 24 AWG X .252" LONG OVER QUARTER-WAVE ELEMENT
- L3 NO. 24 AWG X .032" LONG OVER QUARTER-WAVE ELEMENT
- Z1-Z11 DISTRIBUTED MICROSTRIP ELEMENT
- BOARD TYPE ROGERS RT6010.5LM .025" THICK Er=10.5

SCHEMATIC



ASSEMBLY VIEW

M/A-COM Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. M/A-COM makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does M/A-COM assume any liability whatsoever arising out of the use or application of any product(s) or information.

- **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.macom.com for additional data sheets and product information.

PRELIMINARY: Datasheets contain information regarding a product M/A-COM 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.