tyco Electronics

RoHS Compliant

MACOM

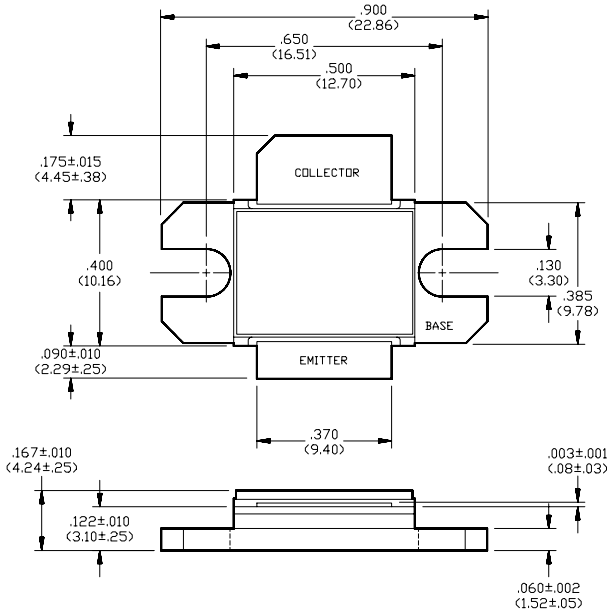
Radar Pulsed Power Transistor
2.7-2.9GHz, 36V, 100µsec, 170W

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

OUTLINE DRAWING



MAXIMUM RATINGS

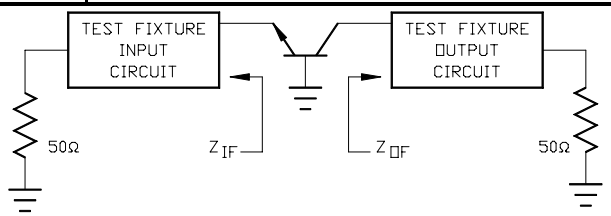
Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	65	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	27	A
Storage Temperature	T_{STG}	-65 to +200	°C
Junction Temperature	T_J	200	°C

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}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Power Output	P_{out}	170	-	Wpk	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Power Gain	G_P	8.5	-	dB	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Collector Efficiency	η_C	40	-	%	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Input Return Loss	RL	10	-	dB	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Load Mismatch Stability	VSWR-S	-	1.5:1	-	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz
Load Mismatch Tolerance	VSWR-T	-	2:1	-	V_{CC}=36 V, P_{in}=24 W, F=2.7, 2.8 and 2.9 GHz

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.

- **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.

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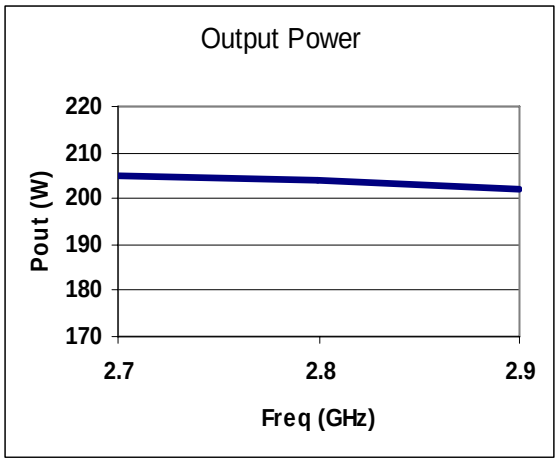
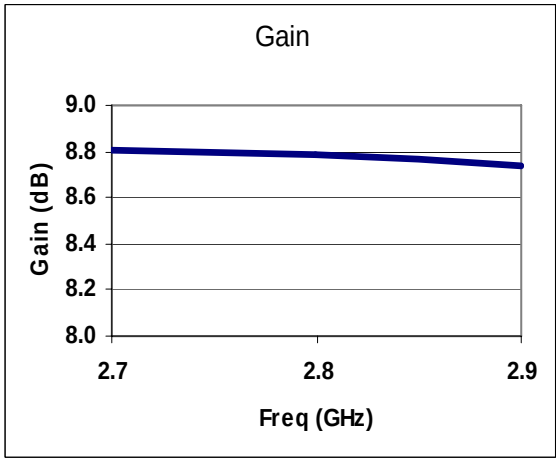
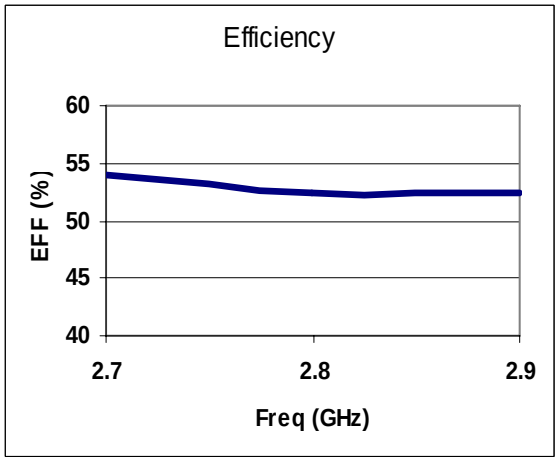
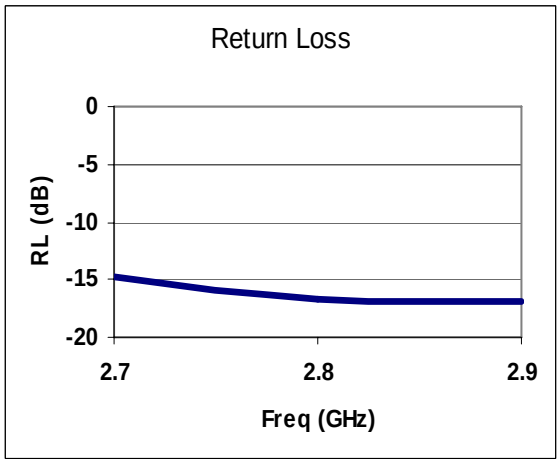
Measured RF Performance









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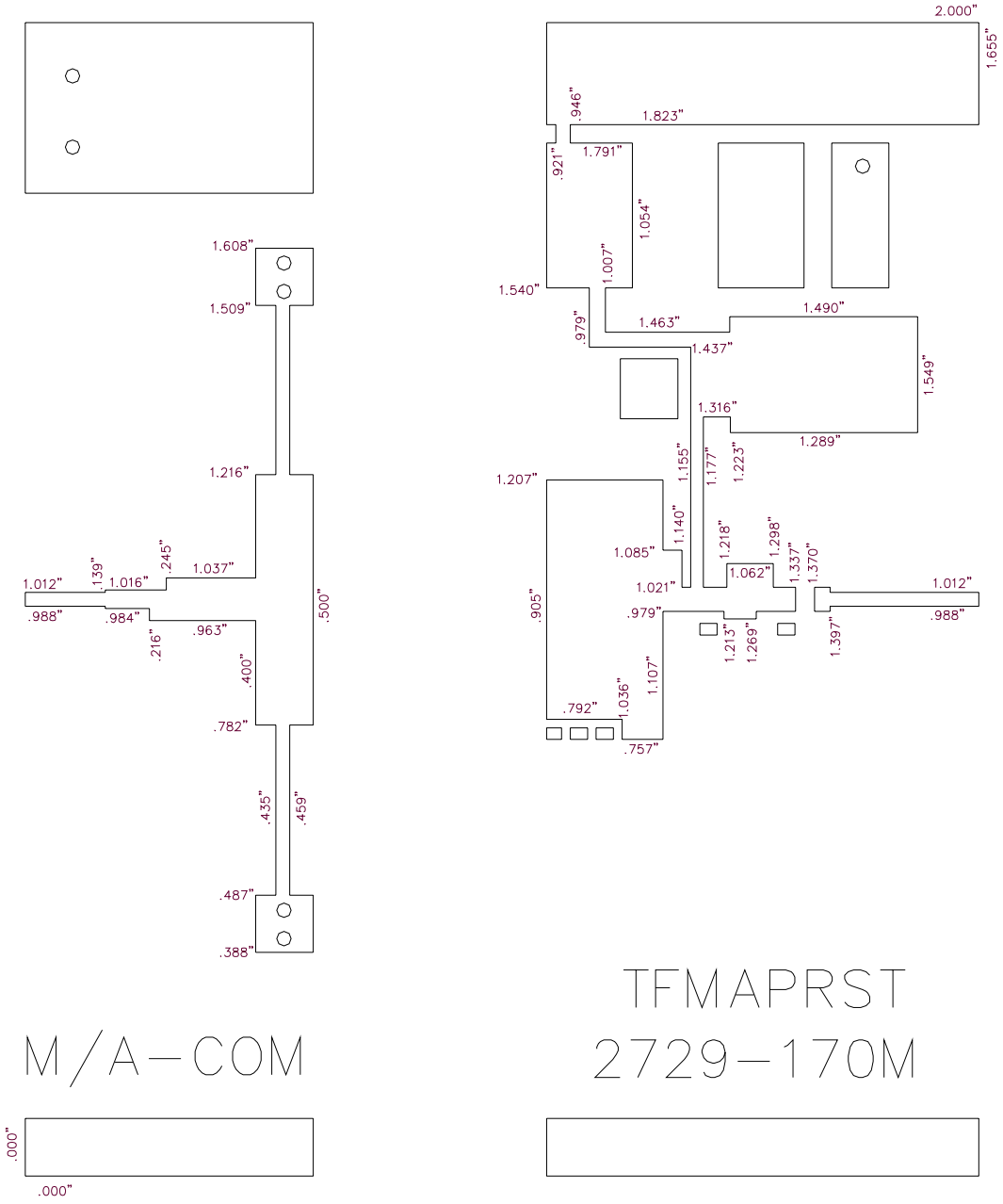

Droid 6010.5
Dielectric Constant Er = 10.5
Dielectric Thickness h = 25mils

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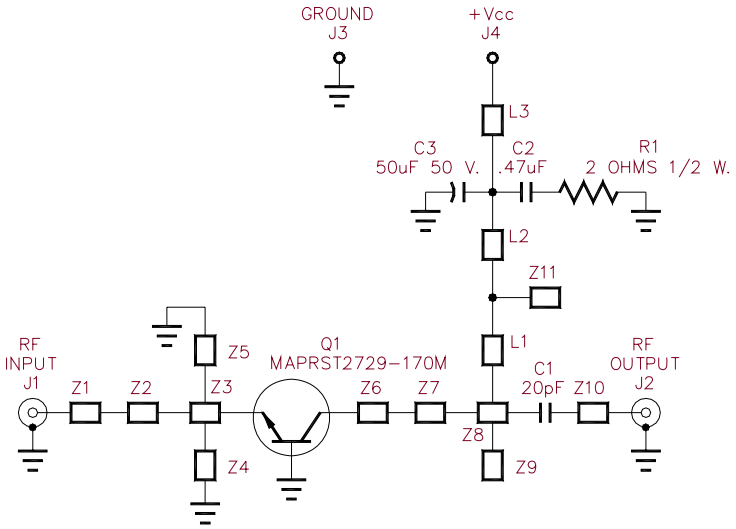
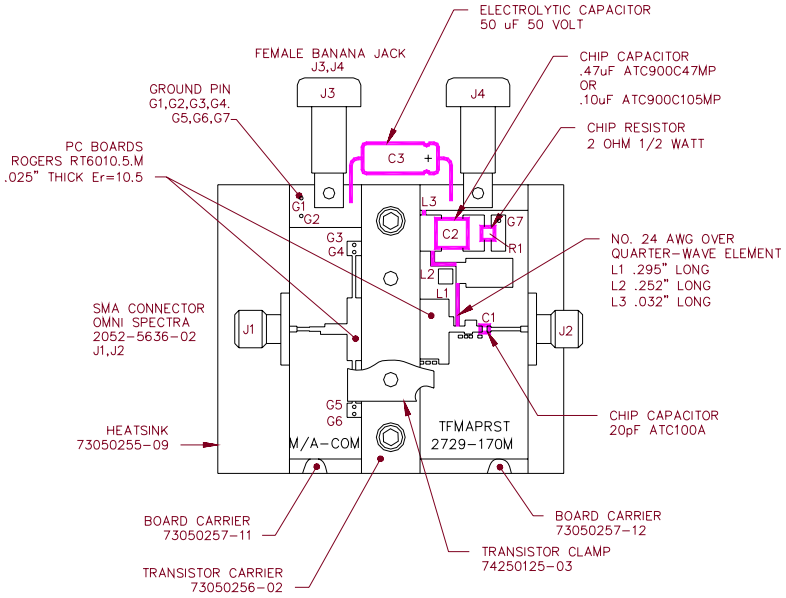


L1	NO. 24 AWG X .292" LONG OVER QUARTER-WAVE ELEMENT
L2	NO. 24 AWG X .252" LONG OVER QUARTER-WAVE ELEMENT
L3	NO. 24 AWG X .032" LONG OVER QUARTER-WAVE ELEMENT
Z1-Z11	DISTRIBUTED MICROSTRIP ELEMENT
BOARD TYPE	ROGERS RT6010.5LM .025" THICK Er=10.5

SCHEMATIC



ASSEMBLY VIEW

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