

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

MAPR-002729-170M00  
Preliminary 1/2007

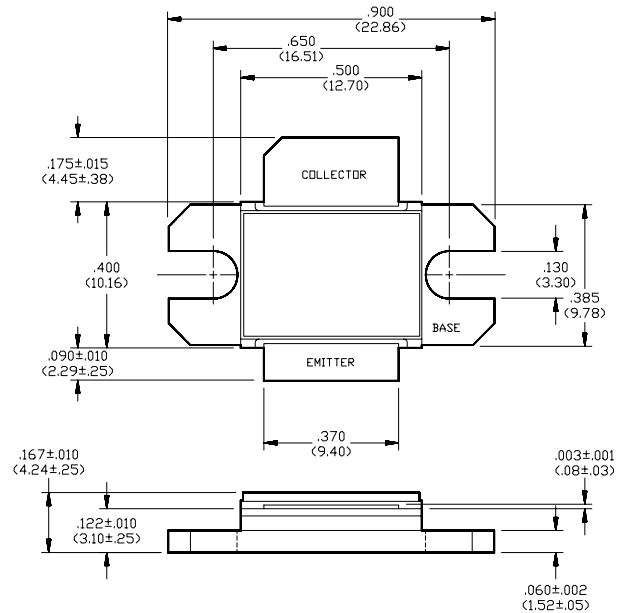
**Features**

- 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**

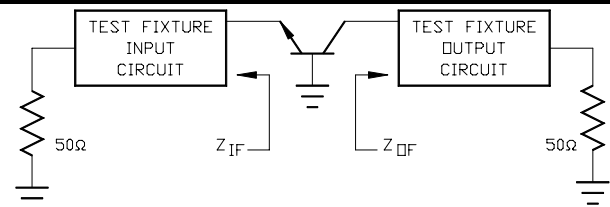


**ELECTRICAL CHARACTERISTICS AT 25°C**

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	$\eta_C$	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.

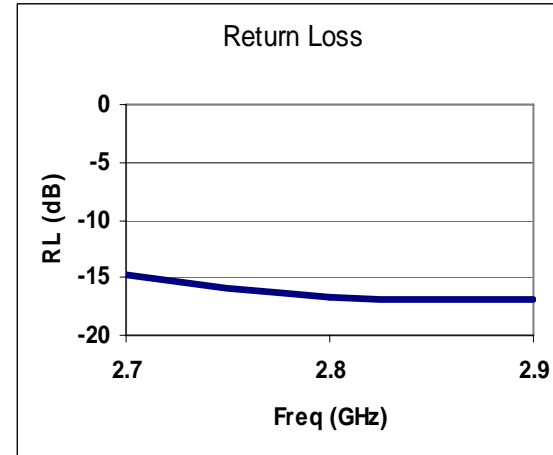
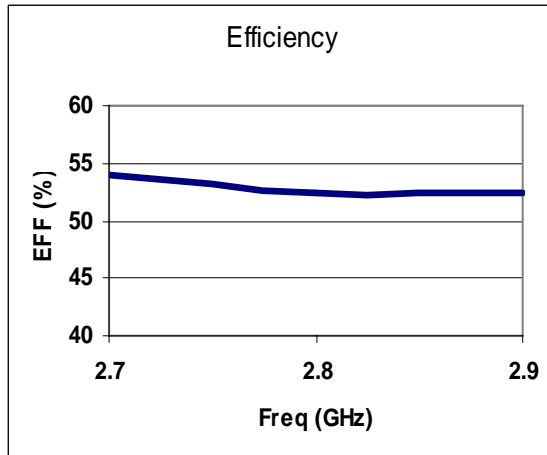
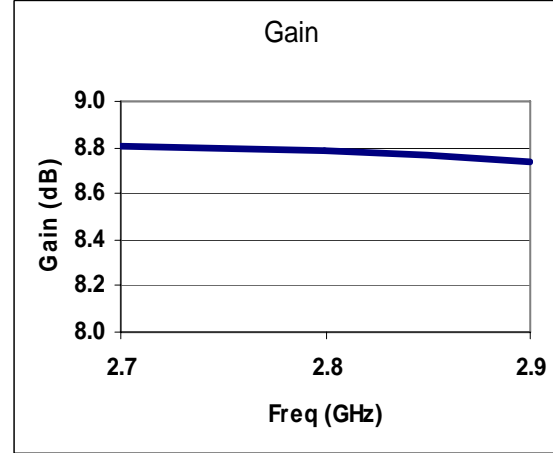
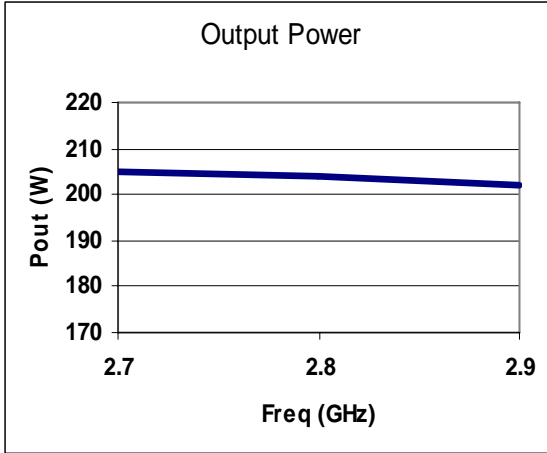
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Measured RF Performance



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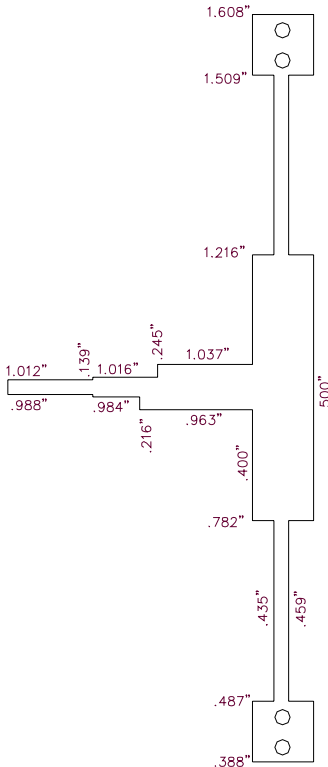
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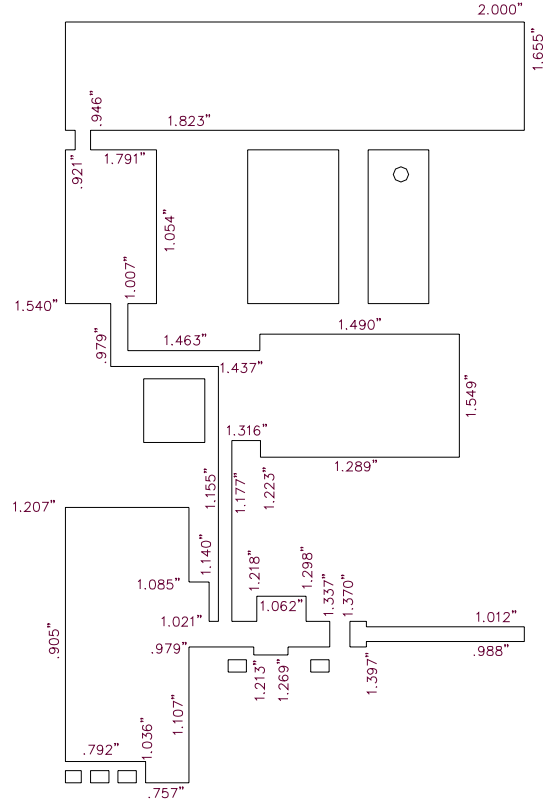
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M/A-COM



TFMAPRST  
2729-170M



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

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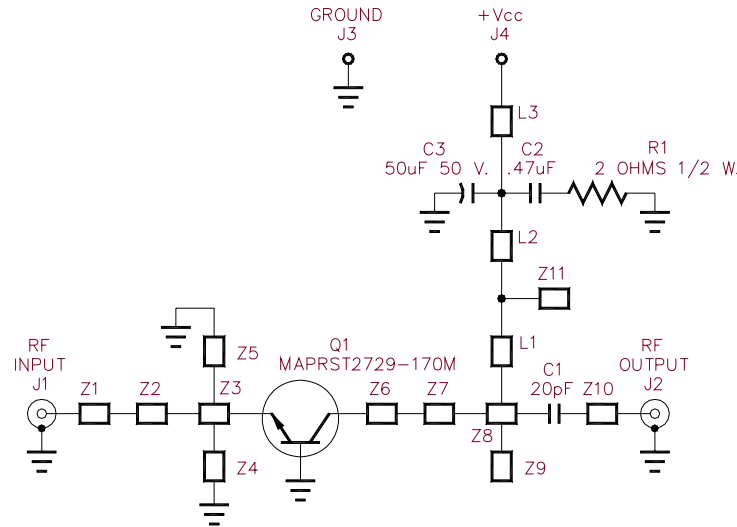
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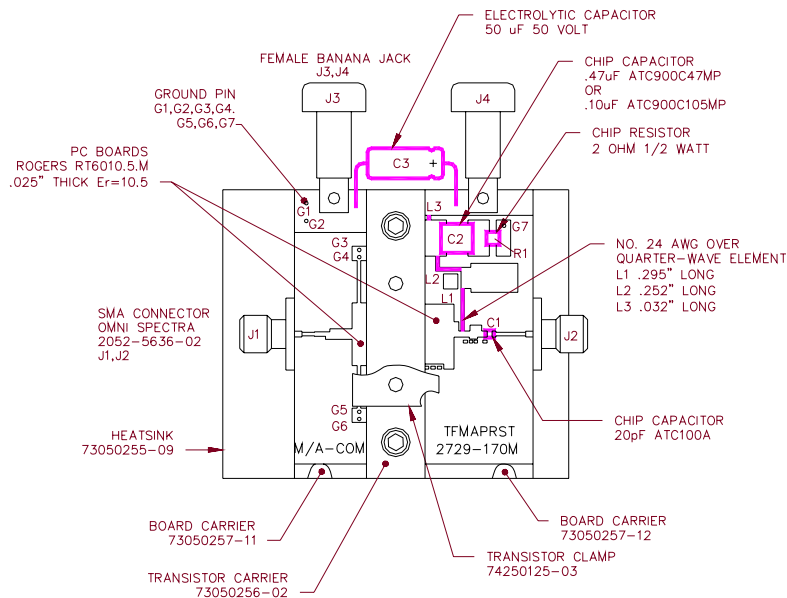
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- L1 NO. 24 AWG X .292" LONG OVER QUARTER-WAVE ELEMENT
- L2 NO. 24 AWG X .252" LONG OVER QUARTER-WAVE ELEMENT
- L3 NO. 24 AWG X .032" LONG OVER QUARTER-WAVE ELEMENT
- Z1-Z11 DISTRIBUTED MICROSTRIP ELEMENT
- BOARD TYPE ROGERS RT6010.5LM .025" THICK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

SCHEMATIC



ASSEMBLY VIEW

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