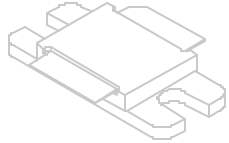




# 2729-170

170 Watts, 38 Volts, 100 $\mu$ s, 10%  
Radar 2700-2900 MHz

<p><b>GENERAL DESCRIPTION</b></p> <p>The 2729-170 is an internally matched, COMMON BASE bipolar transistor capable of providing 170 Watts of pulsed RF output power at 100<math>\mu</math>s pulse width, 10% duty factor across the 2700 to 2900 MHz band. <b>The transistor prematch and test fixture has been optimized through the use of Pulsed Automated Load Pull.</b> This hermetically solder-sealed transistor is specifically designed for S-band radar applications. It utilizes gold metallization and emitter ballasting to provide high reliability and supreme ruggedness.</p>	<p><b>CASE OUTLINE</b></p> <p><b>55KS-1</b> <b>Common Base</b></p> 
<p><b>ABSOLUTE MAXIMUM RATINGS</b></p> <p><b>Maximum Power Dissipation</b></p> <p>Device Dissipation @ 25<math>^{\circ}</math>C<sup>1</sup>                      570 W</p> <p><b>Maximum Voltage and Current</b></p> <p>Collector to Base Voltage (BV<sub>ces</sub>)                      65 V</p> <p>Emitter to Base Voltage (BV<sub>ebo</sub>)                      3.0 V</p> <p>Collector Current (I<sub>c</sub>)                                      17 A</p> <p><b>Maximum Temperatures</b></p> <p>Storage Temperature                                      -65 to +200 <math>^{\circ}</math>C</p> <p>Operating Junction Temperature                      +200 <math>^{\circ}</math>C</p>	

## ELECTRICAL CHARACTERISTICS @ 25 $^{\circ}$ C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P <sub>out</sub>	Power Output	F=2700-2900 MHz	170			W
P <sub>in</sub>	Power Input	V <sub>cc</sub> = 38 Volts			25.7	W
P <sub>g</sub>	Power Gain	Pulse Width = 100 $\mu$ s	8.2	8.6		dB
$\eta_c$	Collector Efficiency	Duty Factor = 10%	52	60		%
VSWR	Load Mismatch Tolerance <sup>1</sup>	F = 2900 MHz, P <sub>o</sub> = 170 W			2:1	

## FUNCTIONAL CHARACTERISTICS @ 25 $^{\circ}$ C

BV <sub>ebo</sub>	Emitter to Base Breakdown	I <sub>e</sub> = 30 mA	3.0			V
I <sub>ebo</sub>	Emitter to Base Leakage	V <sub>eb</sub> = 1.5 V			2	mA
BV <sub>ces</sub>	Collector to Emitter Breakdown	I <sub>c</sub> = 120 mA	56	65		V
I <sub>ces</sub>	Collector to Emitter Leakage	V <sub>ce</sub> = 36 V			7	mA
h <sub>FE</sub>	DC – Current Gain	V <sub>ce</sub> = 5V, I <sub>c</sub> = 600 mA	18	50		
$\theta_{jc}^1$	Thermal Resistance				0.30	$^{\circ}$ C/W

NOTE: 1. At rated output power and pulse conditions

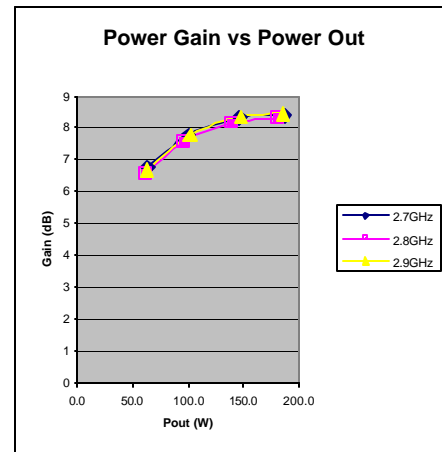
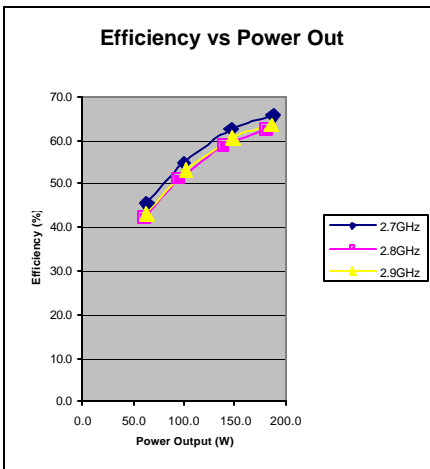
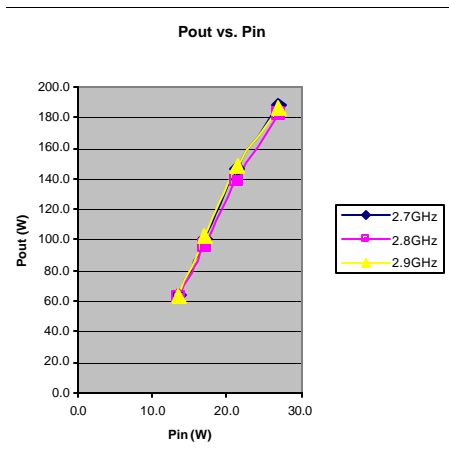
Issue April 2005



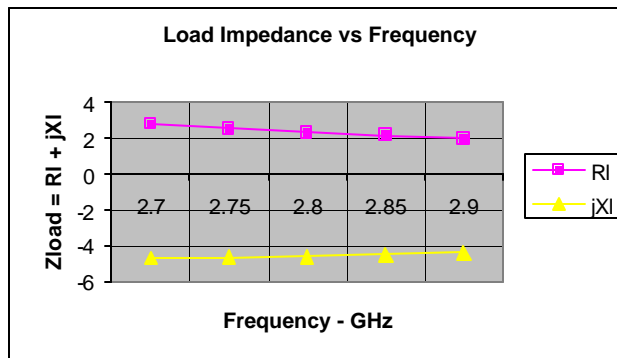
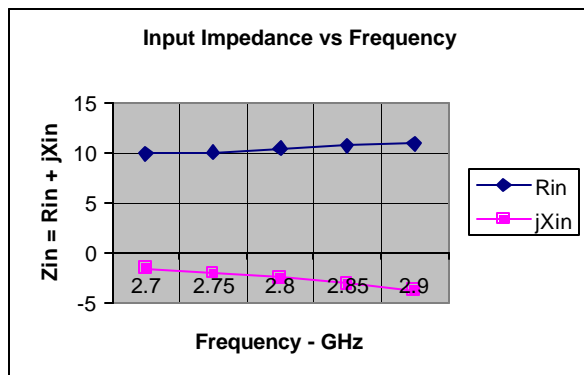
Vcc = 38 Volts, Pulse Width = 100ms, Duty = 10 %

G2754-2,

Product is in characterization, additional curves will be inserted at the conclusion.



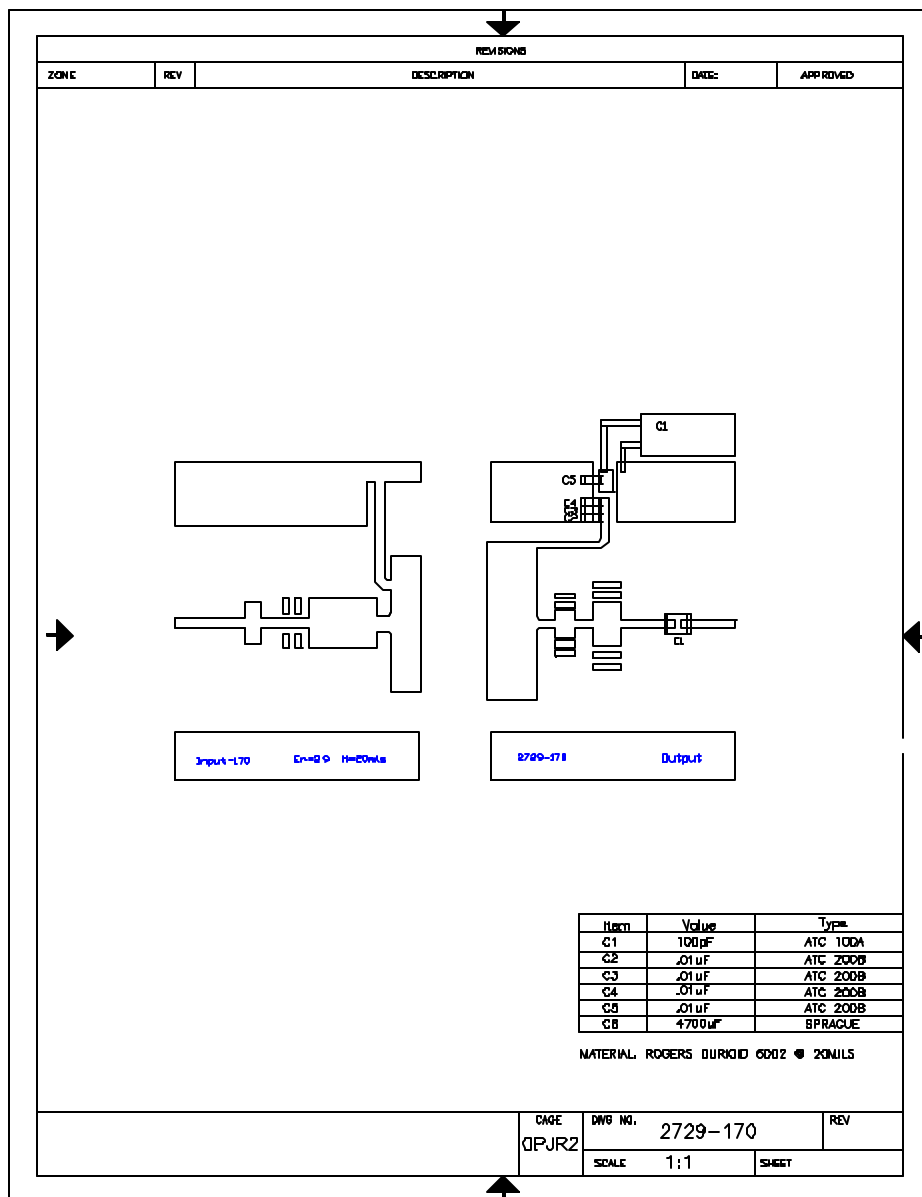
**Input and Load Impedance**



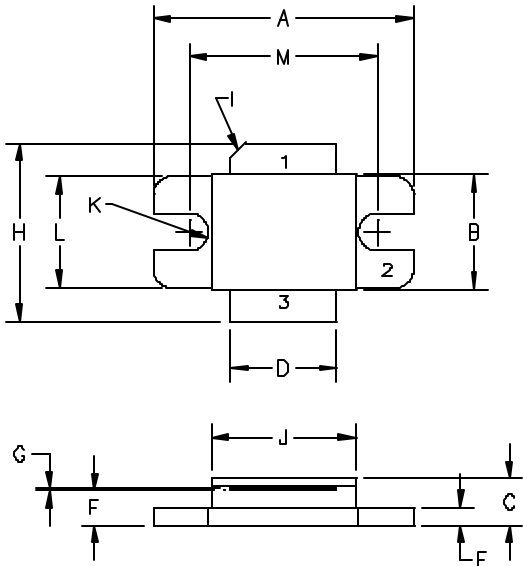
Note: Zin is looking into the transistor input, Zl is looking into the Output Circuit.

# 2729-170

## Broadband Test Circuit –



# 2729-170

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
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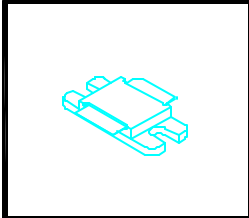
DIM	MILLIMETER	TOL	INCHES	TOL
A	22.86	.25	.900	.010
B	10.16	.25	.400	.010
C	4.19	.19	.165	.007
D	9.39	.13	.370	.005
E	1.52	.13	.060	.005
F	3.05	.13	.120	.005
G	0.13	.03	.005	.001
H	16.51	.76	.650	.030
I	45°	5°	45°	5°
J	12.70	.25	.500	.030
K	3.30 DIA	.13	.130 DIA	.005
L	9.78	.13	.385	.005
M	16.51	MAX	.650	MAX


STYLE:

1 = COLLECTOR

2 = BASE

3 = EMITTER





**GHz TECHNOLOGY**  
RF - MICROWAVE SILICON POWER TRANSISTORS

CAGE	DWB NO.	REV
0PJR2	55KS	A
SCALE	2/1	SHEET