



2729-170

170 Watts, 38 Volts, 100 μ s, 10%
Radar 2700-2900 MHz

GENERAL DESCRIPTION

The 2729-170 is an internally matched, COMMON BASE bipolar transistor capable of providing 170 Watts of pulsed RF output power at 100 μ s pulse width, 10% duty factor across the 2700 to 2900 MHz band. **The transistor prematch and test fixture has been optimized through the use of Pulsed Automated Load Pull.** 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.

CASE OUTLINE

**55KS-1
Common Base**

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation

Device Dissipation @ 25 $^{\circ}$ C¹ 570 W

Maximum Voltage and Current

Collector to Base Voltage (BV_{ces}) 65 V

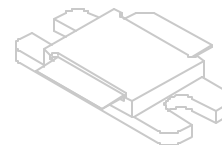
Emitter to Base Voltage (BV_{ebo}) 3.0 V

Collector Current (I_c) 17 A

Maximum Temperatures

Storage Temperature -65 to +200 $^{\circ}$ C

Operating Junction Temperature +200 $^{\circ}$ C



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

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{out}	Power Output	F=2700-2900 MHz	170			W
P _{in}	Power Input	V _{cc} = 38 Volts			25.7	W
P _g	Power Gain	Pulse Width = 100 μ s	8.2	8.6		dB
η_c	Collector Efficiency	Duty Factor = 10%	52	60		%
VSWR	Load Mismatch Tolerance ¹	F = 2900 MHz, P _o = 170 W			2:1	

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

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

NOTE: 1. At rated output power and pulse conditions

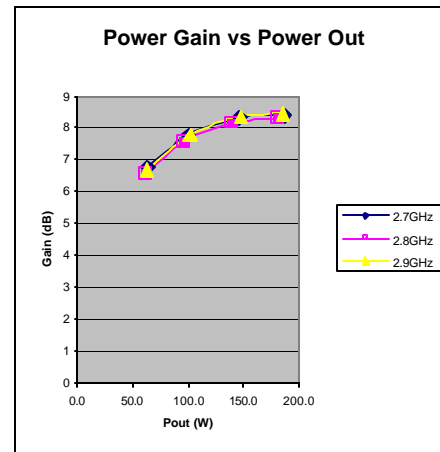
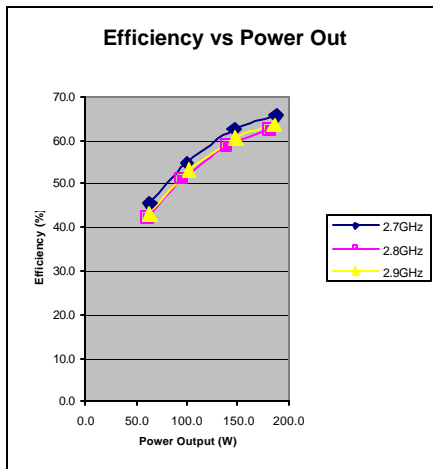
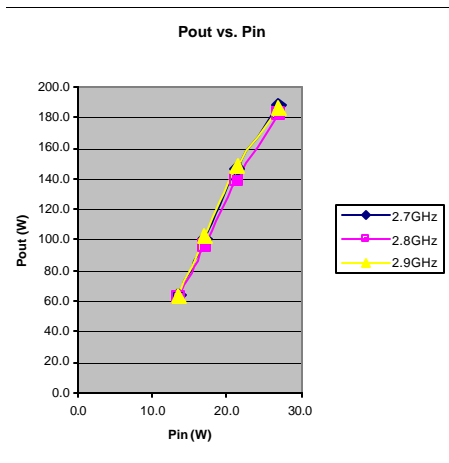
Issue April 2005



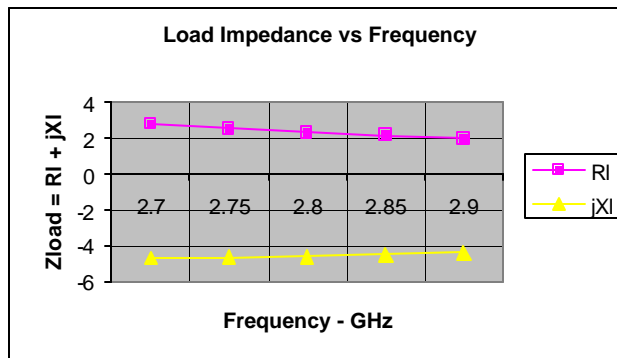
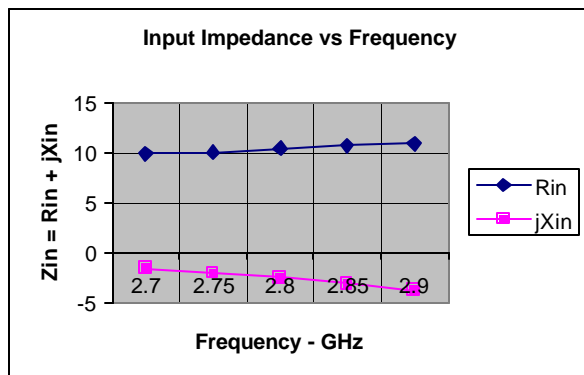
Vcc = 38 Volts, Pulse Width = 100ms, Duty = 10 %

G2754-2,

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



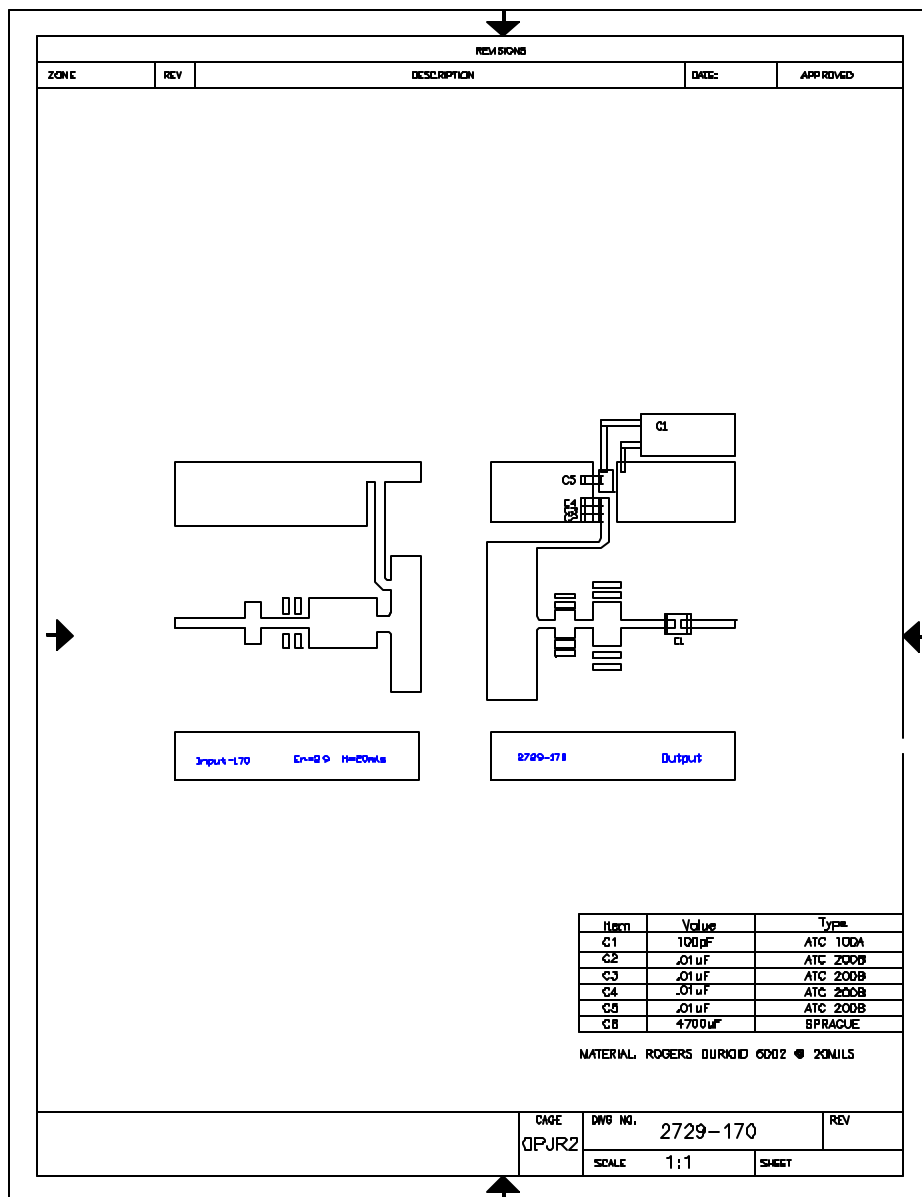
Input and Load Impedance



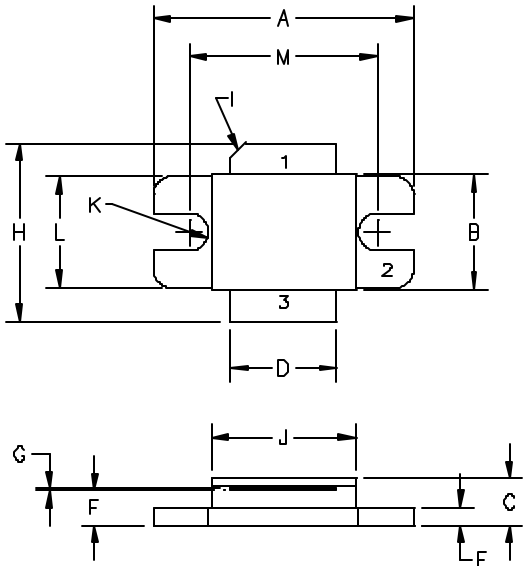
Note: Zin is looking into the transistor input, Zl is looking into the Output Circuit.

2729-170

Broadband Test Circuit –

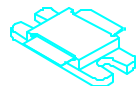


2729-170

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
<div style="text-align: center;">  </div>				

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