2729-125

125 Watts, 36 Volts, 100µs, 10%
Radar 2700-2900 MHz

GENERAL DESCRIPTION

The 2729-125 is an internally matched, COMMON BASE bipolar transistor capable of providing 125 Watts of pulsed RF output power at 100µs 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°C[1]	350	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)	15	A

Maximum Temperatures

Storage Temperature	-65 to +200	°C
Operating Junction Temperature	+200	°C

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Output	F=2700-2900 MHz	125			W
P_{in}	Power Input	V_{cc} = 36 Volts			15.7	W
P_g	Power Gain	Pulse Width = 100 µs	9.0	9.5		dB
η_c	Collector Efficiency	Duty Factor = 10%	45	55		%
VSWR	Load Mismatch Tolerance[1]	F = 2900 MHz, P_o = 125W			2:1	

FUNCTIONAL CHARACTERISTICS @ 25°C

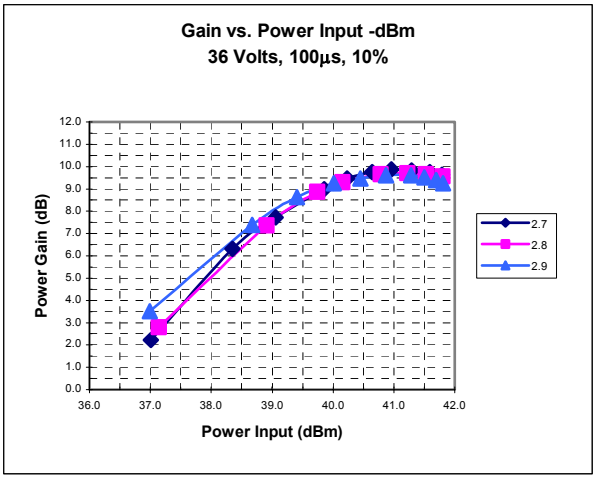
BV_{ebo}	Emitter to Base Breakdown	Ie = 30 mA	3.0			V
BV_{ces}	Collector to Emitter Breakdown	Ic = 120 mA	56	65		V
h_{FE}	DC – Current Gain	Vce = 5V, Ic = 600 mA	18	50		
θjc[1]	Thermal Resistance				0.5	°C/W

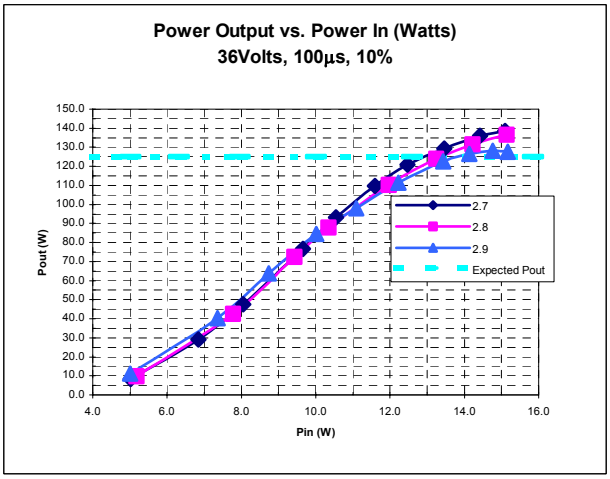
NOTE: 1. At rated output power and pulse conditions

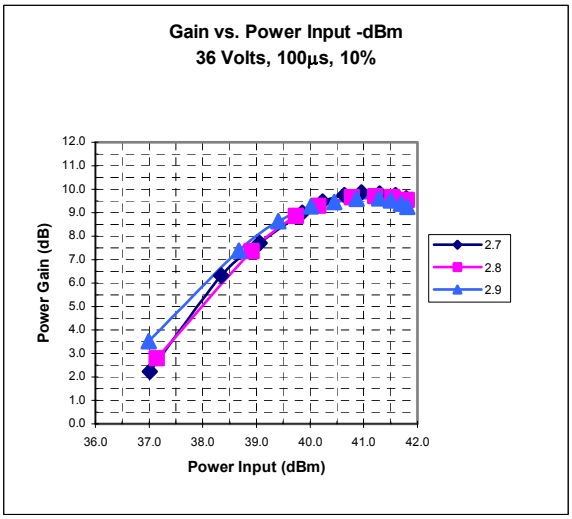
Issue April 2003

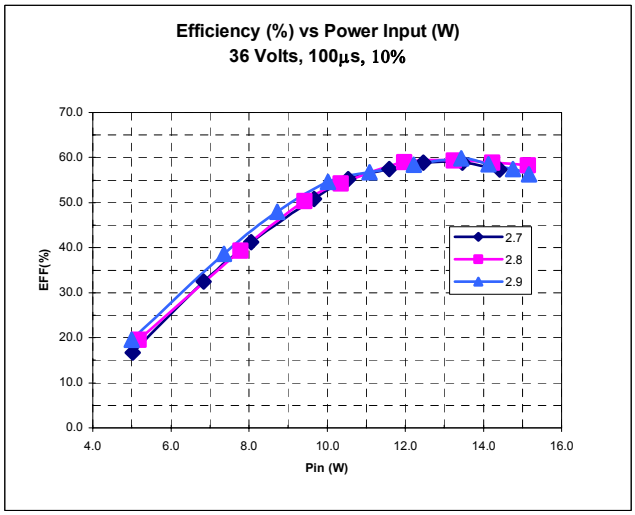
Vcc = 36 Volts, Pulse Width = 100µs, Duty = 10%

G2747-2, Unit 7, TF040803P2



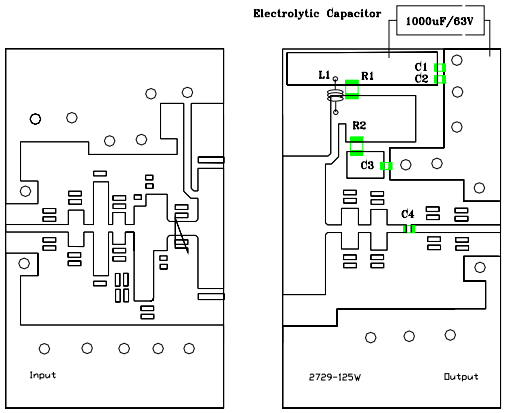






REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

2729-125 Test Fixture Assembly Drawing

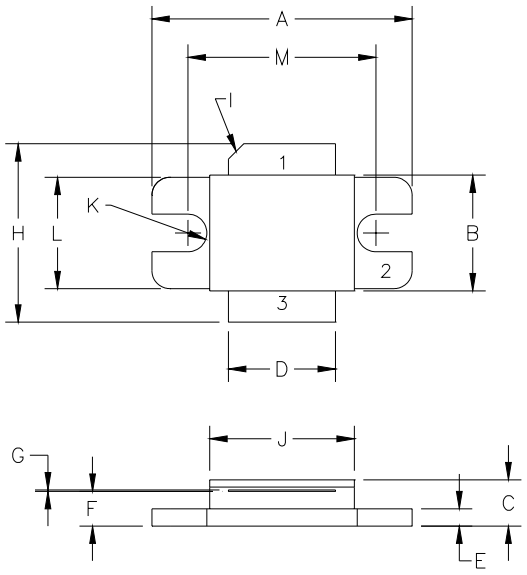


Material: Rogers RT6002, Er=2.9, H=20mils, 1oz.

R1= 26.7 ohms (surface mount, ¼ wt.)
R2= Two-20 ohms in parallel (surface mount, ¼ wt. each)
L1= #18, 4 turns, dia = 165mils
C1= 100pF (100B)
C2= 47pF (100B)
C3= 100nF (200B/100WVDC, special order)
C4= 20pF (100A)

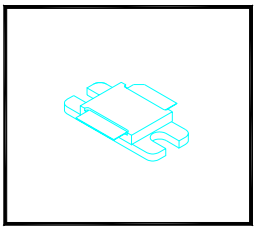
CHz TECHNOLOGY	CAGE 0PJR2	DWG NO. 2729-125	REV –
		SCALE 1/1	SHEET

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



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