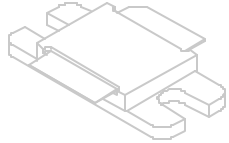




2729-170

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

| | |
|---|---|
| <p>GENERAL DESCRIPTION</p> <p>The 2729-170 is an internally matched, COMMON BASE bipolar transistor capable of providing 170 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.</p> | <p>CASE OUTLINE 55KS-1 Common Base</p>  |
| <p>ABSOLUTE MAXIMUM RATINGS</p> <p>Maximum Power Dissipation Device Dissipation @ 25$^{\circ}$C¹ 570 W</p> <p>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</p> <p>Maximum Temperatures Storage Temperature -65 to +200 $^{\circ}$C Operating Junction Temperature +200 $^{\circ}$C</p> | |

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

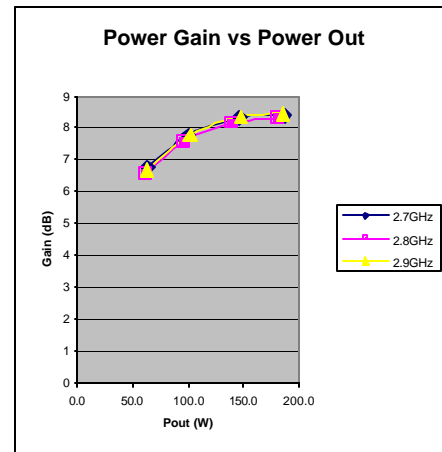
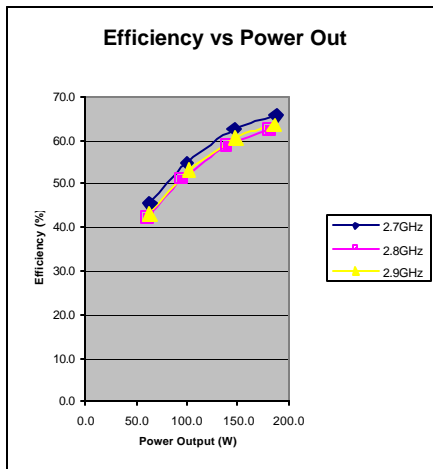
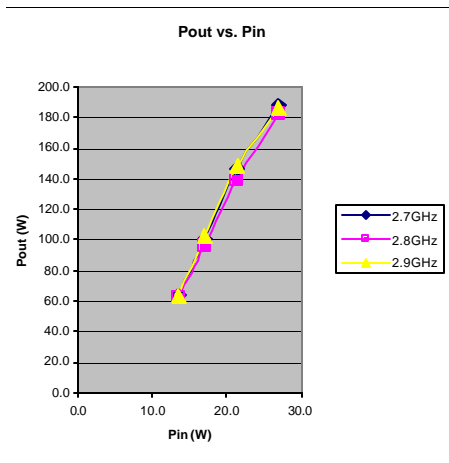
Issue April 2005



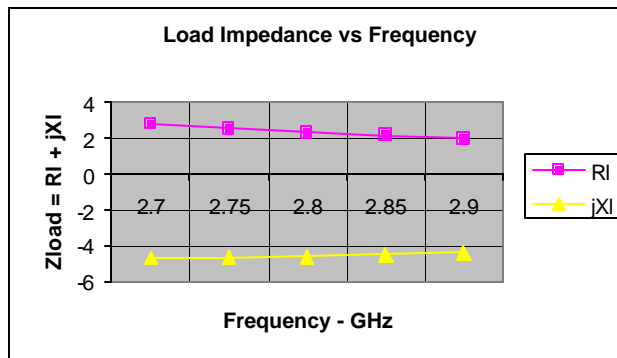
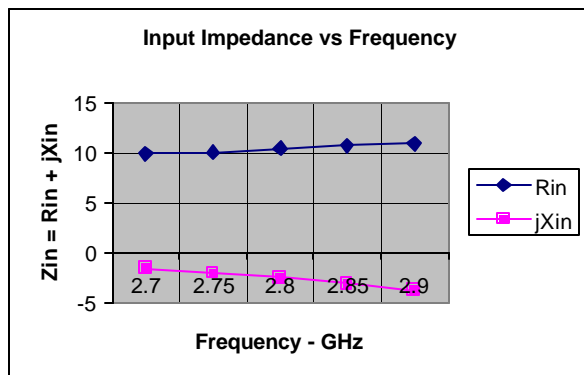
Vcc = 38 Volts, Pulse Width = 100ms, Duty = 10 %

G2754-2,

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



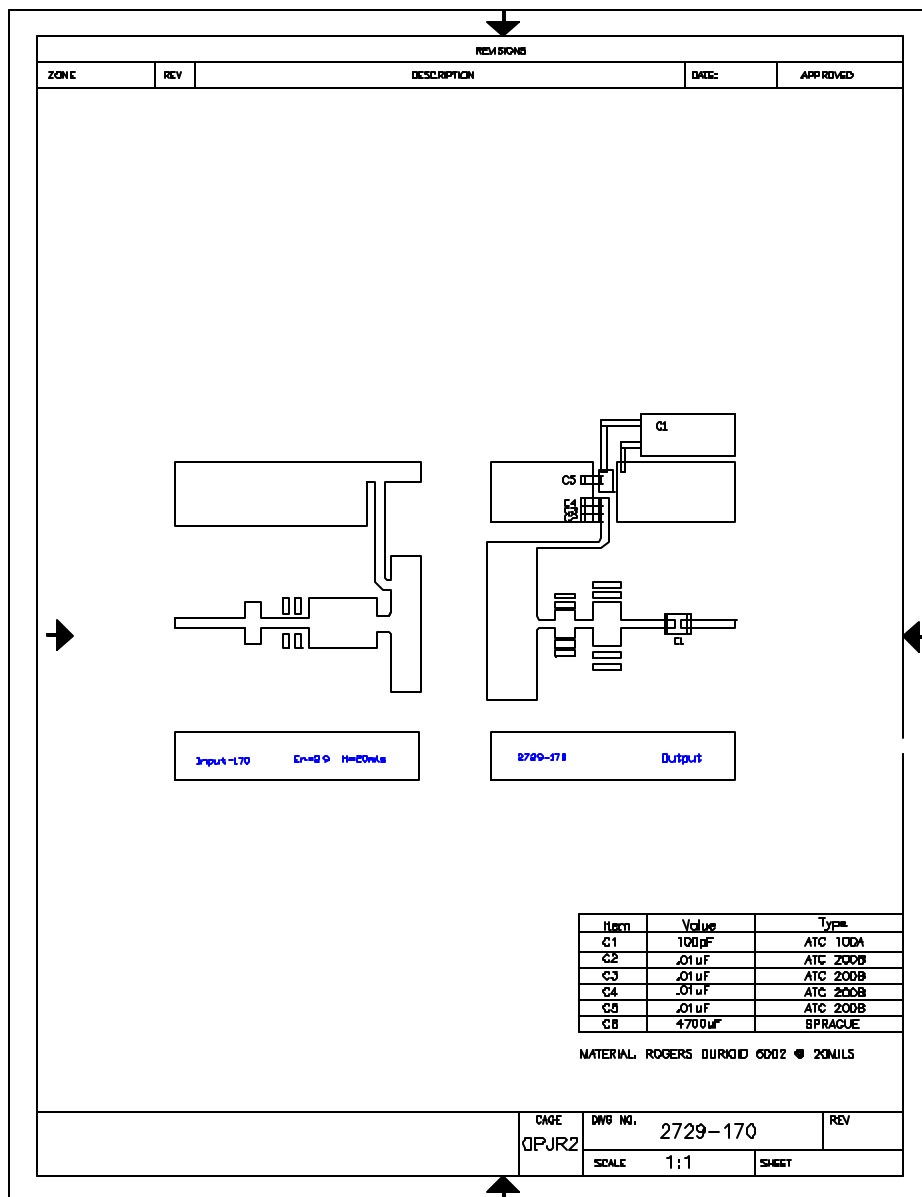
Input and Load Impedance



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 |