GHz TECHNOLOGY
RF·MICROWAVE SILICON POWER TRANSISTORS

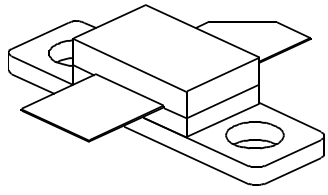
# *TPR 175*

175 Watts, 50 Volts, Pulsed
Avionics 1030 - 1090 MHz

## GENERAL DESCRIPTION

The TPR 175 is a high power COMMON BASE bipolar transistor. It is designed for pulsed systems in the frequency band 1030-1090 MHz. The device has gold thin-film metallization for proven highest MTTF. The transistor includes input prematch for broadband capability. Low thermal resistance package reduces junction temperature, extends life.

## CASE OUTLINE
## 55CX, STYLE 1



## ABSOLUTE MAXIMUM RATINGS

| | | |
|---|---|---|
| Maximum Power Dissipation @ 25°C[2] | | 388 Watts |
| **Maximum Voltage and Current** | | |
| BVces | Collector to Base Voltage | 55 Volts |
| BVebo | Emitter to Base Voltage | 3.5 Volts |
| Ic | Collector Current | 12.5 Amps |
| **Maximum Temperatures** | | |
| Storage Temperature | | - 65 to + 150°C |
| Operating Junction Temperature | | + 200°C |

## ELECTRICAL CHARACTERISTICS @ 25 °C

| SYMBOL | CHARACTERISTICS | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| **Pout** | Power Out | F = 1090 MHz | 175 | | | Watts |
| **Pin** | Power Input | Vcc = 50 Volts | | | 25 | Watts |
| **Pg** | Power Gain | PW = 10 μsec | 8.0 | 9.0 | | dB |
| $\eta_c$ | Collector Efficiency | DF = 1% | | 40 | | % |
| **VSWR** | Load Mismatch Tolerance | F = 1090 MHz | | | 00:1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **BVebo** | Emitter to Base Breakdown | Ie = 5 mA | 3.5 | | | Volts |
| **BVces** | Collector to Emitter Breakdown | Ic = 20 mA | 55 | | | Volts |
| $\mathbf{h_{FE}}$ | DC - Current Gain | Ic = 20 mA, Vce = 5V | 10 | | | |
| $\theta$**jc**[2] | Thermal Resistance | | | | 0.45 | °C/W |

Note 1: At rated output power and pulse conditions
2: At rated pulse conditions

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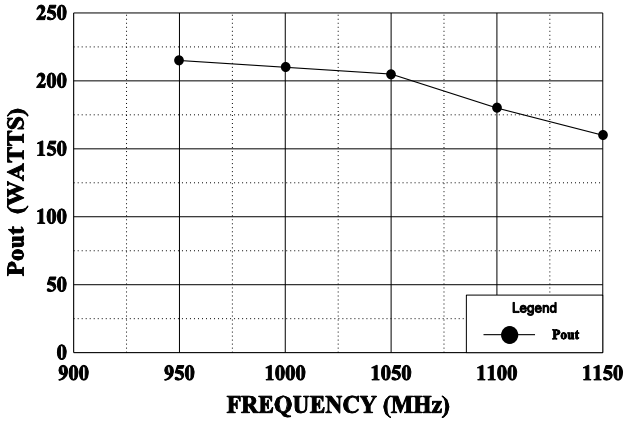
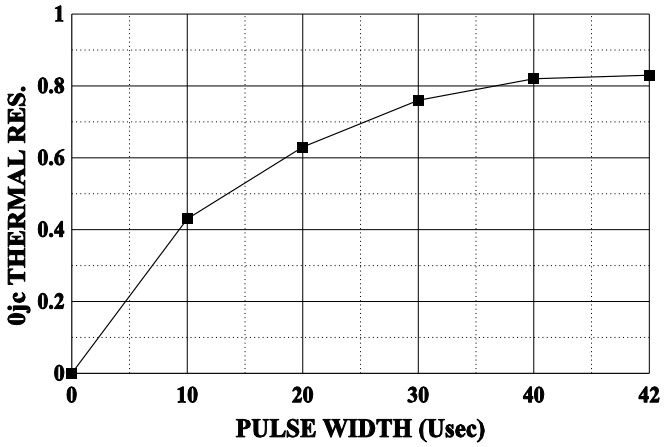
## *POWER OUTPUT vs FREQUENCY*

Vcc = 50 V, Pin = 25 W



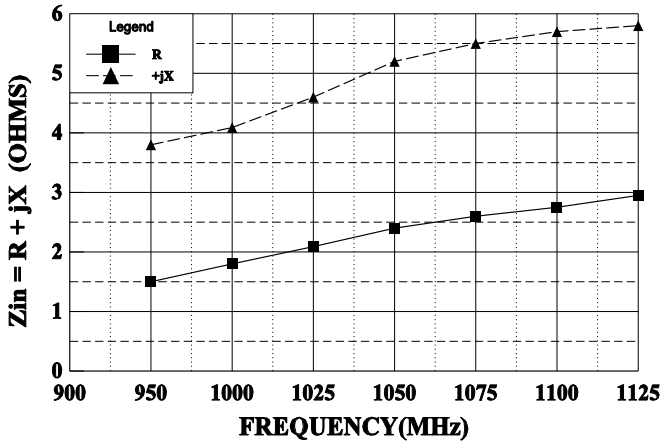

## *THERMAL RESISTANCE vs PULSE WIDTH*

Vcc - 50 V, Tf = 30o C



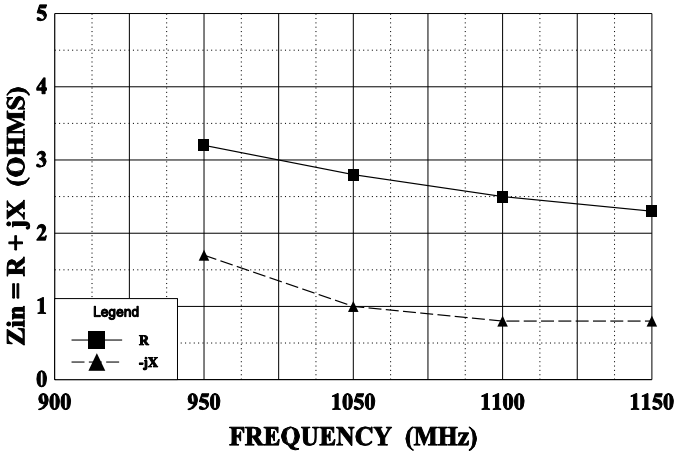

## *SERIES INPUT IMPEDANCE vs FREQUENCY*

Vcc = 50 V, Po = 175 W



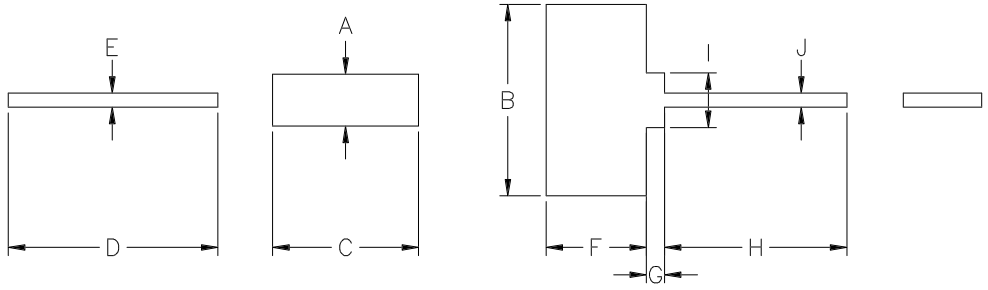

## *SERIES LOAD IMPEDANCE vs FREQUENCY*

Vcc = 50 V, Po = 175 W

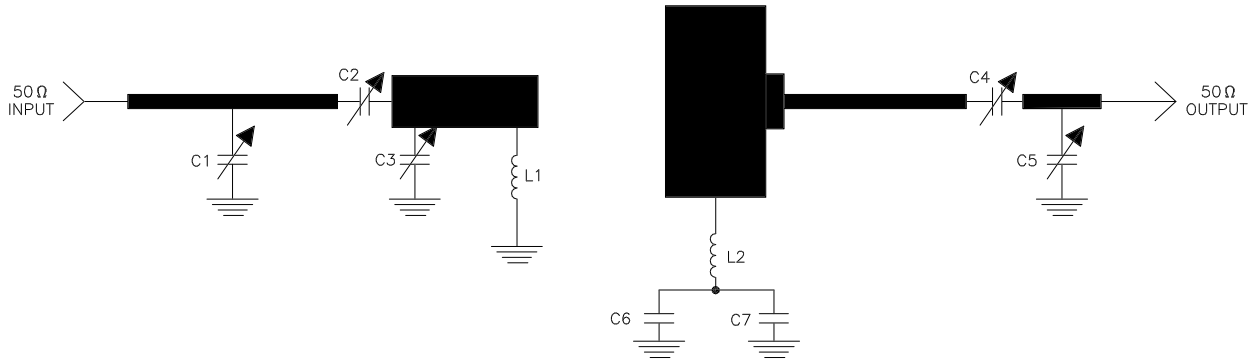


| REVISIONS | | | | |
|---|---|---|---|---|
| ZONE | REV | DESCRIPTION | DATE | APPROVED |

| DIM | INCHES |
|---|---|
| A | .285 |
| B | 1.050 |
| C | .800 |
| D | 1.150 |
| E | .078 |
| F | .550 |
| G | .100 |
| H | 1.000 |
| I | .300 |
| J | .078 |




# 1030/1090 TEST AMPLIFIER




Material 1/32" Teflon Fiberglass
C1,C3,C5 = .3–3.5 Johanson
C2,C4 = .6–6 Johanson
C6 = 82pf A.T.C.
C7 = 200$\mu$f Electrolytic
L1 = #18 AWG 0.6" LONG
L2 = #18 AWG 1.0" LONG

| CHz TECHNOLOGY | CAGE | DWG NO. | REV |
|---|---|---|---|
| | 0PJR2 | TPR 175 | A |
| | | SCALE 1/1 | SHEET |