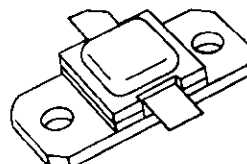


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- LOW PARASITIC, DOUBLE LEVEL METAL DESIGN
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 3:1 VSWR @ 1 dB OVERDRIVE
- LOW RF THERMAL RESISTANCE
- INPUT/OUTPUT IMPEDANCE MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 25 \text{ W MIN. WITH } 6.2 \text{ dB GAIN}$



.400 x .400 2LFL (S036)
hermetically sealed

ORDER CODE
AM82731-025

BRANDING
82731-25

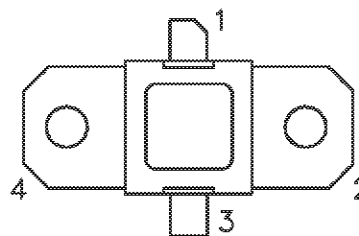
DESCRIPTION

The AM82731-025 device is a high power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures and can withstand a 3:1 output VSWR with a +1dB input over drive. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM82731-025 is supplied in the Hermetic Metal/Ceramic package with internal Input/Output impedance matching circuitry, and is intended for military and other high reliability applications.

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base | 4. Base |

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit |
|------------|--|--------------|--------------------|
| P_{DISS} | Power Dissipation* ($T_c \leq 50^{\circ}\text{C}$) | 100 | W |
| I_c | Device Current* | 4 | A |
| V_{CC} | Collector-Supply Voltage* | 46 | V |
| T_J | Junction Temperature (Pulsed RF Operation) | 250 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | - 65 to +200 | $^{\circ}\text{C}$ |

THERMAL DATA

| | | | |
|---------------|-----------------------------------|-----|----------------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance* | 2.0 | $^{\circ}\text{C/W}$ |
|---------------|-----------------------------------|-----|----------------------|

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS ($T_{case} = 25^{\circ}C$)

STATIC

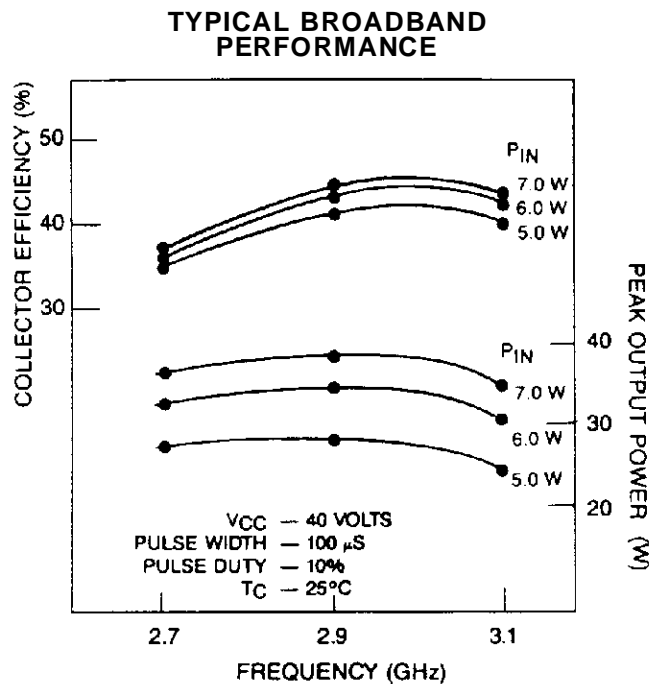
| Symbol | Test Conditions | Value | | | Unit |
|------------|----------------------------------|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_C = 15mA$ $I_E = 0mA$ | 55 | — | — | V |
| BV_{EBO} | $I_E = 2mA$ $I_C = 0mA$ | 3.5 | — | — | V |
| BV_{CER} | $I_C = 15mA$ $R_{BE} = 10\Omega$ | 55 | — | — | V |
| I_{CES} | $V_{CE} = 0V$ $V_{BE} = 40V$ | — | — | 10 | mA |
| h_{FE} | $V_{CE} = 5V$ $I_C = 1.5A$ | 30 | — | — | — |

DYNAMIC

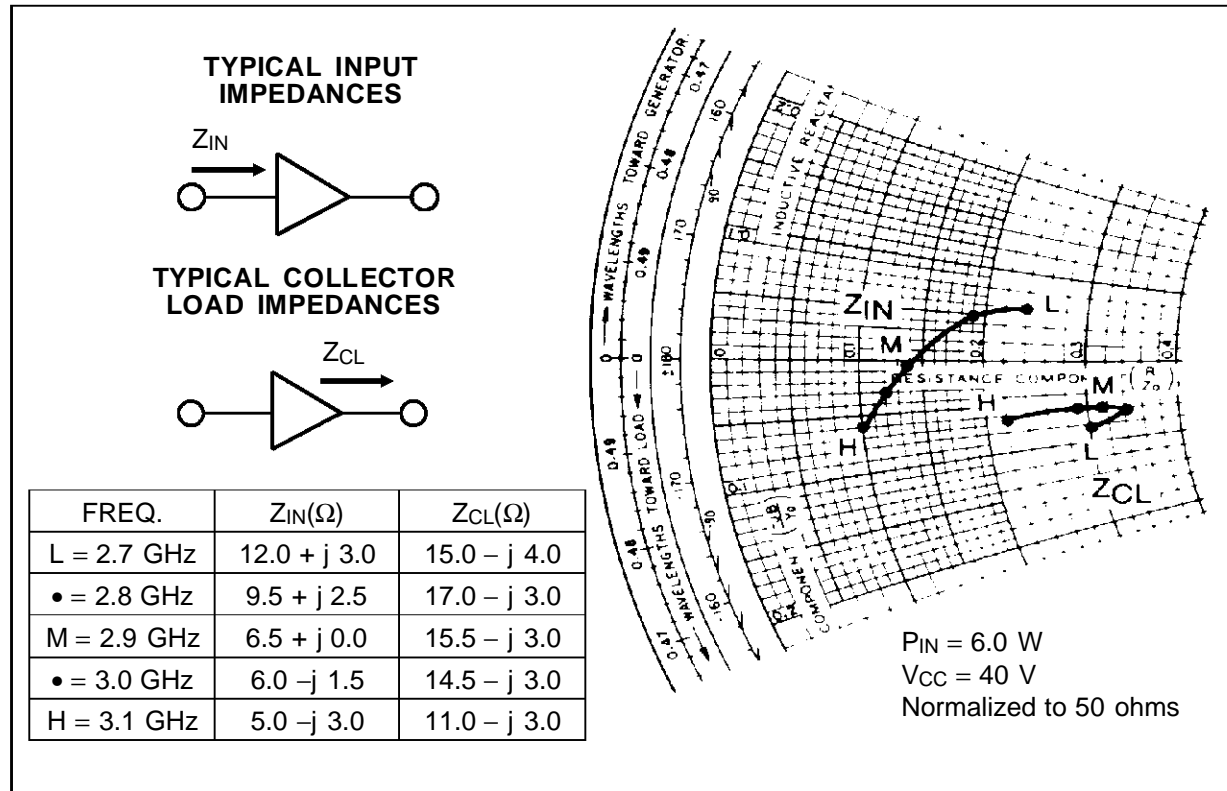
| Symbol | Test Conditions | Value | | | Unit |
|-----------|---|-------|------|------|------|
| | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 2.7 - 3.1GHz$ $P_{IN} = 6.0W$ $V_{CC} = 40V$ | 25 | 30 | — | W |
| η_C | $f = 2.7 - 3.1GHz$ $P_{IN} = 6.0W$ $V_{CC} = 40V$ | 30 | 36 | — | % |
| G_{PB} | $f = 2.7 - 3.1GHz$ $P_{IN} = 6.0W$ $V_{CC} = 40V$ | 6.2 | 7.0 | — | dB |

Note: Pulse Width = 100 μ Sec
Duty Cycle = 10%

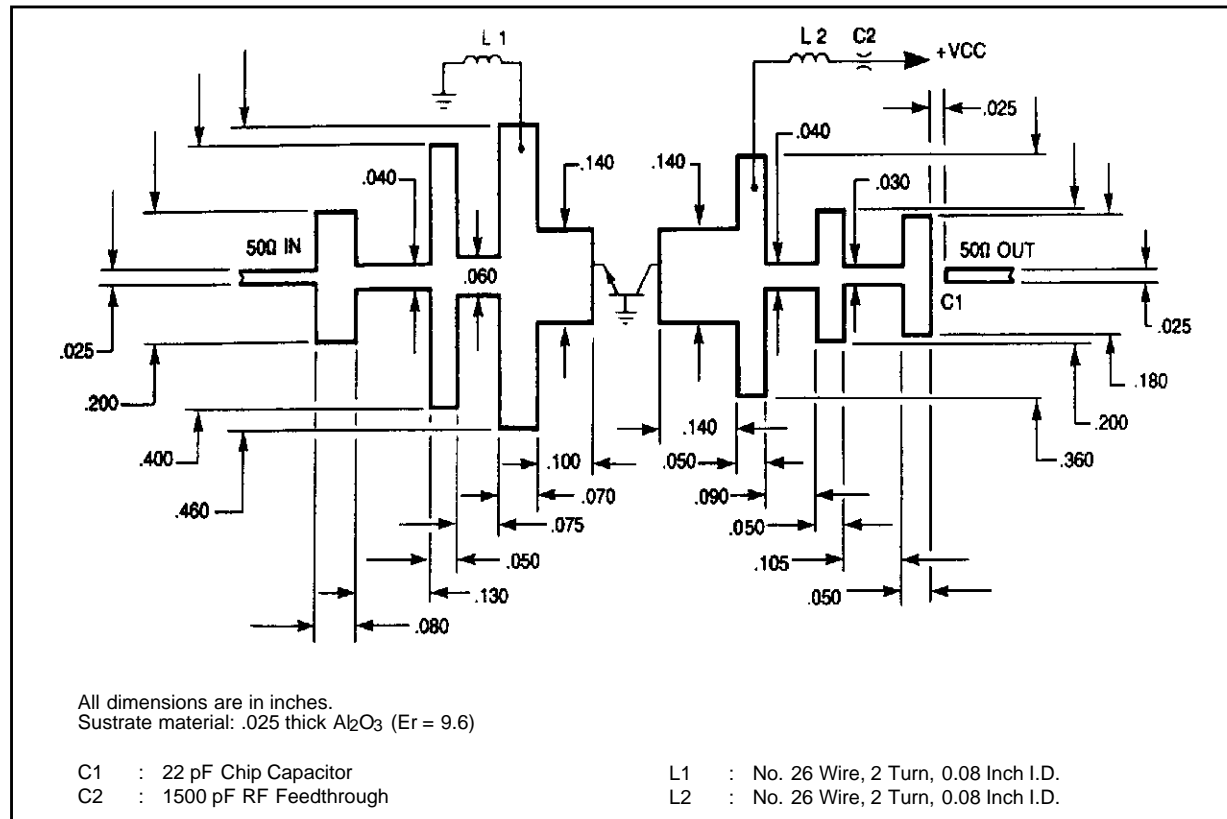
TYPICAL PERFORMANCE



IMPEDANCE DATA

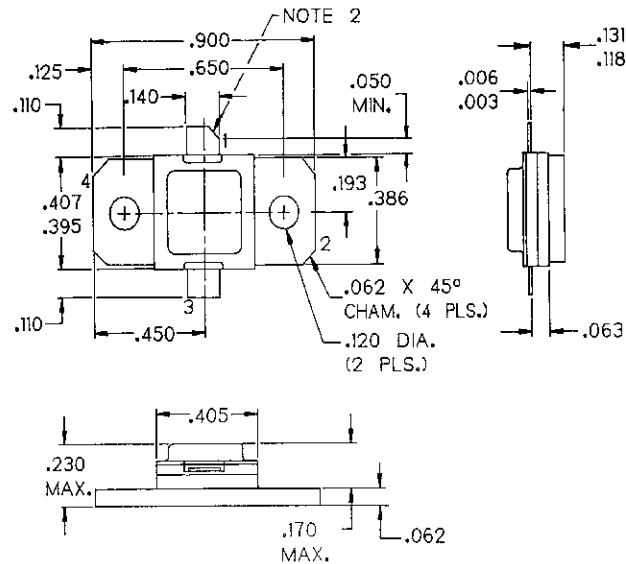


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133102E



NOTES:

1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.

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