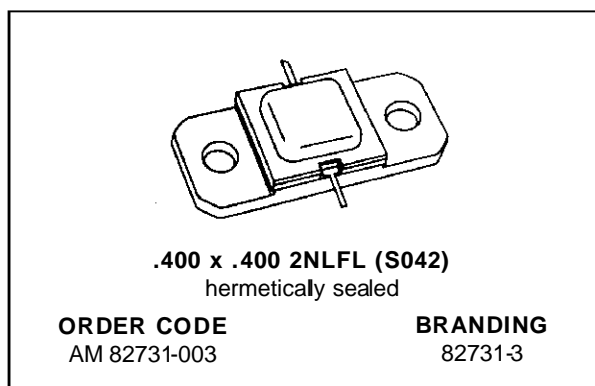


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 10:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT IMPEDANCE MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 3.0 W. MIN. WITH 5.7 dB GAIN
- BANDWIDTH = 400 MHz

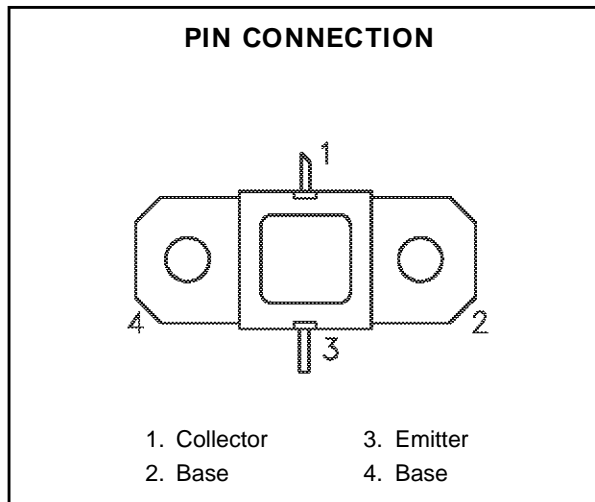


DESCRIPTION

The AM82731-003 device is a medium power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures and can withstand a 10:1 output VSWR. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency.

The AM82731-003 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.



ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

| Symbol | Parameter | Value | Unit |
|-------------------|---|--------------|------|
| P _{DISS} | Power Dissipation* (T _C ≤ 100°C) | 23 | W |
| I _C | Device Current* | 0.9 | A |
| V _{CC} | Collector-Supply Voltage* | 34 | V |
| T _J | Junction Temperature (Pulsed RF Operation) | 250 | °C |
| T _{STG} | Storage Temperature | - 65 to +200 | °C |

THERMAL DATA

| | | | |
|----------------------|----------------------------------|-----|------|
| R _{TH(j-c)} | Junction-Case Thermal Resistance | 6.5 | °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} | $I_C = 2mA$ | $I_E = 0mA$ | 50 | — | — | V |
| BV_{EBO} | $I_E = 1mA$ | $I_C = 0mA$ | 3.5 | — | — | V |
| BV_{CER} | $I_C = 2mA$ | $R_{BE} = 10\Omega$ | 50 | — | — | V |
| I_{CES} | $V_{CE} = 30V$ | | — | — | 2.0 | mA |
| h_{FE} | $V_{CE} = 5V$ | $I_C = 200mA$ | 10 | — | — | — |

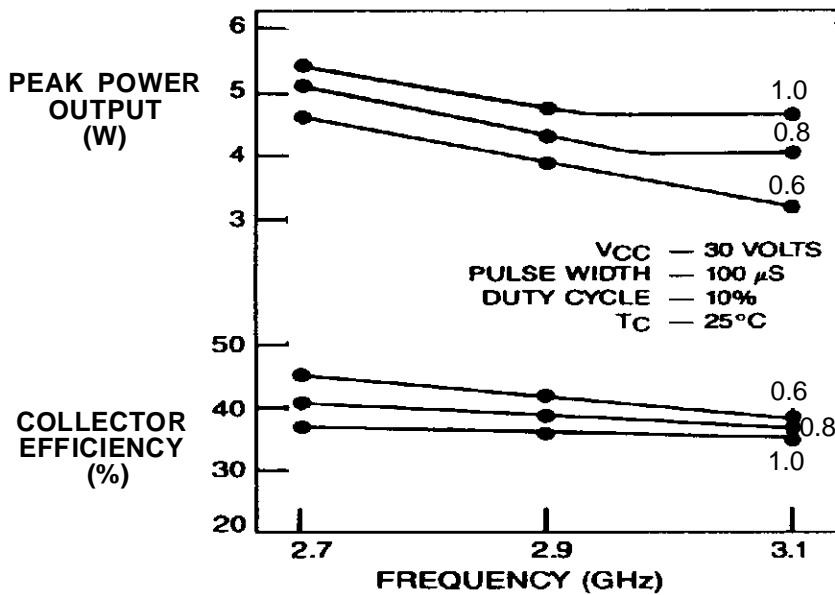
DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|-----------|--------------------|-----------------|----------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 2.7 - 3.1GHz$ | $P_{IN} = 0.8W$ | $V_{CC} = 30V$ | 3.0 | 4.0 | — | W |
| η_C | $f = 2.7 - 3.1GHz$ | $P_{IN} = 0.8W$ | $V_{CC} = 30V$ | 27 | 37 | — | % |
| GPB | $f = 2.7 - 3.1GHz$ | $P_{IN} = 0.8W$ | $V_{CC} = 30V$ | 5.7 | 7.0 | — | dB |

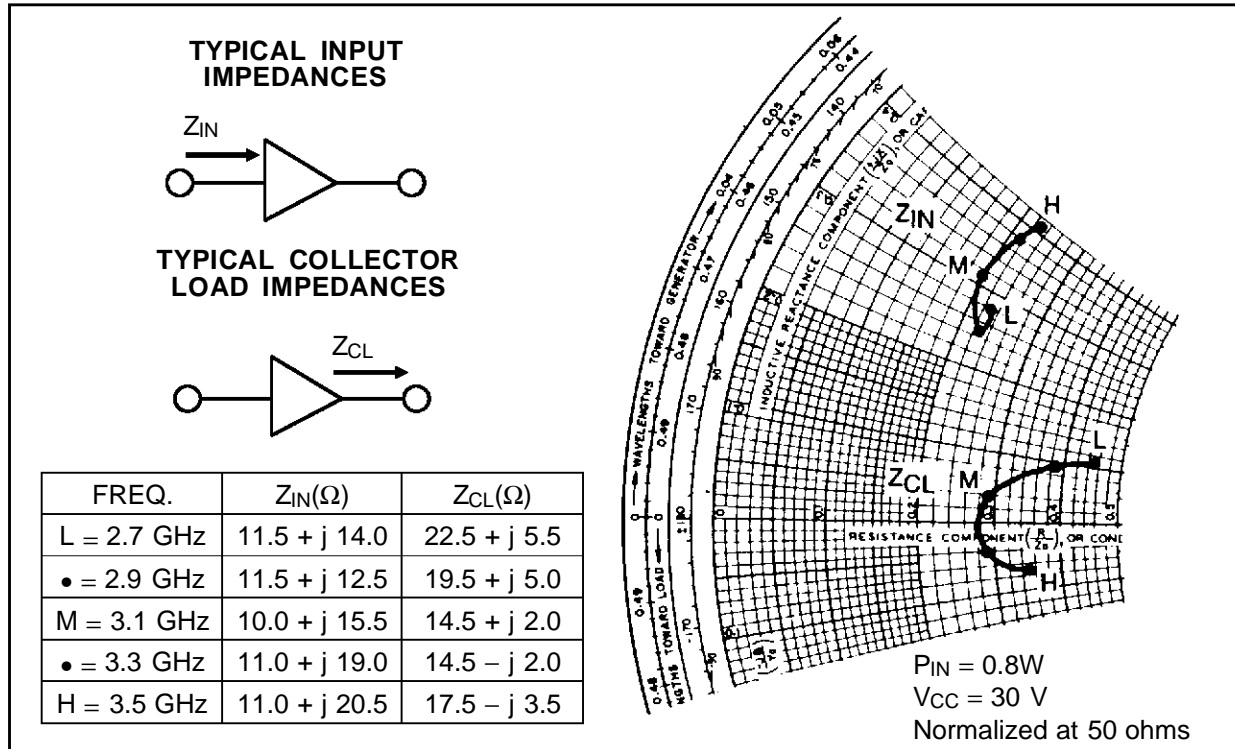
Note: Pulse Width = 100 μ S
 Duty Cycle = 10%

TYPICAL PERFORMANCE

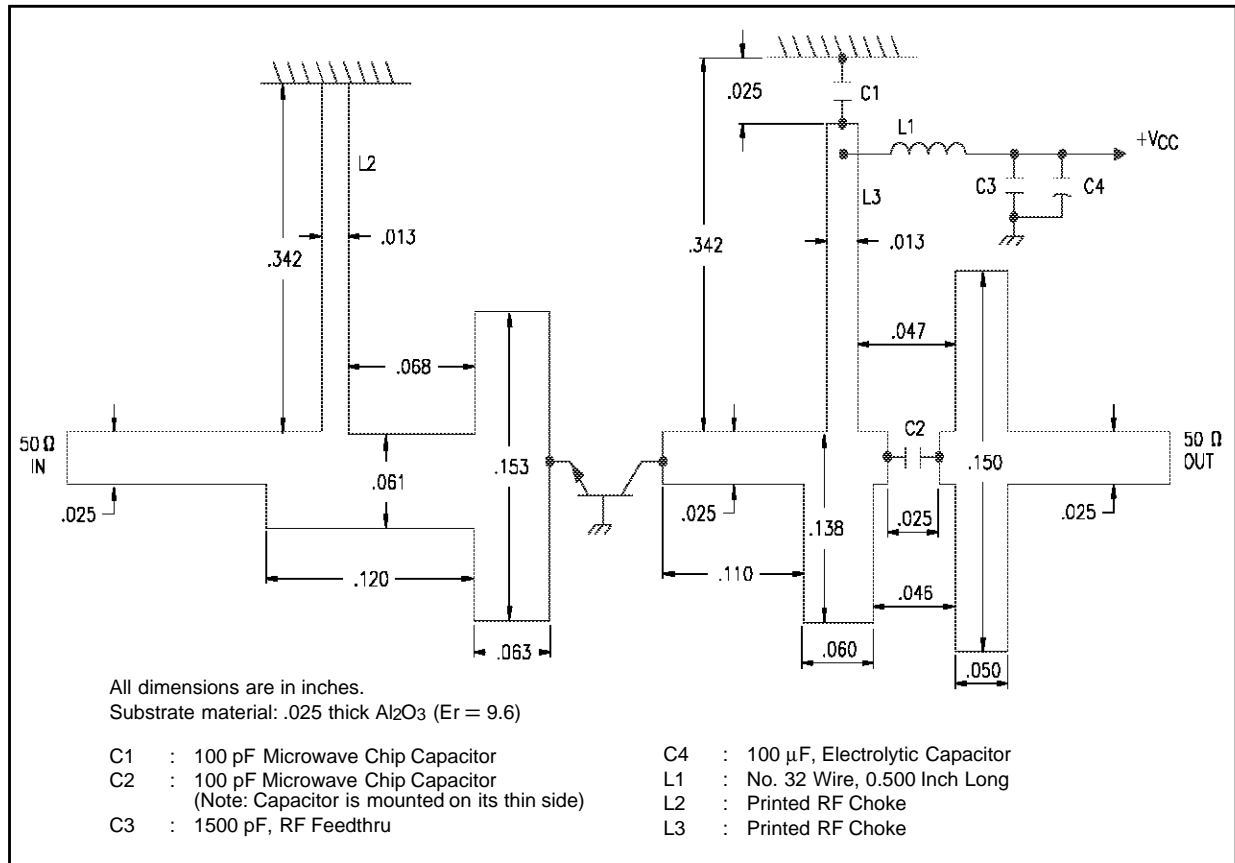
TYPICAL BROADBAND PERFORMANCE



IMPEDANCE DATA

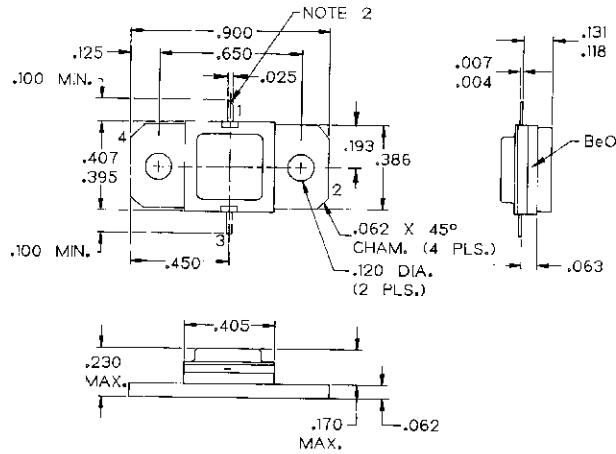


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



- NOTES:
 1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
 DIMENSIONS IN INCHES.
 2. COLLECTOR LEAD SLANT CUT.

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