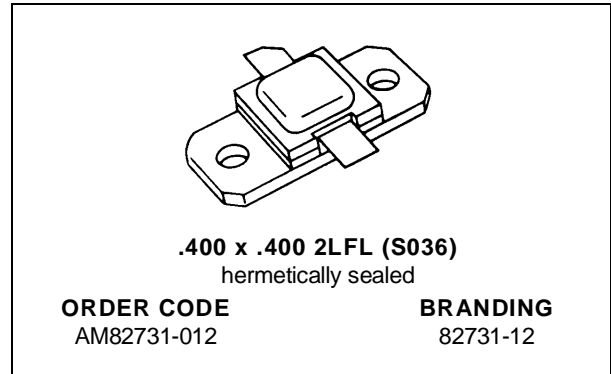


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 12\text{ W MIN. WITH } 6.0\text{ dB GAIN}$

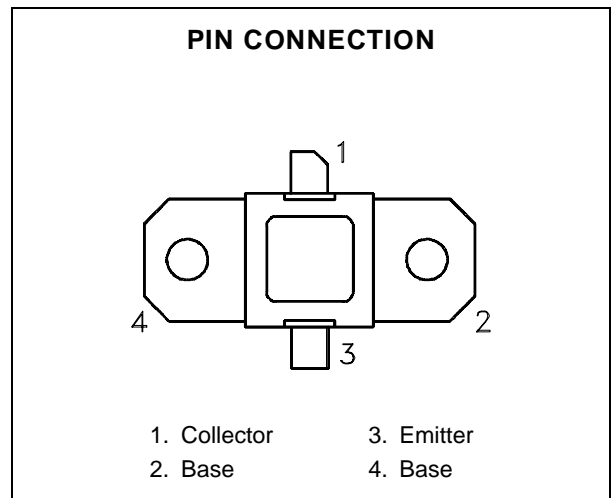


DESCRIPTION

The AM82731-012 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 + 1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM82731-012 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 ($T_{case} = 25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit |
|------------|--|--------------|--------------------|
| P_{DISS} | Power Dissipation* ($T_C \leq 50^{\circ}\text{C}$) | 50 | W |
| I_C | Device Current* | 2.0 | 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* | 4.0 | $^{\circ}\text{C/W}$ |
|---------------|-----------------------------------|-----|----------------------|

*Applies only to rated RF amplifier operation

AM82731-012

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

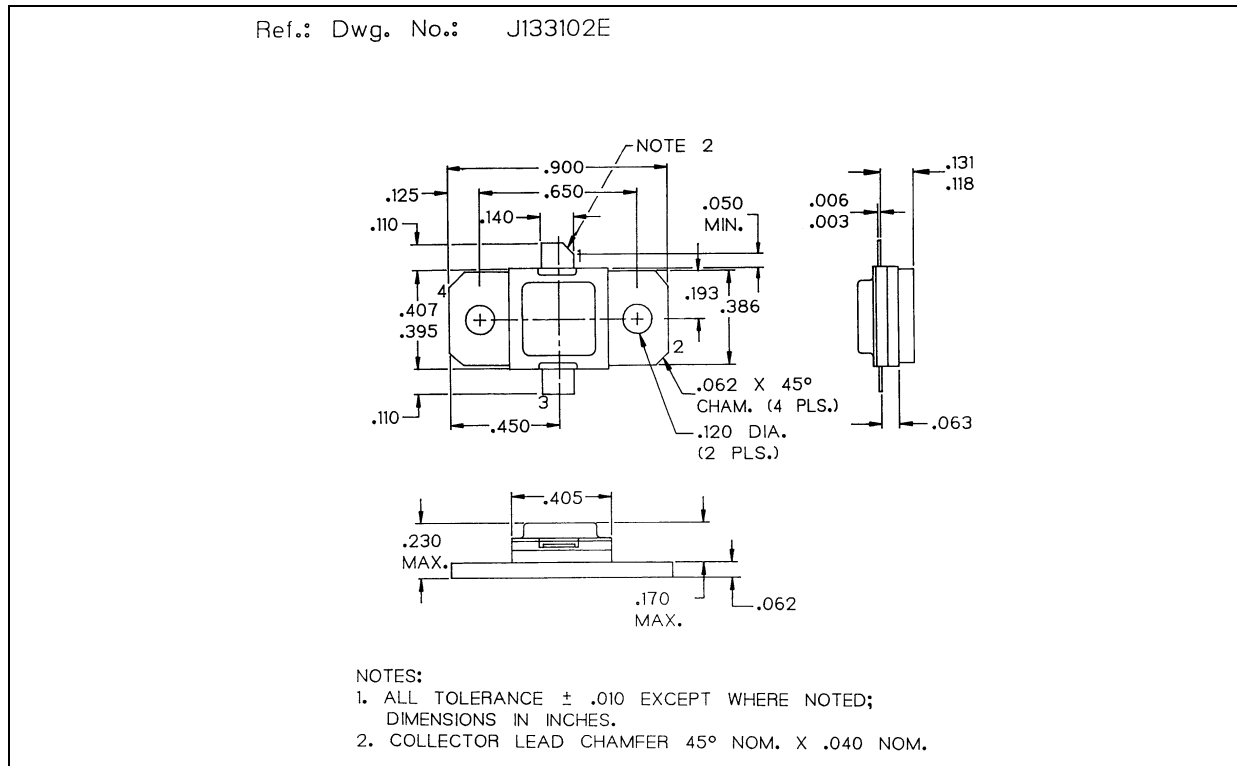
| Symbol | Test Conditions | | Value | | | Unit |
|-------------------|-----------------------|------------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV _{CBO} | I _C = 7mA | I _E = 0mA | 55 | — | — | V |
| BV _{EBO} | I _E = 1mA | I _C = 0mA | 3.5 | — | — | V |
| BV _{CER} | I _C = 7mA | R _{BE} = 10Ω | 55 | — | — | V |
| I _{CES} | V _{CE} = 40V | | — | — | 5 | mA |
| h _{FE} | V _{CE} = V | I _C = 600mA | 30 | — | 300 | — |

DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|------------------|---------------------|------------------------|-----------------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P _{OUT} | f = 2700 — 3100 MHz | P _{IN} = 3.0W | V _{CC} = 40V | 12 | — | — | W |
| η _c | f = 2700 — 3100 MHz | P _{IN} = 3.0W | V _{CC} = 40V | 30 | — | — | % |
| G _P | f = 2700 — 3100 MHz | P _{IN} = 3.0W | V _{CC} = 40V | 6.0 | — | — | dB |

Note: Pulse Width = 100μS
Duty Cycle = 10%

PACKAGE MECHANICAL DATA



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