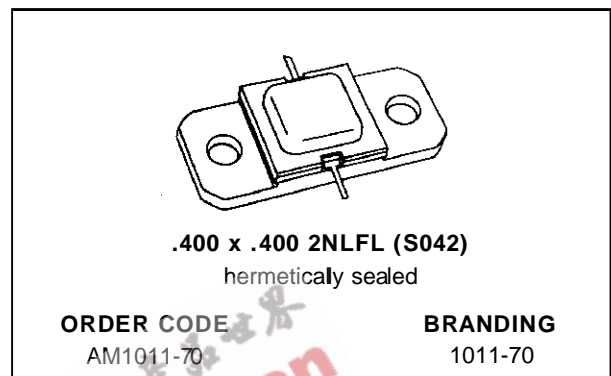


**RF & MICROWAVE TRANSISTORS  
L-BAND AVIONICS APPLICATIONS**

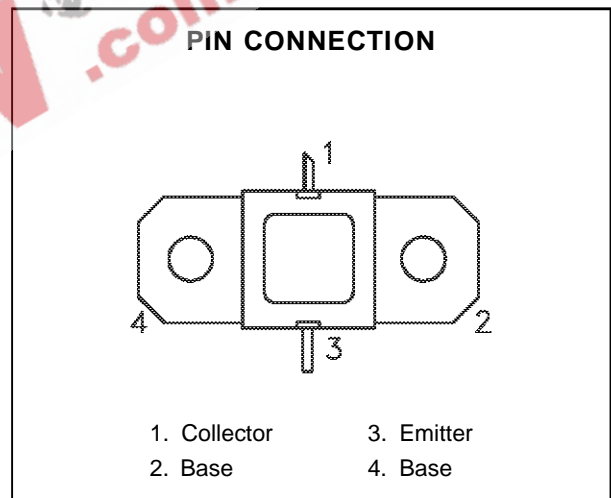
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 70 W MIN. WITH 6.7 dB GAIN


**DESCRIPTION**

The AM1011-070 device is a high power Class C transistor specifically designed for L-Band Avionics transponder/interrogator pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and is capable of withstanding severe output VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM1011-070 is supplied in the AMPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching structures.


**ABSOLUTE MAXIMUM RATINGS** (T<sub>case</sub> = 25°C)

| Symbol            | Parameter                                   | Value        | Unit |
|-------------------|---|--------------|------|
| P <sub>DISS</sub> | Power Dissipation* (T <sub>C</sub> ≤ 100°C) | 200          | W    |
| I <sub>C</sub>    | Device Current*                             | 8.0          | A    |
| V <sub>CC</sub>   | Collector-Supply Voltage*                   | 32           | V    |
| T <sub>J</sub>    | Junction Temperature (Pulsed RF Operation)  | 250          | °C   |
| T <sub>STG</sub>  | Storage Temperature                         | - 65 to +200 | °C   |

**THERMAL DATA**

|                      |                                   |      |      |
|----------------------|-----------------------------------|------|------|
| R <sub>TH(j-c)</sub> | Junction-Case Thermal Resistance* | 0.68 | °C/W |
|----------------------|-----------------------------------|------|------|

\*Applies only to rated RF amplifier operation

## AM1011-070

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

#### STATIC

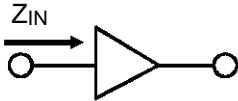
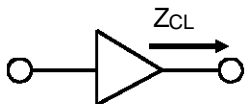
| Symbol            | Test Conditions              |                             | Value |      |      | Unit |
|-------------------|------------------------------|-----------------------------|-------|------|------|------|
|                   |                              |                             | Min.  | Typ. | Max. |      |
| $BV_{\text{CBO}}$ | $I_{\text{C}} = 25\text{mA}$ | $I_{\text{E}} = 0\text{mA}$ | 55    | —    | —    | V    |
| $BV_{\text{EBO}}$ | $I_{\text{E}} = 10\text{mA}$ | $I_{\text{C}} = 0\text{mA}$ | 3.5   | —    | —    | V    |
| $BV_{\text{CER}}$ | $I_{\text{C}} = 25\text{mA}$ | $R_{\text{BE}} = 10\Omega$  | 55    | —    | —    | V    |
| $I_{\text{CES}}$  | $V_{\text{CE}} = 35\text{V}$ |                             | —     | —    | 20   | mA   |
| $h_{\text{FE}}$   | $V_{\text{CE}} = 5\text{V}$  | $I_{\text{C}} = 2\text{mA}$ | 20    | —    | 200  | —    |

#### DYNAMIC

| Symbol            | Test Conditions       |                              |                              | Value |      |      | Unit |
|-------------------|-----------------------|------------------------------|------------------------------|-------|------|------|------|
|                   |                       |                              |                              | Min.  | Typ. | Max. |      |
| $P_{\text{OUT}}$  | $f = 1090\text{ MHz}$ | $P_{\text{IN}} = 15\text{W}$ | $V_{\text{CC}} = 28\text{V}$ | 70    | —    | —    | W    |
| $\eta_{\text{C}}$ | $f = 1090\text{ MHz}$ | $P_{\text{IN}} = 15\text{W}$ | $V_{\text{CC}} = 28\text{V}$ | 45    | —    | —    | %    |
| $G_{\text{P}}$    | $f = 1090\text{ MHz}$ | $P_{\text{IN}} = 15\text{W}$ | $V_{\text{CC}} = 28\text{V}$ | 6.7   | —    | —    | dB   |

Note: Pulse Width =  $100\mu\text{Sec}$   
Duty Cycle = 2%

## IMPEDANCE DATA

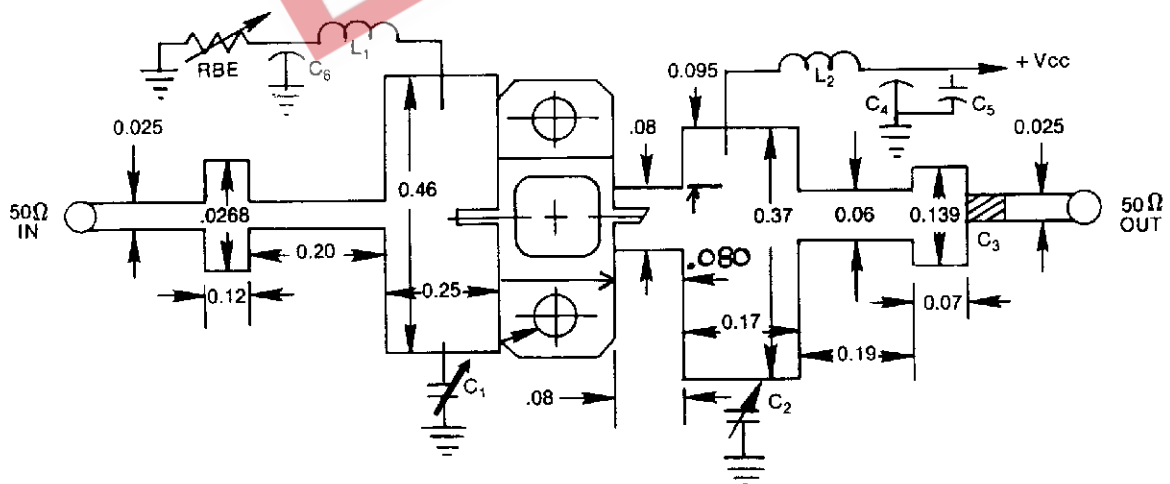
TYPICAL INPUT  
IMPEDANCETYPICAL COLLECTOR  
LOAD IMPEDANCE

$P_{IN} = 15 \text{ W}$   
 $V_{CC} = 28 \text{ V}$   
 Normalized to 50 ohms

| FREQ.        | $Z_{IN} (\Omega)$ | $Z_{CL} (\Omega)$ |
|--------------|-------------------|-------------------|
| L = 1025 MHz | $4.7 + j 4.7$     | $3.6 + j 4.3$     |
| H = 1090 MHz | $4.7 + j 3.9$     | $3.3 + j 4.4$     |

## TEST CIRCUIT

Ref. Dwg. No. J313119

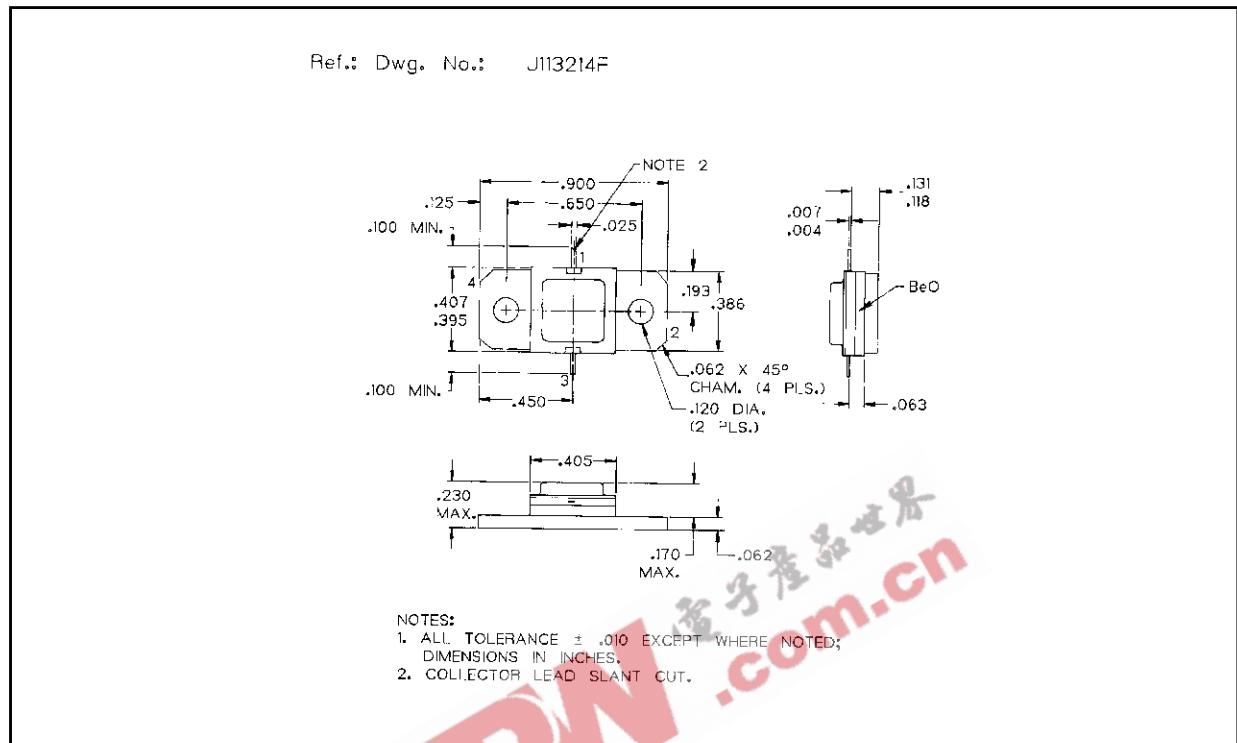


All dimensions are in inches.  
 Substrate material: .025 thick  $\text{Al}_2\text{O}_3$

C1 : 0.3—3.5 pF Johanson Gigatrim Capacitor  
 C2 : 0.3—3.5 pF Johanson Gigatrim Capacitor  
 C3 : 100 pF Chip Capacitor  
 C4 : 1500 pF Erie Feedthru, or Equiv.

C5 : 100 MF Electrolytic Capacitor, 50V  
 C6 : 1500 pF Erie Feedthrough, or Equiv.  
 L1 : #32 Wire, 4 Turn .062 I.D.  
 L2 : #32 Wire, 4 Turn .062 I.D.  
 RBE : 0 — 1.0 Ohm

PACKAGE MECHANICAL DATA



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