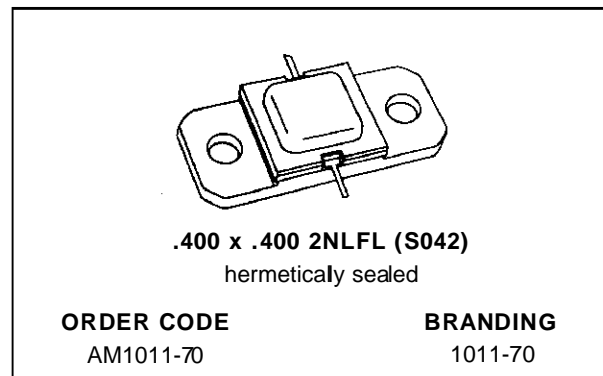


## RF & MICROWAVE TRANSISTORS L-BAND AVIONICS APPLICATIONS

- 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

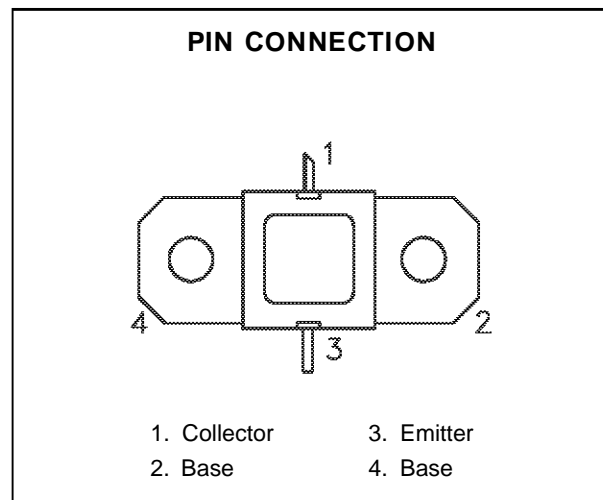


### DESCRIPTION

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
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\*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

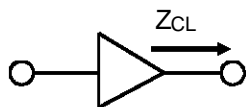
Note: Pulse Width =  $100\mu\text{Sec}$   
Duty Cycle = 2%

IMPEDANCE DATA

**TYPICAL INPUT IMPEDANCE**



**TYPICAL COLLECTOR LOAD IMPEDANCE**

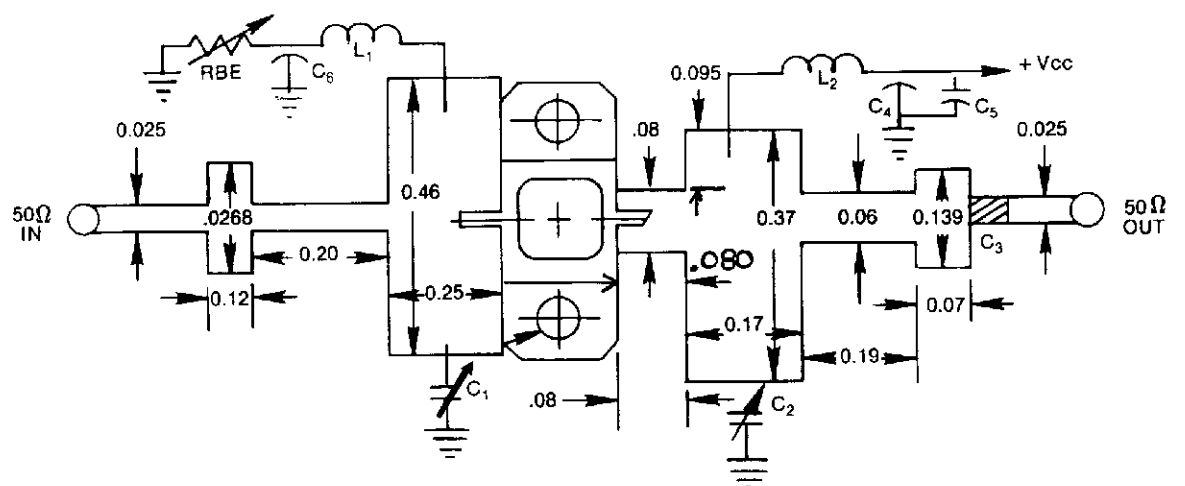


$P_{IN} = 15\text{ W}$   
 $V_{CC} = 28\text{ V}$   
 Normalized to 50 ohms

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 Al<sub>2</sub>O<sub>3</sub>

C1 : 0.3—3.5 pF Johanson Gigatrim Capacitor	C5 : 100 MF Electrolytic Capacitor, 50V
C2 : 0.3—3.5 pF Johanson Gigatrim Capacitor	C6 : 1500 pF Erie Feedthru, or Equiv.
C3 : 100 pF Chip Capacitor	L1 : #32 Wire, 4 Turn .062 I.D.
C4 : 1500 pF Erie Feedthru, or Equiv.	L2 : #32 Wire, 4 Turn .062 I.D.
	RBE : 0 — 1.0 Ohm

