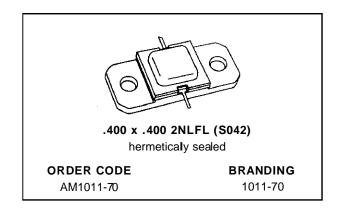


# AM1011-070

# 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
- Pout = 70 W MIN. WITH 6.7 dB GAIN

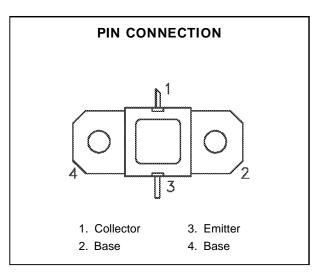


# **DESCRIPTION**

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

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 100°C)	200	W
Ic	Device Current*	8.0	А
Vcc	Collector-Supply Voltage*	32	V
TJ	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
--	------	------

<sup>\*</sup>Applies only to rated RF amplifier operation

September 1992

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

# STATIC

Symbol	Test Conditions	Value			Unit		
		Min.	Тур.	Max.	] """		
BV <sub>CBO</sub>	I <sub>C</sub> = 25mA	$I_E = 0mA$		55	_		V
BVEBO	I <sub>E</sub> = 10mA	$I_C = 0mA$		3.5	_	_	V
BVcer	IC = 25mA	$R_{BE} = 10\Omega$		55	_		V
ICES	V <sub>CE</sub> = 35V			_	_	20	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 2mA		20	_	200	_

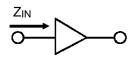
# **DYNAMIC**

Symbol	Test Conditions				Value		
Symbol		rest Conditions			Тур.	Max.	Unit
Роит	f = 1090 MHz	$P_{IN} = 15W$	Vcc = 28V	70	_	_	W
ης	f = 1090 MHz	P <sub>IN</sub> = 15W	V <sub>CC</sub> = 28V	45	_	_	%
G <sub>P</sub>	f = 1090 MHz	P <sub>IN</sub> = 15W	V <sub>CC</sub> = 28V	6.7	_	_	dB

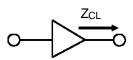
Note: Pulse Width =  $100 \mu Sec$ Duty Cycle = 2%

# **IMPEDANCE DATA**

# **TYPICAL INPUT IMPEDANCE**



# TYPICAL COLLECTOR LOAD IMPEDANCE



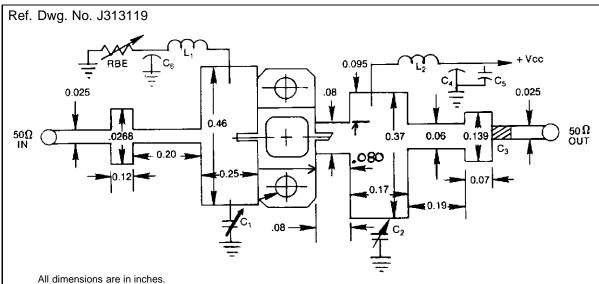
 $P_{IN} = 15 W$ 

 $V_{CC} = 28 \text{ V}$ 

Normalized to 50 ohms

FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
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**



Substrate material: .025 thick Al<sub>2</sub>O<sub>3</sub>

: 0.3—3.5 pF Johanson Gigatrim Capacitor C2 : 0.3—3.5 pF Johanson Gigatrim Capacitor
C3 : 100 pF Chip Capacitor

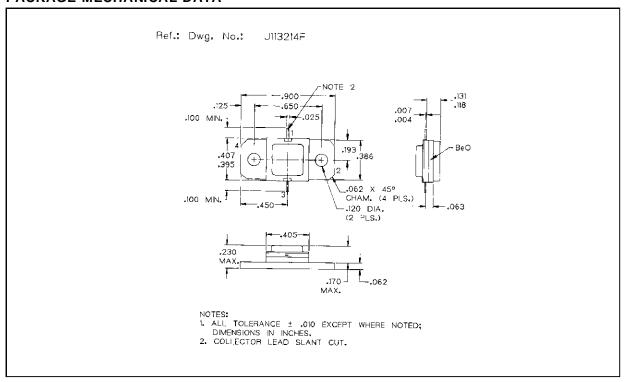
: 1500 pF Erie Feedthru, or Equiv.

: 100 MF Electrolytic Capacitor, 50V: 1500 pF Erie Feedthrough, or Equiv. C5 C6

: #32 Wire, 4 Turn .062 I.D. L1 L2 : #32 Wire, 4 Turn .062 I.D.

RBE : 0 — 1.0 Ohm

### PACKAGE MECHANICAL DATA



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsability for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may results from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectonics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A

