

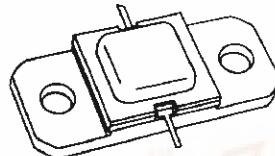


SGS-THOMSON MICROELECTRONICS

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
- $P_{out} \geq 70 \text{ W min. with } 6.7 \text{ dB gain}$



.400 x .400 2NLFL (S042)
hermetically sealed

ORDER CODE
AM1011-70

BRANDING

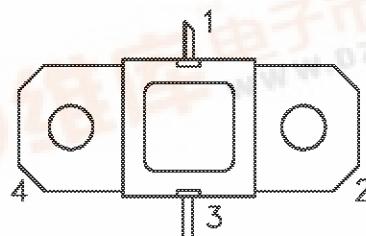
DESCRIPTION

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.

PIN CONNECTION



1. Collector	3. Emitter
2. Base	4. Base

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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	200	W
I _C	Device Current*	8.0	A
V _{CC}	Collector-Supply Voltage*	32	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*	0.68	°C/W
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Applies only to rated RF amplifier operation.

AM1011-070

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

STATIC

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

DYNAMIC

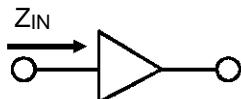
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 1090 \text{ MHz}$ $P_{IN} = 15W$ $V_{CC} = 28V$	70	—	—	W
η_C	$f = 1090 \text{ MHz}$ $P_{IN} = 15W$ $V_{CC} = 28V$	45	—	—	%
G_P	$f = 1090 \text{ MHz}$ $P_{IN} = 15W$ $V_{CC} = 28V$	6.7	—	—	dB

Note: Pulse Width = $100\mu\text{Sec}$

Duty Cycle = 2%

IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

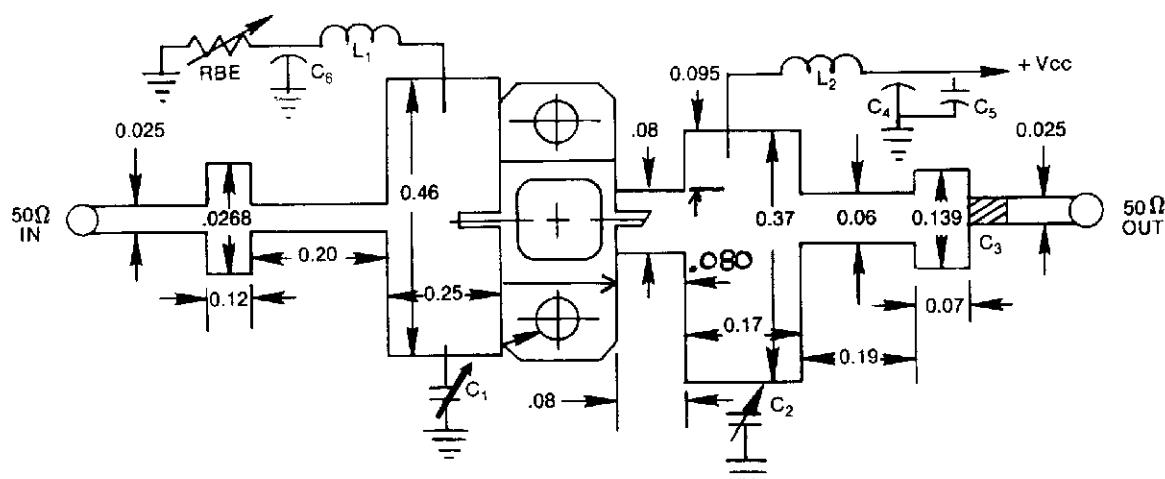
 $P_{IN} = 15 \text{ W}$ $V_{CC} = 28 \text{ V}$

Normalized to 50 ohms

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

TEST CIRCUIT

Ref. Dwg. No. J313119



All dimensions are in inches.

Substrate material: .025 thick Al₂O₃

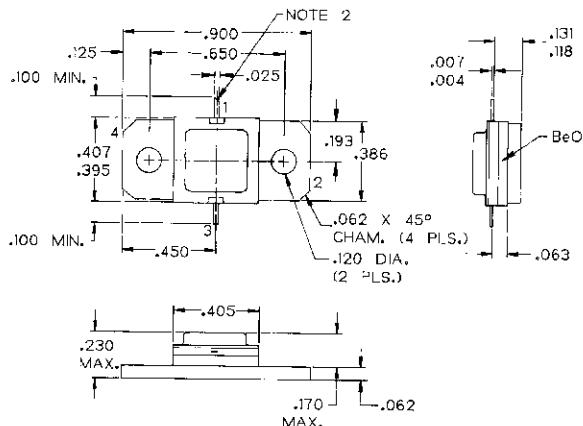
C1 : 0.3—3.5 pF Johanson Gigatrim Capacitor
 C2 : 0.3—3.5 pF Johanson Gigatrim Capacitor
 C3 : 100 pF Chip Capacitor
 C4 : 1500 pF Erie Feedthru, or Equiv.

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

AM1011-070

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



NOTES:

NOTES:

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

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