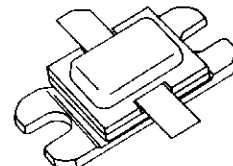


RF & MICROWAVE TRANSISTORS L-BAND AVIONICS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 15:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 400$ W MIN. WITH 8.0 dB GAIN



.400 x .500 2LFL (S038)
hermetically sealed

ORDER CODE

AM1011-400

BRANDING

1011-400

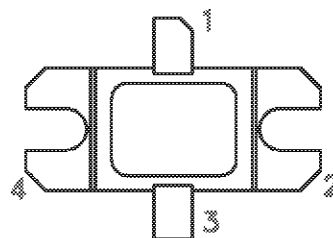
DESCRIPTION

The AM1011-400 device is a high power Class C transistor specifically designed for TCAS and Mode-S pulsed output and driver applications.

This device is designed for operation under moderate pulse width and duty cycle pulse conditions and is capable of withstanding 15:1 output VSWR at rated RF conditions. Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM1011-400 is supplied in the BIGPAC™ Hermetic Metal/Ceramic package Input/Output matching structures.

PIN CONNECTION



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

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}\text{C}$)	880	W
I_C	Device Current*	24	A
V_{CC}	Collector-Supply Voltage*	55	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*	0.17	$^{\circ}\text{C/W}$
---------------	-----------------------------------	------	----------------------

*Applies only to rated RF amplifier operation

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

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 50\text{mA}$	$I_{\text{E}} = 0\text{mA}$	65	—	—	V
BV_{EBO}	$I_{\text{E}} = 15\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
BV_{CER}	$I_{\text{C}} = 50\text{mA}$	$R_{\text{BE}} = 10\Omega$	65	—	—	V
I_{CES}	$V_{\text{BE}} = 50\text{V}$	$V_{\text{CE}} = 0\text{V}$	—	—	30	mA
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 5\text{A}$	10	—	—	—

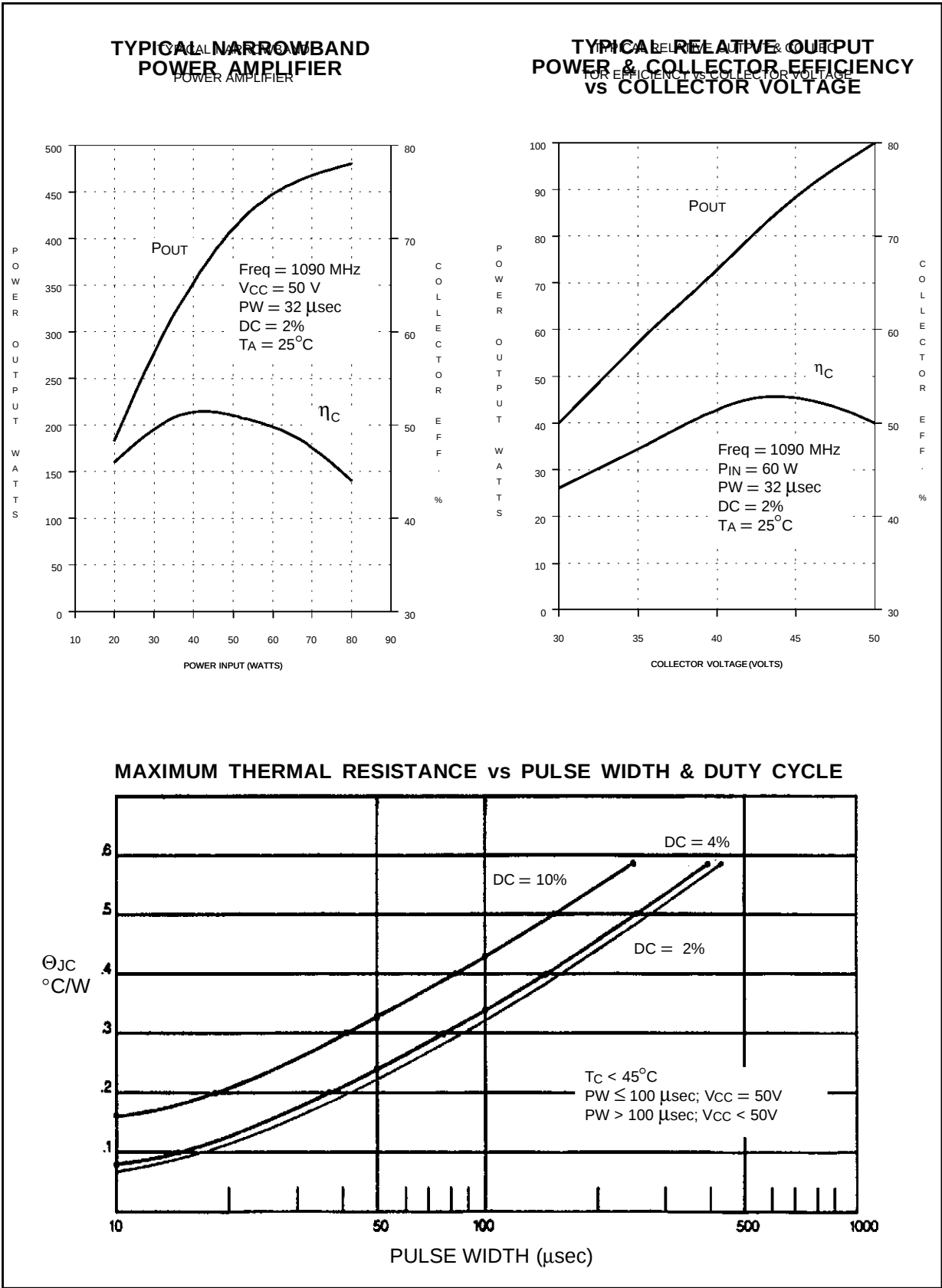
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1090\text{MHz}$	$P_{\text{IN}} = 63\text{W}$	$V_{\text{CC}} = 50\text{V}$	400	450	—	W
η_{c}	$f = 1090\text{MHz}$	$P_{\text{IN}} = 63\text{W}$	$V_{\text{CC}} = 50\text{V}$	45	50	—	%
G_{P}	$f = 1090\text{MHz}$	$P_{\text{IN}} = 63\text{W}$	$V_{\text{CC}} = 50\text{V}$	8.0	8.5	—	dB

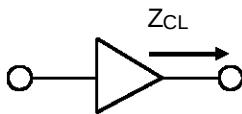
Note: Pulse Width = $32\mu\text{Sec}$

Duty Cycle = 2%

TYPICAL PERFORMANCE

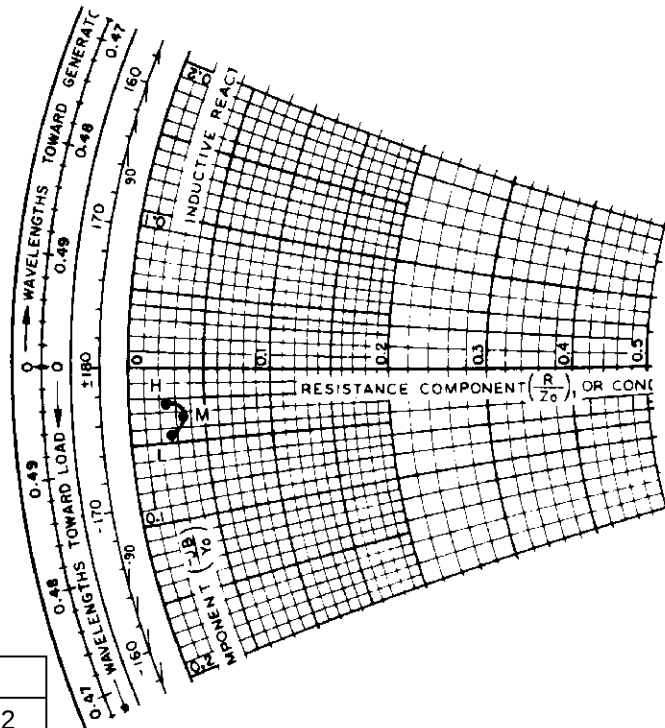
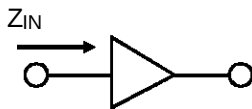


IMPEDANCE DATA

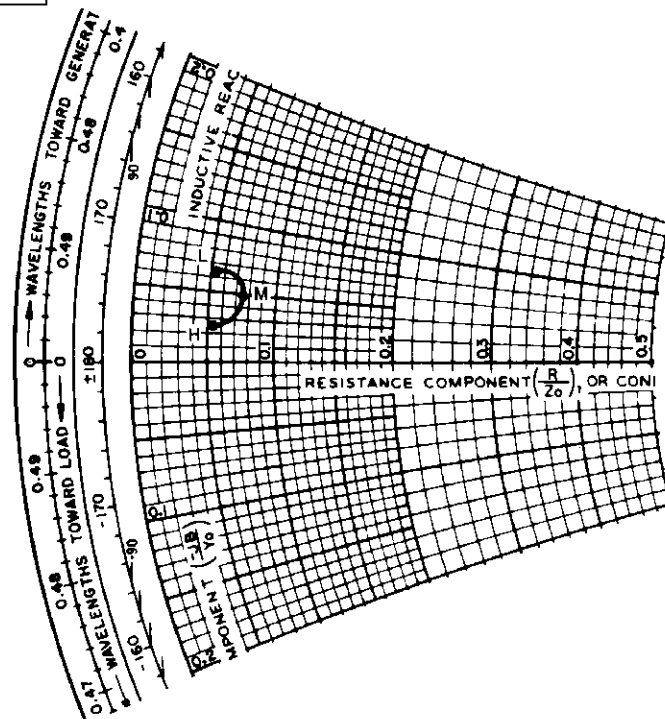
TYPICAL COLLECTOR
LOAD IMPEDANCE

$P_{IN} = 63 \text{ W}$
 $V_{CC} = +50 \text{ V}$
 $Z_{O^*} = 50 \Omega$

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1025 MHz	$2.4 + j 3.2$	$1.4 - j 2.2$
M = 1090 MHz	$3.8 + j 2.5$	$1.6 - j 1.6$
H = 1150 MHz	$2.3 + j 1.3$	$1.2 - j 1.1$

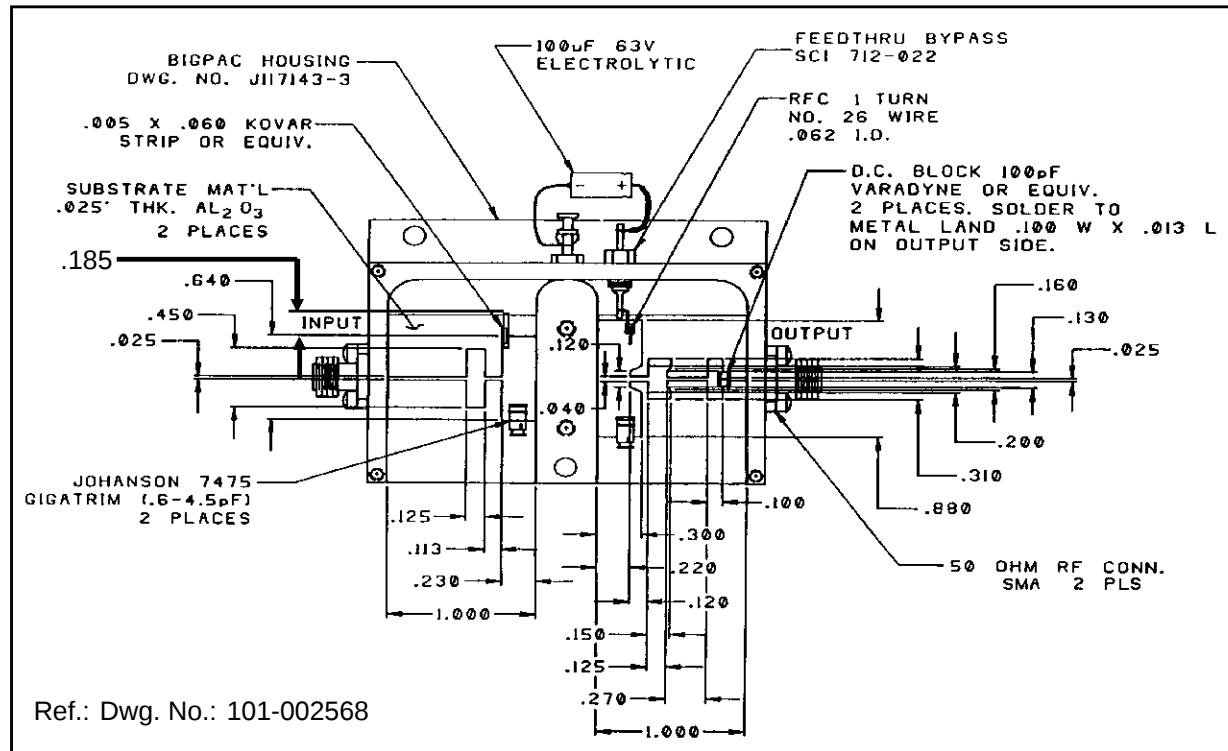
TYPICAL INPUT
IMPEDANCE

$P_{IN} = 63 \text{ W}$
 $V_{CC} = +50 \text{ V}$
 $Z_{O^*} = 50 \Omega$



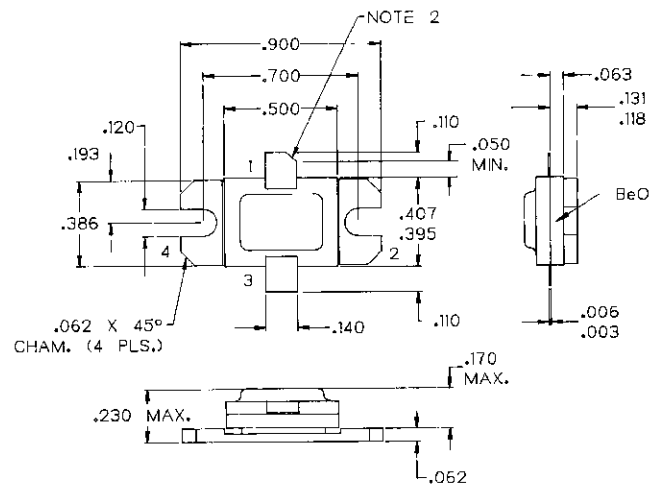
*Normalized Impedance

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



NOTES:

1. ALL TOLERANCE $\pm .010$ EXCEPT WHERE NOTED;
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result 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 Microelectronics.

© 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