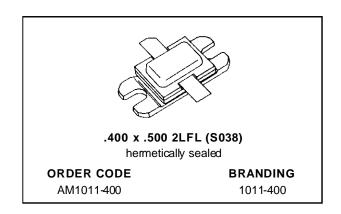


# AM1011-400

# 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<sub>OUT</sub> = 400 W MIN. WITH 8.0 dB GAIN

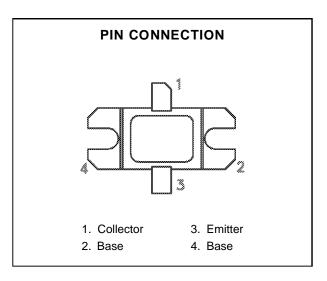


#### **DESCRIPTION**

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.



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

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 100°C)	880	W
Ic	Device Current*	24	А
V <sub>C</sub> C	Collector-Supply Voltage*	55	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*	0.17	°C/W
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<sup>\*</sup>Applies only to rated RF amplifier operation

September 1992

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

# STATIC

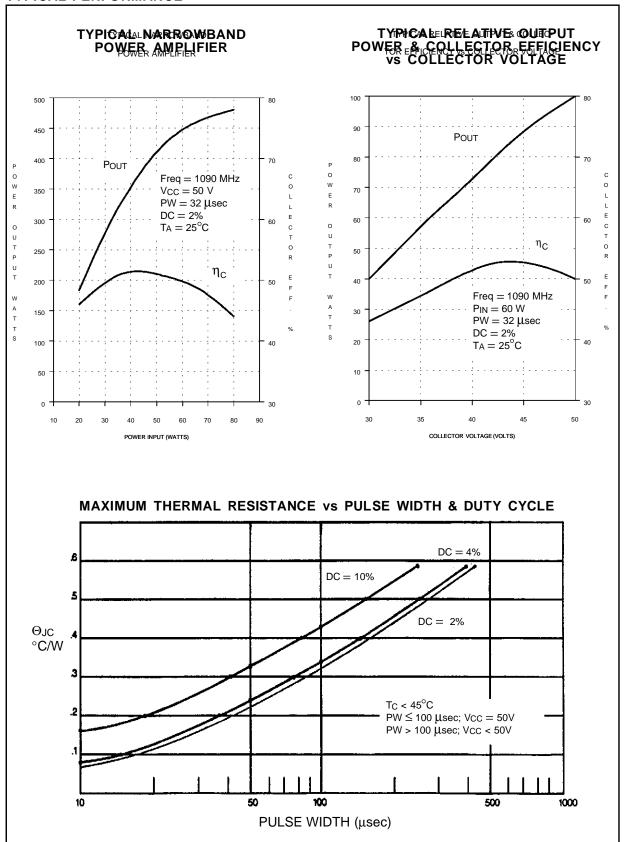
Symbol	Test Conditions	Value			IIn:4		
		Min.	Тур.	Max.	Unit		
BV <sub>CBO</sub>	I <sub>C</sub> = 50mA	$I_{E} = 0mA$		65	_	_	V
BV <sub>EBO</sub>	I <sub>E</sub> = 15mA	$I_C = 0mA$		3.5	_	_	V
BVCER	IC = 50mA	$R_{BE} = 10\Omega$		65	_	_	V
ICES	V <sub>BE</sub> = 50V	$V_{CE} = 0V$		_	_	30	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 5A		10	_	_	_

# **DYNAMIC**

Symbol	Test Conditions				Value		
Symbol				Min.	Тур.	Max.	Unit
Pout	f = 1090MHz	$P_{IN} = 63W$	$V_{CC} = 50V$	400	450	_	W
ης	f = 1090MHz	P <sub>IN</sub> = 63W	Vcc = 50V	45	50	_	%
GP	f = 1090MHz	PIN = 63W	Vcc = 50V	8.0	8.5	_	dB

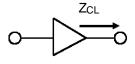
Note: Pulse Width =  $32\mu Sec$ Duty Cycle = 2%

## TYPICAL PERFORMANCE

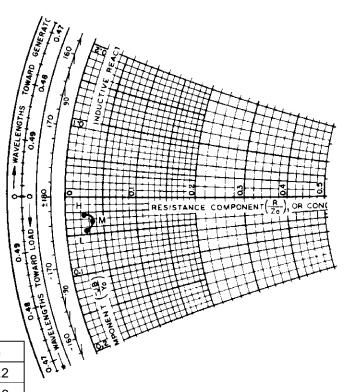


### **IMPEDANCE DATA**

# TYPICAL COLLECTOR LOAD IMPEDANCE

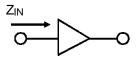


 $\begin{aligned} \text{P}_{\text{IN}} &= 63 \text{ W} \\ \text{V}_{\text{CC}} &= +50 \text{ V} \\ \text{Z}_{\text{O}}^* &= 50 \text{ } \Omega \end{aligned}$ 



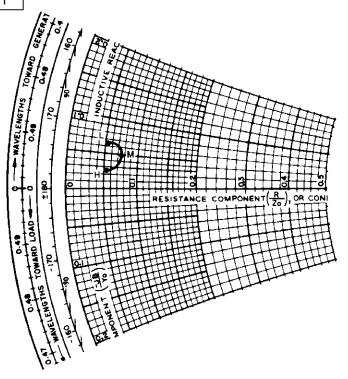
FREQ.	$Z_{IN}\left(\Omega\right)$	$Z_{CL}\left(\Omega\right)$
L = 1025 MHz	2.4 + j 3.2	1.4 – j 2.2
M = 1090 MHz	3.8 + j 2.5	1.6 – j 1.6
H = 1150 MHz	2.3 + j 1.3	1.2 – j 1.1

# TYPICAL INPUT IMPEDANCE

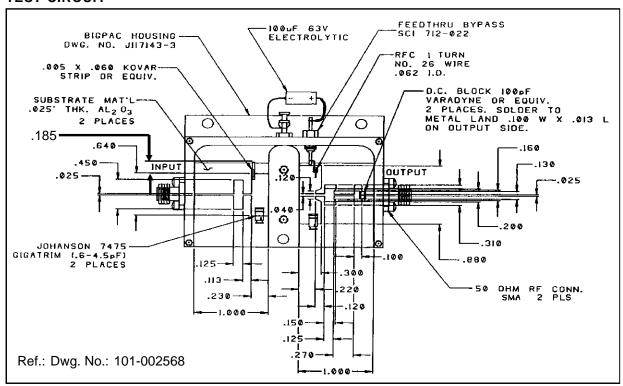


 $\begin{aligned} &P_{IN} = 63 \text{ W} \\ &V_{CC} = +50 \text{ V} \\ &Z_{O}^* = 50 \text{ }\Omega \end{aligned}$ 

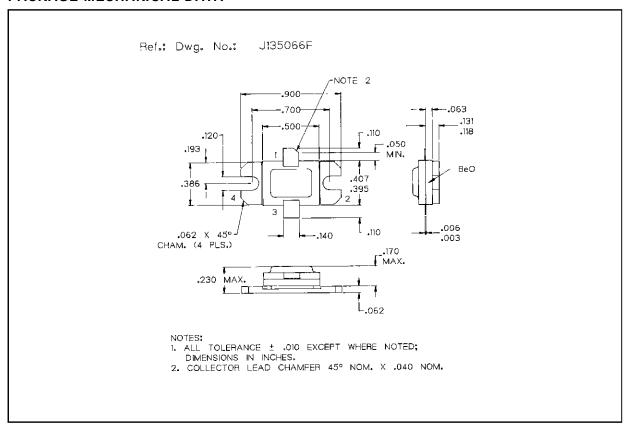
\*Normalized Impedance



### **TEST CIRCUIT**



#### PACKAGE MECHANICAL DATA



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