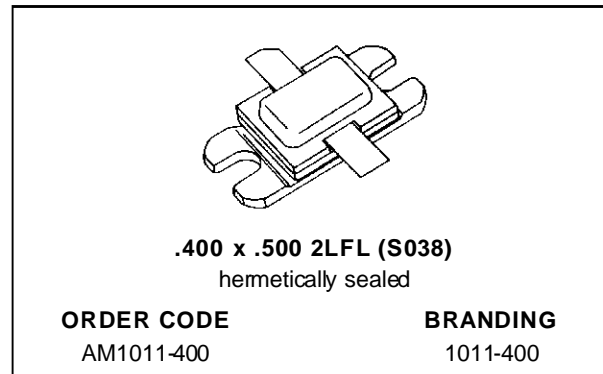


RF & MICROWAVE TRANSISTORS L-BAND AVIONICS APPLICATIONS

- 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

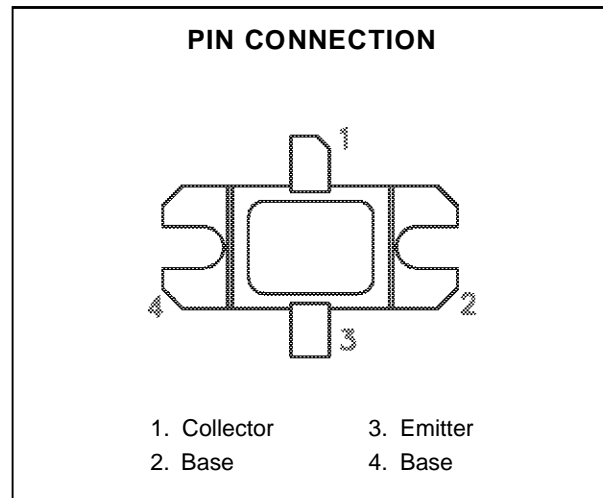


DESCRIPTION

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°C)

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	880	W
I _C	Device Current*	24	A
V _{CC}	Collector-Supply Voltage*	55	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*	0.17	°C/W
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*Applies only to rated RF amplifier operation

AM1011-400

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	—	—	—	

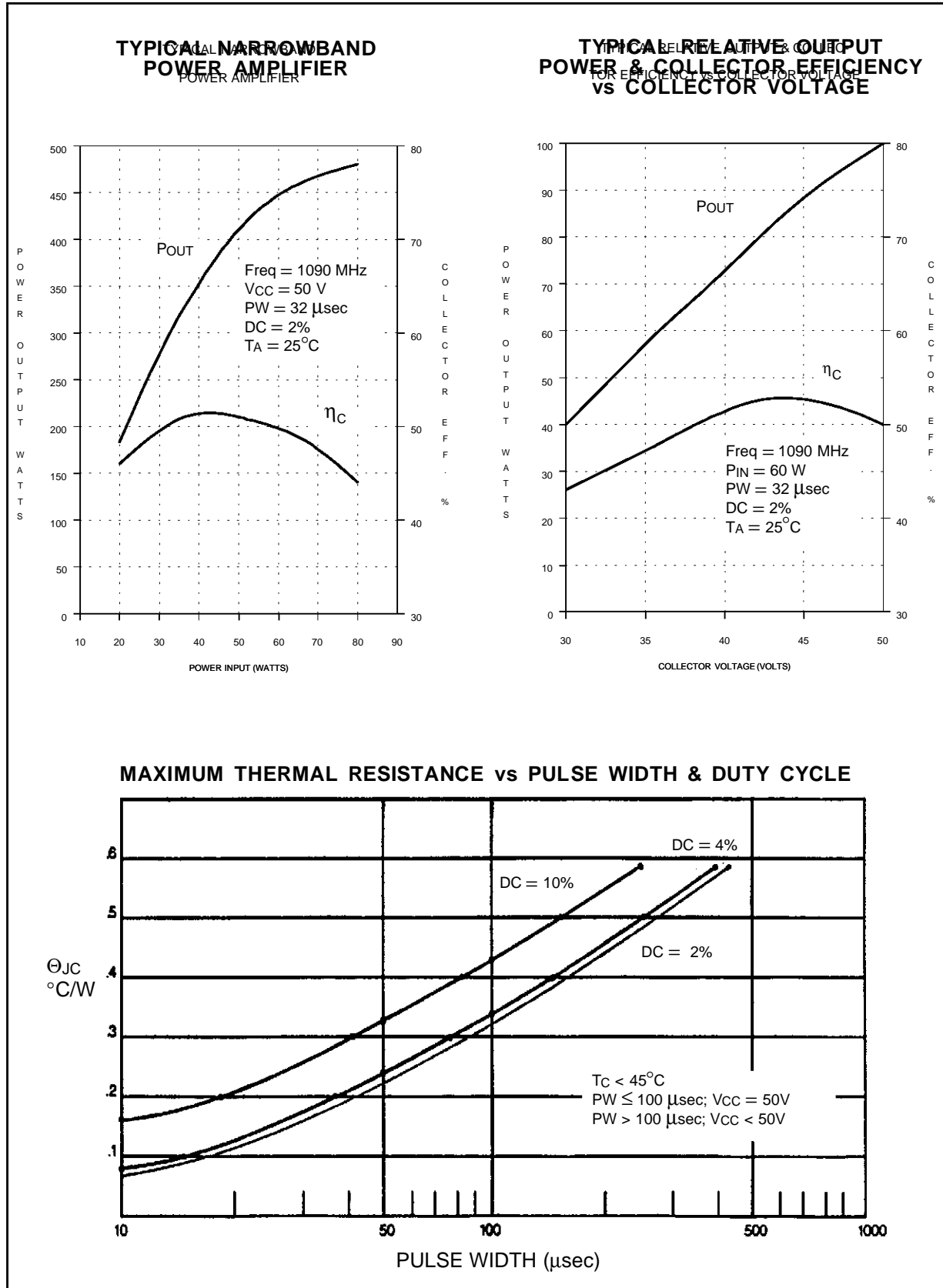
DYNAMIC

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 = $32\mu\text{Sec}$

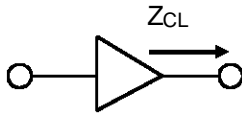
Duty Cycle = 2%

TYPICAL PERFORMANCE



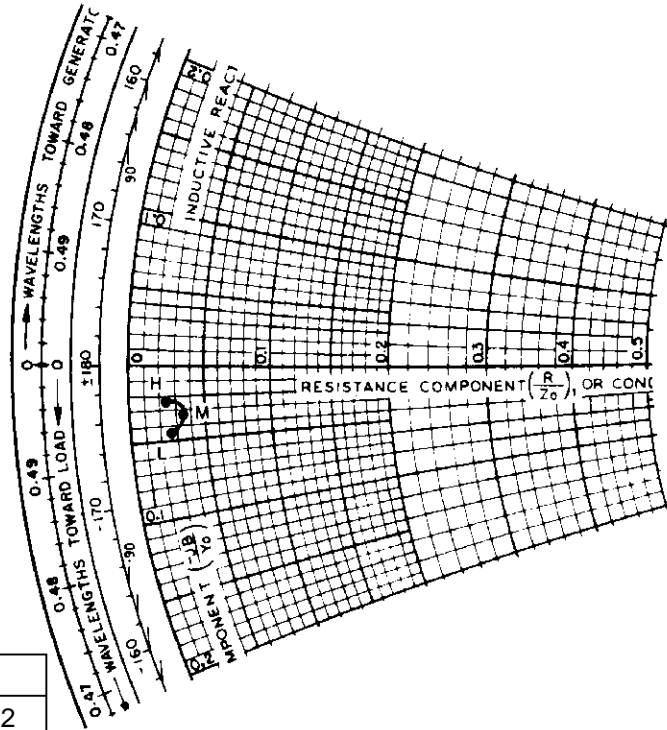
IMPEDANCE DATA

TYPICAL COLLECTOR LOAD IMPEDANCE

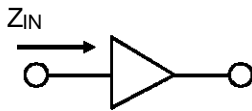


$P_{IN} = 63\text{ W}$
 $V_{CC} = +50\text{ V}$
 $Z_{O^*} = 50\ \Omega$

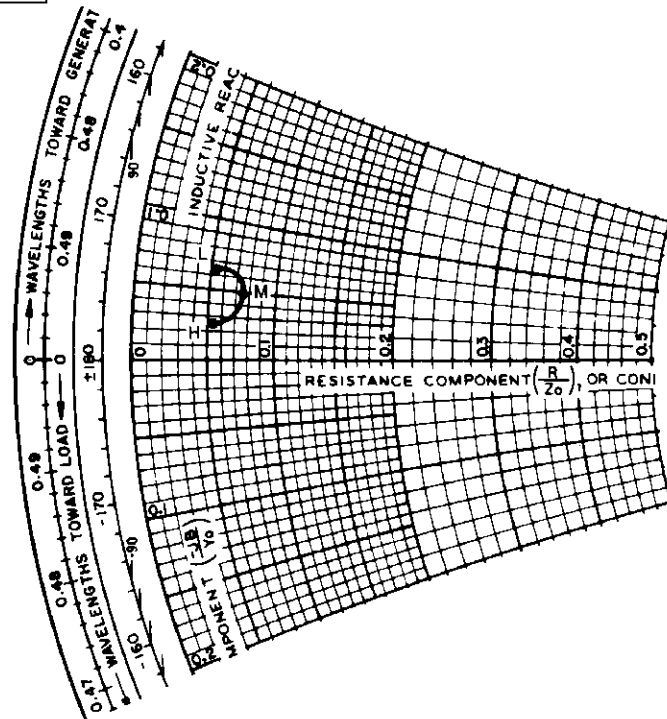
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
L = 1025 MHz	$2.4 + j\ 3.2$	$1.4 - j\ 2.2$
M = 1090 MHz	$3.8 + j\ 2.5$	$1.6 - j\ 1.6$
H = 1150 MHz	$2.3 + j\ 1.3$	$1.2 - j\ 1.1$



TYPICAL INPUT IMPEDANCE

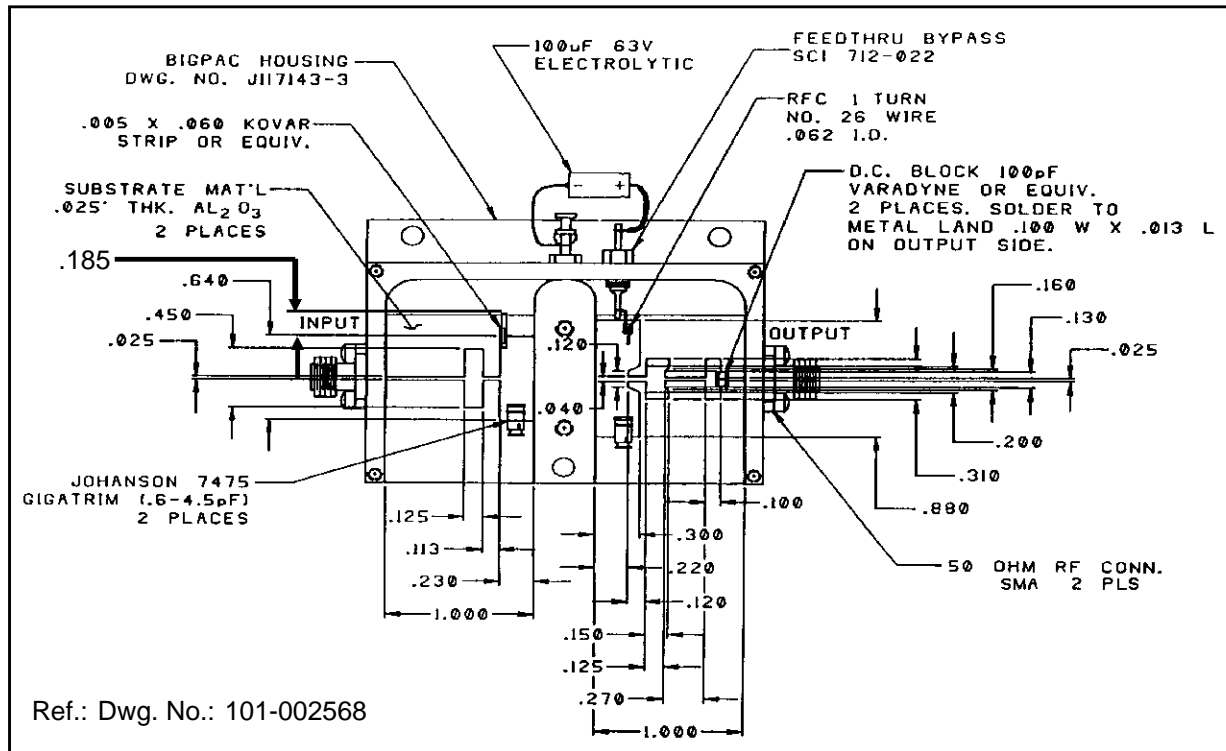


$P_{IN} = 63\text{ W}$
 $V_{CC} = +50\text{ V}$
 $Z_{O^*} = 50\ \Omega$

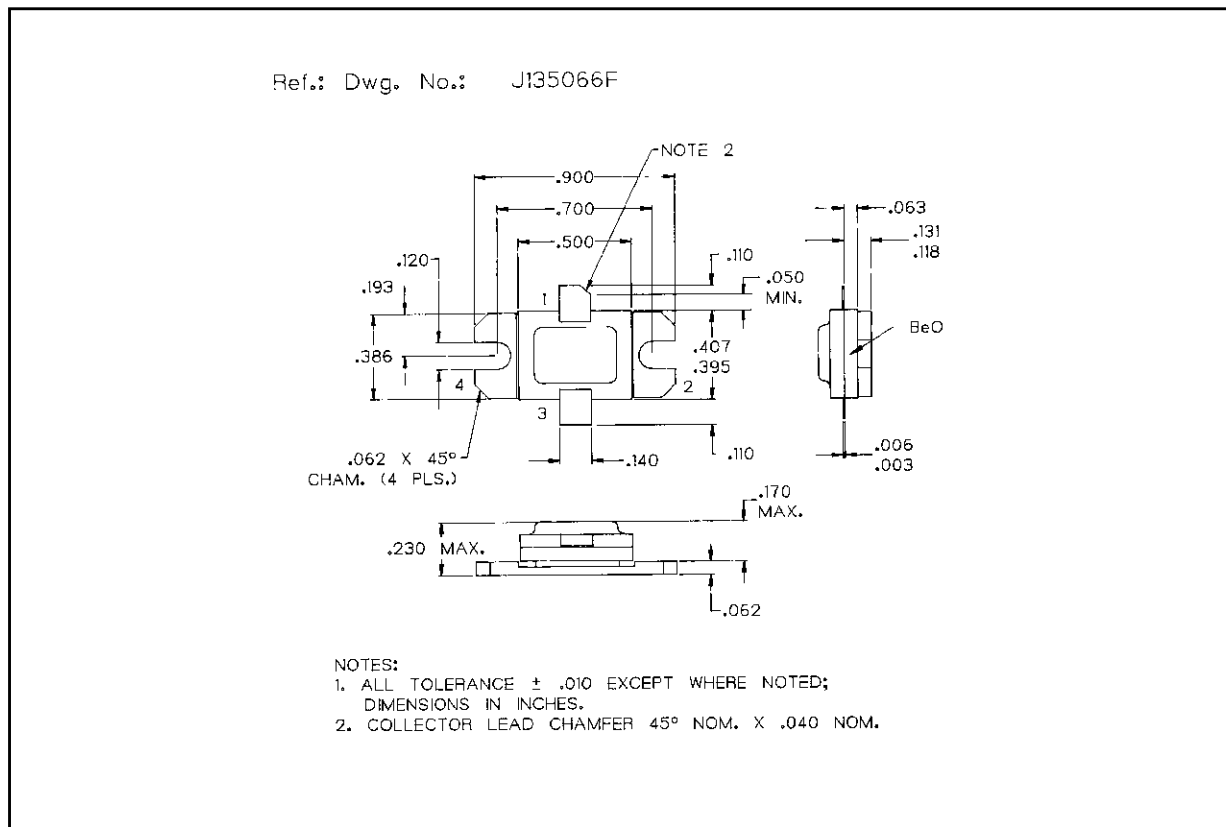


*Normalized Impedance

TEST CIRCUIT



PACKAGE MECHANICAL DATA



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