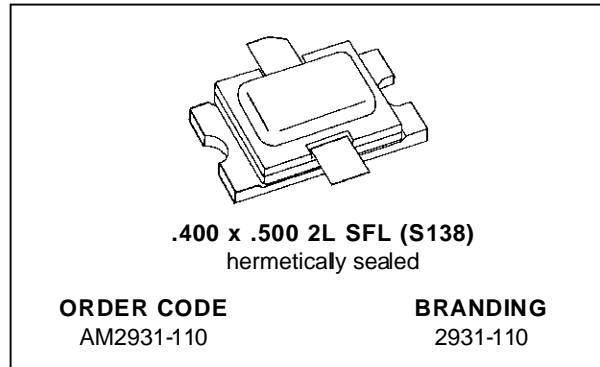


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 3:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 105 W MIN. WITH 6.2 dB GAIN

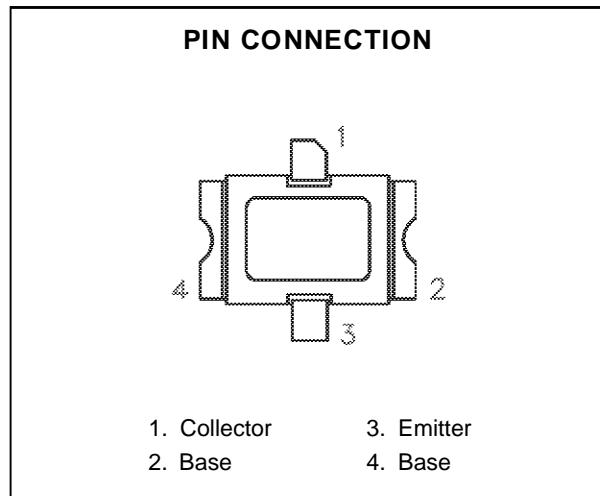


DESCRIPTION

The AM2931-110 is a high power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed output and driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and can withstand a 3:1 output VSWR. Low RF thermal resistance, refractory/gold metallization, and computerized automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM2931-110 is supplied in the BIGPAC™ Hermetic Metal/Ceramic package with internal Input/Output matching circuitry, and is intended for military and other high reliability applications.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	375	W
I _C	Device Current*	12	A
V _{CC}	Collector-Supply Voltage*	48	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*	0.40	°C/W
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*Applies only to rated RF amplifier operation

AM2931-110

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

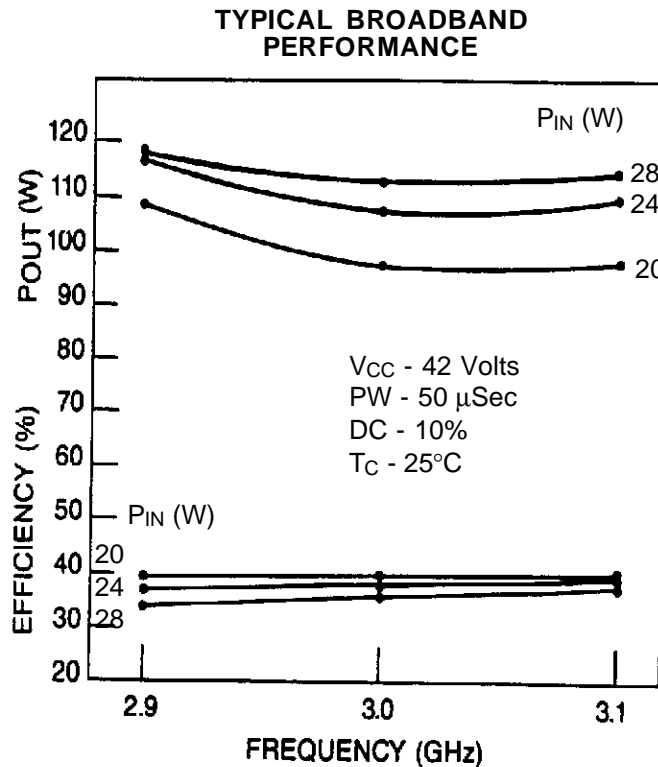
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 40mA	I _E = 0mA	55	—	—	V
BV _{EBO}	I _E = 8mA	I _C = 0mA	3.5	—	—	V
BV _{CER}	I _C = 40mA	R _{BE} = 10Ω	55	—	—	V
I _{CES}	V _{BE} = 0V	V _{CE} = 42V	—	—	30	mA
h _{FE}	V _{CE} = 5V	I _C = 4A	30	—	—	—

DYNAMIC

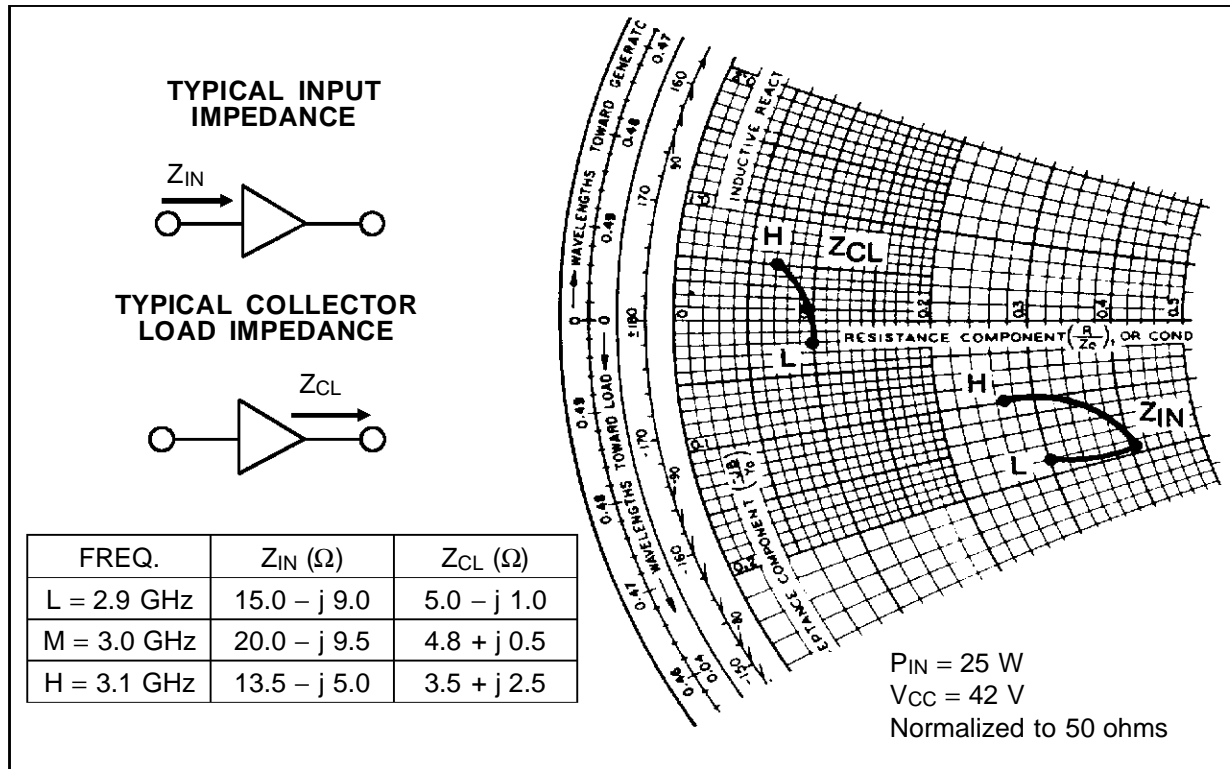
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 2900 — 3100MHz	P _{IN} = 25W	V _{CC} = 42V	105	115	—	W
η _c	f = 2900 — 3100MHz	P _{IN} = 25W	V _{CC} = 42V	32	40	—	%
G _P	f = 2900 — 3100MHz	P _{IN} = 25W	V _{CC} = 42V	6.2	6.6	—	dB

Note: Pulse Width = 50 μSec
Duty Cycle = 10%

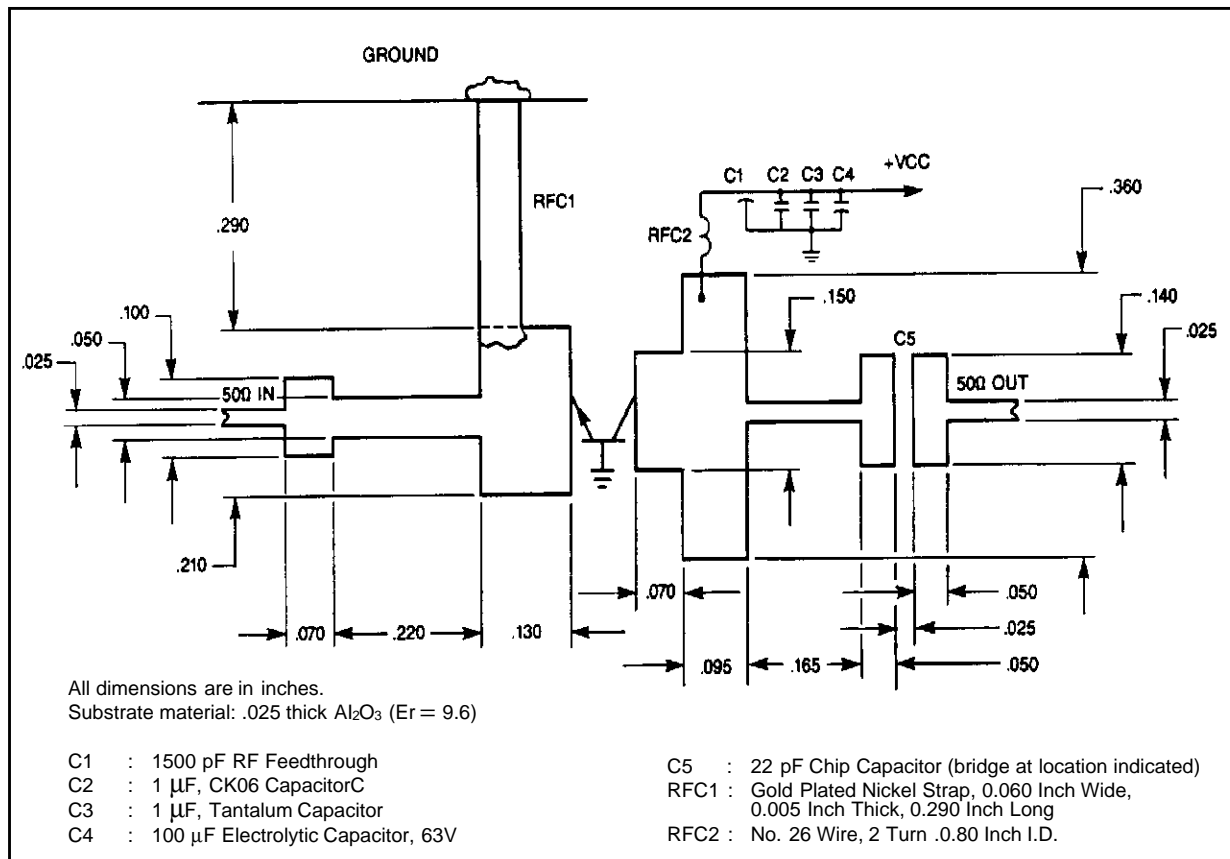
TYPICAL PERFORMANCE



IMPEDANCE DATA

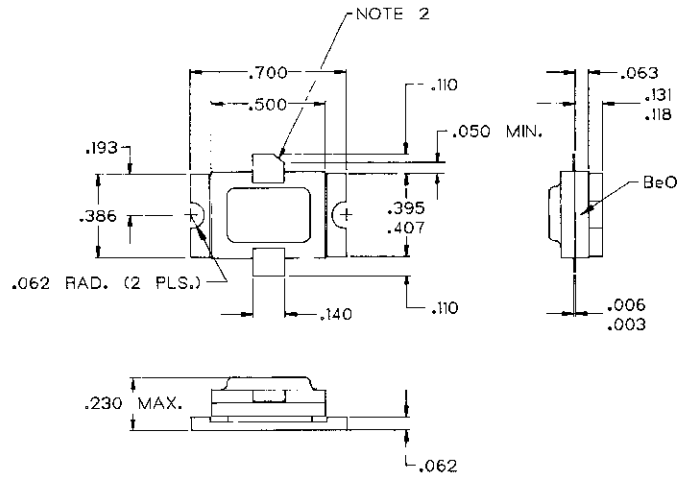


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: 103-000737A



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

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