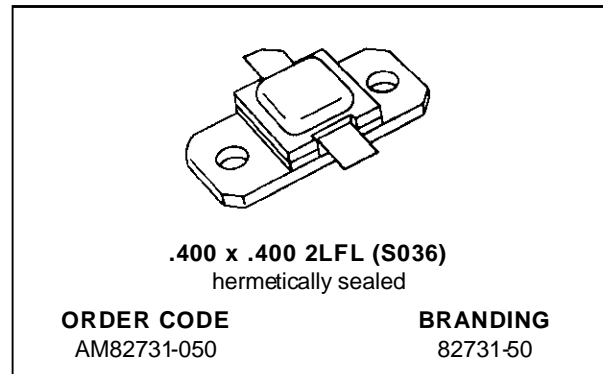


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- RUGGEDIZED VSWR 3:1 @ 1 dB OVER-DRIVE
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 50 W MIN. WITH 6 dB GAIN

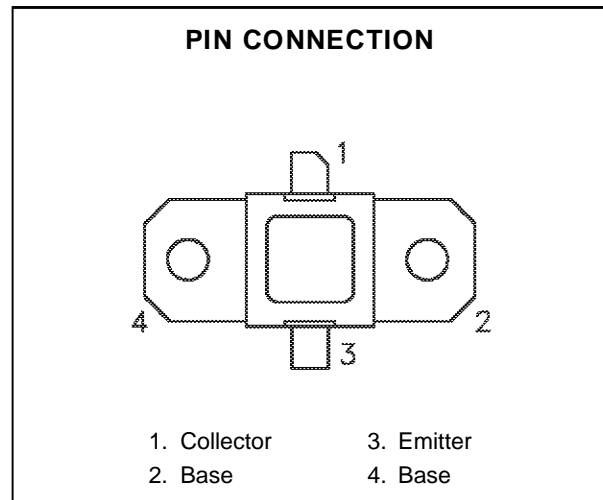


DESCRIPTION

The AM82731-050 device is a high power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed output and driver applications.

The device is capable of operation over a wide range of pulse widths, duty cycles and temperatures and can withstand a 3:1 output VSWR with a +1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The AM82731-050 is supplied in the AMPAC™ Hermetic Metal/Ceramic package with internal Input/Output impedance 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 ≤ 50°C)	167	W
I _C	Device Current*	8	A
V _{CC}	Collector-Supply Voltage*	46	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*	1.2	°C/W
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*Applies only to rated RF amplifier operation

AM82731-050

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 25mA	I _E = 0mA	55	—	—	V
BV _{EBO}	I _E = 5mA	I _C = 0mA	3.5	—	—	V
BV _{CER}	I _C = 25mA	R _{BE} = 10Ω	55	—	—	V
I _{CES}	V _{CE} = 40V		—	—	20	mA
h _{FE}	V _{CE} = 5V	I _C = 3A	30	—	—	—

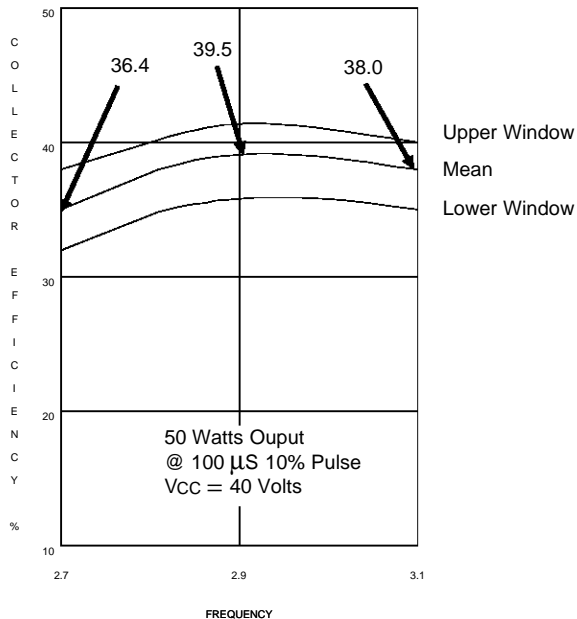
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 2700 — 3100MHz	P _{IN} = 12.5W	V _{CC} = 40V	50	56	—	W
η _c	f = 2700 — 3100MHz	P _{IN} = 12.5W	V _{CC} = 40V	30	35	—	%
G _P	f = 2700 — 3100MHz	P _{IN} = 12.5W	V _{CC} = 40V	6.0	6.5	—	dB

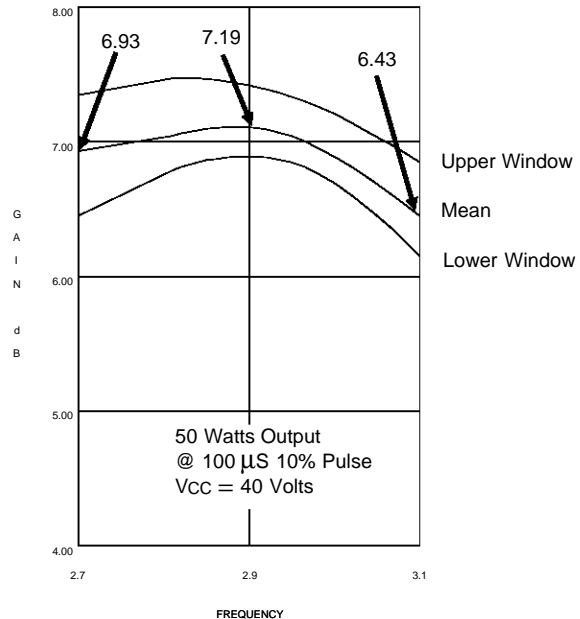
Note: Pulse Width = 100μS
Duty Cycle = 10%

TYPICAL PERFORMANCE

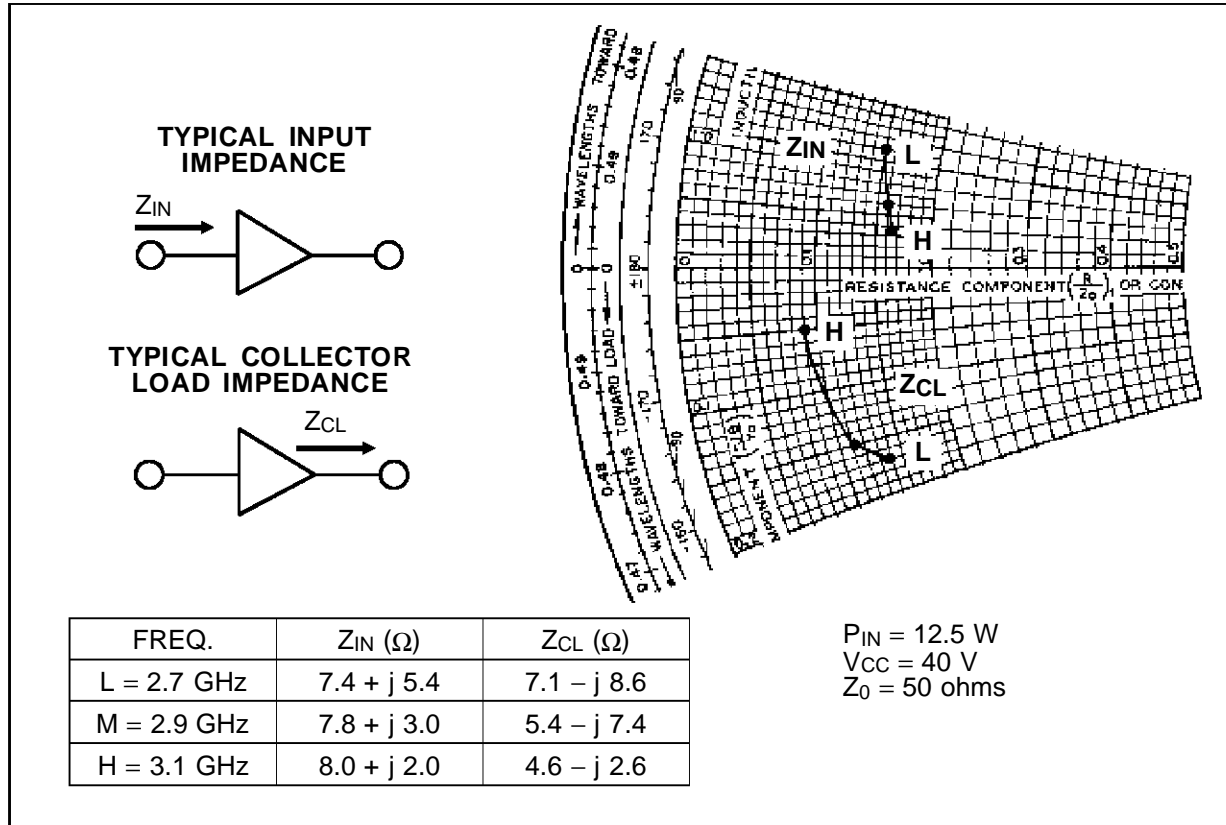
COLLECTOR EFFICIENCY vs FREQUENCY



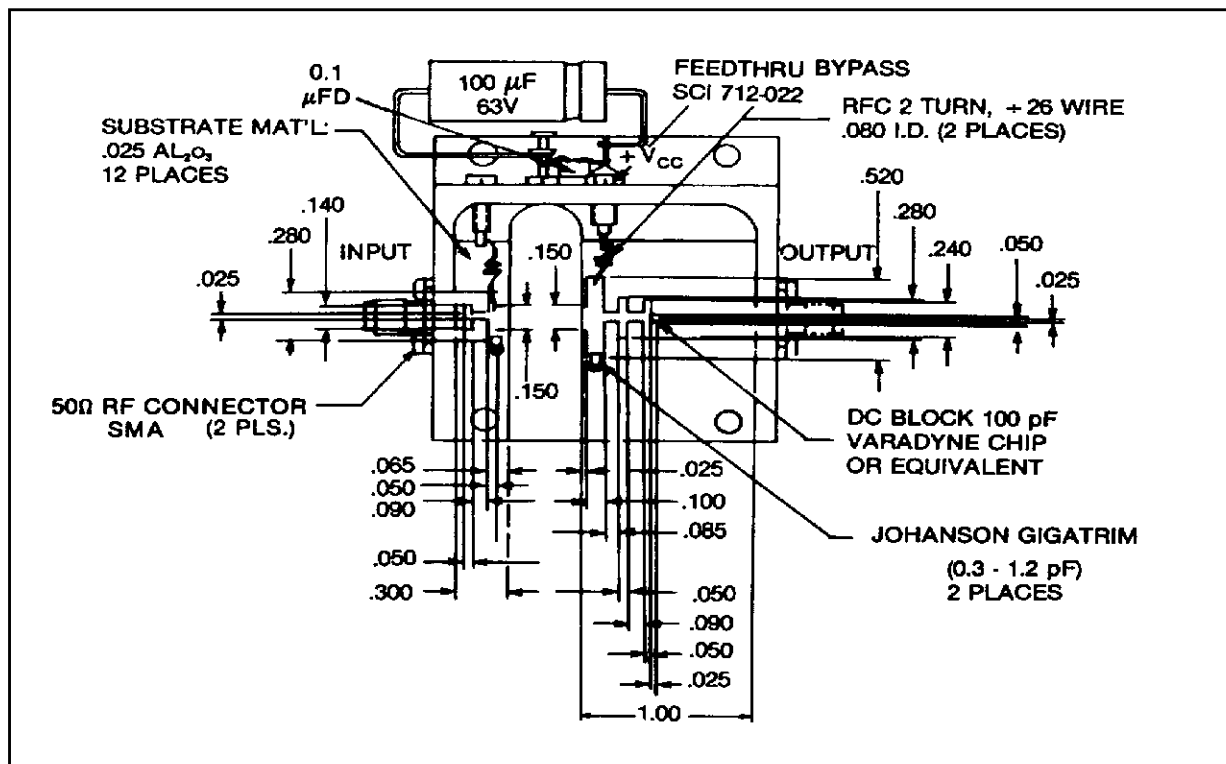
GAIN vs FREQUENCY



IMPEDANCE DATA

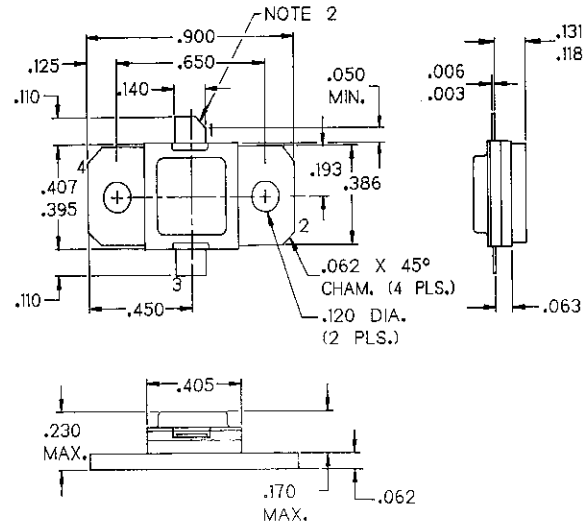


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J133102E



NOTES:

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

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