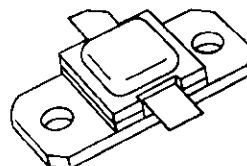


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- 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
- $P_{OUT} = 50 \text{ W MIN. WITH } 6 \text{ dB GAIN}$



.400 x .400 2LFL (S036)
hermetically sealed

ORDER CODE
AM82731-050

BRANDING
82731-50

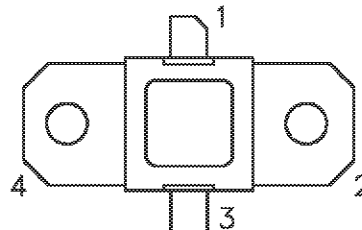
DESCRIPTION

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.

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* ($T_C \leq 50^{\circ}\text{C}$)	167	W
I_C	Device Current*	8	A
V_{CC}	Collector-Supply Voltage*	46	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*	1.2	$^{\circ}\text{C/W}$
---------------	-----------------------------------	-----	----------------------

*Applies only to rated RF amplifier operation

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

STATIC

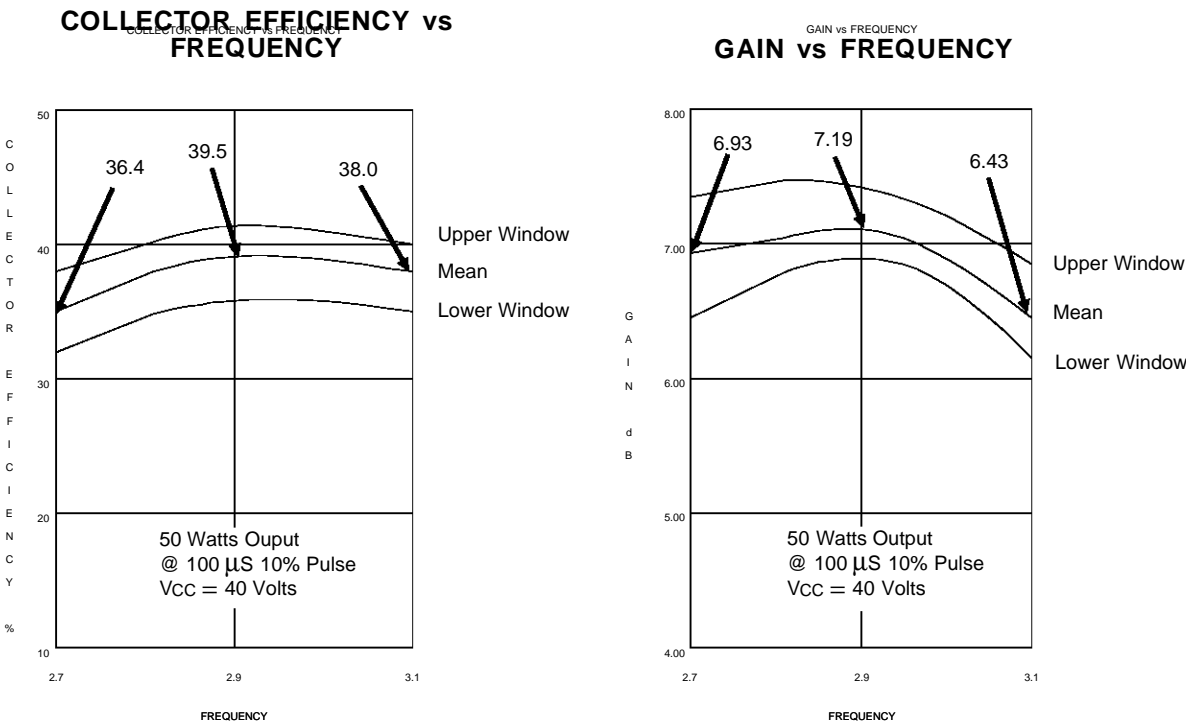
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV _{CBO}	I _C = 25mA I _E = 0mA	55	—	—	V
BV _{EBO}	I _E = 5mA I _C = 0mA	3.5	—	—	V
BV _{CER}	I _C = 25mA R _{BE} = 10Ω	55	—	—	V
I _{CES}	V _{CE} = 40V	—	—	20	mA
h _{FE}	V _{CE} = 5V I _C = 3A	30	—	—	—

DYNAMIC

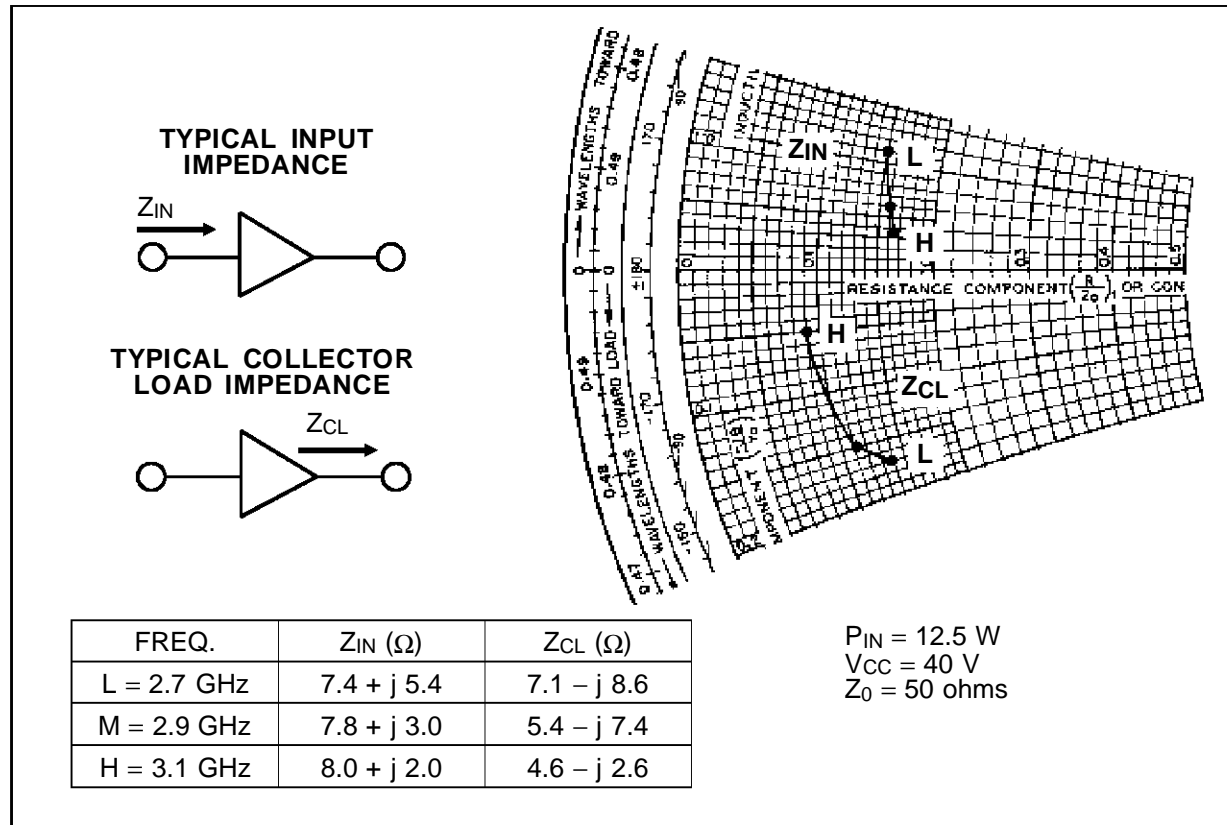
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P _{OUT}	f = 2700 — 3100MHz P _{IN} = 12.5W V _{CC} = 40V	50	56	—	W
η _c	f = 2700 — 3100MHz P _{IN} = 12.5W V _{CC} = 40V	30	35	—	%
G _p	f = 2700 — 3100MHz P _{IN} = 12.5W V _{CC} = 40V	6.0	6.5	—	dB

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

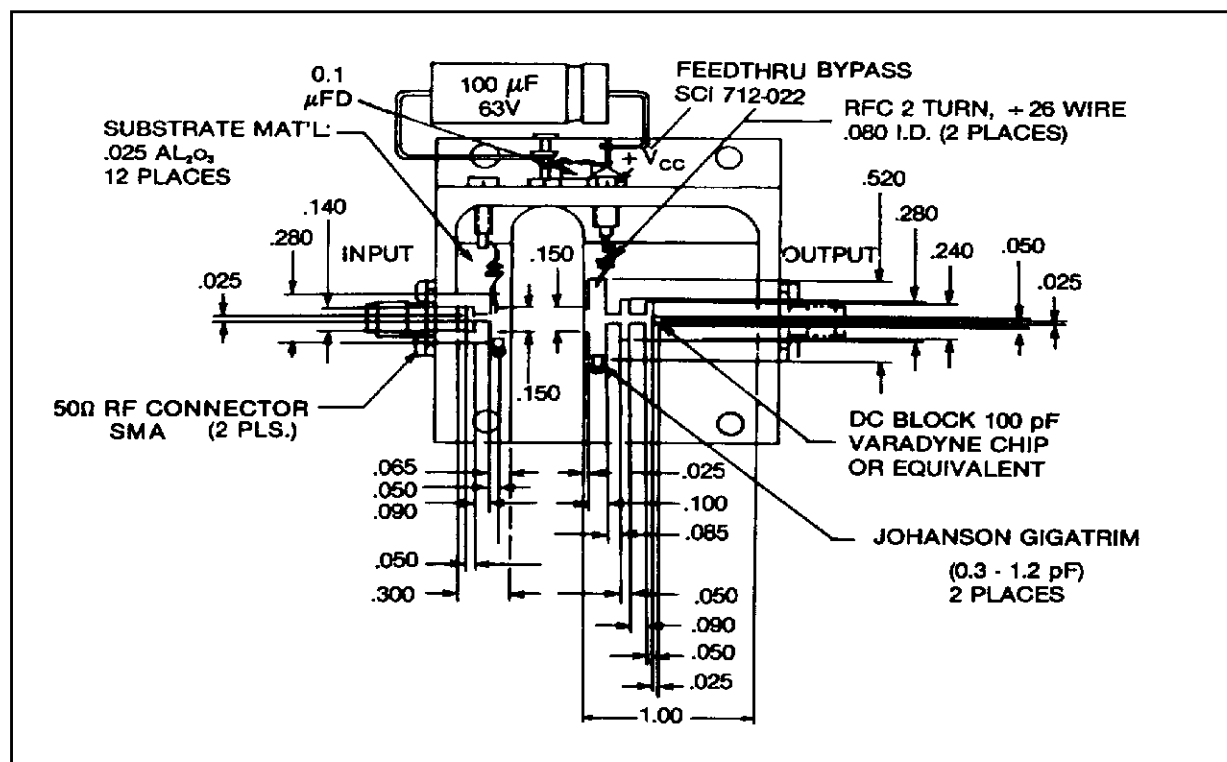
TYPICAL PERFORMANCE



IMPEDANCE DATA

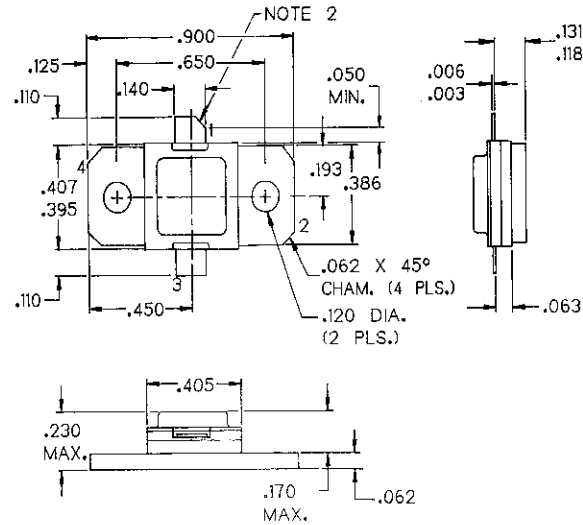


TEST CIRCUIT



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.

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