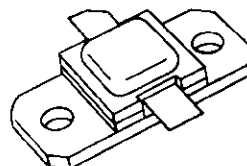


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- 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

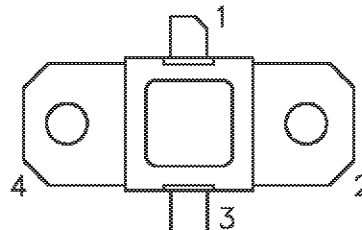
DESCRIPTION

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	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

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

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}	$I_C = 25mA$ $R_{BE} = 10\Omega$	55	—	—	V
I_{CES}	$V_{CE} = 40V$	—	—	20	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 3A$	30	—	—	—

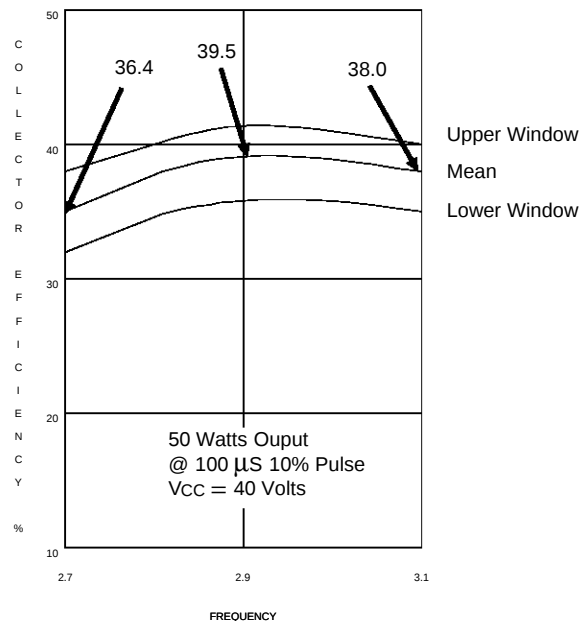
DYNAMIC

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

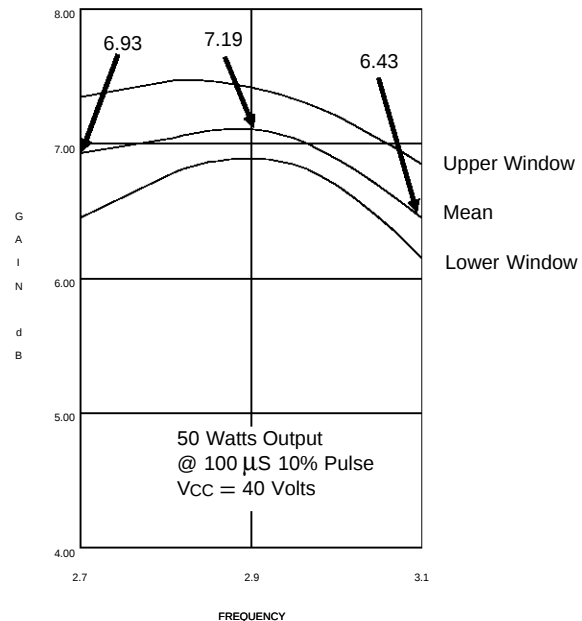
Note: Pulse Width = 100 μ S
Duty Cycle = 10%

TYPICAL PERFORMANCE

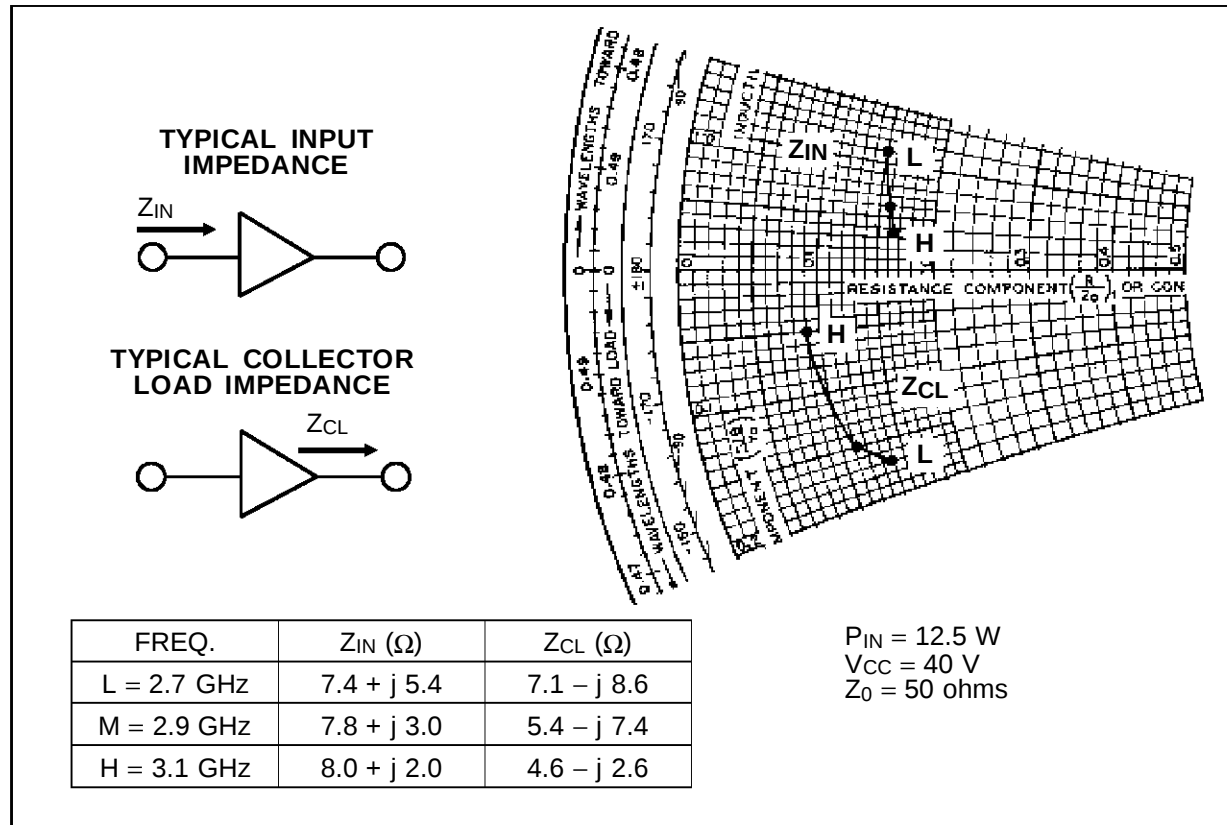
COLLECTOR EFFICIENCY vs FREQUENCY



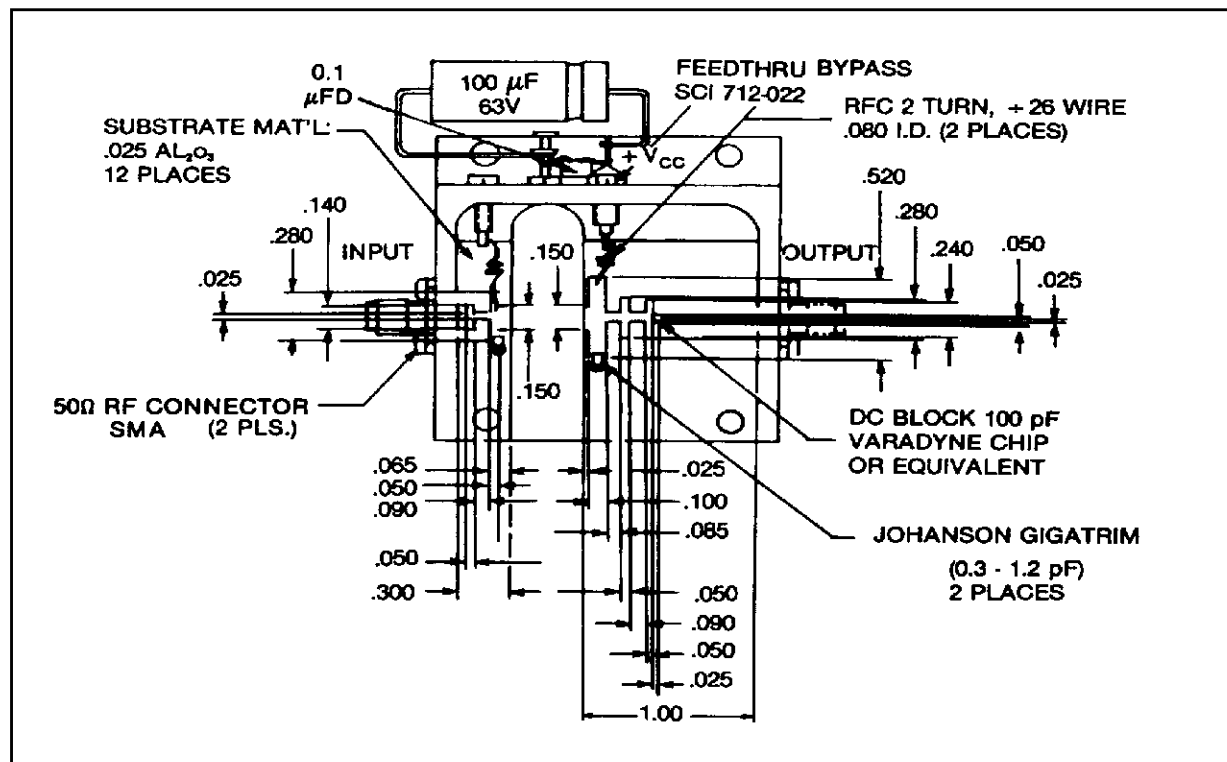
GAIN vs FREQUENCY



IMPEDANCE DATA

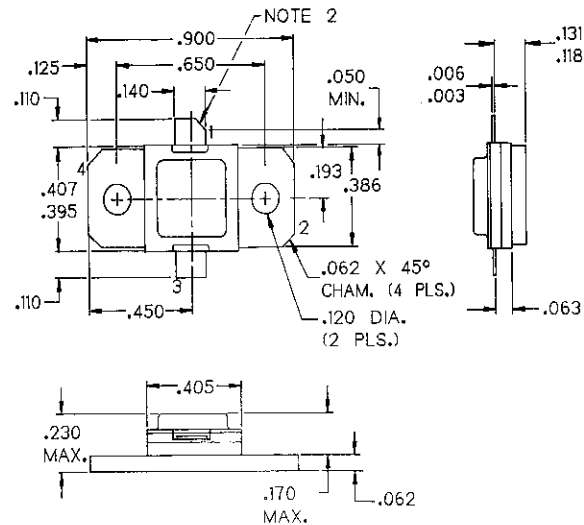


TEST CIRCUIT



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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