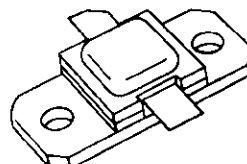


RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- LOW PARASITIC, DOUBLE LEVEL MET-AL DESIGN
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 3:1 VSWR @ 1 dB OVERDRIVE
- LOW RF THERMAL RESISTANCE
- INPUT/OUTPUT IMPEDANCE MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 25 \text{ W MIN. WITH } 6.2 \text{ dB GAIN}$



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

ORDER CODE
AM82731-025

BRANDING
82731-25

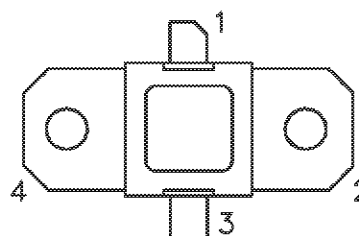
DESCRIPTION

The AM82731-025 device is a high power silicon bi-polar 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 with a +1dB input over drive. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM82731-025 is supplied in the 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* ($T_c \leq 50^{\circ}\text{C}$)	100	W
I_c	Device Current*	4	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*	2.0	$^{\circ}\text{C/W}$
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*Applies only to rated RF amplifier operation

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

STATIC

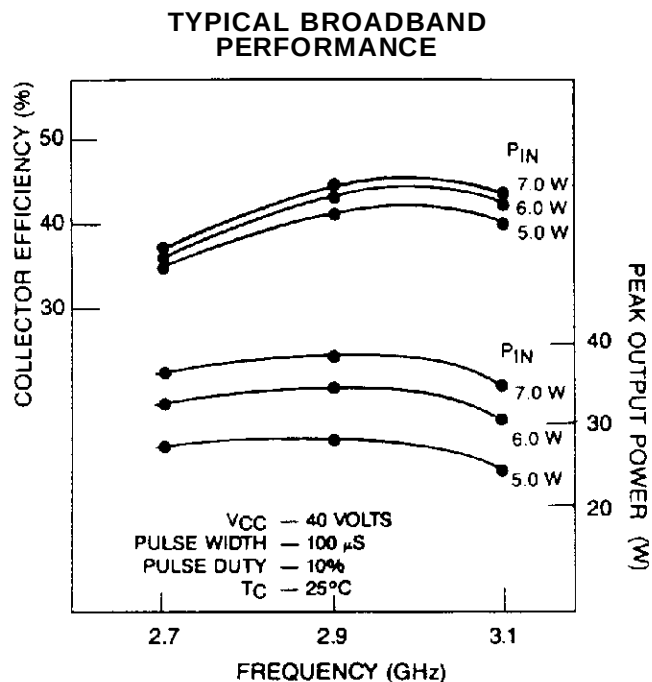
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 15\text{mA}$ $I_E = 0\text{mA}$	55	—	—	V
BV_{EBO}	$I_E = 2\text{mA}$ $I_C = 0\text{mA}$	3.5	—	—	V
BV_{CER}	$I_C = 15\text{mA}$ $R_{BE} = 10\Omega$	55	—	—	V
I_{CES}	$V_{CE} = 0\text{V}$ $V_{BE} = 40\text{V}$	—	—	10	mA
h_{FE}	$V_{CE} = 5\text{V}$ $I_C = 1.5\text{A}$	30	—	—	—

DYNAMIC

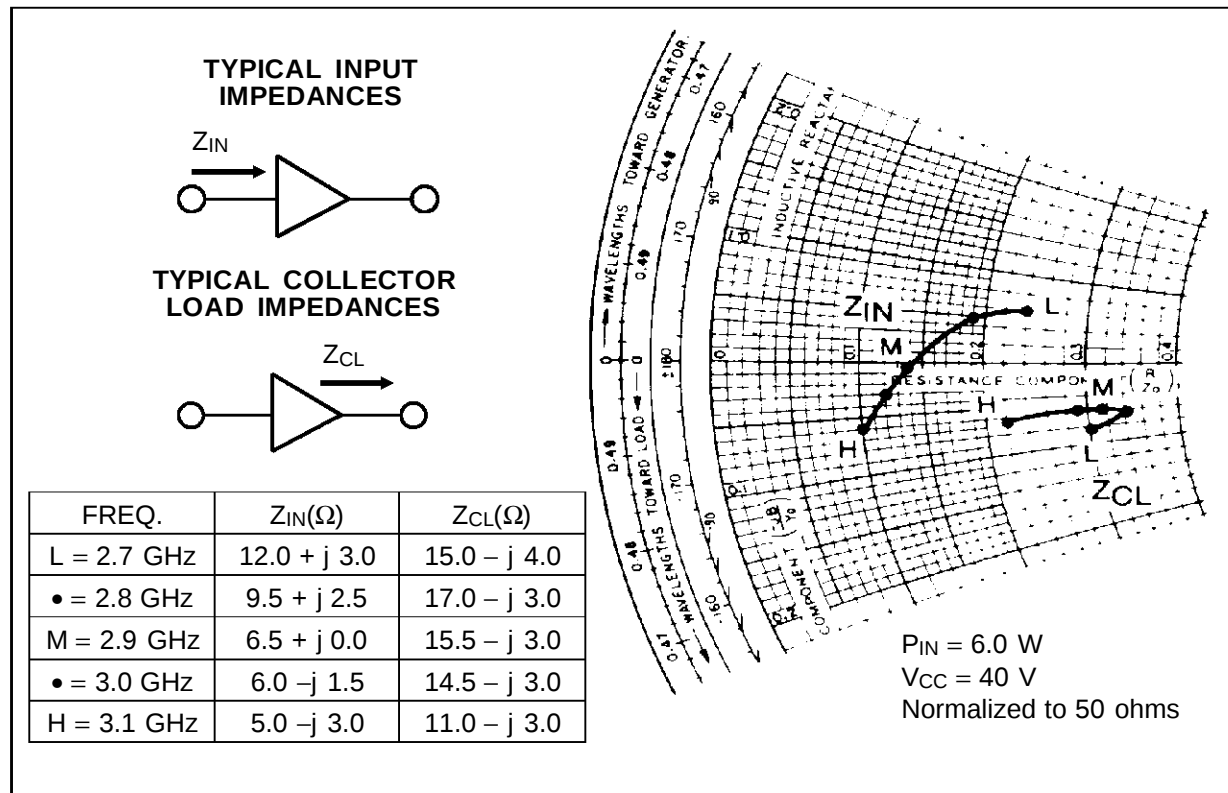
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 2.7 - 3.1\text{GHz}$ $P_{IN} = 6.0\text{W}$ $V_{CC} = 40\text{V}$	25	30	—	W
η_C	$f = 2.7 - 3.1\text{GHz}$ $P_{IN} = 6.0\text{W}$ $V_{CC} = 40\text{V}$	30	36	—	%
G_{PB}	$f = 2.7 - 3.1\text{GHz}$ $P_{IN} = 6.0\text{W}$ $V_{CC} = 40\text{V}$	6.2	7.0	—	dB

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

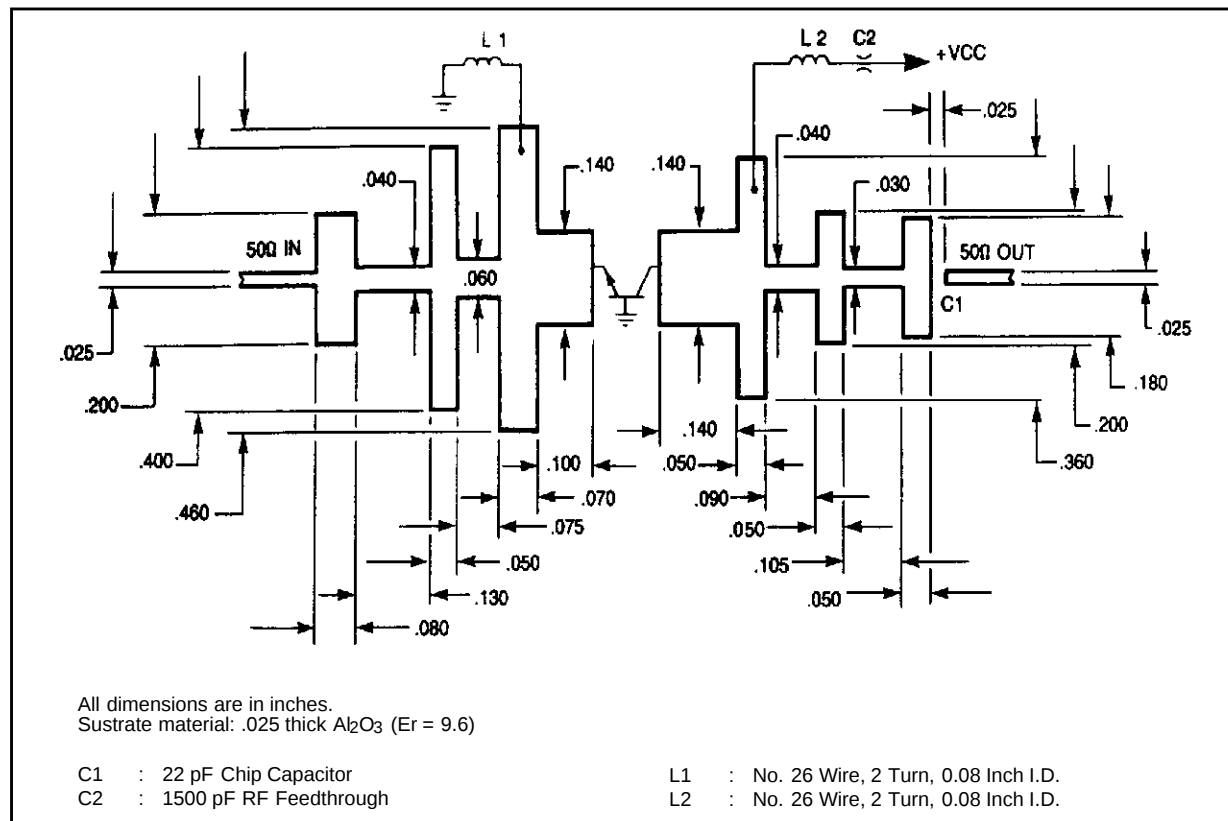
TYPICAL PERFORMANCE



IMPEDANCE DATA

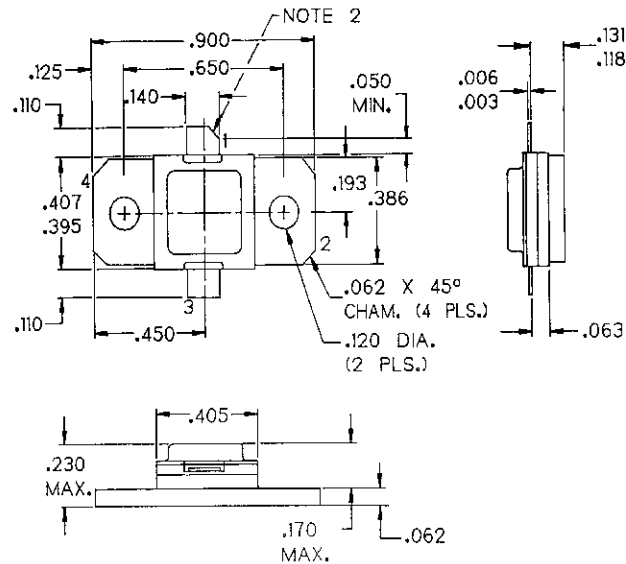


TEST CIRCUIT



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.

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