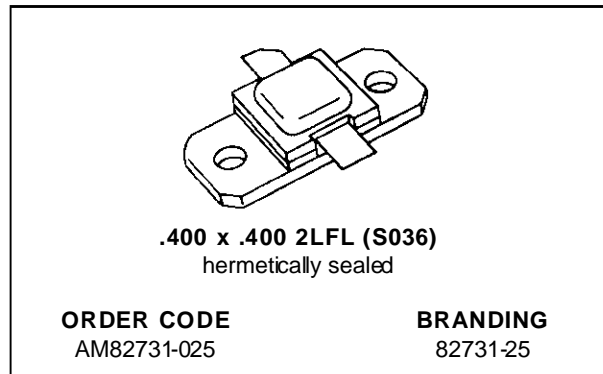


## RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

- LOW PARASITIC, DOUBLE LEVEL METAL 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<sub>OUT</sub> = 25 W MIN. WITH 6.2 dB GAIN

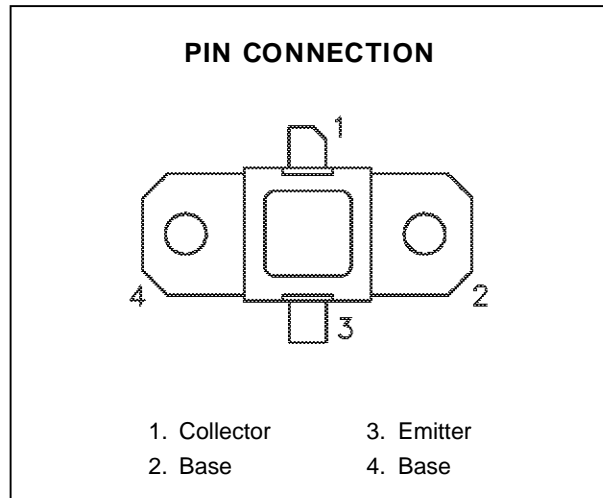


### DESCRIPTION

The AM82731-025 device 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 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.



### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 50°C)	100	W
I <sub>C</sub>	Device Current*	4	A
V <sub>CC</sub>	Collector-Supply Voltage*	46	V
T <sub>J</sub>	Junction Temperature (Pulsed RF Operation)	250	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	2.0	°C/W
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\*Applies only to rated RF amplifier operation

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

**STATIC**

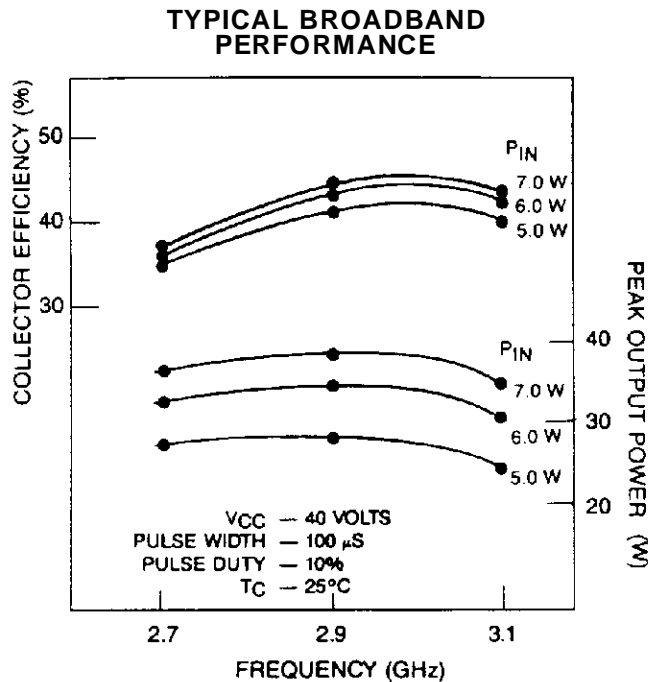
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 15mA$	$I_E = 0mA$	55	—	—	V
$BV_{EBO}$	$I_E = 2mA$	$I_C = 0mA$	3.5	—	—	V
$BV_{CER}$	$I_C = 15mA$	$R_{BE} = 10\Omega$	55	—	—	V
$I_{CES}$	$V_{CE} = 0V$	$V_{BE} = 40V$	—	—	10	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 1.5A$	30	—	—	—

**DYNAMIC**

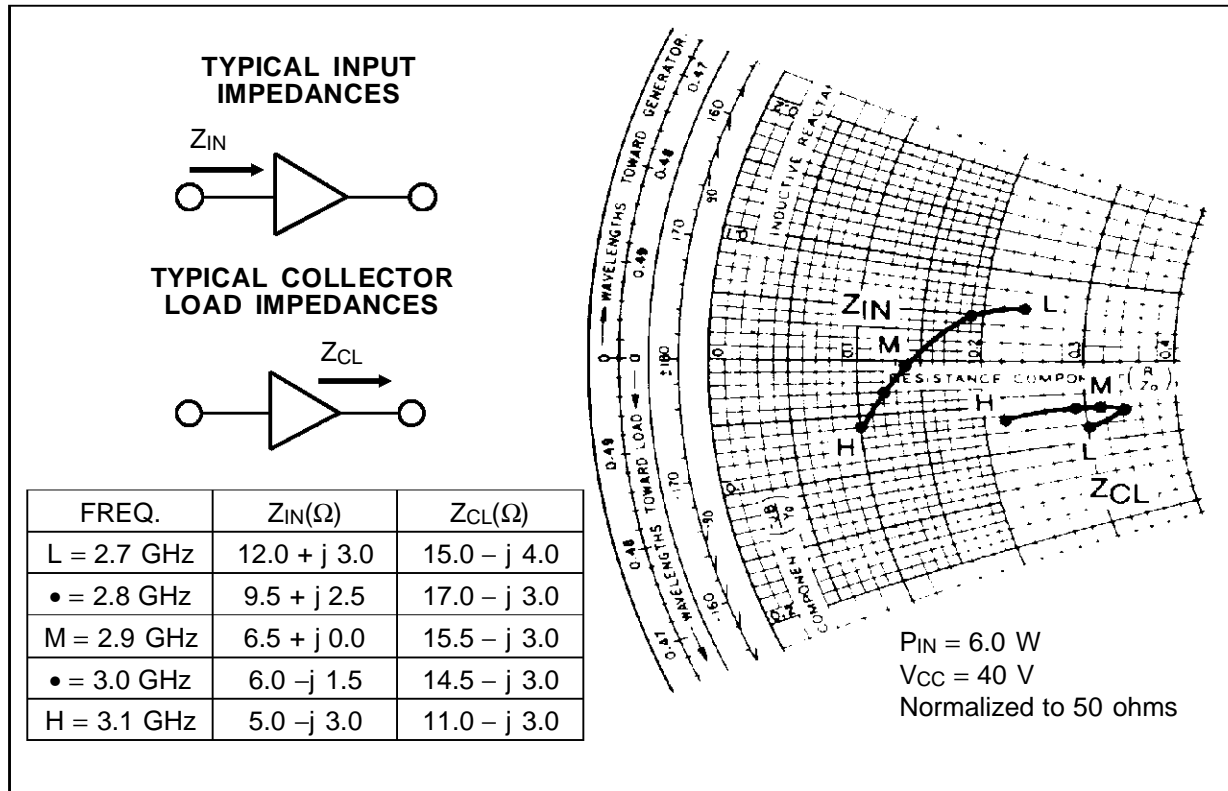
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 2.7 - 3.1GHz$	$P_{IN} = 6.0W$	$V_{CC} = 40V$	25	30	—	W
$\eta_C$	$f = 2.7 - 3.1GHz$	$P_{IN} = 6.0W$	$V_{CC} = 40V$	30	36	—	%
$G_{PB}$	$f = 2.7 - 3.1GHz$	$P_{IN} = 6.0W$	$V_{CC} = 40V$	6.2	7.0	—	dB

Note: Pulse Width = 100  $\mu$ Sec  
 Duty Cycle = 10%

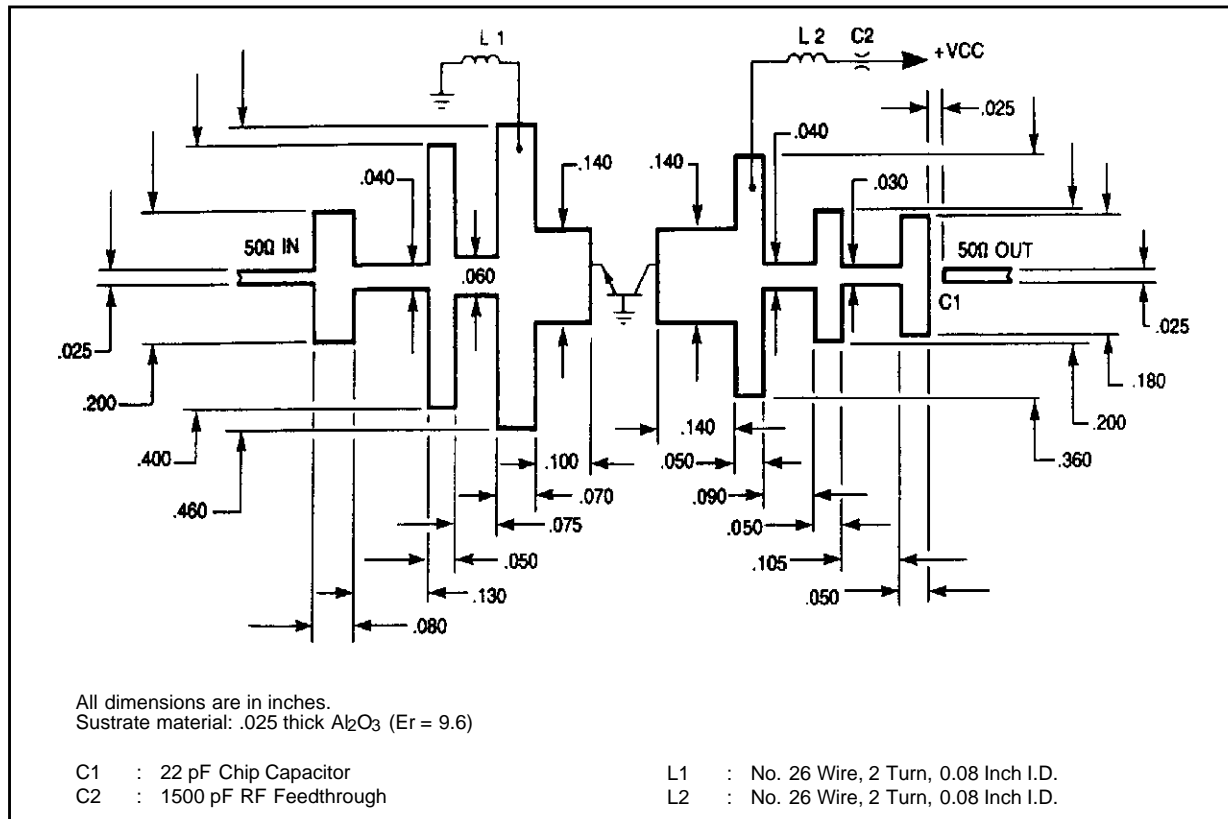
**TYPICAL PERFORMANCE**



IMPEDANCE DATA

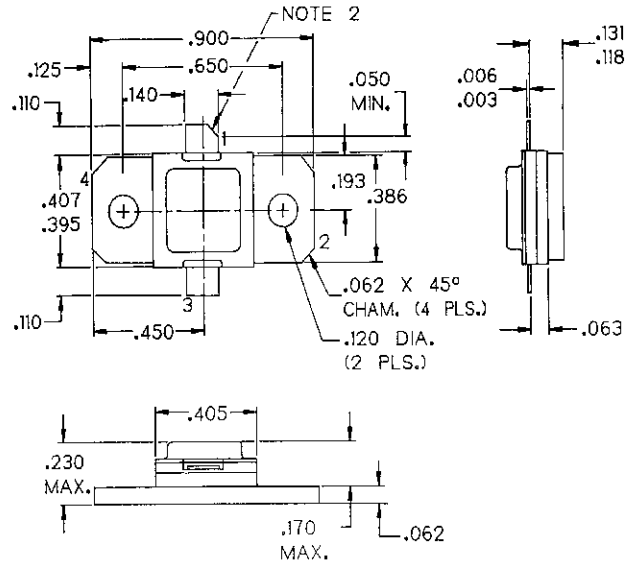


TEST CIRCUIT



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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