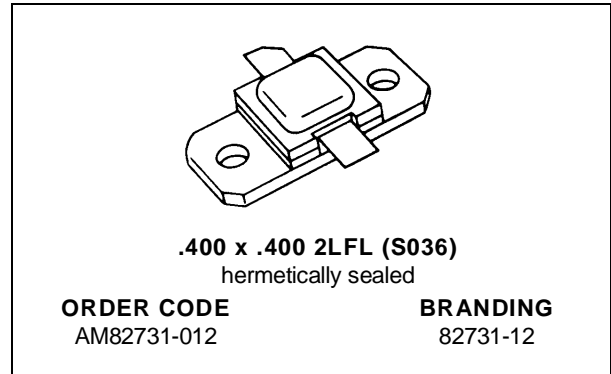


## RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 12\text{ W MIN. WITH } 6.0\text{ dB GAIN}$

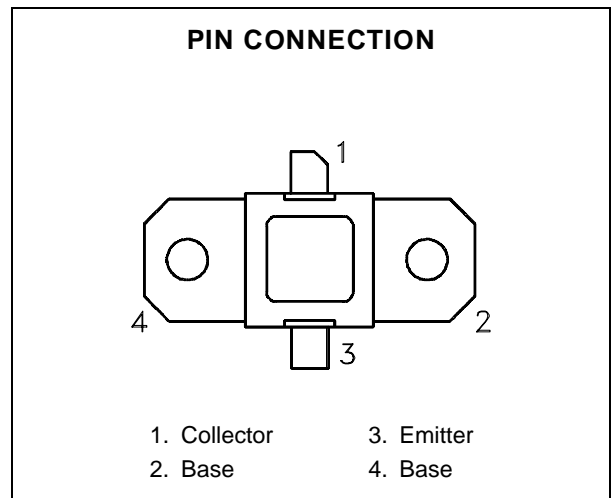


### DESCRIPTION

The AM82731-012 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 + 1 dB input overdrive. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency (including phase characteristics).

The AM82731-012 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 ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$P_{DISS}$	Power Dissipation* ( $T_C \leq 50^{\circ}\text{C}$ )	50	W
$I_C$	Device Current*	2.0	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*	4.0	$^{\circ}\text{C/W}$
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\*Applies only to rated RF amplifier operation

# AM82731-012

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

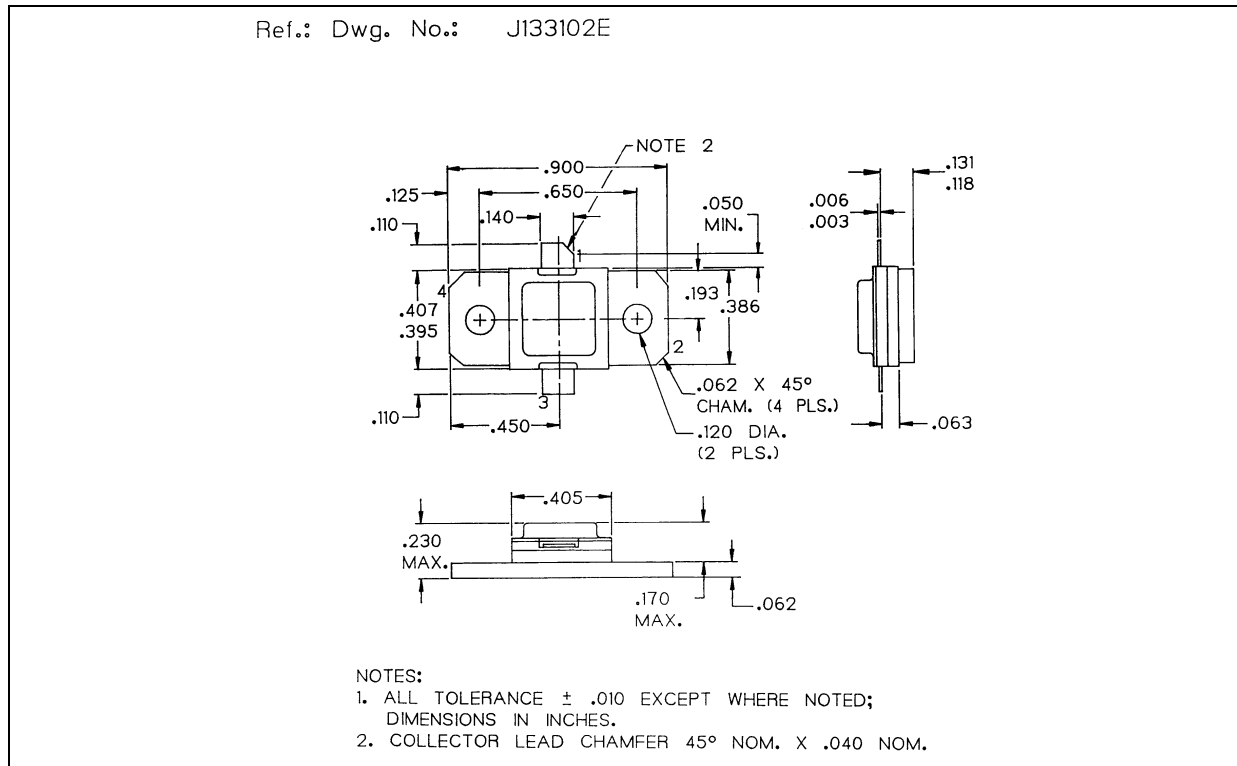
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 7mA	I <sub>E</sub> = 0mA	55	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0mA	3.5	—	—	V
BV <sub>CER</sub>	I <sub>C</sub> = 7mA	R <sub>BE</sub> = 10Ω	55	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 40V		—	—	5	mA
h <sub>FE</sub>	V <sub>CE</sub> = V	I <sub>C</sub> = 600mA	30	—	300	—

### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 2700 — 3100 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 40V	12	—	—	W
η <sub>c</sub>	f = 2700 — 3100 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 40V	30	—	—	%
G <sub>P</sub>	f = 2700 — 3100 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 40V	6.0	—	—	dB

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

## PACKAGE MECHANICAL DATA



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