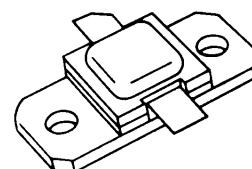


## RF & MICROWAVE TRANSISTORS S-BAND RADAR APPLICATIONS

PRELIMINARY DATA

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



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

**ORDER CODE**  
AM82731-012

**BRANDING**  
82731-12

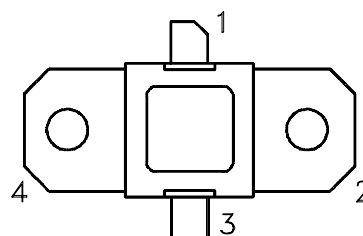
### DESCRIPTION

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.

### 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* ( $T_C \leq 50^{\circ}\text{C}$ )	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

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

**STATIC**

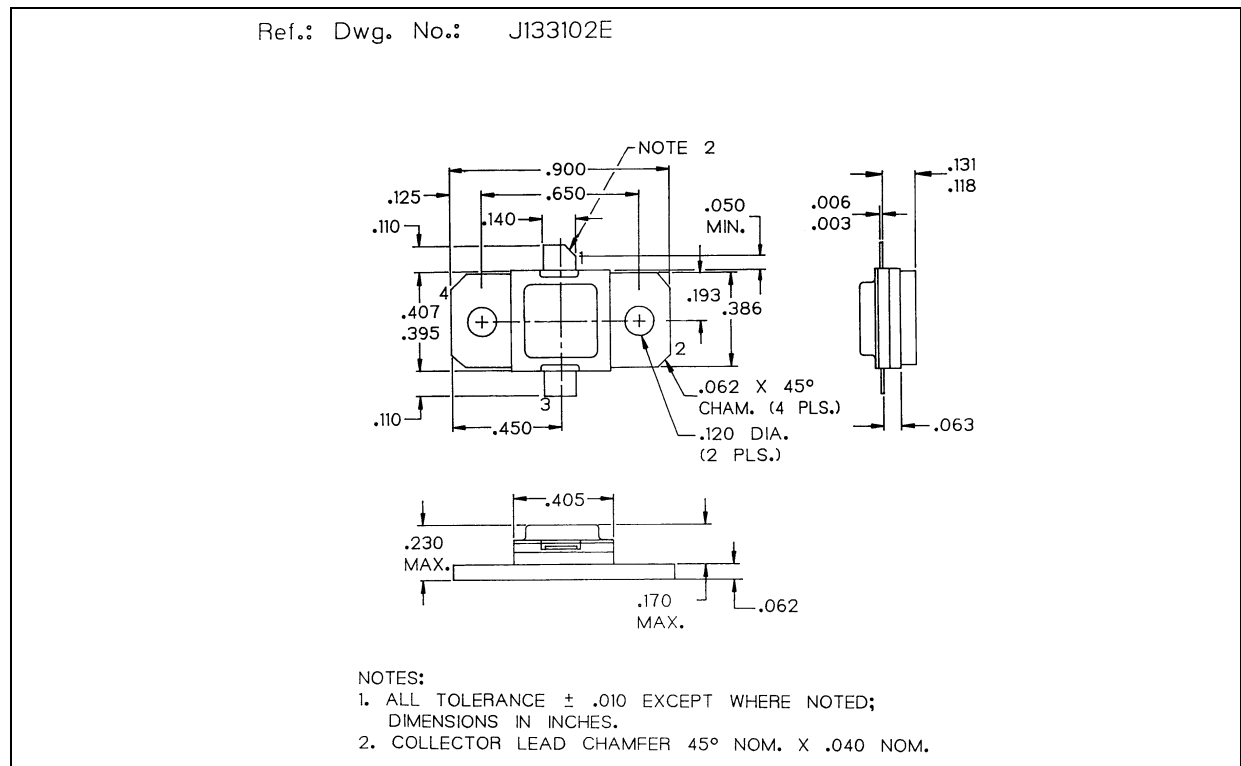
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 7mA$ $I_E = 0mA$	55	—	—	V
$BV_{EBO}$	$I_E = 1mA$ $I_C = 0mA$	3.5	—	—	V
$BV_{CER}$	$I_C = 7mA$ $R_{BE} = 10\Omega$	55	—	—	V
$I_{CES}$	$V_{CE} = 40V$	—	—	5	mA
$h_{FE}$	$V_{CE} = V$ $I_C = 600mA$	30	—	300	—

**DYNAMIC**

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 2700 - 3100 \text{ MHz}$ $P_{IN} = 3.0W$ $V_{CC} = 40V$	12	—	—	W
$\eta_c$	$f = 2700 - 3100 \text{ MHz}$ $P_{IN} = 3.0W$ $V_{CC} = 40V$	30	—	—	%
$G_P$	$f = 2700 - 3100 \text{ MHz}$ $P_{IN} = 3.0W$ $V_{CC} = 40V$	6.0	—	—	dB

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

**PACKAGE MECHANICAL DATA**



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