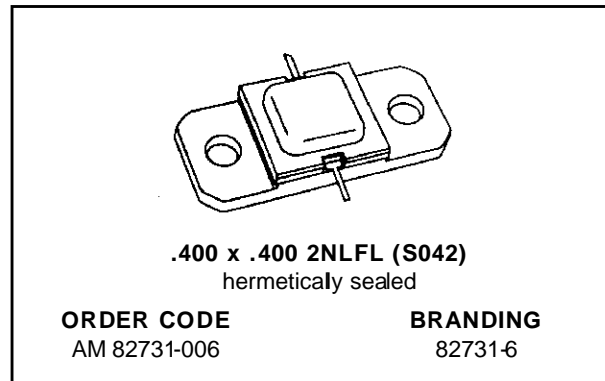


**RF & MICROWAVE TRANSISTORS
S-BAND RADAR APPLICATIONS**

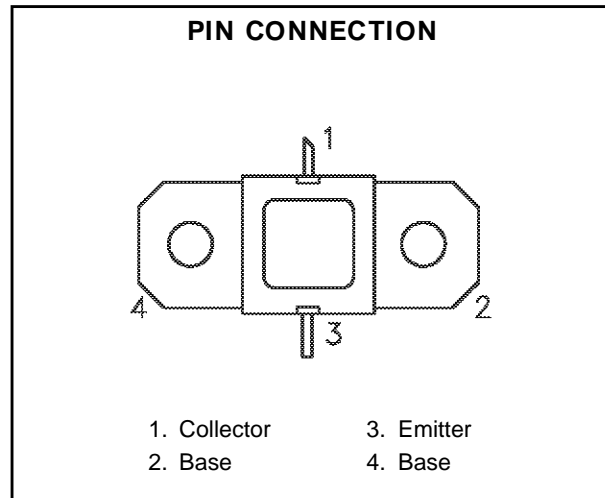
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT IMPEDANCE MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 5.5 W. MIN. WITH 5.6 dB GAIN
- BANDWIDTH = 400 MHz


DESCRIPTION

The AM82731-006 device is a medium power silicon bipolar NPN transistor specifically designed for S-Band radar pulsed driver applications.

This device is capable of operation over a wide range of pulse widths, duty cycles, and temperatures and can withstand a 5:1 output VSWR. Low RF thermal resistance, refractory/gold metallization, and automatic wire bonding techniques ensure high reliability and product consistency.

The AM82731-006 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°C)

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	40	W
I _C	Device Current*	1.8	A
V _{CC}	Collector-Supply Voltage*	34	V
T _J	Junction Temperature (Pulsed RF Operation)	250	°C
T _{STG}	Storage Temperature	- 65 to +200	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance	3.75	°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}	$I_C = 5mA$	$I_E = 0mA$	50	—	—	V
BV_{EBO}	$I_E = 1mA$	$I_C = 0mA$	3.5	—	—	V
BV_{CER}	$I_C = 5mA$	$R_{BE} = 10\Omega$	50	—	—	V
I_{CES}	$V_{CE} = 30V$		—	—	4	mA
h_{FE}	$V_{CE} = 5V$	$I_C = 500mA$	10	—	—	—

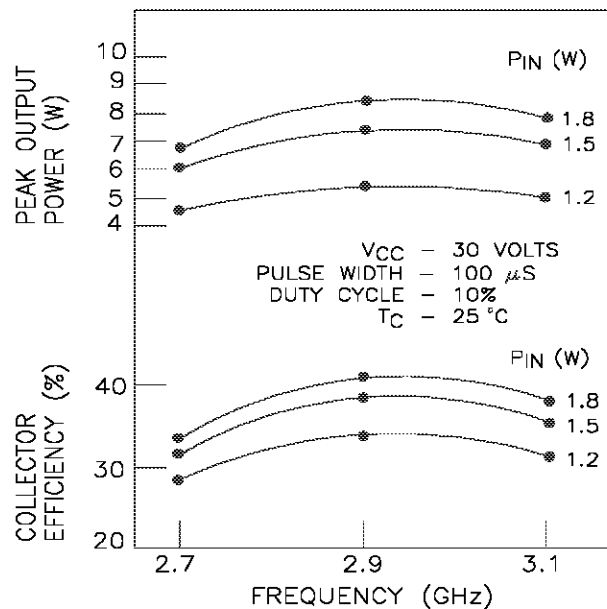
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 2.7 - 3.1GHz$	$P_{IN} = 1.5W$	$V_{CC} = 30V$	5.5	6.0	—	W
η_C	$f = 2.7 - 3.1GHz$	$P_{IN} = 1.5W$	$V_{CC} = 30V$	27	32	—	%
G_{PB}	$f = 2.7 - 3.1GHz$	$P_{IN} = 1.5W$	$V_{CC} = 30V$	5.6	6.0	—	dB

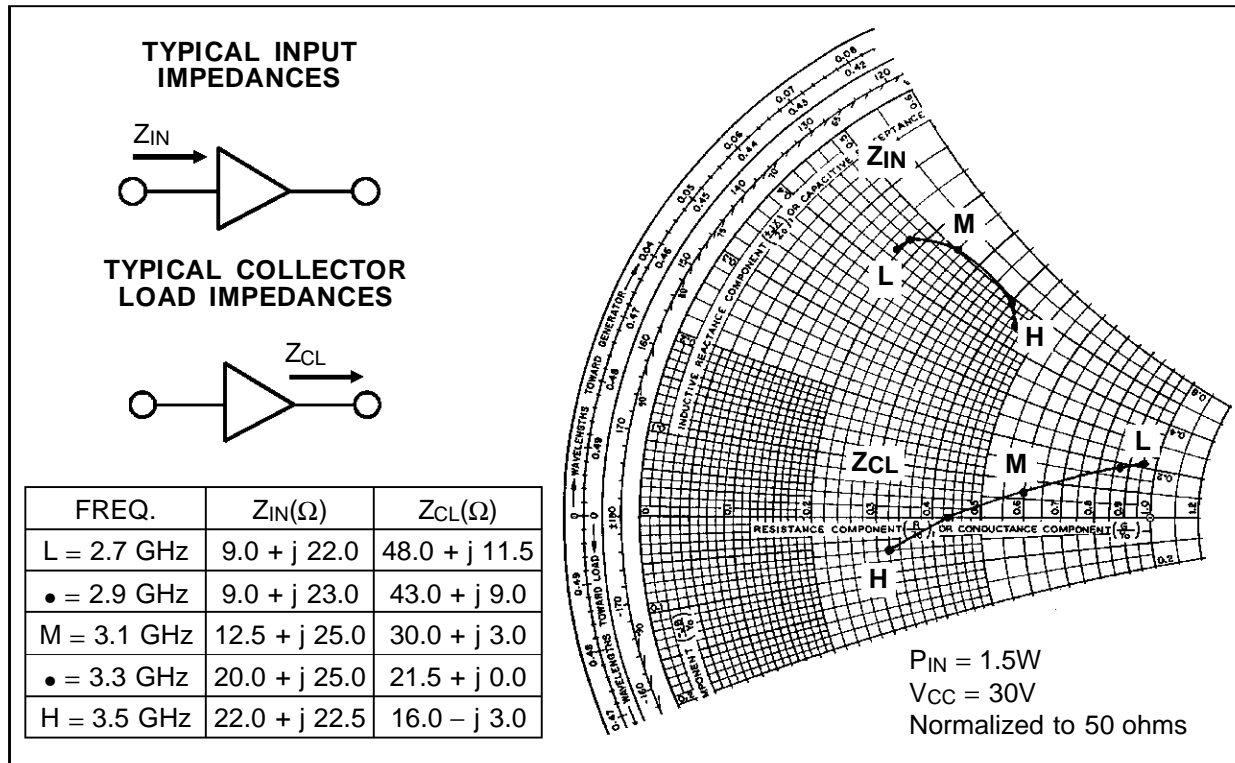
Note: Pulse Width = 100 μ S
 Duty Cycle = 10%

TYPICAL PERFORMANCE

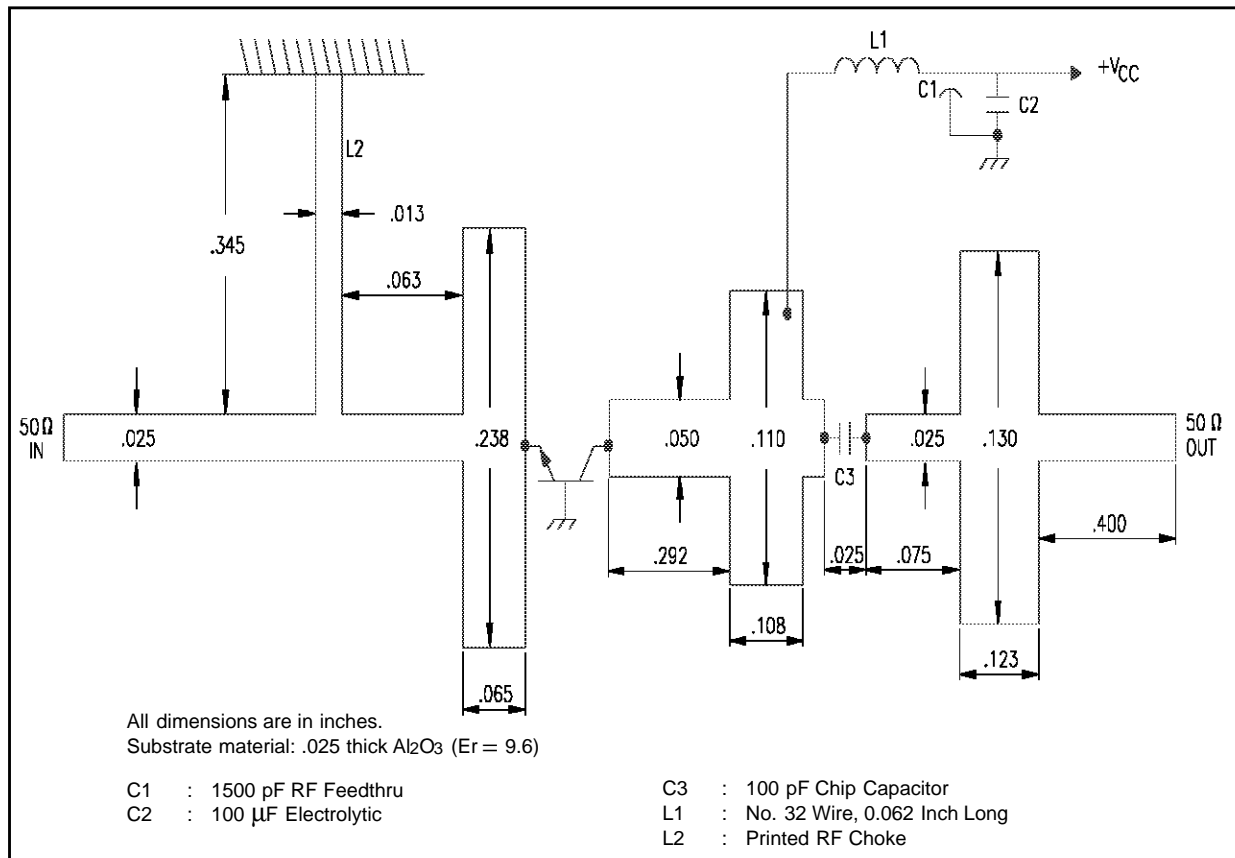
TYPICAL BROADBAND PERFORMANCE



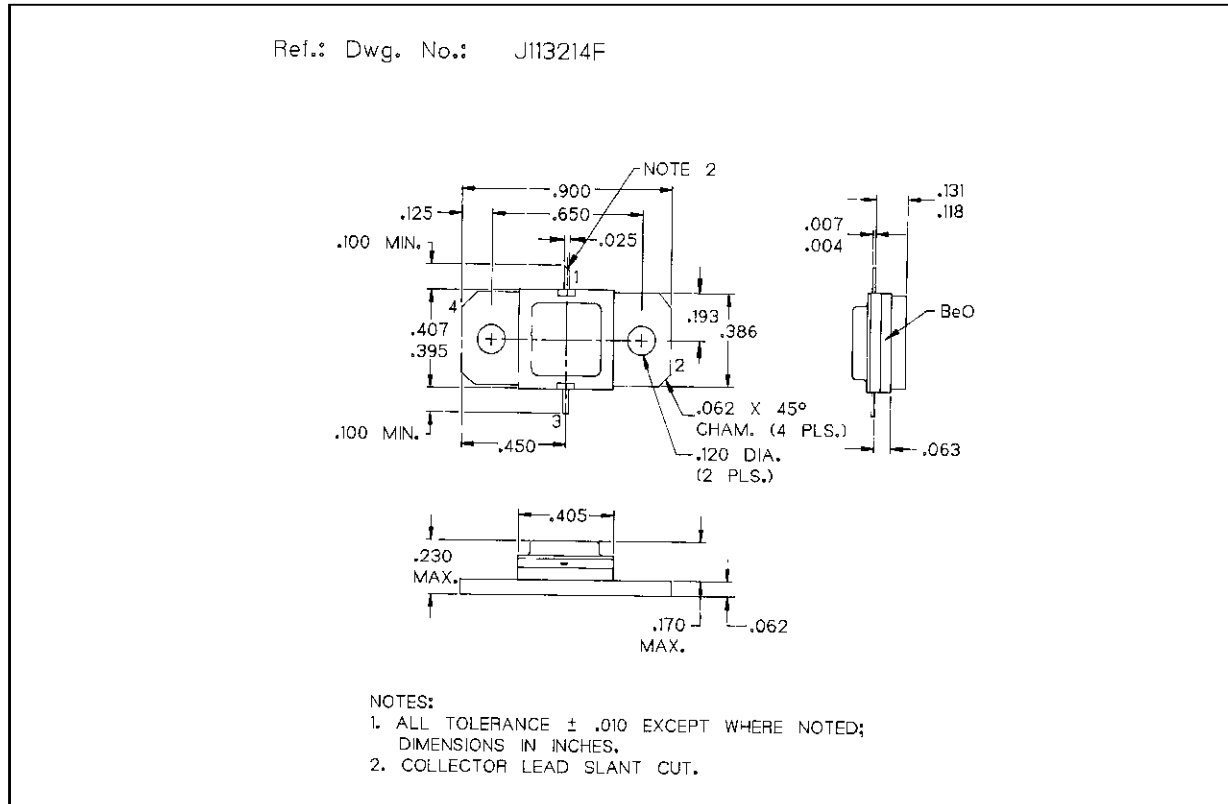
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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