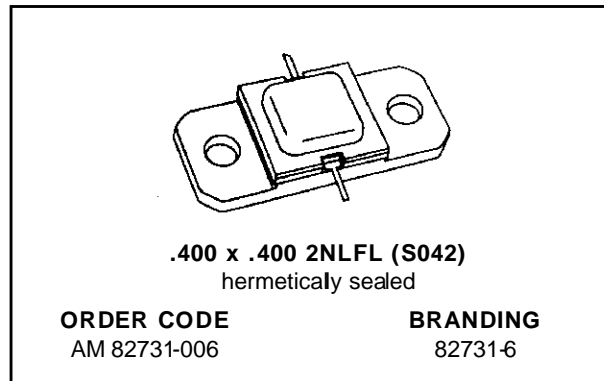


**RF & MICROWAVE TRANSISTORS  
S-BAND RADAR APPLICATIONS**

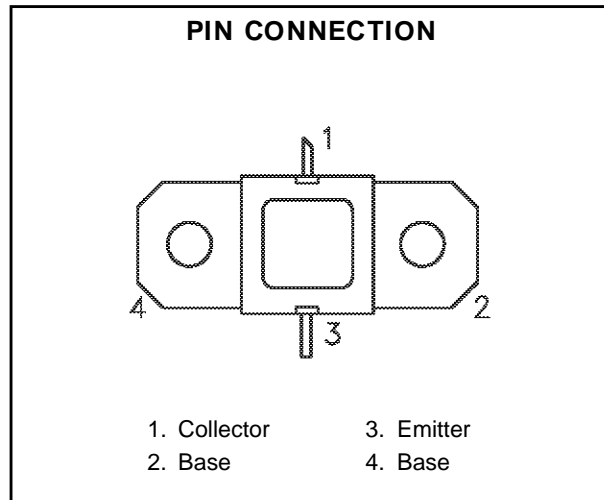
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- 5:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT/OUTPUT IMPEDANCE MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 5.5 W. MIN. WITH 5.6 dB GAIN
- BANDWIDTH = 400 MHz


**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<sub>case</sub> = 25°C)**

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 100°C)	40	W
I <sub>C</sub>	Device Current*	1.8	A
V <sub>CC</sub>	Collector-Supply Voltage*	34	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	3.75	°C/W
----------------------	----------------------------------	------	------

\*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	—	—	—

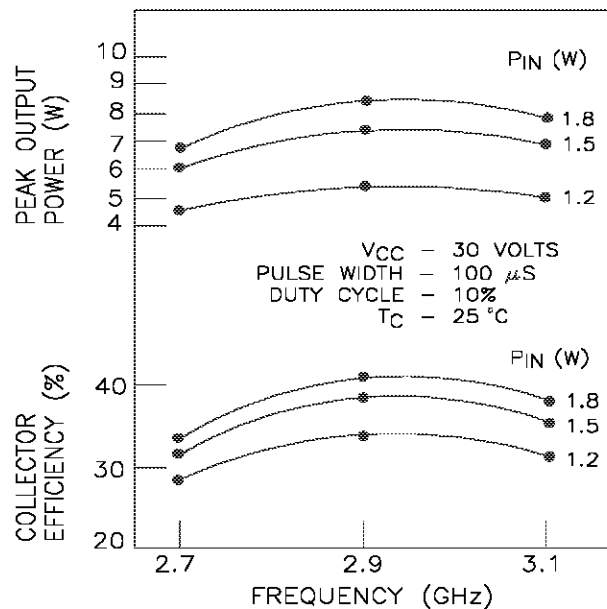
DYNAMIC

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
$\eta_C$	$f = 2.7 - 3.1GHz$	$P_{IN} = 1.5W$	$V_{CC} = 30V$	27	32	—	%
$G_{PB}$	$f = 2.7 - 3.1GHz$	$P_{IN} = 1.5W$	$V_{CC} = 30V$	5.6	6.0	—	dB

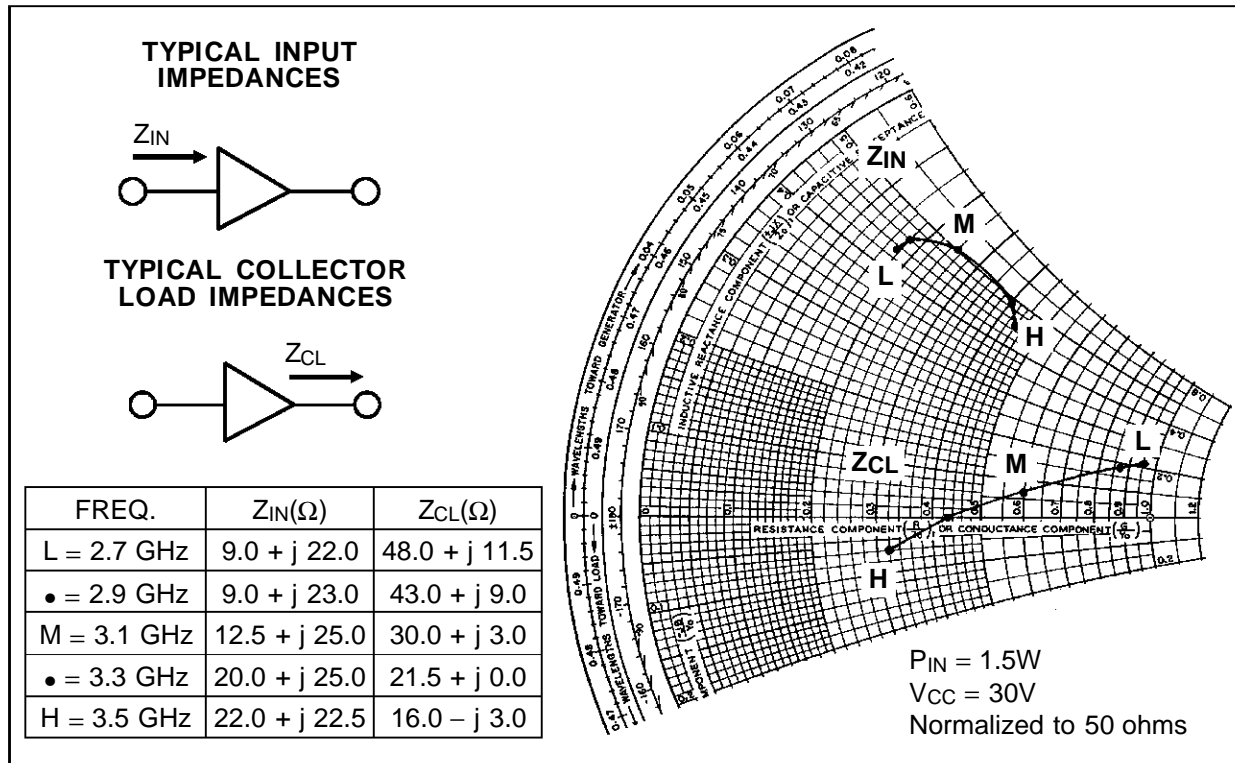
Note: Pulse Width = 100 $\mu$ S  
 Duty Cycle = 10%

**TYPICAL PERFORMANCE**

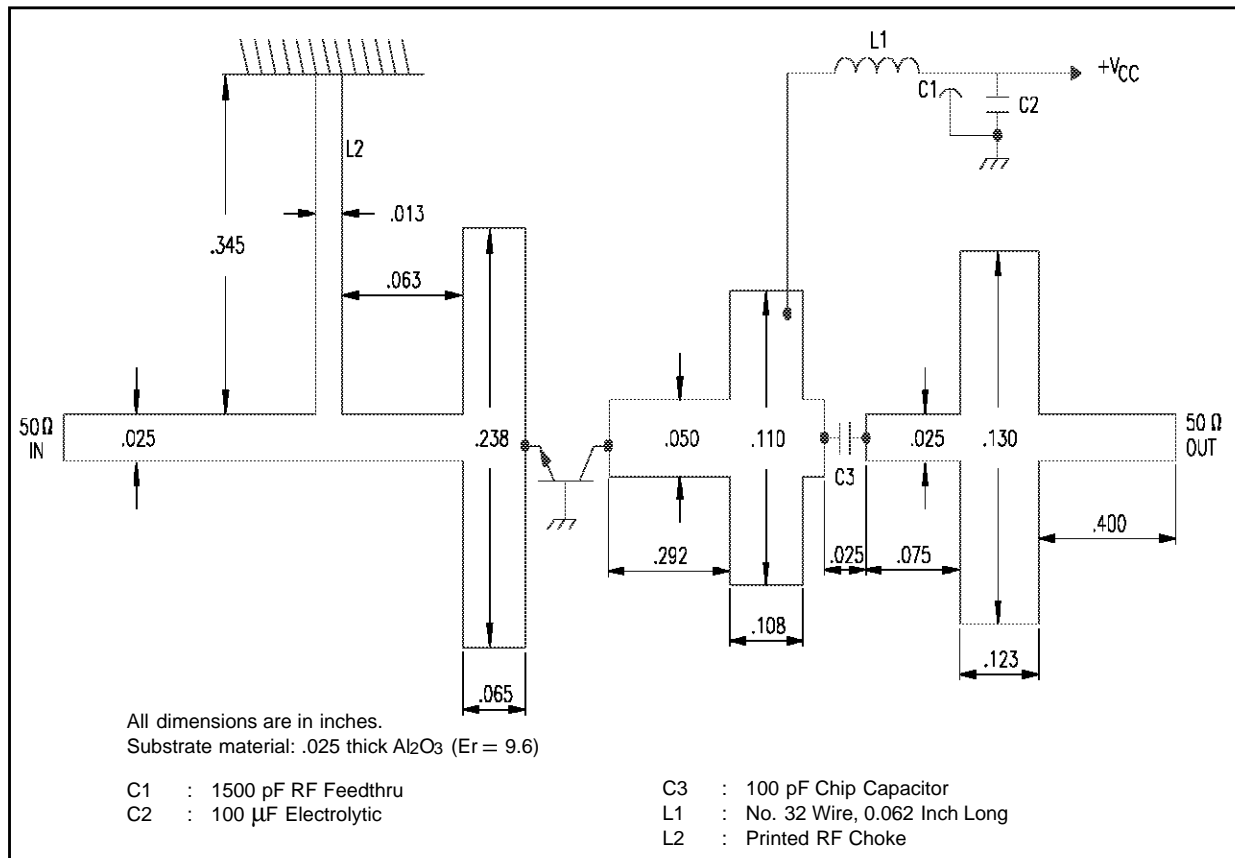
**TYPICAL BROADBAND PERFORMANCE**



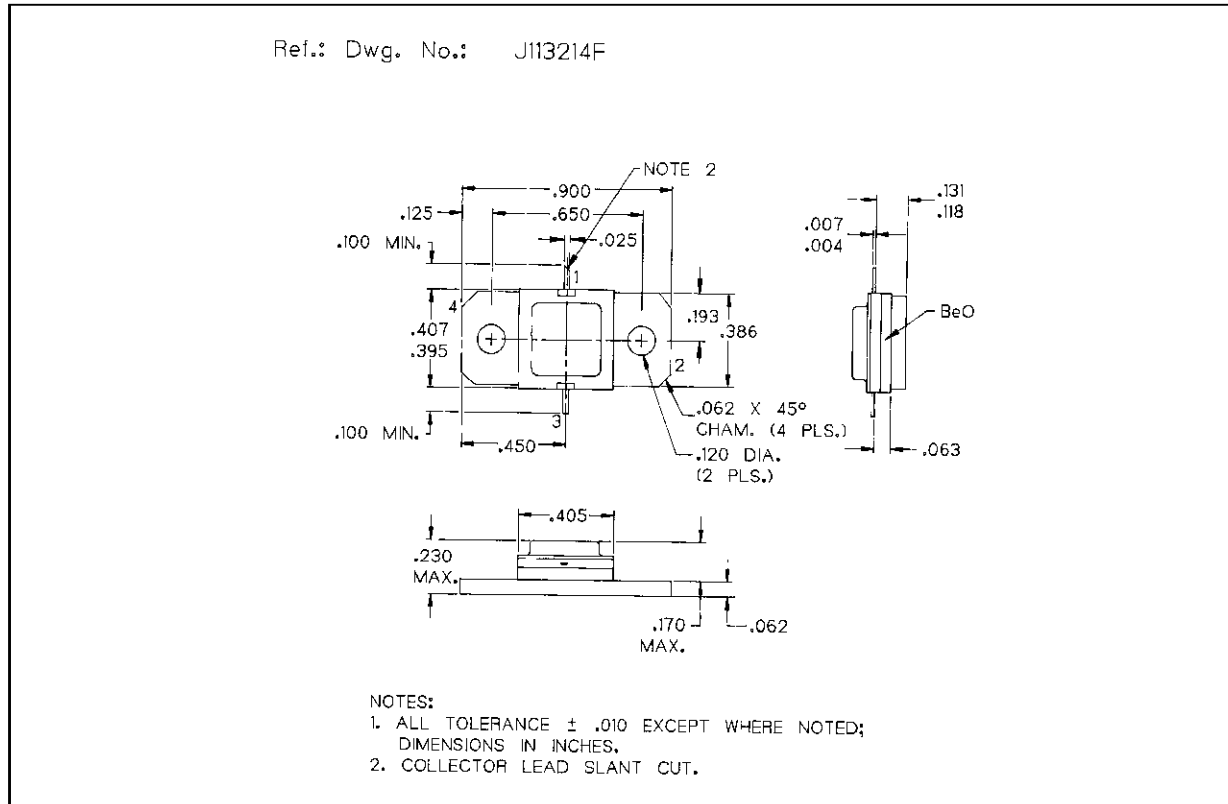
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may results from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES  
 Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
 Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A