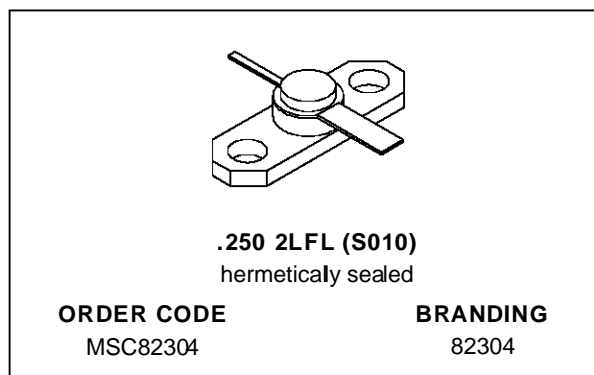


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

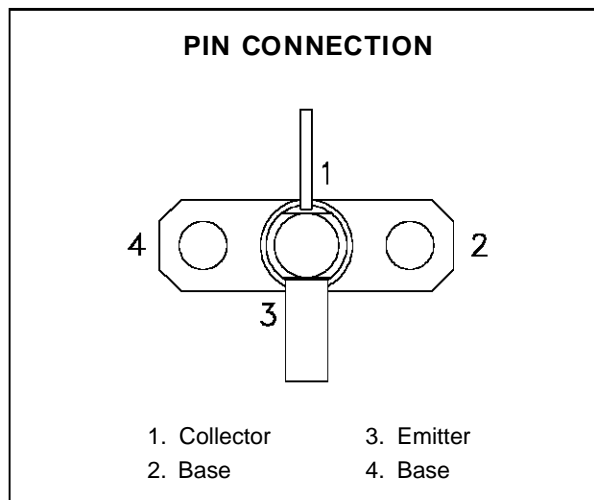
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P_{OUT} = 3.8 W MIN. WITH 10.0 dB GAIN



DESCRIPTION

The MSC82304 is a common base hermetically sealed silicon NPN microwave power transistor utilizing a rugged overlay die geometry. This device is capable of withstanding 20:1 load VSWR at any phase angle under rated conditions.

The MSC82304 was designed for Class C Amplifier/Oscillator applications in the 1.5 - 2.3 GHz frequency range.



ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _c ≤ 50°C)	11.5	W
I _c	Device Current*	600	mA
V _{CC}	Collector-Supply Voltage*	26	V
T _J	Junction Temperature	200	°C
T _{STG}	Storage Temperature	- 65 to +200	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance*	13	°C/W
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*Applies only to rated RF amplifier operation

MSC82304

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

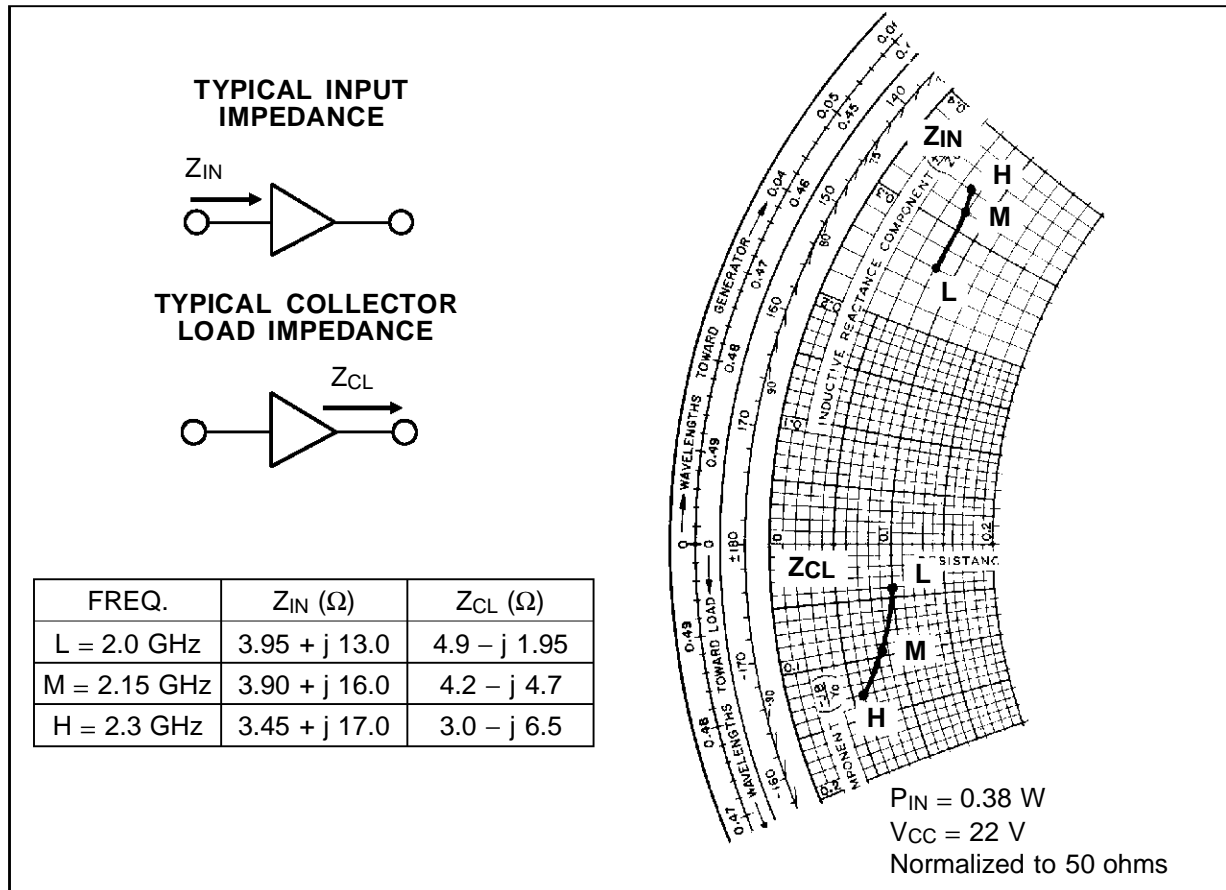
STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1\text{mA}$	$I_{\text{E}} = 0\text{mA}$	44	—	—	V	
BV_{EBO}	$I_{\text{E}} = 1\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V	
BV_{CER}	$I_{\text{C}} = 5\text{mA}$	$R_{\text{BE}} = 10\Omega$	44	—	—	V	
I_{CBO}	$V_{\text{CB}} = 22\text{V}$		—	—	0.5	mA	
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 250\text{mA}$	30	—	300	—	

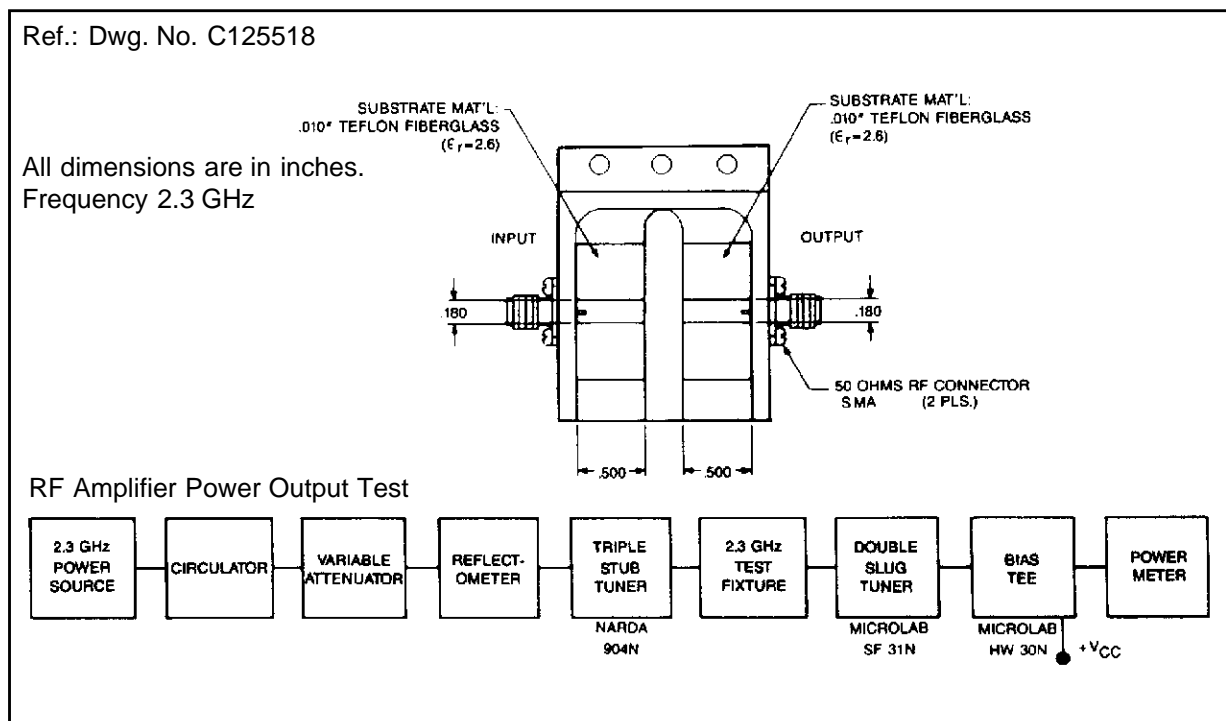
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 2.3\text{ GHz}$	$P_{\text{IN}} = 0.38\text{ W}$	$V_{\text{CC}} = 22\text{ V}$	3.8	—	—	W
η_{C}	$f = 2.3\text{ GHz}$	$P_{\text{IN}} = 0.38\text{ W}$	$V_{\text{CC}} = 22\text{ V}$	40	—	—	%
G_{P}	$f = 2.3\text{ GHz}$	$P_{\text{IN}} = 0.38\text{ W}$	$V_{\text{CC}} = 22\text{ V}$	10.0	—	—	dB
C_{OB}	$f = 1\text{ MHz}$	$V_{\text{CB}} = 22\text{ V}$		—	—	5.0	pF

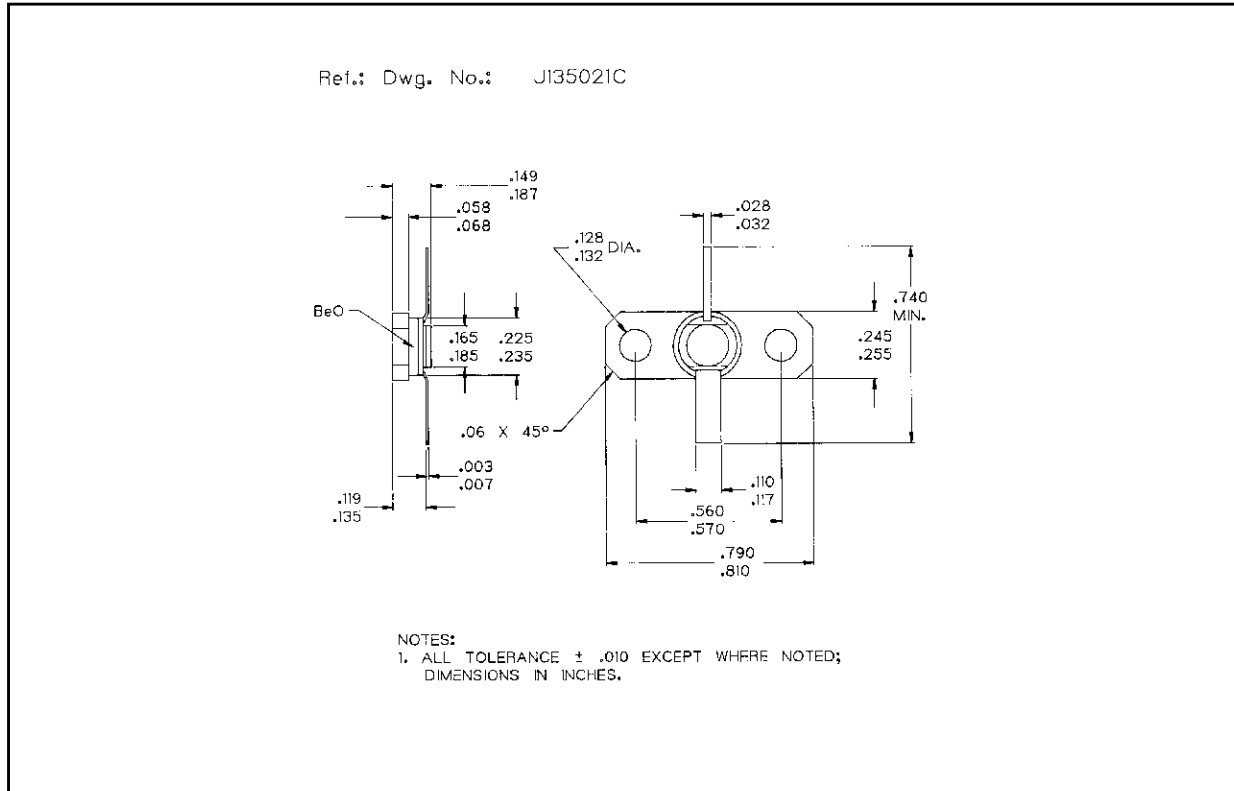
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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