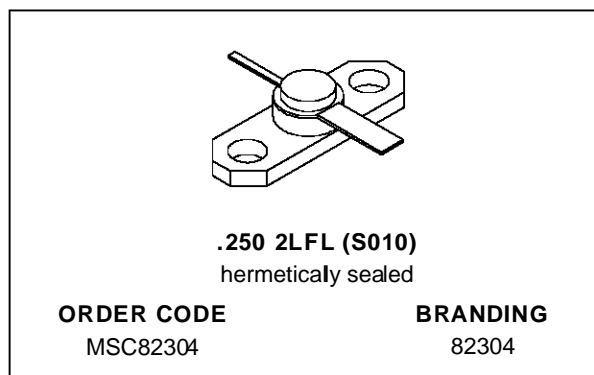


## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

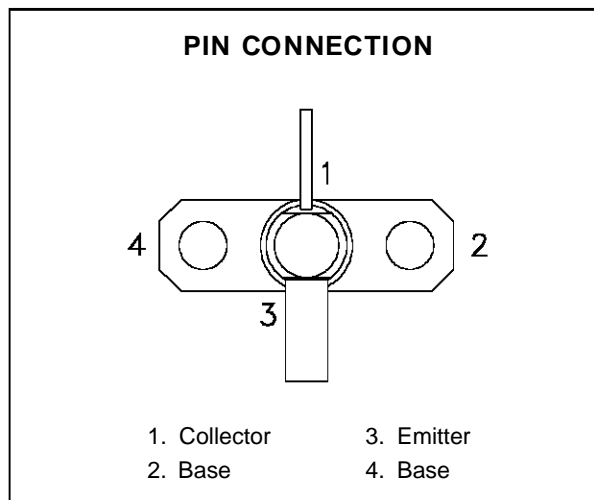
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P<sub>OUT</sub> = 3.8 W MIN. WITH 10.0 dB GAIN



### 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<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>c</sub> ≤ 50°C)	11.5	W
I <sub>c</sub>	Device Current*	600	mA
V <sub>CC</sub>	Collector-Supply Voltage*	26	V
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	13	°C/W
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\*Applies only to rated RF amplifier operation

## MSC82304

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

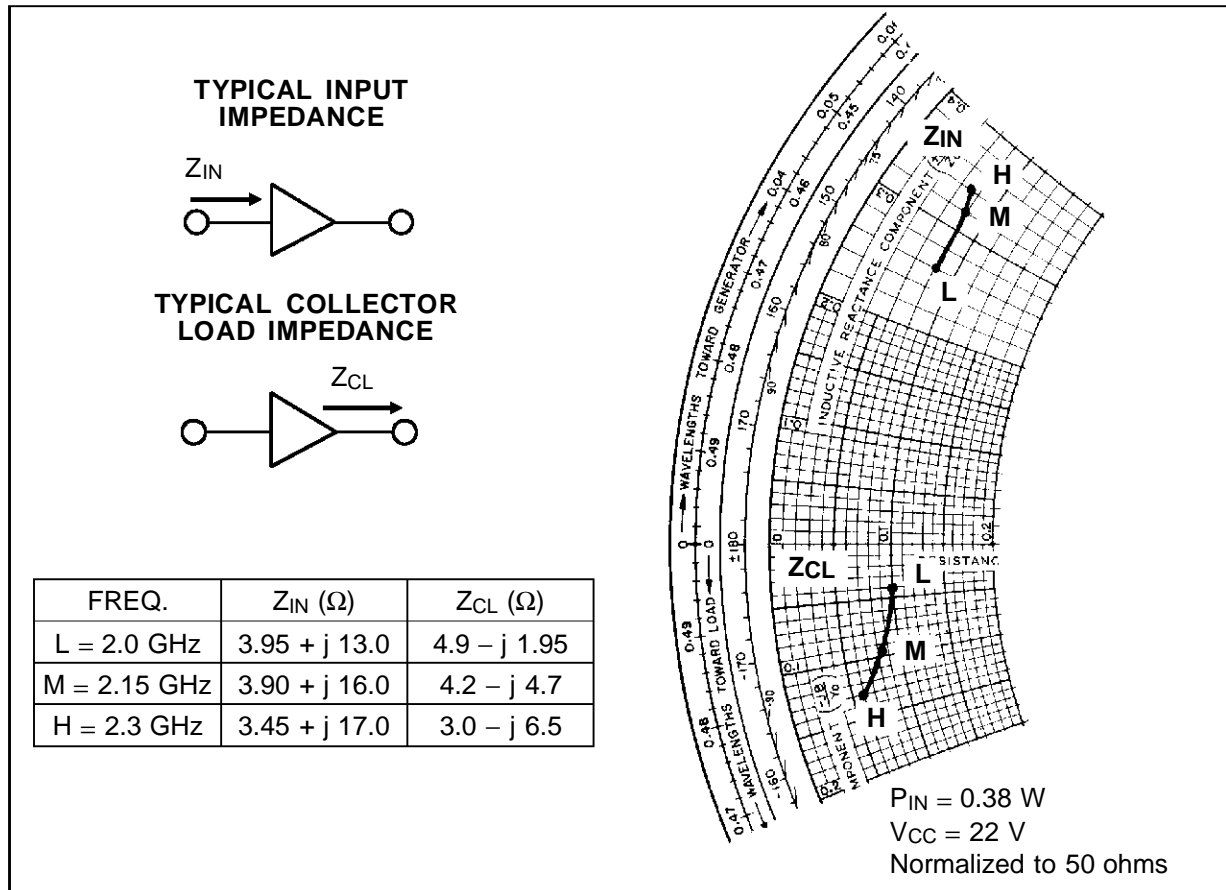
#### STATIC

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

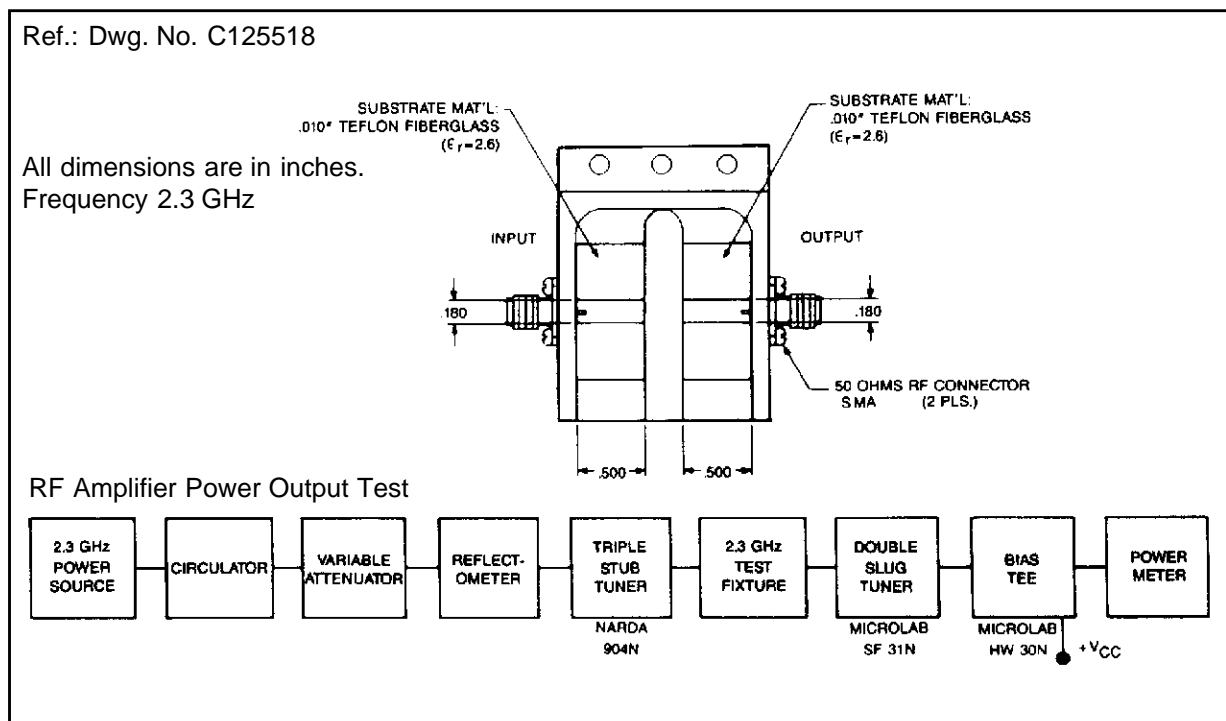
#### DYNAMIC

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

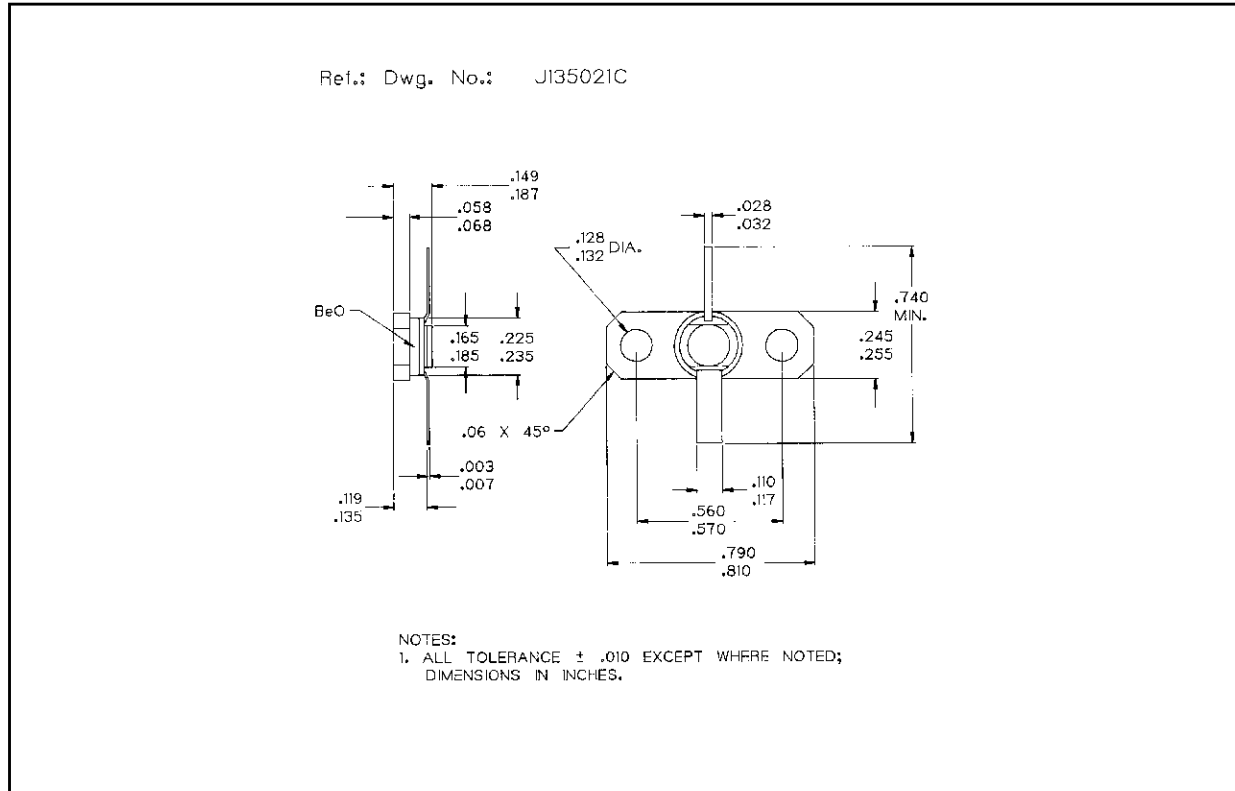
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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