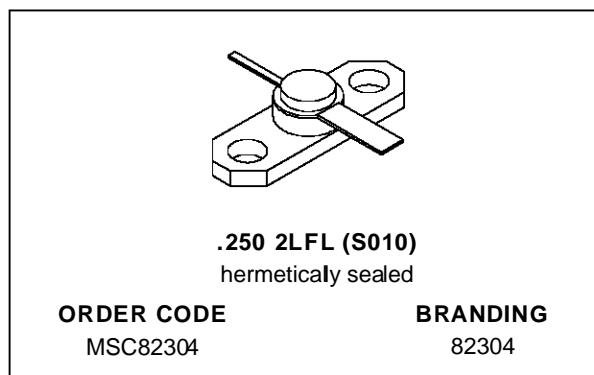


RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

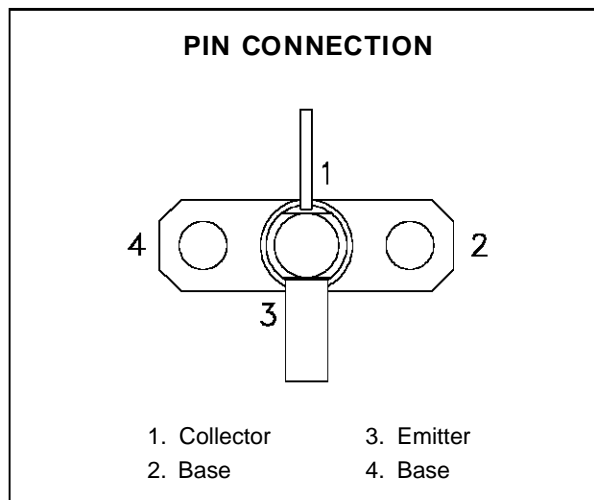
- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- P_{OUT} = 3.8 W MIN. WITH 10.0 dB GAIN



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 |
|----------------------|-----------------------------------|----|------|

*Applies only to rated RF amplifier operation

MSC82304

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

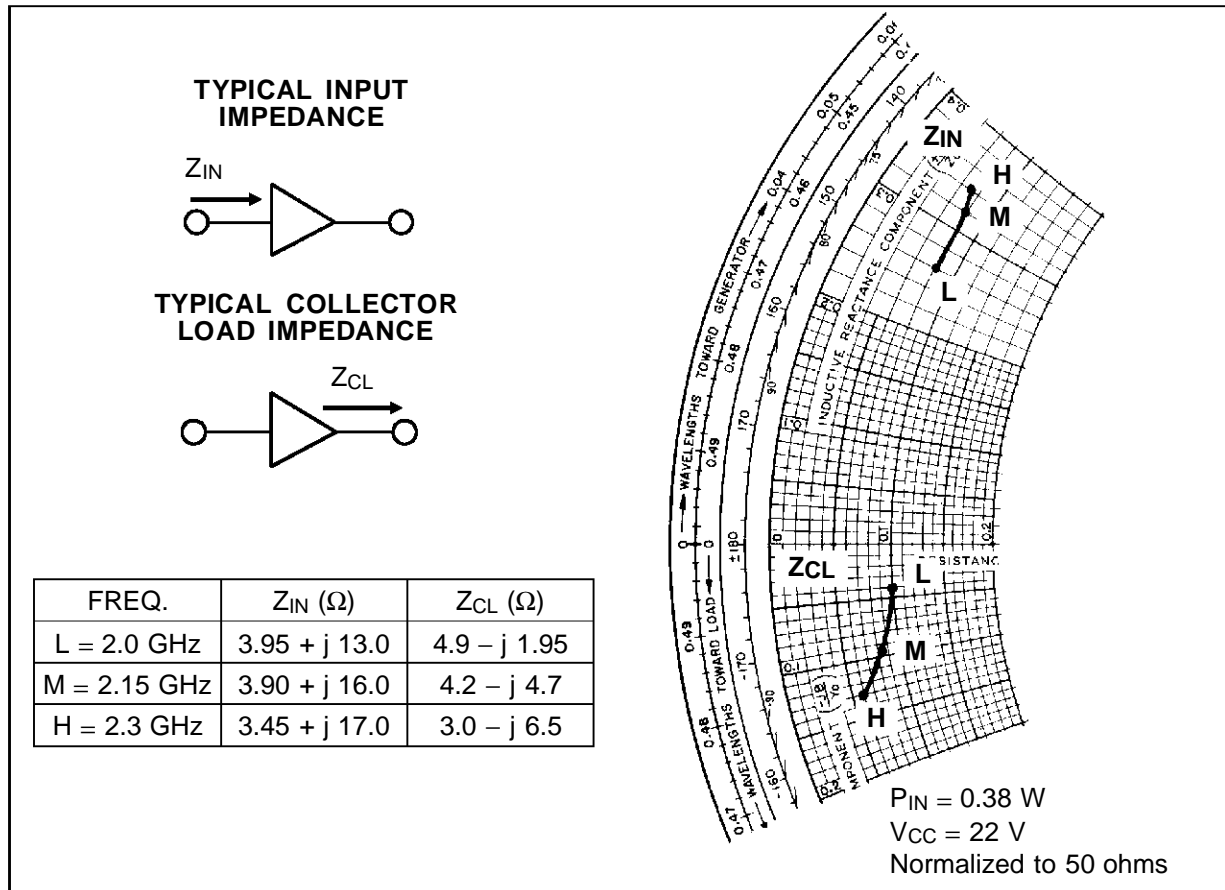
STATIC

| 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 | — | |

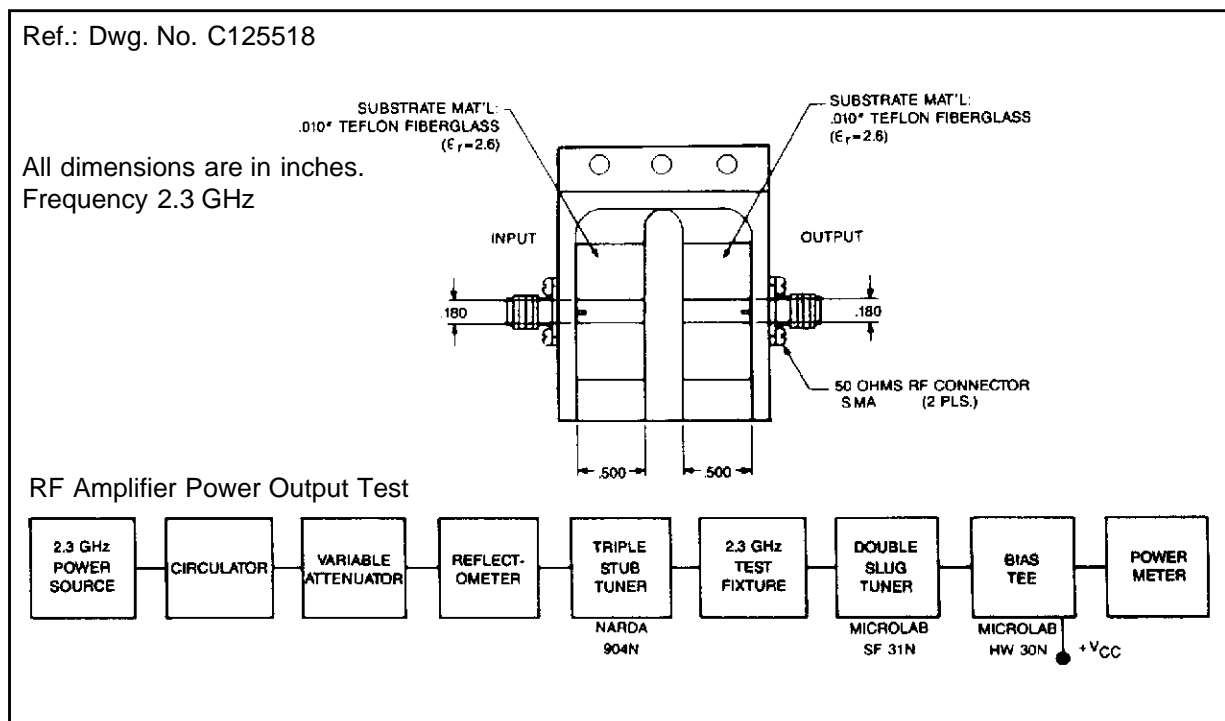
DYNAMIC

| 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 |

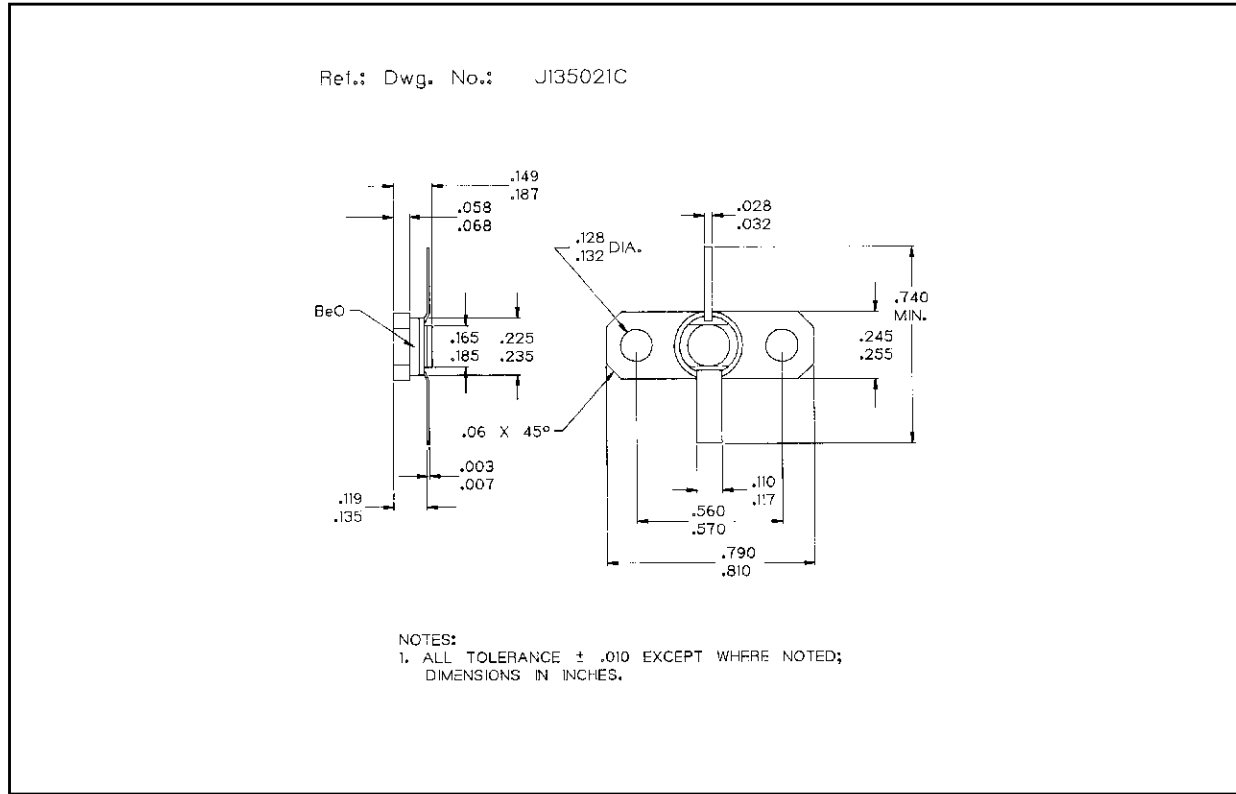
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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