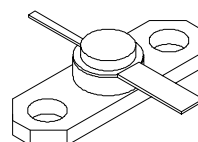


## RF & MICROWAVE TRANSISTORS GENERAL PURPOSE AMPLIFIER APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- VSWR CAPABILITY 20:1 @ RATED CONDITIONS
- HERMETIC STRIPAC® PACKAGE
- $P_{OUT} = 7.0 \text{ W MIN. WITH } 9.6 \text{ dB GAIN}$



**.250 2LFL (S010)**  
hermetically sealed

**ORDER CODE**  
MSC82307

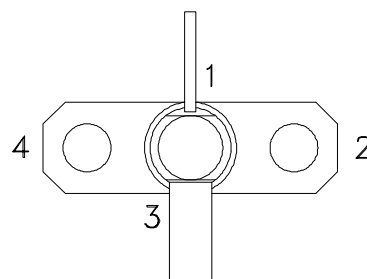
**BRANDING**  
82307

### DESCRIPTION

The MSC82307 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 MSC82307 was designed for Class C amplifier/oscillator applications in the 1.5 - 2.3 GHz frequency range.

### PIN CONNECTION



- |              |            |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base      | 4. Base    |

### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}\text{C}$ )

| Symbol     | Parameter                                            | Value        | Unit               |
|------------|------------------------------------------------------|--------------|--------------------|
| $P_{DISS}$ | Power Dissipation* ( $T_C \leq 50^{\circ}\text{C}$ ) | 21.4         | W                  |
| $I_C$      | Device Current*                                      | 1.2          | A                  |
| $V_{CC}$   | Collector-Supply Voltage*                            | 26           | V                  |
| $T_J$      | Junction Temperature                                 | 200          | $^{\circ}\text{C}$ |
| $T_{STG}$  | Storage Temperature                                  | - 65 to +200 | $^{\circ}\text{C}$ |

### THERMAL DATA

|               |                                   |     |                      |
|---------------|-----------------------------------|-----|----------------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance* | 7.0 | $^{\circ}\text{C/W}$ |
|---------------|-----------------------------------|-----|----------------------|

\*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

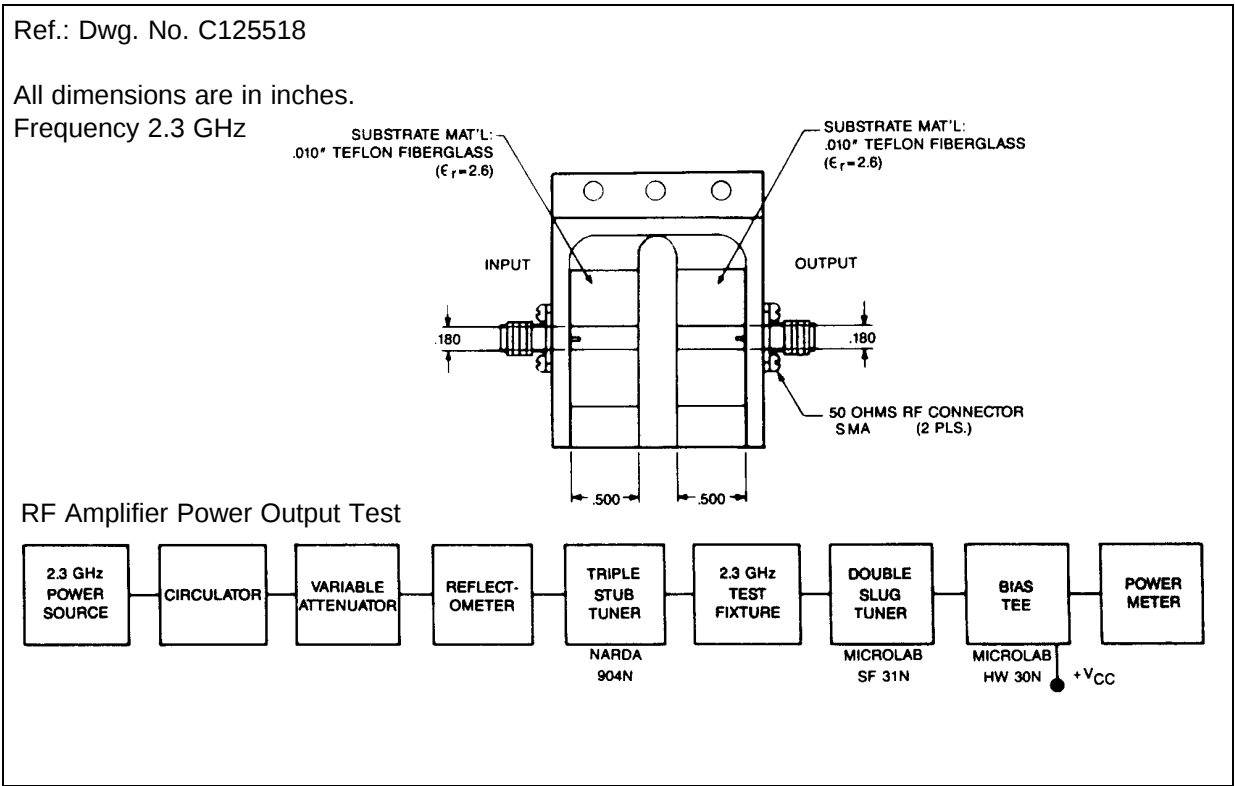
STATIC

| Symbol            | Test Conditions       |                        | Value |      |      | Unit |
|-------------------|-----------------------|------------------------|-------|------|------|------|
|                   |                       |                        | Min.  | Typ. | Max. |      |
| BV <sub>CBO</sub> | I <sub>C</sub> = 1mA  | I <sub>E</sub> = 0mA   | 44    | —    | —    | V    |
| BV <sub>EBO</sub> | I <sub>E</sub> = 1mA  | I <sub>C</sub> = 0mA   | 3.5   | —    | —    | V    |
| BV <sub>CER</sub> | I <sub>C</sub> = 5mA  | R <sub>BE</sub> = 10Ω  | 44    | —    | —    | V    |
| I <sub>CBO</sub>  | V <sub>CB</sub> = 22V |                        | —     | —    | 0.5  | mA   |
| h <sub>FE</sub>   | V <sub>CE</sub> = 5V  | I <sub>C</sub> = 500mA | 30    | —    | 300  | —    |

DYNAMIC

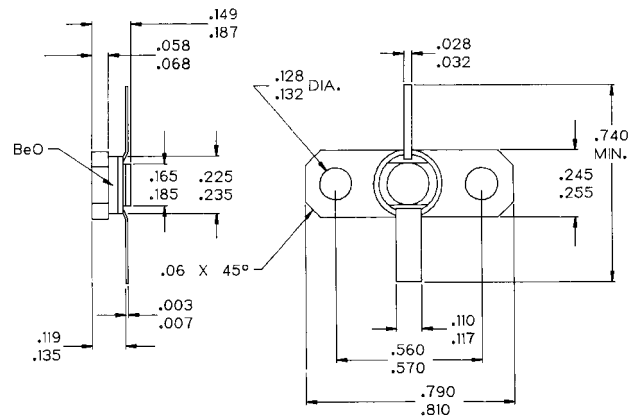
| Symbol           | Test Conditions |                          |                        | Value |      |      | Unit |
|------------------|-----------------|--------------------------|------------------------|-------|------|------|------|
|                  |                 |                          |                        | Min.  | Typ. | Max. |      |
| P <sub>OUT</sub> | f = 2.3 GHz     | P <sub>IN</sub> = 0.76 W | V <sub>CC</sub> = 22 V | 7.0   | 8.0  | —    | W    |
| η <sub>C</sub>   | f = 2.3 GHz     | P <sub>IN</sub> = 0.76 W | V <sub>CC</sub> = 22 V | 40    | 45   | —    | %    |
| G <sub>P</sub>   | f = 2.3 GHz     | P <sub>IN</sub> = 0.76 W | V <sub>CC</sub> = 22 V | 9.6   | 10.2 | —    | dB   |
| C <sub>OB</sub>  | f = 1 MHz       | V <sub>CB</sub> = 22 V   |                        | —     | —    | 8.5  | pF   |

TEST CIRCUIT



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135021C



## NOTES:

1. ALL TOLERANCE  $\pm .010$  EXCEPT WHERE NOTED;  
DIMENSIONS IN INCHES.

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