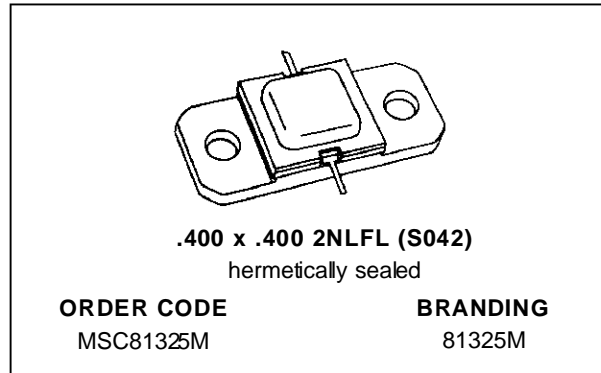


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

PRELIMINARY DATA

- REFRACTORY/GOLD METALLIZATION
- EMITTER BALLASTED
- RUGGEDIZED VSWR $\infty:1$
- INPUT/OUTPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 325$ W MIN. WITH 6.7 dB GAIN

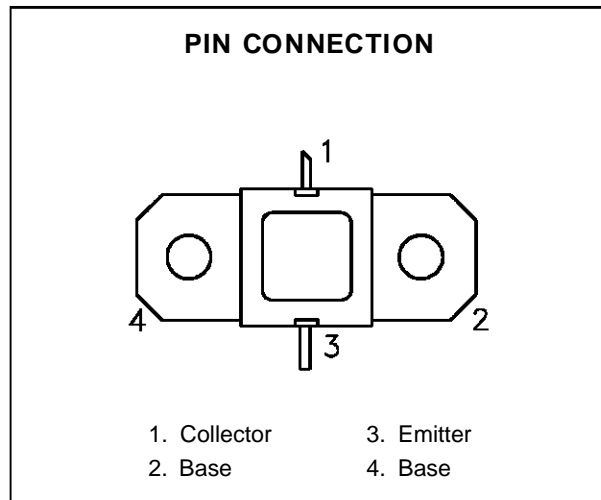


DESCRIPTION

The MSC81325M device is a high power pulsed transistor specifically designed for DME/TACAN avionics applications.

This device is capable of withstanding an infinite load VSWR at any phase angle under full rated conditions. Low RF thermal resistance and semi-automatic bonding techniques ensure high reliability and product consistency.

The MSC81325M is housed in the industry-standard AMPAC™ metal/ceramic hermetic package with internal input/output matching structures.



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

| Symbol | Parameter | Value | Unit |
|------------|--|--------------|-------------|
| P_{DISS} | Power Dissipation* ($T_c \leq 100^{\circ}C$) | 880 | W |
| I_c | Device Current* | 24 | A |
| V_{CC} | Collector-Supply Voltage* | 55 | V |
| T_J | Junction Temperature (Pulsed RF Operation) | 250 | $^{\circ}C$ |
| T_{STG} | Storage Temperature | - 65 to +200 | $^{\circ}C$ |

THERMAL DATA

| | | | |
|---------------|-----------------------------------|------|---------------|
| $R_{TH(j-c)}$ | Junction-Case Thermal Resistance* | 0.17 | $^{\circ}C/W$ |
|---------------|-----------------------------------|------|---------------|

*Applies only to rated RF amplifier operation

MSC81325M

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

STATIC

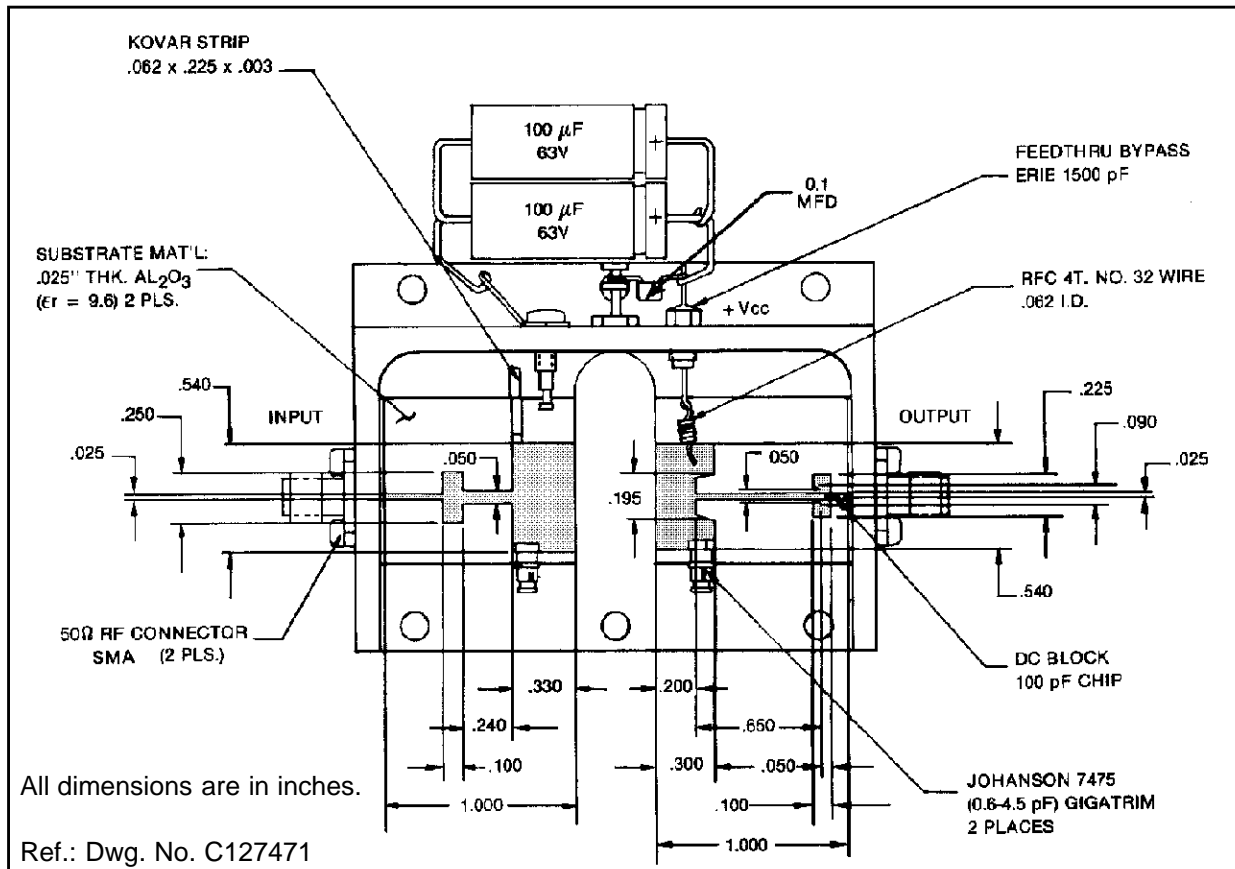
| Symbol | Test Conditions | | Value | | | Unit |
|------------|-----------------|---------------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| BV_{CBO} | $I_C = 10mA$ | $I_E = 0mA$ | 65 | — | — | V |
| BV_{EBO} | $I_E = 1mA$ | $I_C = 0mA$ | 3.5 | — | — | V |
| BV_{CER} | $I_C = 25mA$ | $R_{BE} = 10\Omega$ | 65 | — | — | V |
| I_{CES} | $V_{BE} = 0V$ | $V_{CE} = 50V$ | — | — | 25 | mA |
| h_{FE} | $V_{CE} = 5V$ | $I_C = 1A$ | 15 | — | 120 | — |

DYNAMIC

| Symbol | Test Conditions | | | Value | | | Unit |
|-----------|-----------------------|-----------------|-----------------|-------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| P_{OUT} | $f = 1025 - 1150$ MHz | $P_{IN} = 70$ W | $V_{CC} = 50$ V | 325 | 360 | — | W |
| η_C | $f = 1025 - 1150$ MHz | $P_{IN} = 70$ W | $V_{CC} = 50$ V | 40 | 41 | — | % |
| G_P | $f = 1025 - 1150$ MHz | $P_{IN} = 70$ W | $V_{CC} = 50$ V | 6.7 | 7.1 | — | dB |

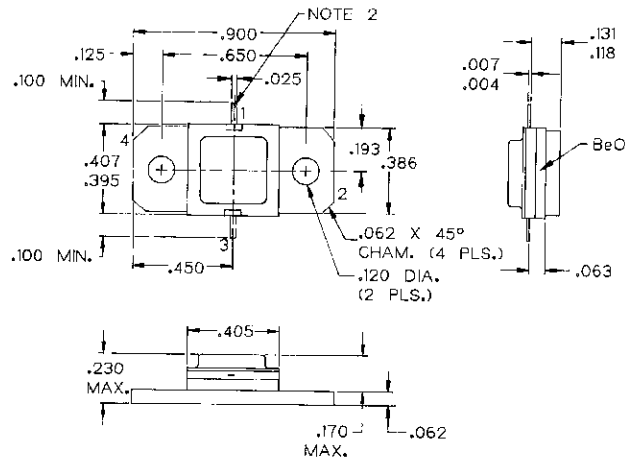
Note: Pulse Width = $10\mu Sec$
Duty Cycle = 1%

TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J113214F



- NOTES:
1. ALL TOLERANCE \pm .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
 2. COLLECTOR LEAD SLANT CUT.

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