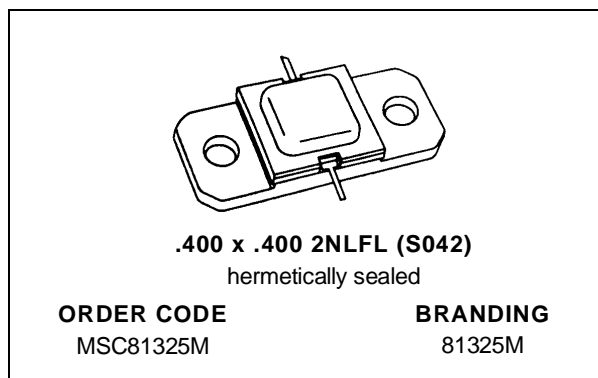


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

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

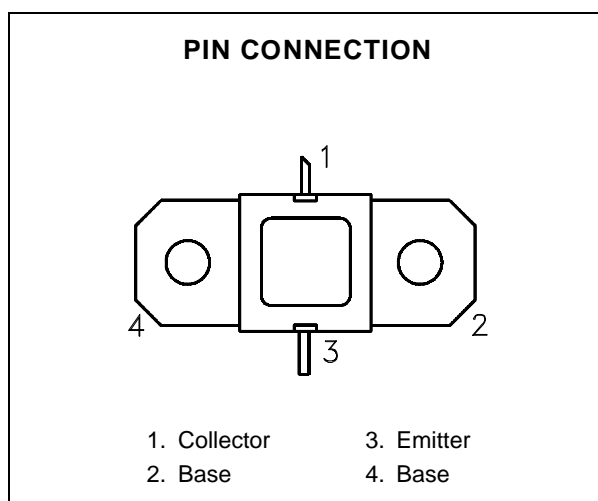


### DESCRIPTION

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	$^{\circ}C/W$
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\*Applies only to rated RF amplifier operation

# MSC81325M

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

### STATIC

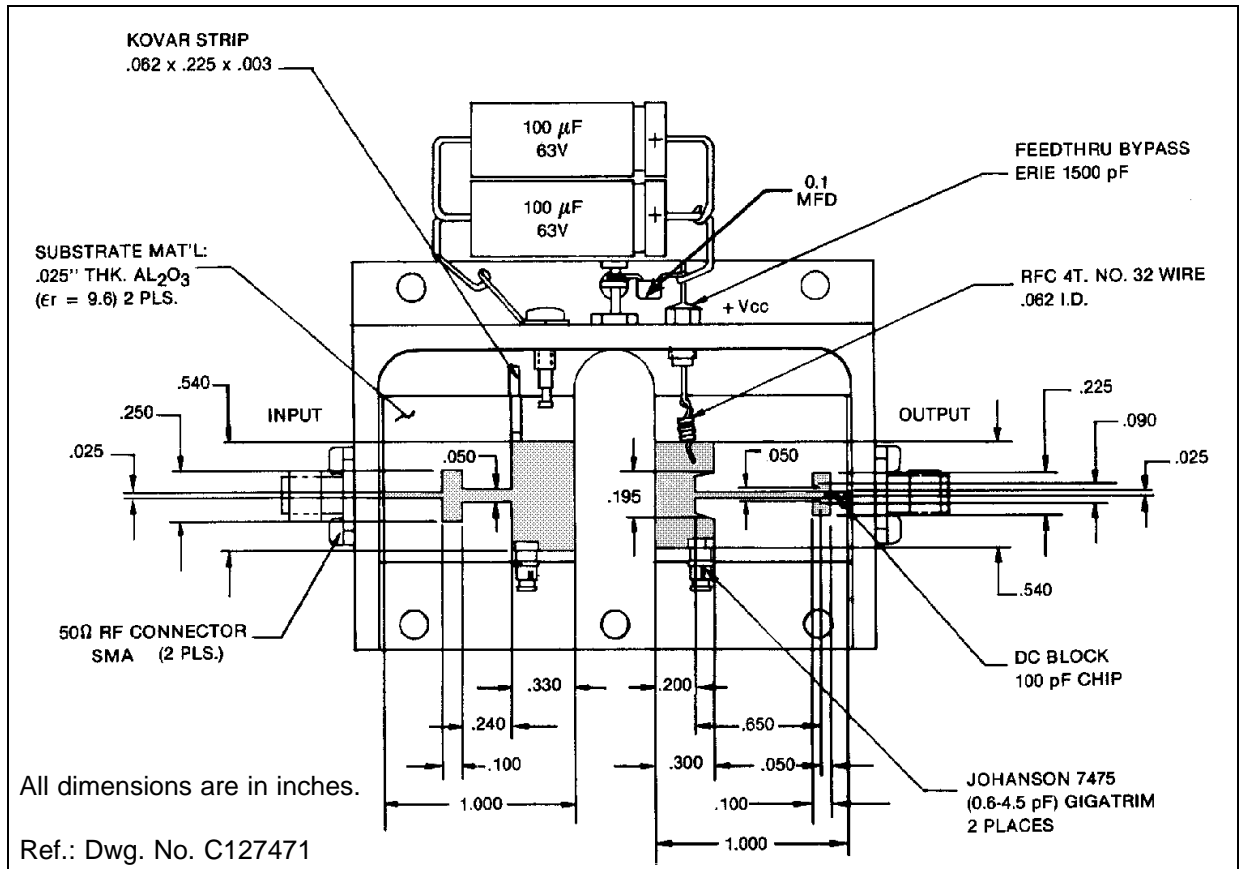
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 10mA$	$I_E = 0mA$	65	—	—	V
$BV_{EBO}$	$I_E = 1mA$	$I_C = 0mA$	3.5	—	—	V
$BV_{CER}$	$I_C = 25mA$	$R_{BE} = 10\Omega$	65	—	—	V
$I_{CES}$	$V_{BE} = 0V$	$V_{CE} = 50V$	—	—	25	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 1A$	15	—	120	—

### 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
$\eta_C$	$f = 1025 - 1150$ 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

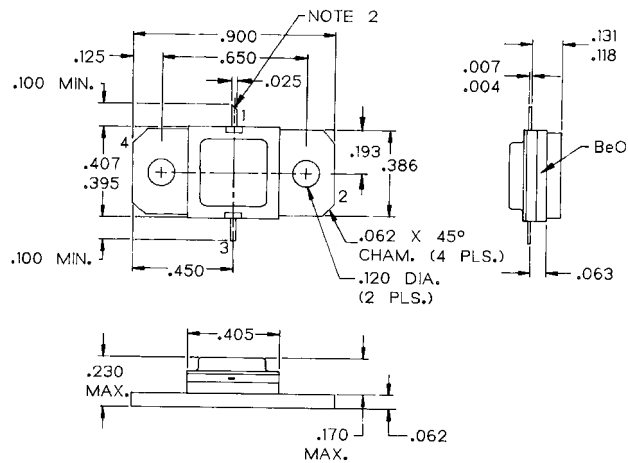
Note: Pulse Width =  $10\mu Sec$   
 Duty Cycle = 1%

### 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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