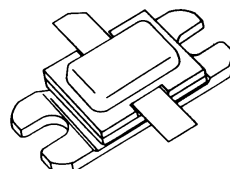


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY\GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 400 \text{ W MIN. WITH } 6.5 \text{ dB GAIN}$



**.400 x .500 2LFL (S038)**  
hermetically sealed

**ORDER CODE**  
MSC81400M

**BRANDING**  
81400M

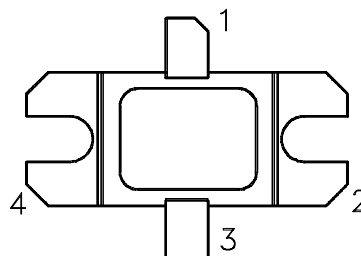
### DESCRIPTION

The MSC81400M "Super Power" transistor is a high peak pulse power device specifically designed for DME/TACAN avionics applications.

This device is capable of withstanding a minimum 25:1 load mismatch condition at any phase angle under full rated conditions.

The MSC81400M is housed in the unique BIG-PAC™ hermetic metal/ceramic package with internal input/output matching structures.

### 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* ( $T_C \leq 80^{\circ}\text{C}$ )	1000	W
$I_C$	Device Current*	28	A
$V_{CC}$	Collector-Supply Voltage*	55	V
$T_J$	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +200	$^{\circ}\text{C}$

### THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.12	$^{\circ}\text{C/W}$
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\*Applies only to rated RF amplifier operation

## MSC81400M

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

#### STATIC

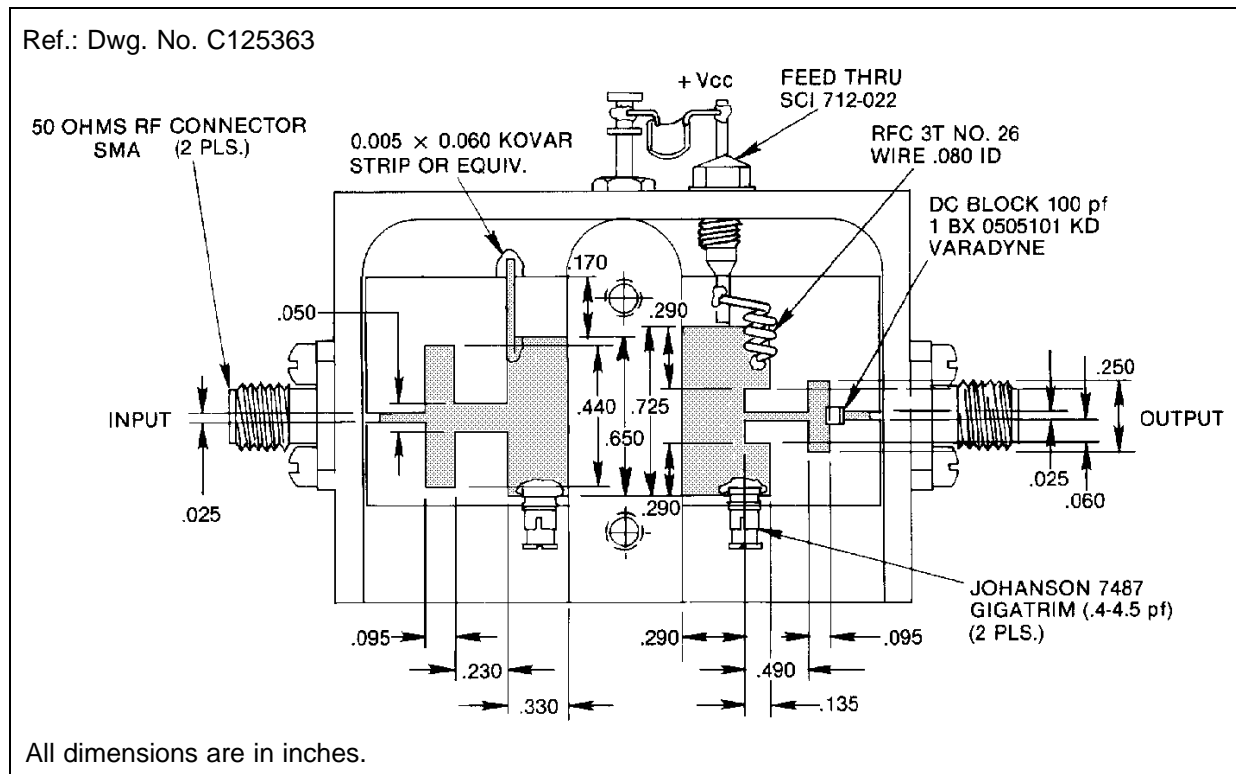
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 15mA$ $I_E = 0mA$	65	—	—	V
$BV_{EBO}$	$I_E = 1mA$ $I_C = 0mA$	3.5	—	—	V
$BV_{CER}$	$I_C = 50mA$ $R_{BE} = 10\Omega$	65	—	—	V
$I_{CES}$	$V_{CE} = 50V$	—	—	35	mA
$h_{FE}$	$V_{CE} = 5V$ $I_C = 1A$	15	—	120	—

#### DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 1025 - 1150 \text{ MHz}$ $P_{IN} = 90 \text{ W}$ $V_{CC} = 50 \text{ V}$	400	450	—	W
$\eta_c$	$f = 1025 - 1150 \text{ MHz}$ $P_{IN} = 90 \text{ W}$ $V_{CC} = 50 \text{ V}$	40	—	—	%
$G_P$	$f = 1025 - 1150 \text{ MHz}$ $P_{IN} = 90 \text{ W}$ $V_{CC} = 50 \text{ V}$	6.5	—	—	dB

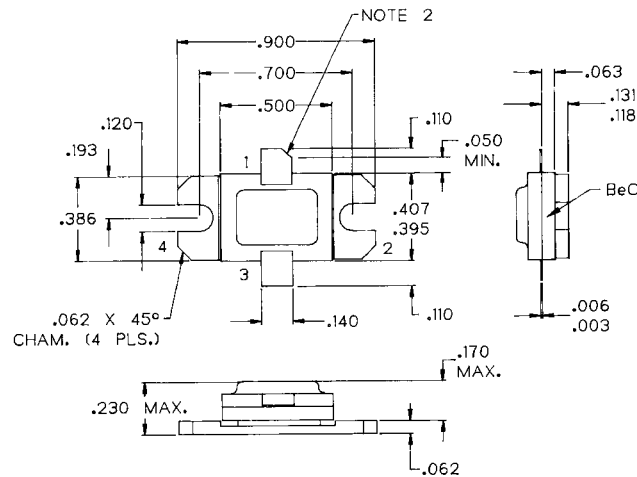
Note: Pulse Width =  $10\mu\text{Sec}$   
Duty Cycle = 1%

### TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



NOTES:

1. ALL TOLERANCE  $\pm .010$  EXCEPT WHERE NOTED;  
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER  $45^\circ$  NOM. X  $.040$  NOM.

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