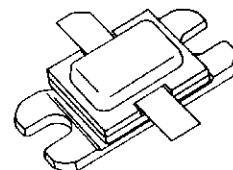


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- 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

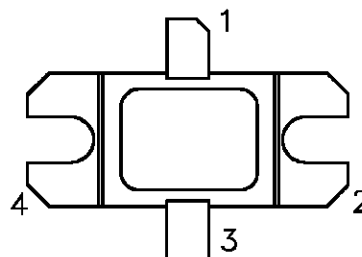
DESCRIPTION

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

2. Base

3. Emitter

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

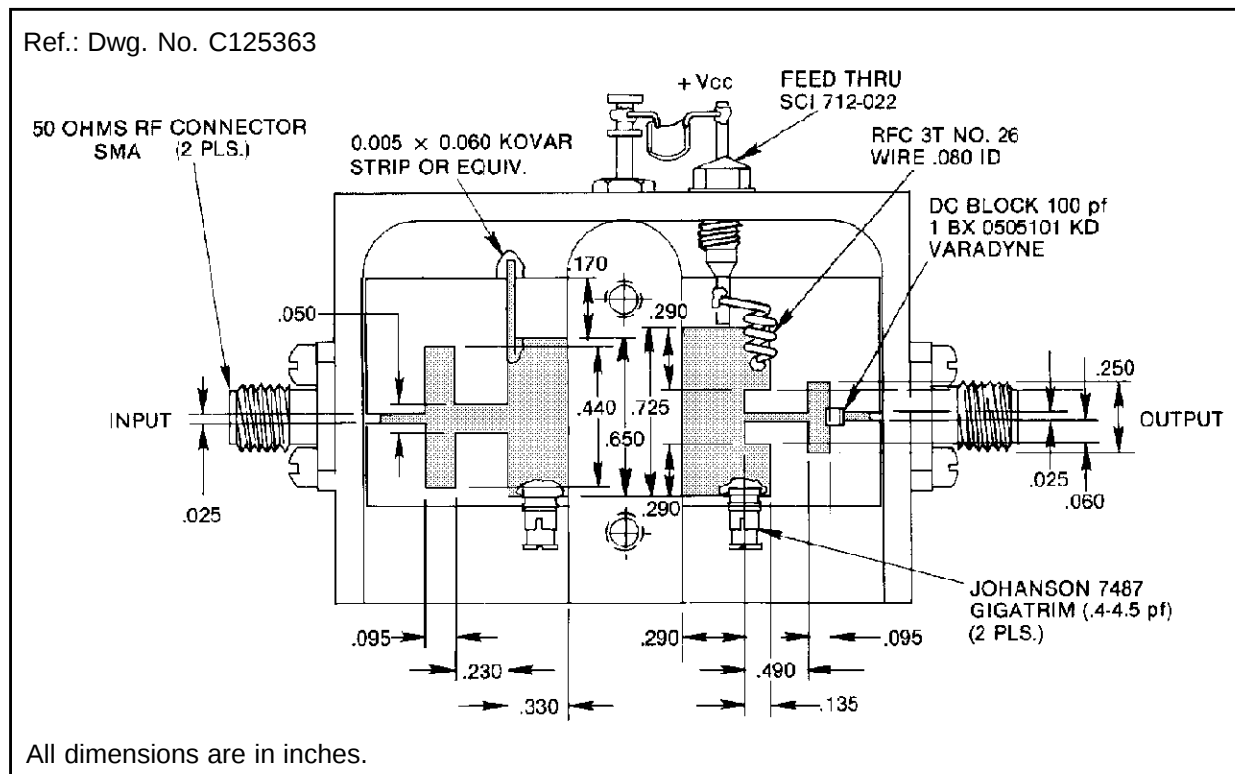
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 15mA$ $I_E = 0mA$	65	—	—	V
BV_{EBO}	$I_E = 1mA$ $I_C = 0mA$	3.5	—	—	V
BV_{CER}	$I_C = 50mA$ $R_{BE} = 10\Omega$	65	—	—	V
I_{CES}	$V_{CE} = 50V$	—	—	35	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 1A$	15	—	120	—

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
η_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

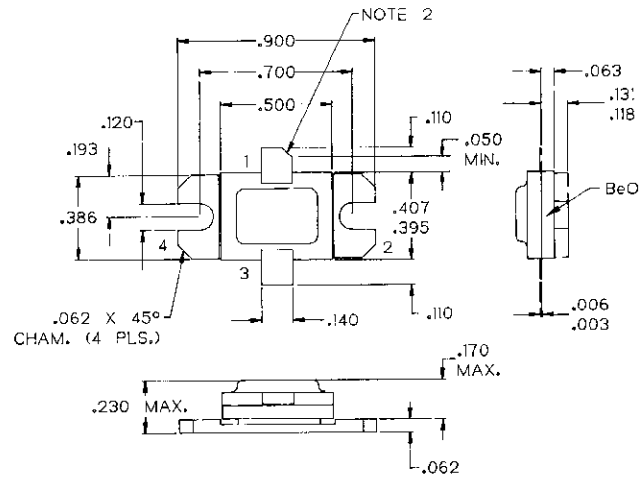
Note: Pulse Width = $10\mu\text{Sec}$
Duty Cycle = 1%

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° NOM. X $.040$ NOM.

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