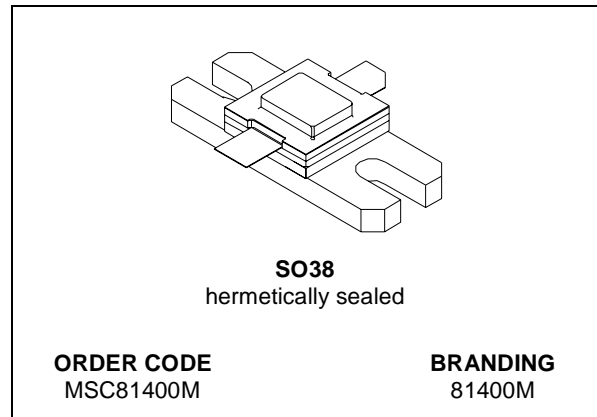




MSC81400M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 400 \text{ W MIN. WITH } 6.4 \text{ dB GAIN}$

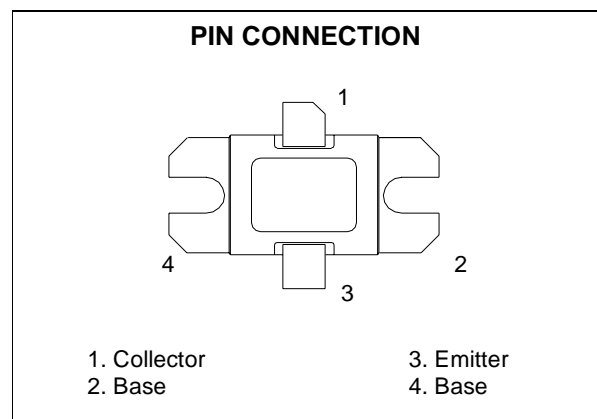


DESCRIPTION

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.



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

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 80 \text{ }^{\circ}\text{C}$)	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 SPECIFICATION (T_{CASE} = 25 °C)

STATIC

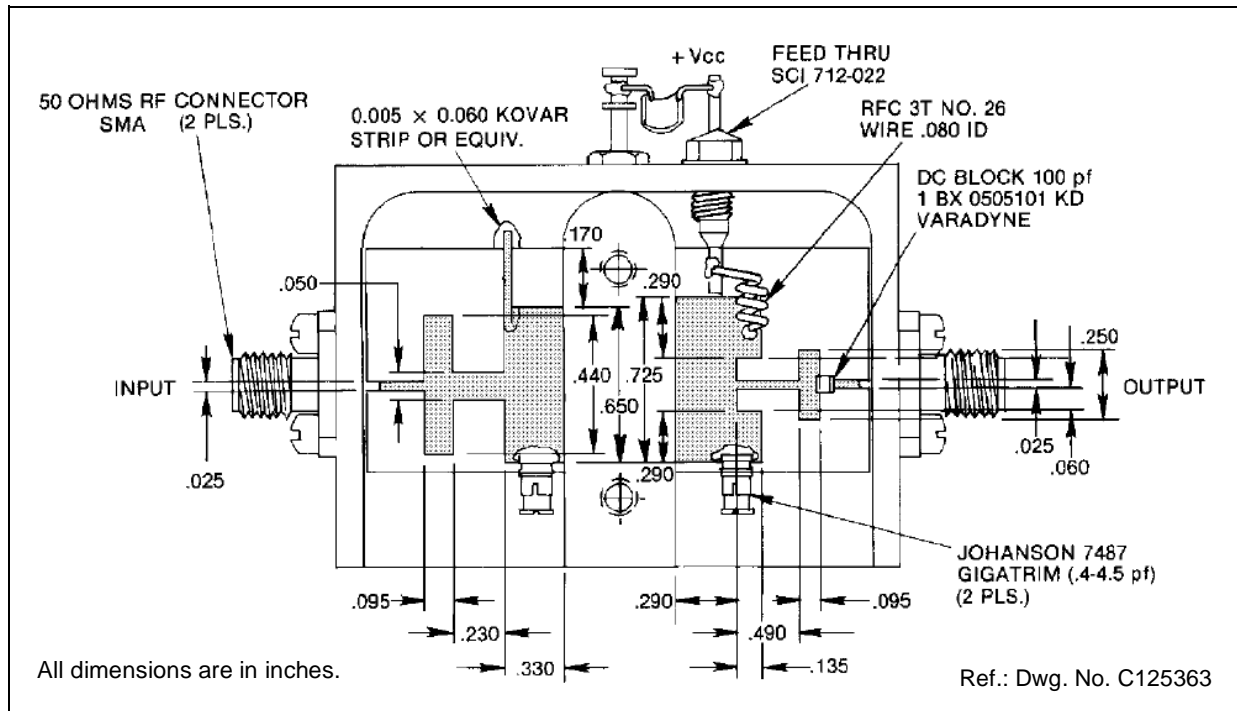
Symbol	Test Conditions	Min.	Typ.	Max.	Unit
BV _{CBO}	I _C = 15mA I _E = 0mA	65			V
BV _{EBO}	I _C = 0mA I _E = 1mA	3.5			V
BV _{CER}	I _C = 50mA R _{BE} = 10Ω	65			V
I _{CES}	V _{CE} = 50V			35	mA
h _{FE}	V _{CE} = 5V I _C = 1A	15		120	

DYNAMIC

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
P _{OUT}	f = 1025 - 1150MHz V _{CC} = 50V	400	450		W
G _P	f = 1025 - 1150MHz P _{OUT} = 400 W V _{CC} = 50V	6.4			dB
η _C	f = 1025 - 1150MHz P _{OUT} = 400 W V _{CC} = 50V	35	40		%

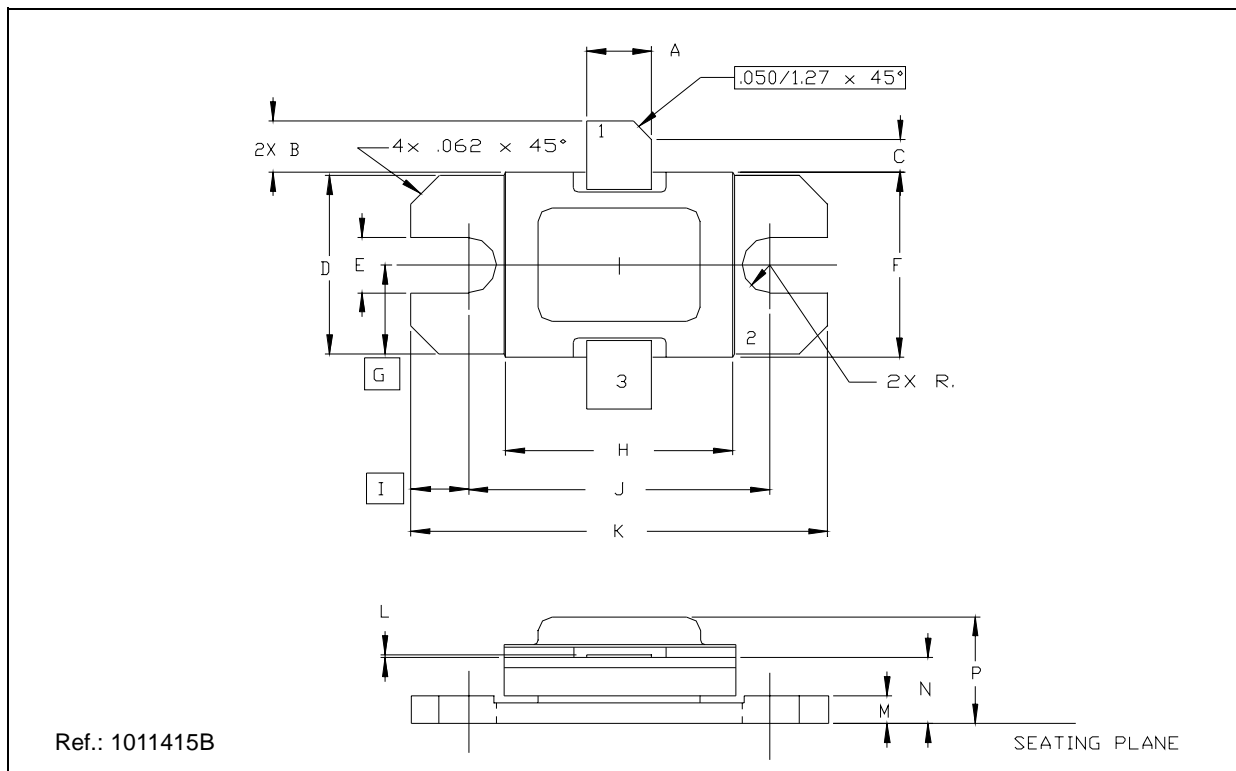
Note: Pulse Width = 10 μSec
Duty Cycle = 1%

TEST CIRCUIT



SO38 (.400 X .500 2/L HERM. W/FLG.) MECHANICAL DATA

DIM.	mm			Inch		
	MIN.	TYP.	MAX	MIN.	TYP.	MAX
A	3.43		3.68	0.135		0.145
B	2.54		3.05	0.100		0.120
C	1.27			0.050		
D	9.55		10.06	0.376		0.396
E	2.79		3.30	0.110		0.130
F	10.03		10.34	0.395		0.407
G		4.90			0.193	
H	12.45		12.95	0.490		0.510
I		2.54			0.100	
J	17.53		18.03	0.690		0.710
K	22.61		23.11	0.890		0.910
L	0.08		0.15	0.003		0.006
M	1.32		1.83	0.052		0.072
N	2.84		3.35	0.112		0.132
P			5.84			0.230



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