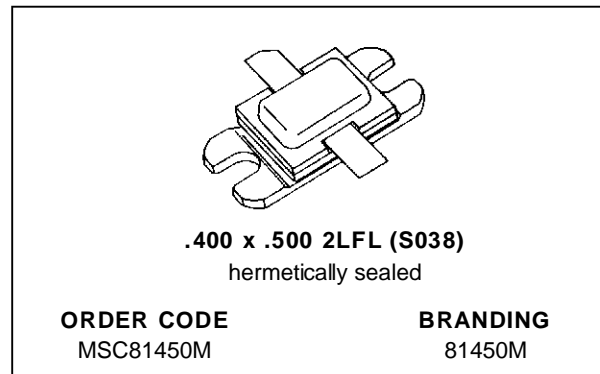


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY\GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 450 W MIN. WITH 7.0 dB GAIN

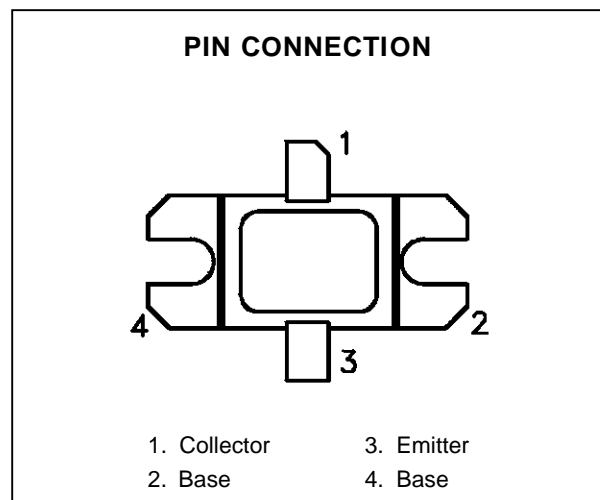


### DESCRIPTION

The MSC81450M device is a high power pulsed transistor specifically designed for IFF avionics applications.

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

The MSC81450M is housed in the unique BIG-PAC™ package with internal input/output matching structures.



### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation*	910	W
I <sub>C</sub>	Device Current*	28	A
V <sub>CC</sub>	Collector-Supply Voltage*	55	V
T <sub>J</sub>	Junction Temperature (Pulsed RF Operation)	250	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	0.15	°C/W
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\*Applies only to rated RF amplifier operation

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

STATIC

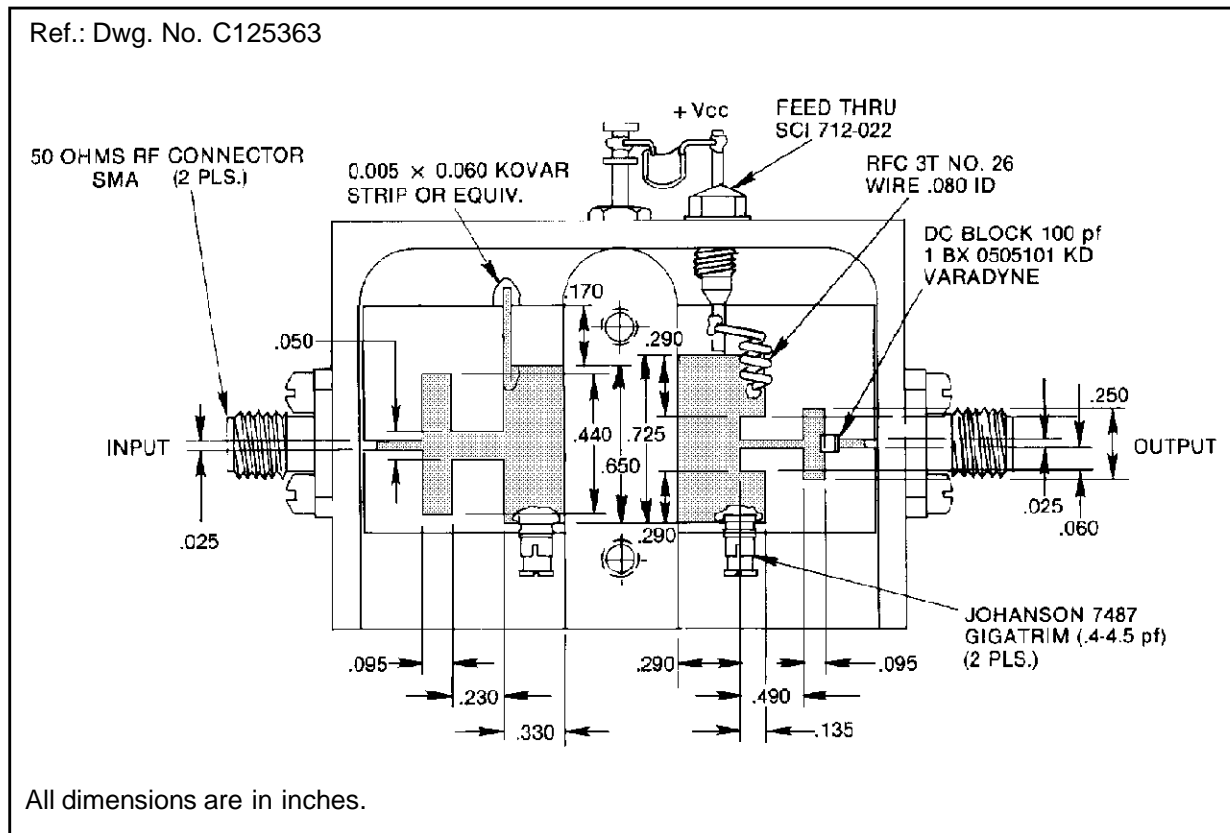
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 15mA$	$I_E = 0mA$	65	—	—	V
$BV_{EBO}$	$I_E = 1mA$	$I_C = 0mA$	3.5	—	—	V
$BV_{CER}$	$I_C = 50mA$	$R_{BE} = 10\Omega$	65	—	—	V
$I_{CES}$	$V_{CE} = 50V$		—	—	35	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 1A$	15	—	120	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 1090\text{ MHz}$	$P_{IN} = 90\text{ W}$	$V_{CC} = 50\text{ V}$	450	500	—	W
$\eta_c$	$f = 1090\text{ MHz}$	$P_{IN} = 90\text{ W}$	$V_{CC} = 50\text{ V}$	40	—	—	%
$G_P$	$f = 1090\text{ MHz}$	$P_{IN} = 90\text{ W}$	$V_{CC} = 50\text{ V}$	7.0	—	—	dB

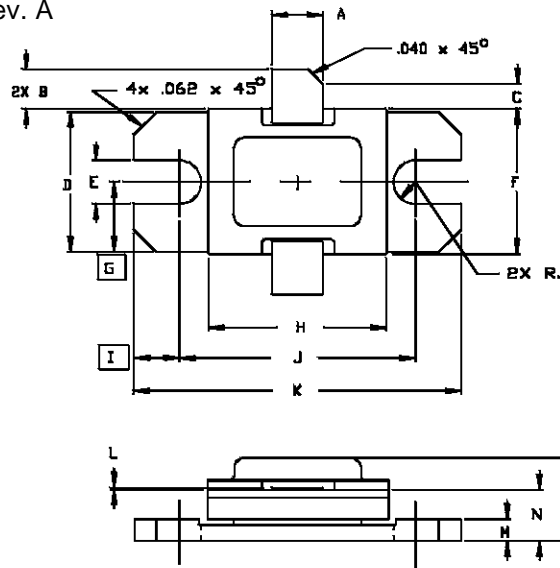
Note: Pulse Width =  $10\mu\text{Sec}$   
 Duty Cycle = 1%

**TEST CIRCUIT**



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0212 rev. A



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.135/3,43	.145/3,68	K	.890/22,61	.910/23,11
B	.100/2,54	.120/3,05	L	.003/0,08	.006/0,15
C	.050/1,27		M	.052/1,32	.072/1,83
D	.376/9,55	.396/10,06	N	.118/3,00	.131/3,33
E	.110/2,79	.130/3,30	P		.230/5,84
F	.395/10,03	.407/10,34			
G	.193/4,90				
H	.490/12,45	.510/12,95			
I	.100/2,54				
J	.690/17,53	.710/18,03			

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