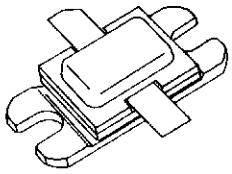
SGS-THOMSON MICROELECTRONICS

MSC81450M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

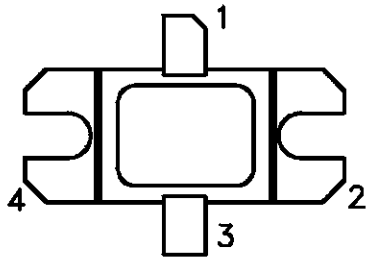
- REFRACTORY\GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 450 W MIN. WITH 7.0 dB GAIN



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

ORDER CODE	BRANDING
MSC81450M	81450M

PIN CONNECTION



1. Collector
2. Base
3. Emitter
4. Base

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_{case} = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation*	910	W
I_C	Device Current*	28	A
V_{CC}	Collector-Supply Voltage*	55	V
T_J	Junction Temperature (Pulsed RF Operation)	250	°C
T_{STG}	Storage Temperature	– 65 to +200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.15	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 25°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} = 10Ω	65	—	—	V
I_{CES}	V_{CE} = 50V		—	—	35	mA
h_{FE}	V_{CE} = 5V	I_C = 1A	15	—	120	—

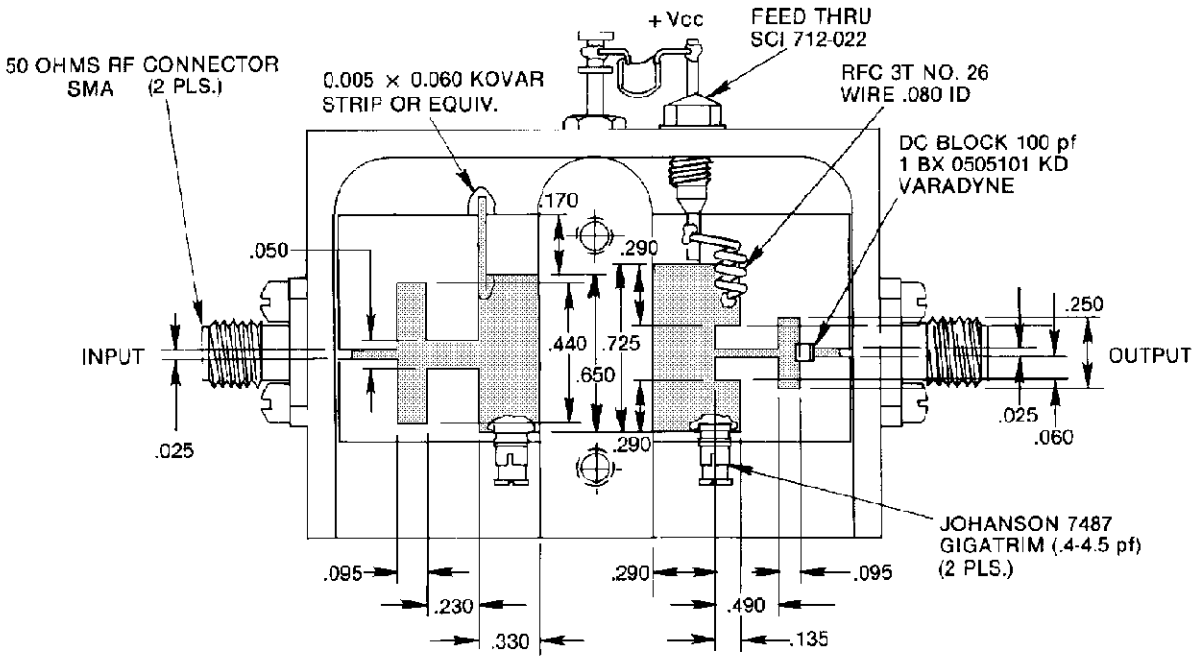
DYNAMIC

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

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

TEST CIRCUIT

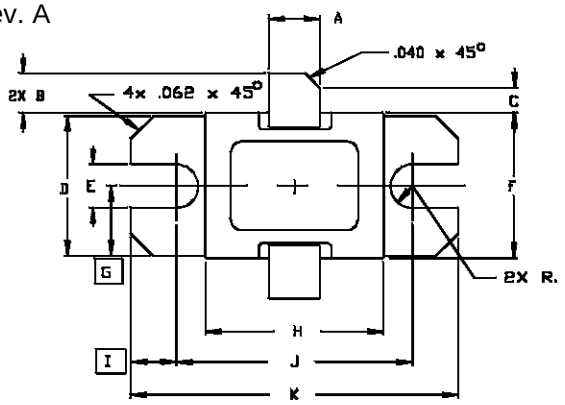
Ref.: Dwg. No. C125363



All dimensions are in inches.

PACKAGE MECHANICAL DATA

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



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.135/3,43	.145/3,68
B	.100/2,54	.120/3,05
C	.050/1,27	
D	.376/9,55	.396/10,06
E	.110/2,79	.130/3,30
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

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.890/22,61	.910/23,11
L	.003/0,08	.006/0,15
M	.052/1,32	.072/1,83
N	.118/3,00	.131/3,33
P		.230/5,84