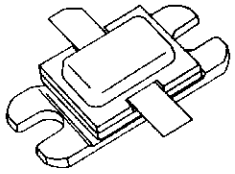
SGS-THOMSON MICROELECTRONICS

MSC81400M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

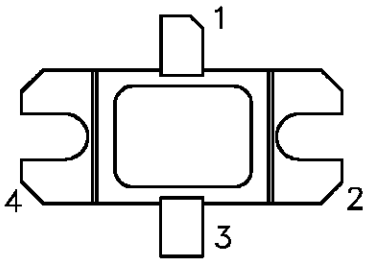
- REFRACTORY\GOLD METALLIZATION
- RUGGEDIZED VSWR 25:1
- INTERNAL INPUT/OUTPUT MATCHING
- LOW THERMAL RESISTANCE
- METAL/CERAMIC HERMETIC PACKAGE
- P_{OUT} = 400 W MIN. WITH 6.5 dB GAIN



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

ORDER CODE	BRANDING
MSC81400M	81400M

PIN CONNECTION



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

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°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 80°C$)	1000	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*	0.12	°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}	IC = 50mA	R_{BE} = 10Ω	65	—	—	V
I_{CES}	V_{CE} = 50V		—	—	35	mA
h_{FE}	V_{CE} = 5V	I_C = 1A	15	—	120	—

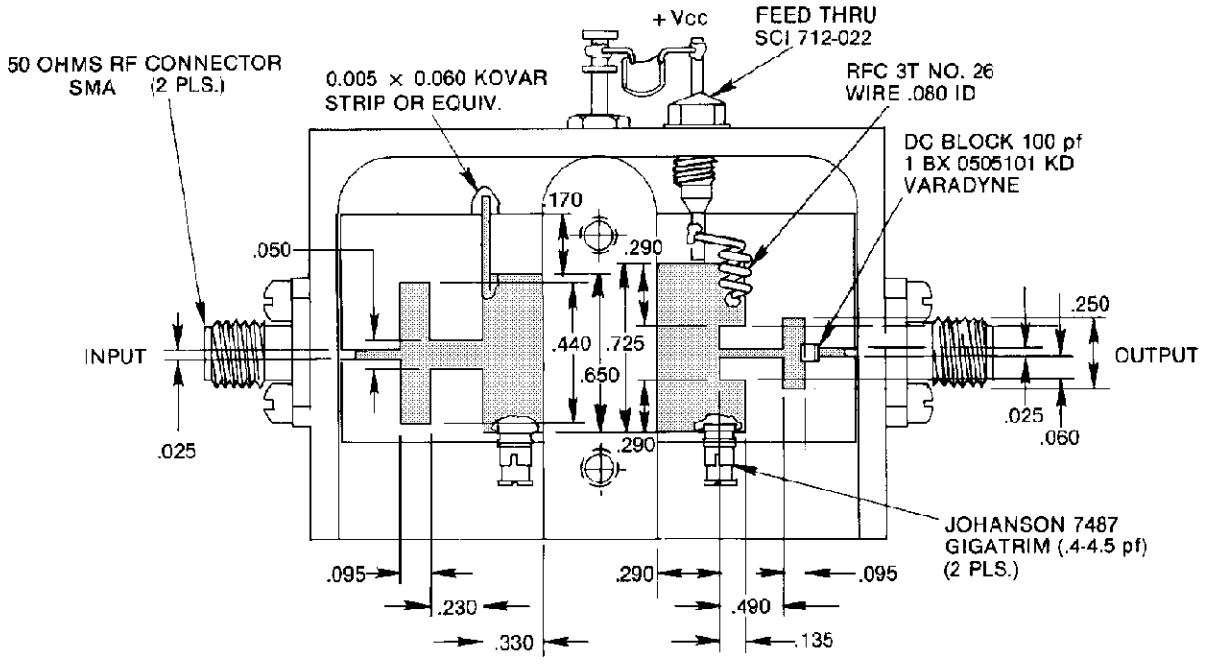
DYNAMIC

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

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

TEST CIRCUIT

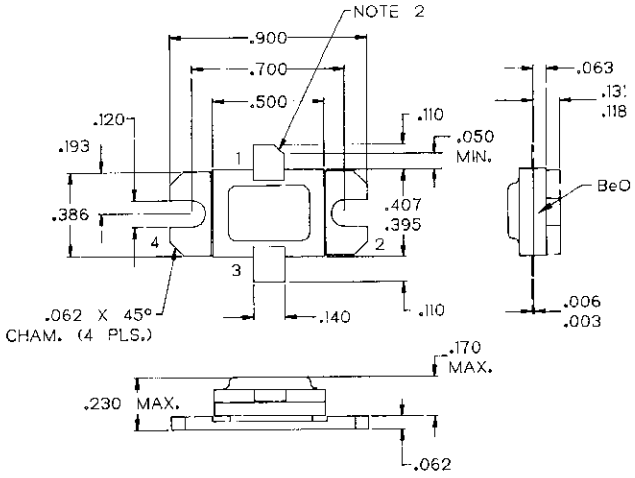
Ref.: Dwg. No. C125363



All dimensions are in inches.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: J135066F



NOTES:
1. ALL TOLERANCE ± .010 EXCEPT WHERE NOTED; DIMENSIONS IN INCHES.
2. COLLECTOR LEAD CHAMFER 45° NOM. X .040 NOM.