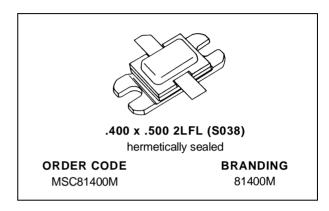


## MSC81400M

# RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

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

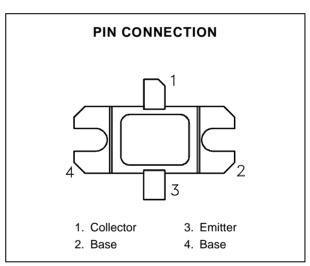


#### **DESCRIPTION**

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<sup>™</sup> hermetic metal/ceramic 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* (T <sub>C</sub> ≤ 80°C)	1000	W	
Ic	Device Current*	28	А	
Vcc	Collector-Supply Voltage*	55	V	
TJ	Junction Temperature (Pulsed RF Operation)	250	°C	
T <sub>STG</sub>	Storage Temperature	- 65 to +200	°C	

#### THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	0.12	°C/W

<sup>\*</sup>Applies only to rated RF amplifier operation

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## **ELECTRICAL SPECIFICATIONS** (T<sub>case</sub> = 25°C)

## STATIC

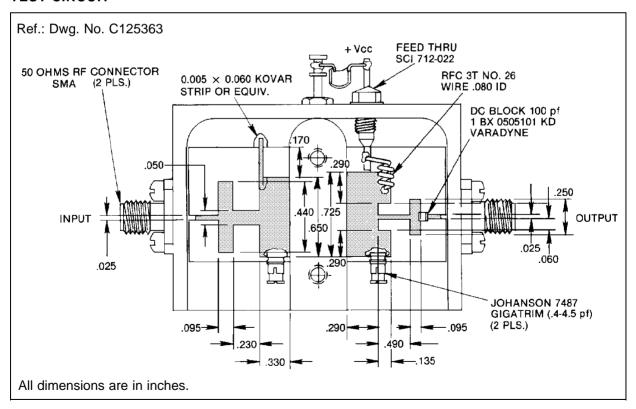
Symbol	Test Conditions	Value			1111		
		Min.	Тур.	Max.	Unit		
BV <sub>CBO</sub>	I <sub>C</sub> = 15mA	$I_E = 0mA$		65	_	_	V
BV <sub>EBO</sub>	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0mA		3.5		_	V
BV <sub>CER</sub>	IC = 50mA	$R_{BE} = 10\Omega$		65	_	_	V
Ices	V <sub>CE</sub> = 50V			_	_	35	mA
hFE	V <sub>CE</sub> = 5V	I <sub>C</sub> = 1A		15	_	120	_

#### **DYNAMIC**

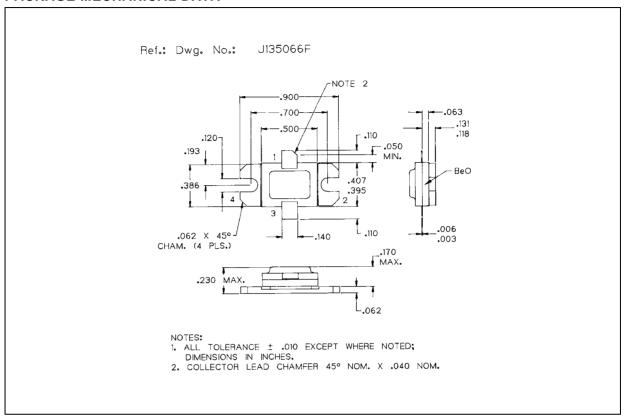
Symbol	Test Conditions		Value			Unit
Symbol			Min.	Тур.	Max.	Unit
Pout	f = 1025 — 1150 MHz P <sub>IN</sub> = 90 W	$V_{CC} = 50 \text{ V}$	400	450	_	W
ης	f = 1025 — 1150 MHz P <sub>IN</sub> = 90 W	V <sub>CC</sub> = 50 V	40	_	_	%
G <sub>P</sub>	f = 1025 — 1150 MHz P <sub>IN</sub> = 90 W	V <sub>CC</sub> = 50 V	6.5	_	_	dB

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

## **TEST CIRCUIT**



#### **PACKAGE MECHANICAL DATA**



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