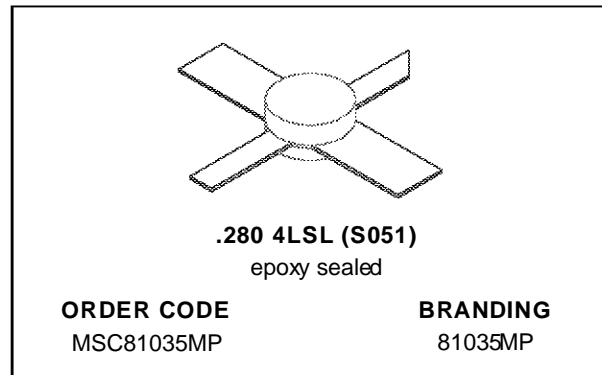


## RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- ∞:1 VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- P<sub>OUT</sub> = 35 W MIN. WITH 10.7 dB GAIN

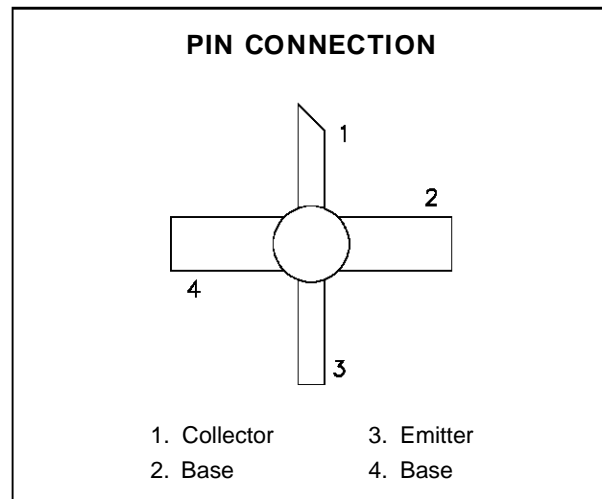


### DESCRIPTION

The MSC81035MP is a medium power Class C transistor designed specifically for pulsed L-Band avionics applications. This device is a direct replacement for the MSC1035MP. MSC81035MP offers improved saturated output power and collector efficiency based on the test circuit described herein.

Low RF thermal resistance and computerized automatic wire bonding techniques ensure high reliability and product consistency.

The MSC81035MP is housed in the IMPAC™ package with internal input matching.



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

Symbol	Parameter	Value	Unit
P <sub>DISS</sub>	Power Dissipation* (T <sub>C</sub> ≤ 100°C)	150	W
I <sub>C</sub>	Device Current*	3.0	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 +150	°C

### THERMAL DATA

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance*	1.0	°C/W
----------------------	-----------------------------------	-----	------

\*Applies only to rated RF amplifier operation

Note: Thermal Resistance determined by Infra-Red Scanning of Hot-Spot Junction Temperature at rated RF operating conditions.

# MSC81035MP

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

### STATIC

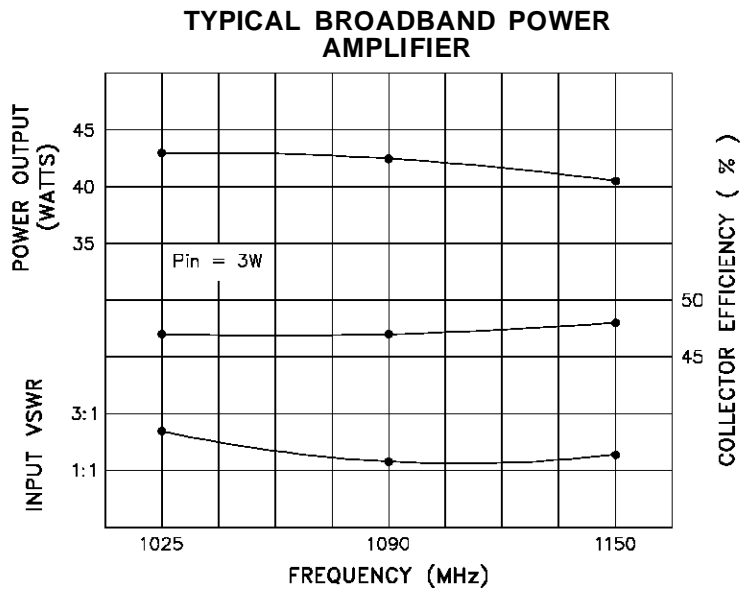
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 10mA	I <sub>E</sub> = 0mA	65	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 1mA	I <sub>C</sub> = 0mA	3.5	—	—	V
BV <sub>CER</sub>	I <sub>C</sub> = 10mA	R <sub>BE</sub> = 10Ω	65	—	—	V
I <sub>CES</sub>	V <sub>BE</sub> = 0V	V <sub>CE</sub> = 50V	—	—	5	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 500mA	15	—	120	—

### DYNAMIC

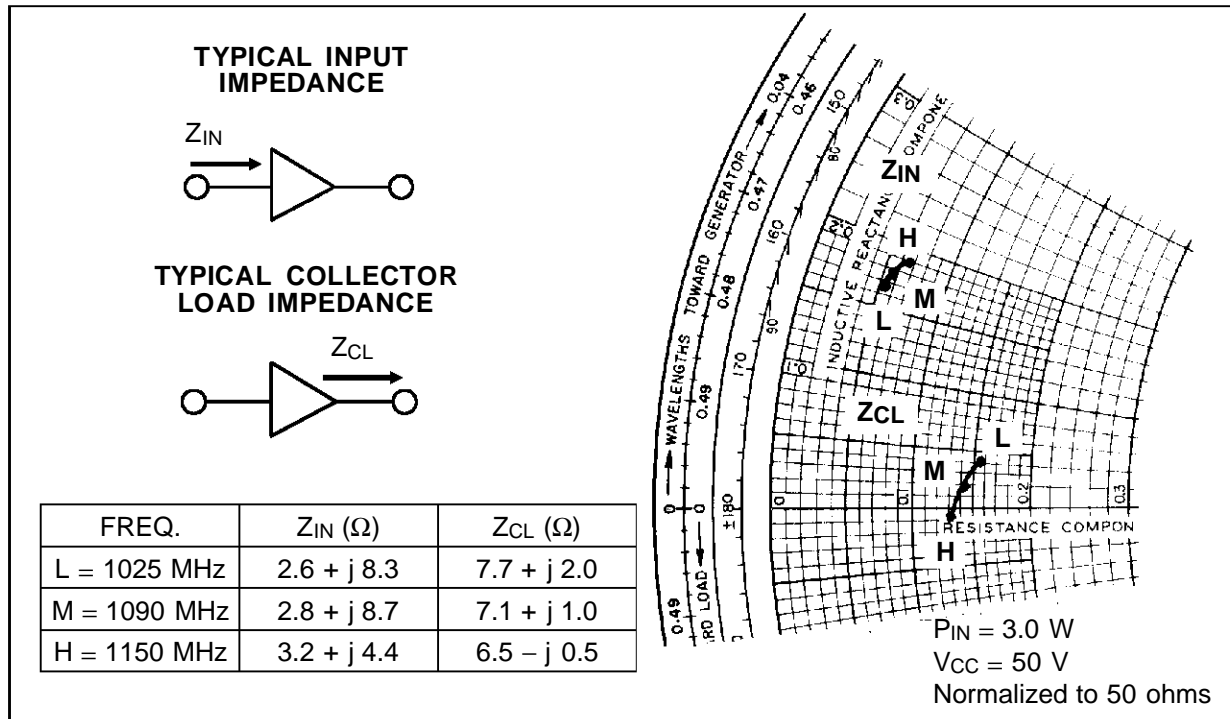
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 50V	35	40	—	W
η <sub>C</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 50V	10.7	11.2	—	%
G <sub>P</sub>	f = 1025 — 1150 MHz	P <sub>IN</sub> = 3.0W	V <sub>CC</sub> = 50V	43	48	—	dB

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

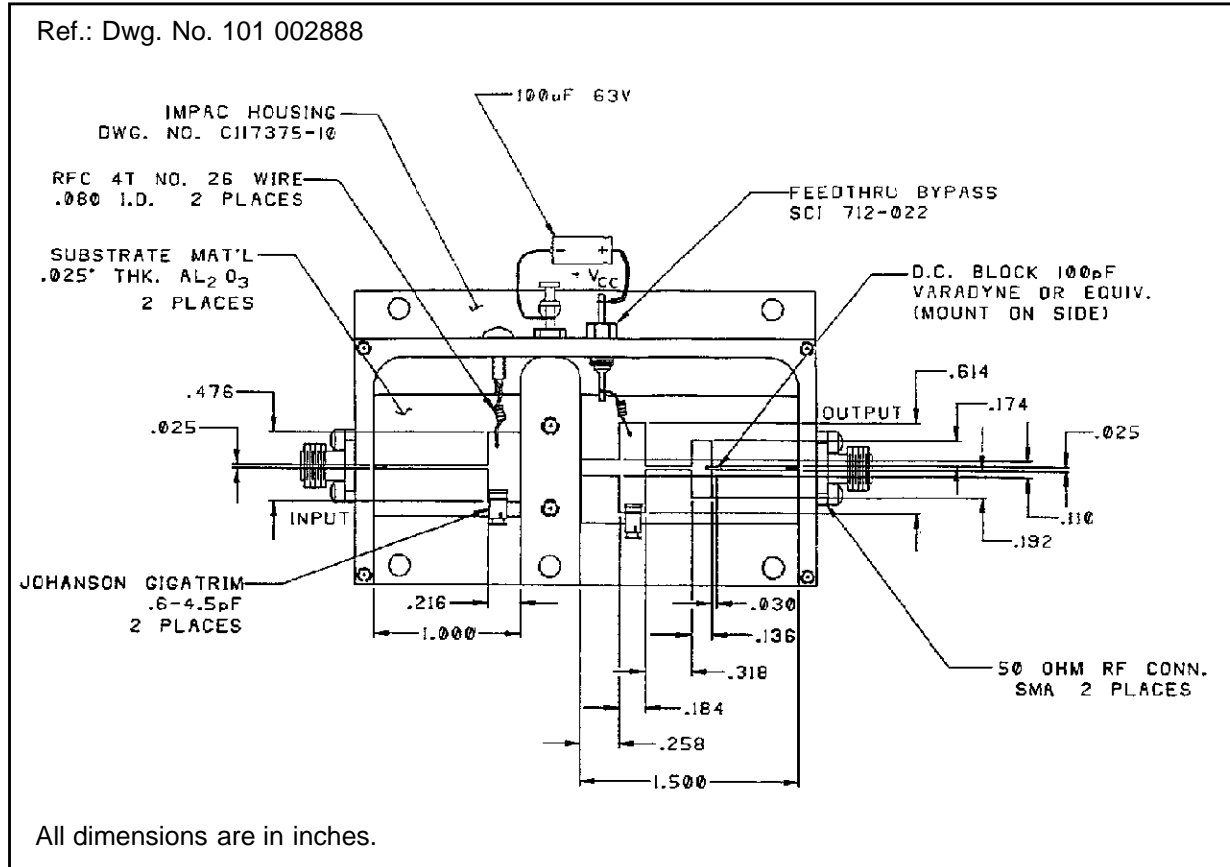
### TYPICAL PERFORMANCE



IMPEDANCE DATA



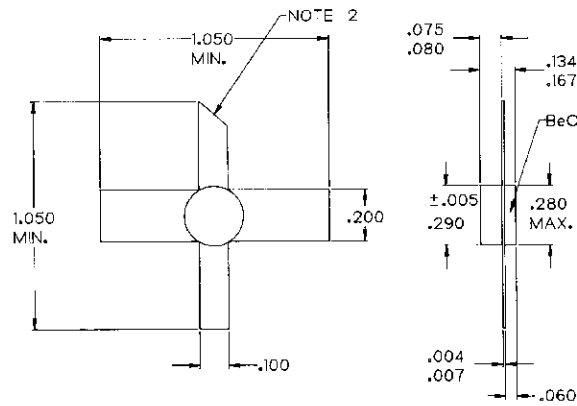
TEST CIRCUIT



# MSC81035MP

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.: JI35032E



**NOTES:**

1. ALL TOLERANCE  $\pm .010$  EXCEPT WHERE NOTED;  
DIMENSIONS IN INCHES.
2. COLLECTOR LEAD SLANT CUT.

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may results from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A