

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

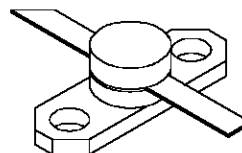
- REFRACTORY/GOLD METALLIZATION
- EMITTER SITE BALLASTED
- $\infty:1$ VSWR CAPABILITY
- LOW THERMAL RESISTANCE
- INPUT MATCHING
- OVERLAY GEOMETRY
- METAL/CERAMIC HERMETIC PACKAGE
- $P_{OUT} = 35$ W MIN. WITH 10.7 dB GAIN

DESCRIPTION

The MSC81035M is a medium power Class C transistor designed specifically for pulsed L-Band avionics applications. This device is a direct replacement for the MSC1035M. MSC81035M 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 MSC81035M is housed in the IMPAC™ package with internal input matching.



.280 2LFL (S068)

epoxy sealed

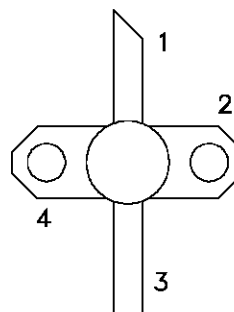
ORDER CODE

MSC81035M

BRANDING

81035M

PIN CONNECTION



1. Collector

2. Base

3. Emitter

4. Base

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100^{\circ}C$)	150	W
I_C	Device Current*	3.0	A
V_{CC}	Collector-Supply Voltage*	55	V
T_J	Junction Temperature (Pulsed RF Operation)	250	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +200	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	1.0	$^{\circ}C/W$
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*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.

MSC81035M

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 10 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	65	—	—	V
BV_{EBO}	$I_{\text{E}} = 1 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V
BV_{CER}	$I_{\text{C}} = 10 \text{ mA}$	$R_{\text{BE}} = 10 \Omega$	65	—	—	V
I_{CES}	$V_{\text{BE}} = 0 \text{ V}$	$V_{\text{CE}} = 50 \text{ V}$	—	—	5	mA
h_{FE}	$V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C}} = 500 \text{ mA}$	15	—	120	—

DYNAMIC

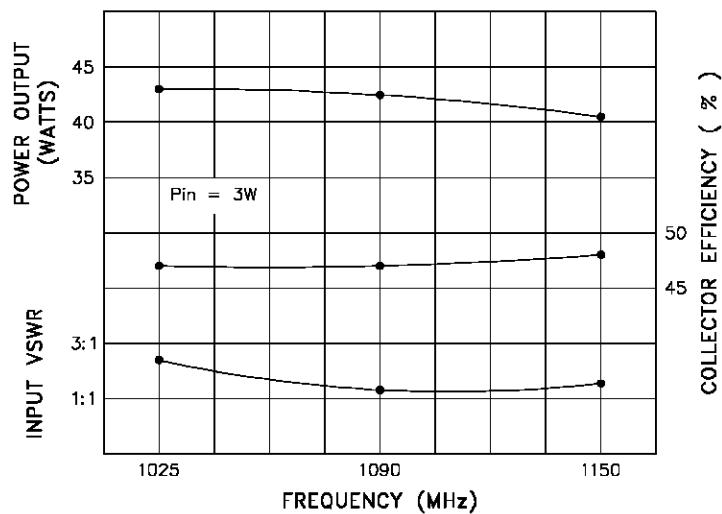
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1025 - 1150 \text{ MHz}$	$P_{\text{IN}} = 3.0 \text{ W}$	$V_{\text{CC}} = 50 \text{ V}$	35	40	—	W
η_{C}	$f = 1025 - 1150 \text{ MHz}$	$P_{\text{IN}} = 3.0 \text{ W}$	$V_{\text{CC}} = 50 \text{ V}$	40	—	—	%
P_{G}	$f = 1025 - 1150 \text{ MHz}$	$P_{\text{IN}} = 3.0 \text{ W}$	$V_{\text{CC}} = 50 \text{ V}$	10.7	11.2	—	dB

Note: Pulse Width = $10\mu\text{Sec}$

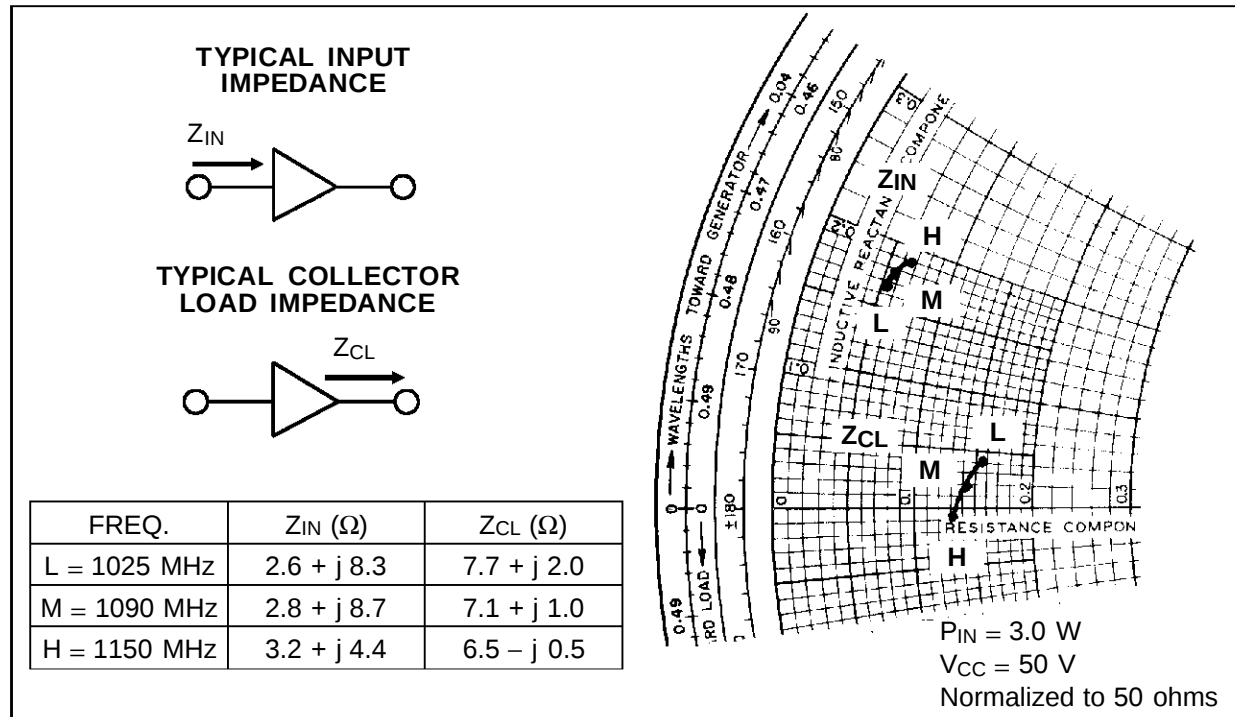
Duty Cycle = 1%

TYPICAL PERFORMANCE

TYPICAL BROADBAND POWER AMPLIFIER

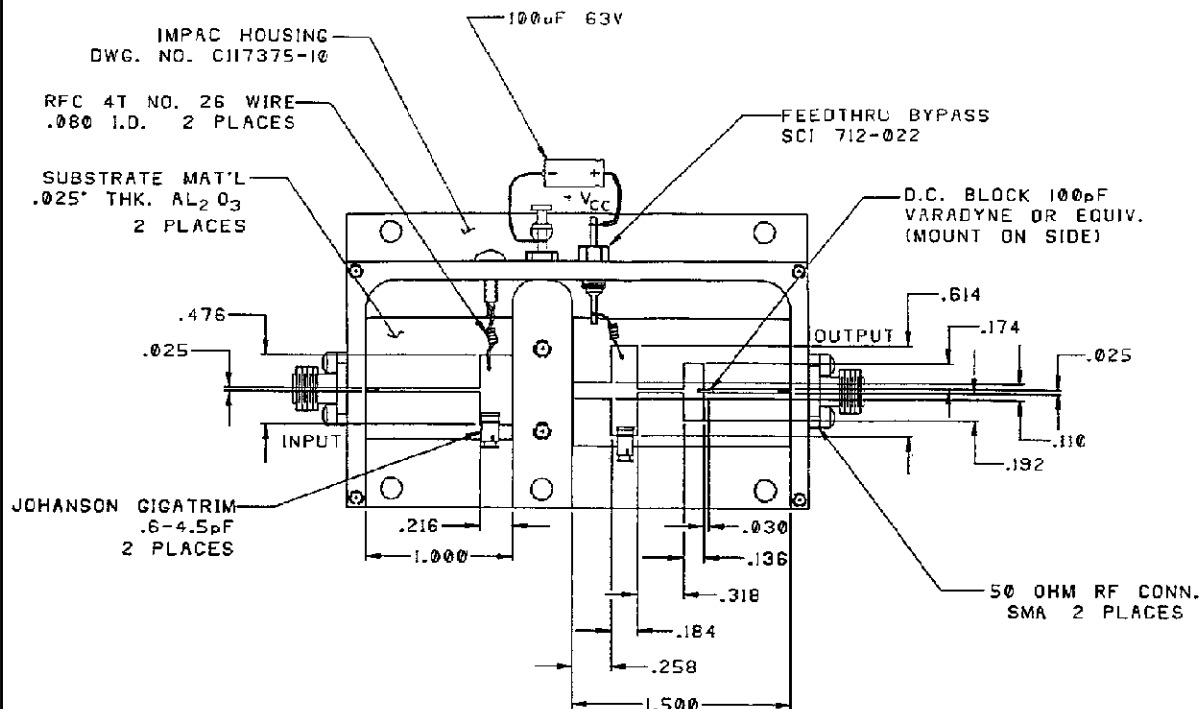


IMPEDANCE DATA



TEST CIRCUIT

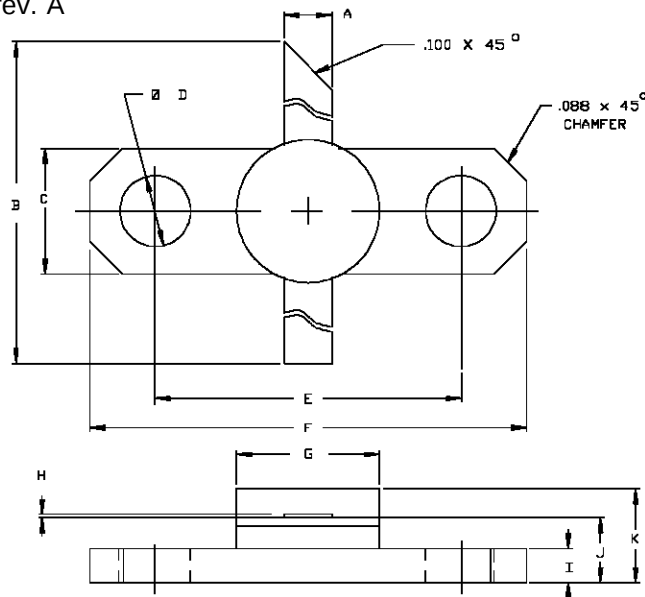
Ref.: Dwg. No. 101 002888



All dimensions are in inches.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0218 rev. A



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67	I	.052/1,32	.072/1,83
B	1.050/26,67		J	.120/3,05	.130/3,30
C	.245/6,22	.255/6,48	K		.210/5,33
D	.120/3,05	.140/3,56			
E	.552/14,02	.572/14,53			
F	.790/20,07	.810/20,57			
G		.285/7,24			
H	.003/0,08	.007/0,18			

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