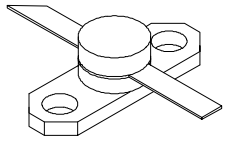
SGS-THOMSON MICROELECTRONICS

MSC1004M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

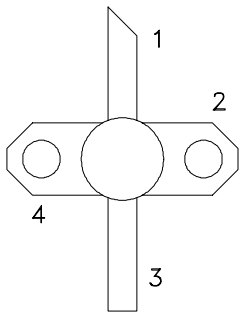
- 1025 - 1150 MHz
- RUGGEDIZED VSWR ∞:1
- INTERNAL INPUT MATCHING
- LOW THERMAL RESISTANCE
- P_{OUT} = 4.0 W MIN. WITH 9.0 dB GAIN



.280 2LFL (SO68)
epoxy sealed

ORDER CODE	BRANDING
MSC1004M	1004M

PIN CONNECTION



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

DESCRIPTION

The MSC1004M is a low-level Class C pulsed transistor specifically designed for DME/IFF driver or output applications.

These devices are capable of withstanding a ∞:1 load VSWR at any phase angle under full rated conditions. Low RF thermal resistance and automatic bonding techniques ensure high reliability and product consistency.

The MSC1004M is housed in the IMPAC™ package with internal input matching.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
P_{DISS}	Power Dissipation* ($T_C \leq 100°C$)	18	W
I_C	Device Current*	650	mA
V_{CC}	Collector-Supply Voltage*	32	V
T_J	Junction Temperature	200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance*	5	°C/W

*Applies only to rated RF amplifier operation

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

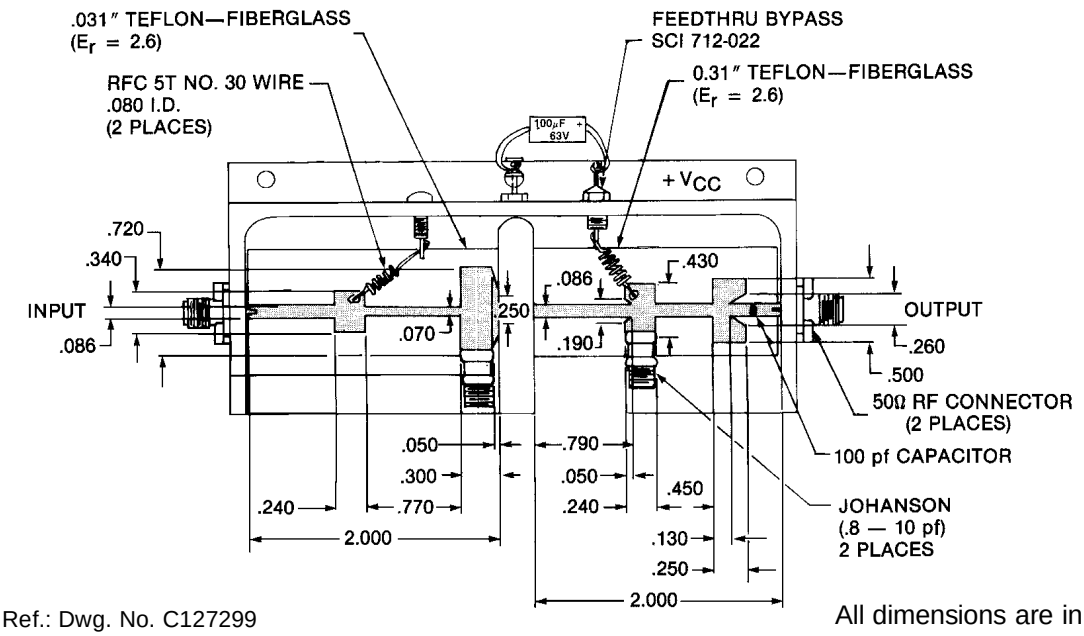
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 1 mA	I_E = 0 mA	45	—	—	V
BV_{CER}	I_C = 5 mA	R_{BE} = 10 Ω	45	—	—	V
BV_{EBO}	I_E = 1 mA	I_C = 0mA	3.5	—	—	V
I_{CES}	V_{CE} = 28 V		—	—	1.0	mA
h_{FE}	V_{CE} = 5 V	I_C = 200 mA	30	—	300	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1025 – 1150 MHz	P_{IN} = 500 mW	V_{CC} = 28 V	4.0	—	—	W
η_C	f = 1025 – 1150 MHz	P_{IN} = 500 mW	V_{CC} = 28 V	35	—	—	%
G_P	f = 1025 – 1150 MHz	P_{IN} = 500 mW	V_{CC} = 28 V	9.0	—	—	dB

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

TEST CIRCUIT

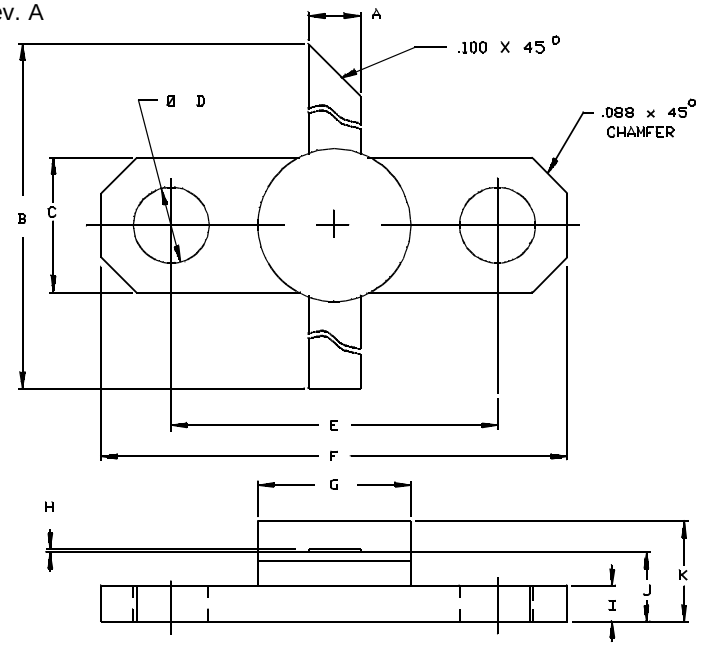


Ref.: Dwg. No. C127299

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			