

MSC1600M

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

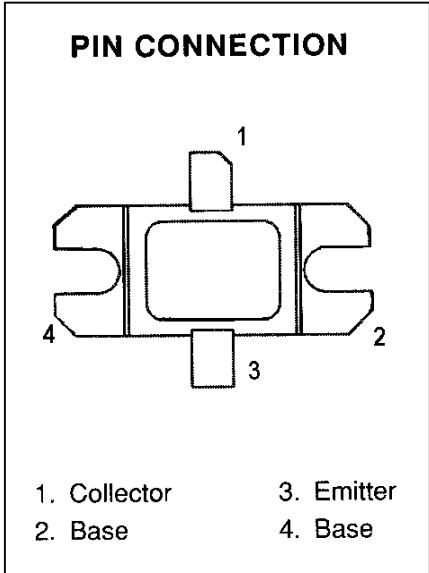
Features

- 1090 MHz
- 25:1 VSWR CAPABILITY
- P_{OUT} = 600 WATTS
- G_p = 6.0 dB MINIMUM
- GOLD METALIZATION
- INPUT MATCHING
- COMMON BASE CONFIGURATION



DESCRIPTION:

The MSC1600M is a high power pulsed transistor specifically designed for IFF avionics applications. It is designed for operation under short pulse width and low duty cycle pulse conditions and is capable of withstanding a minimum 25:1 load mismatch at rated RF conditions. Internal impedance matching and gold metallization ensure high product reliability and consistency.



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

Symbol	Parameter	Value	Unit
P _{DISS}	Power Dissipation* (T _C ≤ 100°C)	1670	W
I _C	Device Current*	43	A
V _{CC}	Collector - Base Voltage*	55	V
T _J	Junction Temperature	+250	°C
T _{STG}	Storage Temperature	-65 to +200	°C

Thermal Data

R _{TH(J-C)}	Junction-case Thermal Resistance*	0.09	°C/W
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*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 = 25mA	I_E = 0mA	65	---	---	V
BV_{EBO}	I_E = 5mA	I_C = 0mA	3.5	---	---	V
BV_{CER}	I_C = 50mA	R_{BE} = 10Ω	65	---	---	V
I_{CES}	V_{CB} = 50V		---	---	60	mA
h_{FE}	V_{CE} = 5V	I_C = 2A	10	---	250	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1090 MHz	P_{IN} = 150 W	V_{CC} = 50 V	600	700	---	W
η_C	f = 1090 MHz	P_{IN} = 150 W	V_{CC} = 50 V	35	40	---	%
G_P	f = 1090 MHz	P_{IN} = 150 W	V_{CC} = 50 V	6.0	6.7	---	dB
Conditions	Pulse Width = 10μS Duty Cycle = 1%						

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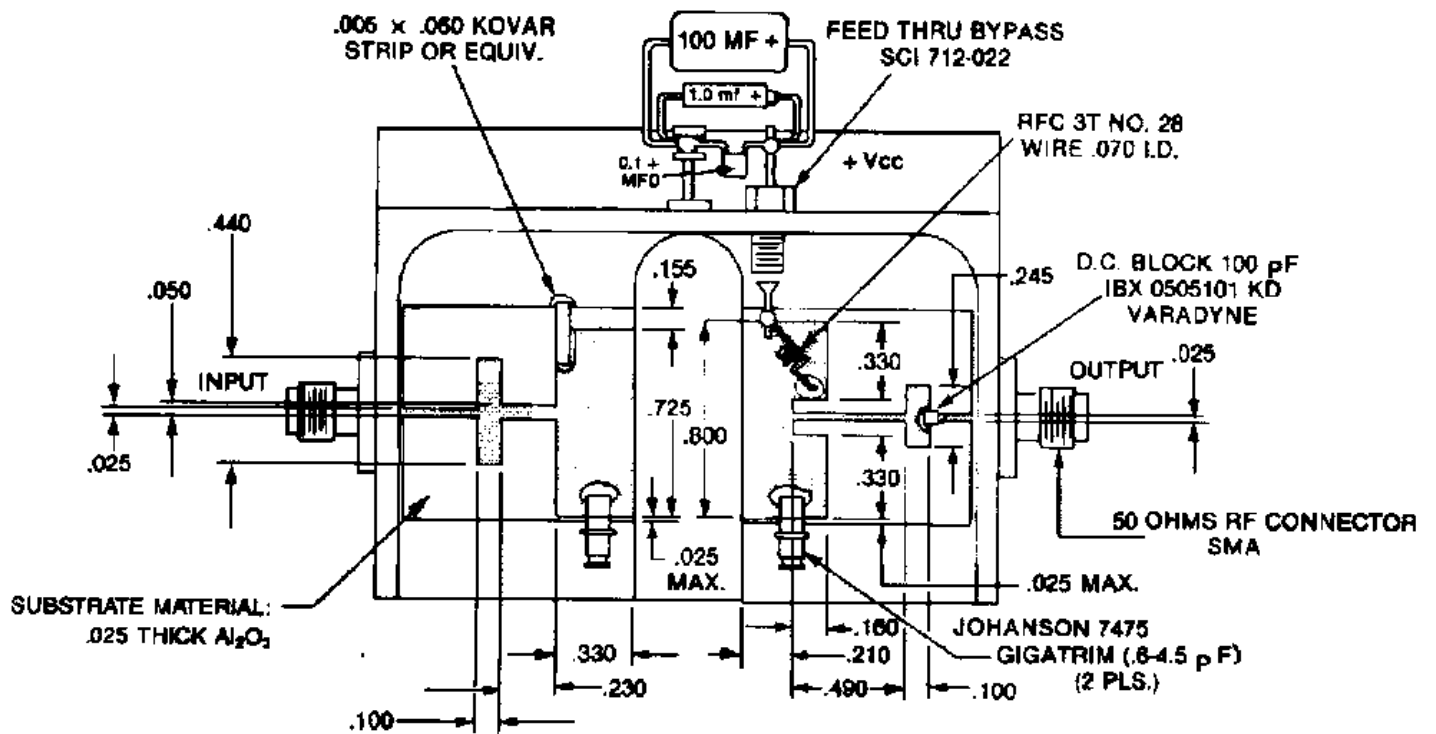
IMPEDANCE DATA:

FREQ	Z _{IN} (Ω)	Z _{CL} (Ω)
1025 MHz	3.7 + j4.5	0.9 - j1.6
1090 MHz	4.3 + j1.6	1.0 - j2.3
1150 MHz	2.8 + j1.6	0.8 - j2.0

P_{IN} = 150 W
V_{CC} = 50 V

TEST CIRCUIT

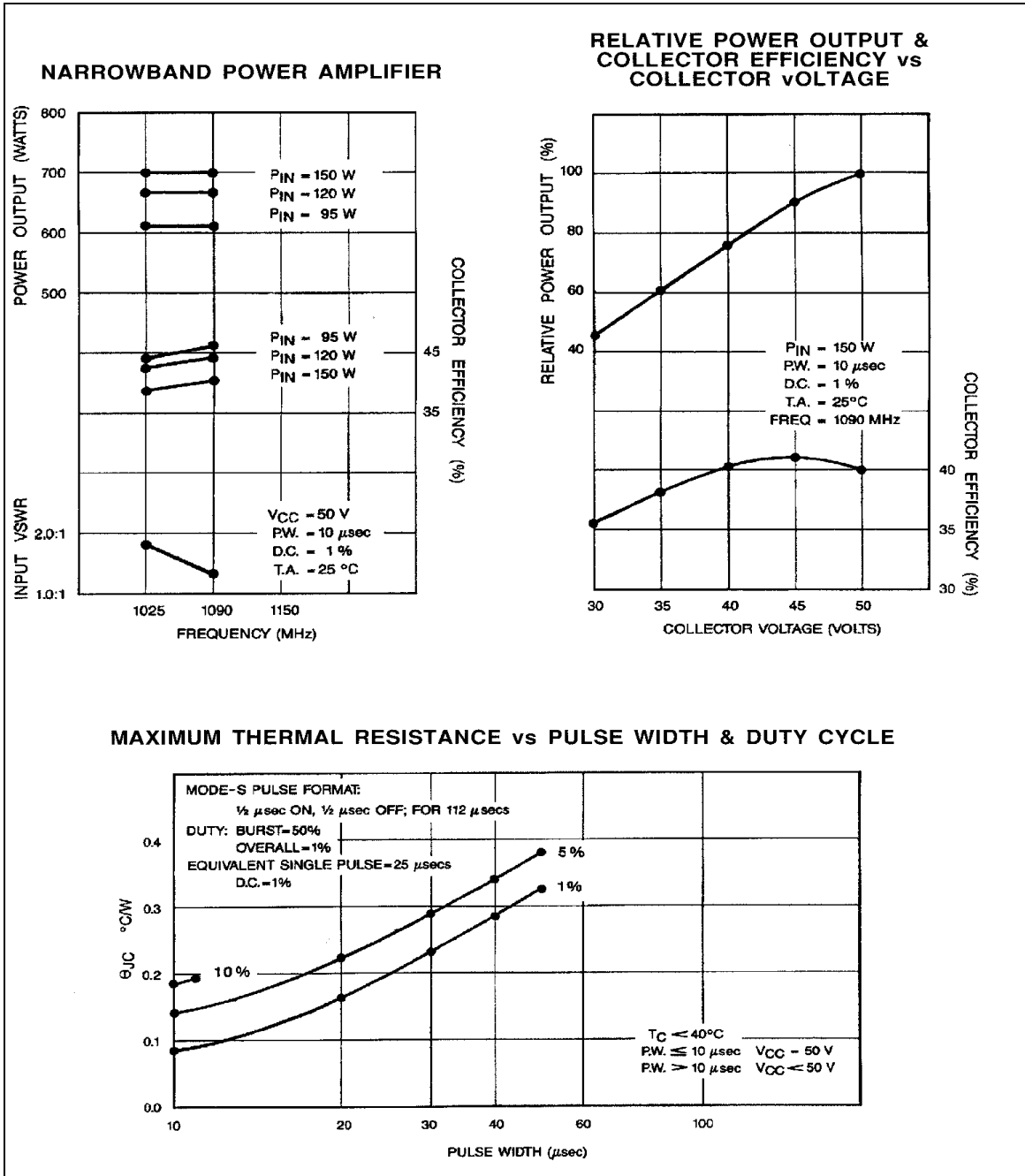
Ref.: Dwg. No. C125410



All dimensions are in inches.

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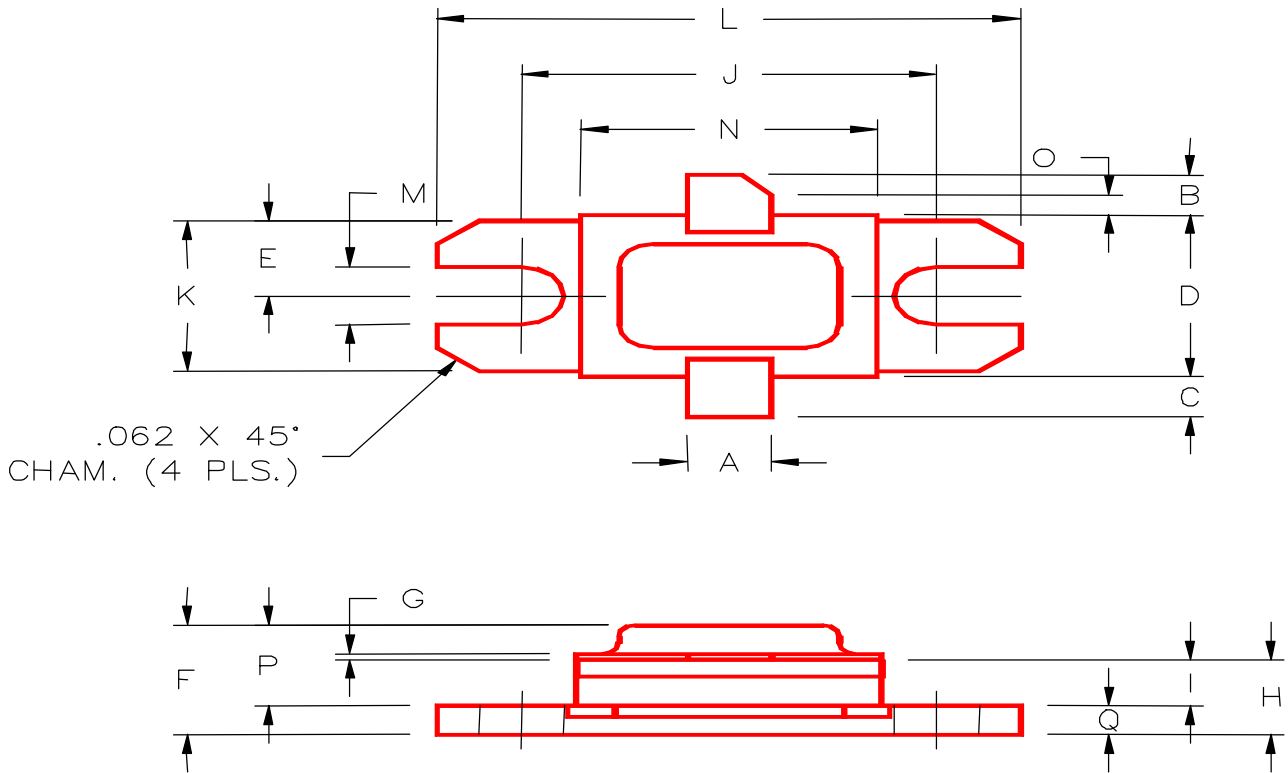
TYPICAL PERFORMANCE



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PACKAGE MECHANICAL DATA

PACKAGE STYLE M216



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.140/3,56		J	.700/17,78	
B	.110/2,80		K	.386/9,80	
C	.110/2,80		L	.900/22,86	
D	.395/10,03	.407/10,34	M	.120/3,05	
E	.193/4,90		N	.500/12,70	
F		.230/5,84	O	.050/1,27	
G	.003/0,08	.006/0,15	P		.170/4,32
H	.118/3,00	.131/3,33	Q	.062/1,58	
I	.063/1,60				