

## MSC1600M

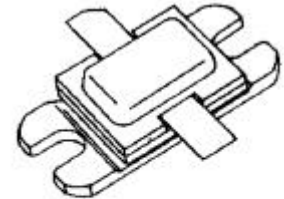
### RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

#### Features

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

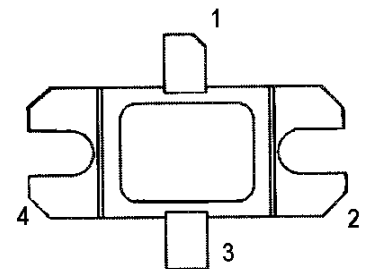
#### DESCRIPTION:

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.



**.400 x .500 2LFL (M216)**  
hermetically sealed

#### PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
$P_{DISS}$	Power Dissipation* (T <sub>C</sub> ≤ 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

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### 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> = 25mA      I <sub>E</sub> = 0mA	65	---	---	V
BV <sub>EBO</sub>	I <sub>E</sub> = 5mA      I <sub>C</sub> = 0mA	3.5	---	---	V
BV <sub>CER</sub>	I <sub>C</sub> = 50mA      R <sub>BE</sub> = 10Ω	65	---	---	V
I <sub>CES</sub>	V <sub>CB</sub> = 50V	---	---	60	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V      I <sub>C</sub> = 2A	10	---	250	---

#### DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1090 MHz    P <sub>IN</sub> = 150 W    V <sub>CC</sub> = 50 V	600	700	---	W
η <sub>C</sub>	f = 1090 MHz    P <sub>IN</sub> = 150 W    V <sub>CC</sub> = 50 V	35	40	---	%
G <sub>P</sub>	f = 1090 MHz    P <sub>IN</sub> = 150 W    V <sub>CC</sub> = 50 V	6.0	6.7	---	dB
Conditions	Pulse Width = 10μS    Duty Cycle = 1%				

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### IMPEDANCE DATA:

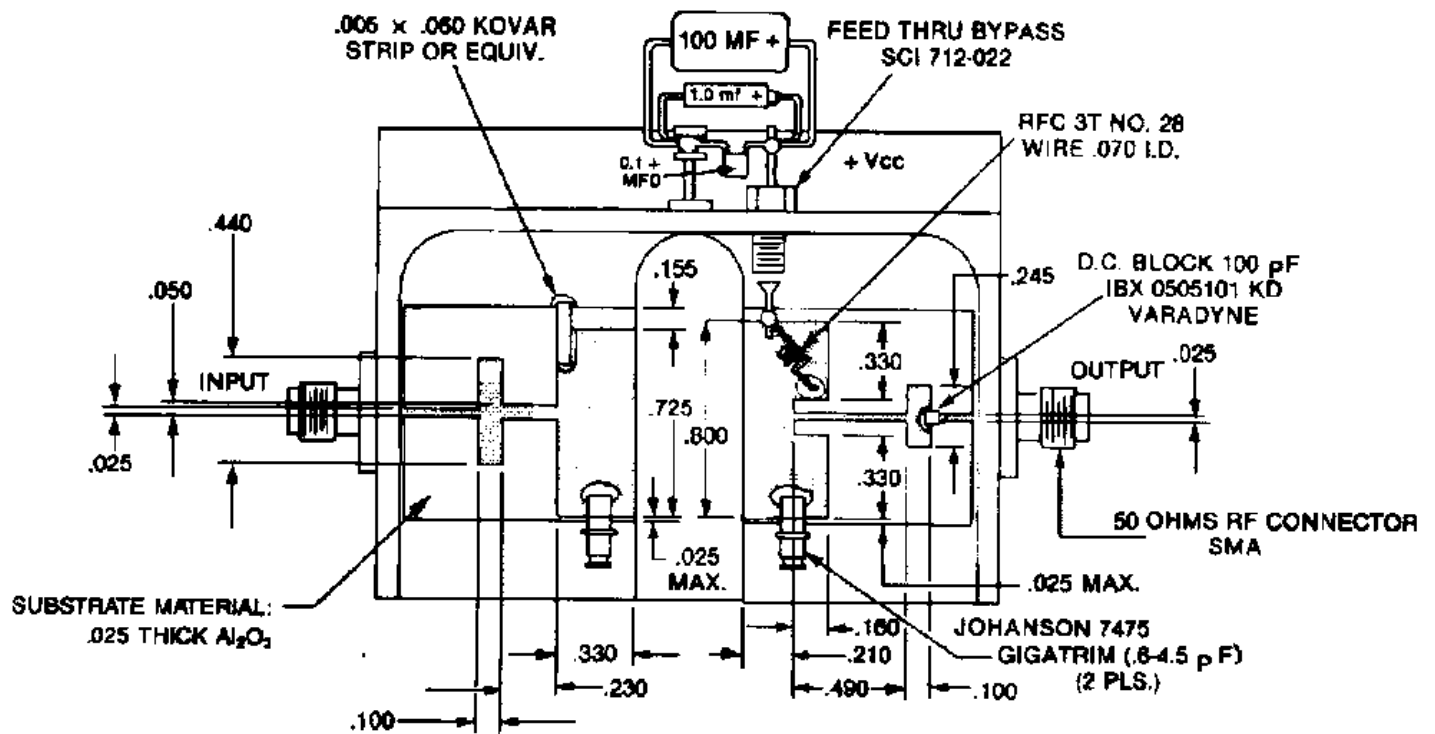
FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
1025 MHz	$3.7 + j4.5$	$0.9 - j1.6$
1090 MHz	$4.3 + j1.6$	$1.0 - j2.3$
1150 MHz	$2.8 + j1.6$	$0.8 - j2.0$

$P_{IN} = 150 \text{ W}$

$V_{CC} = 50 \text{ V}$

### TEST CIRCUIT

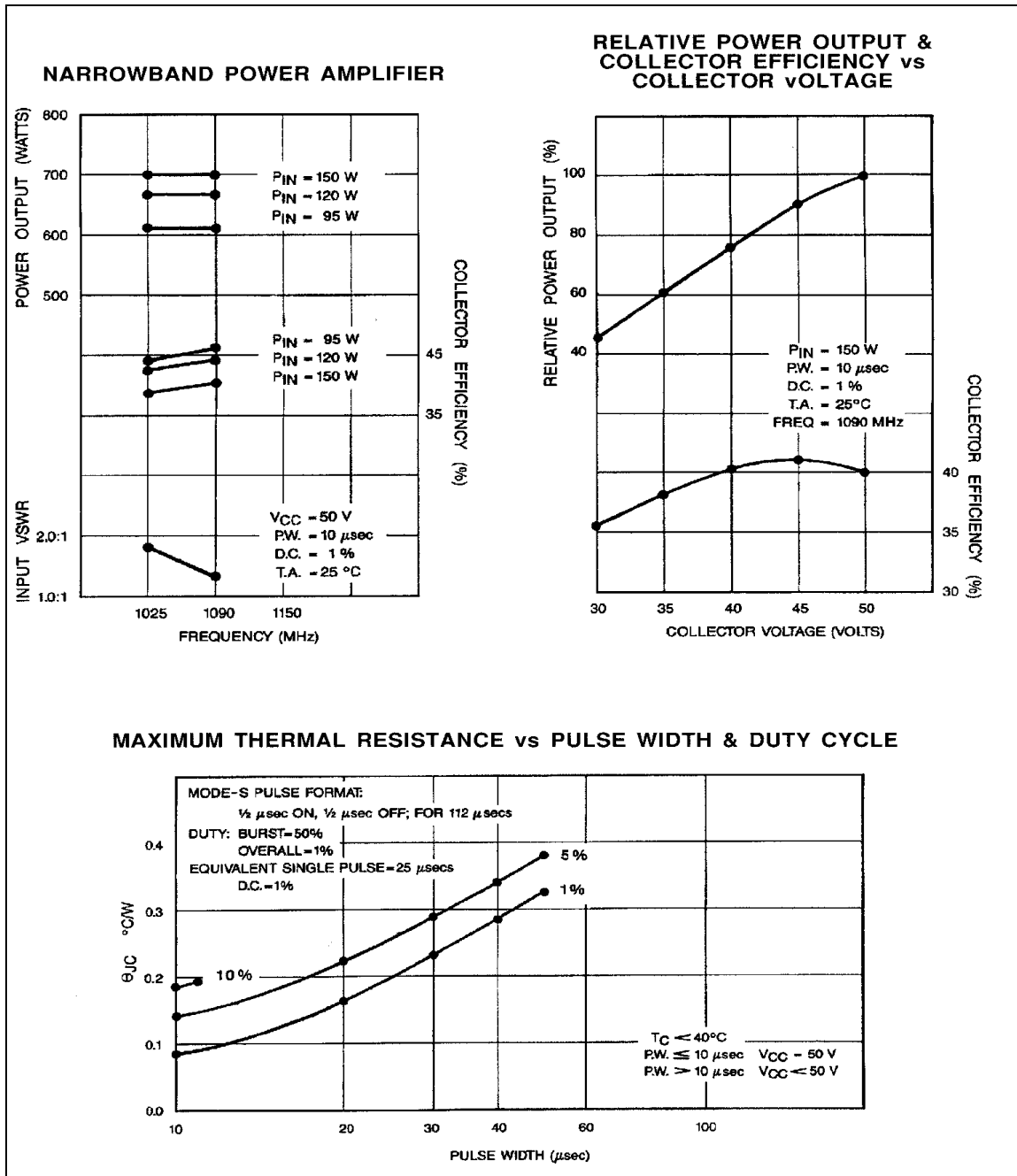
Ref.: Dwg. No. C125410



All dimensions are in inches.

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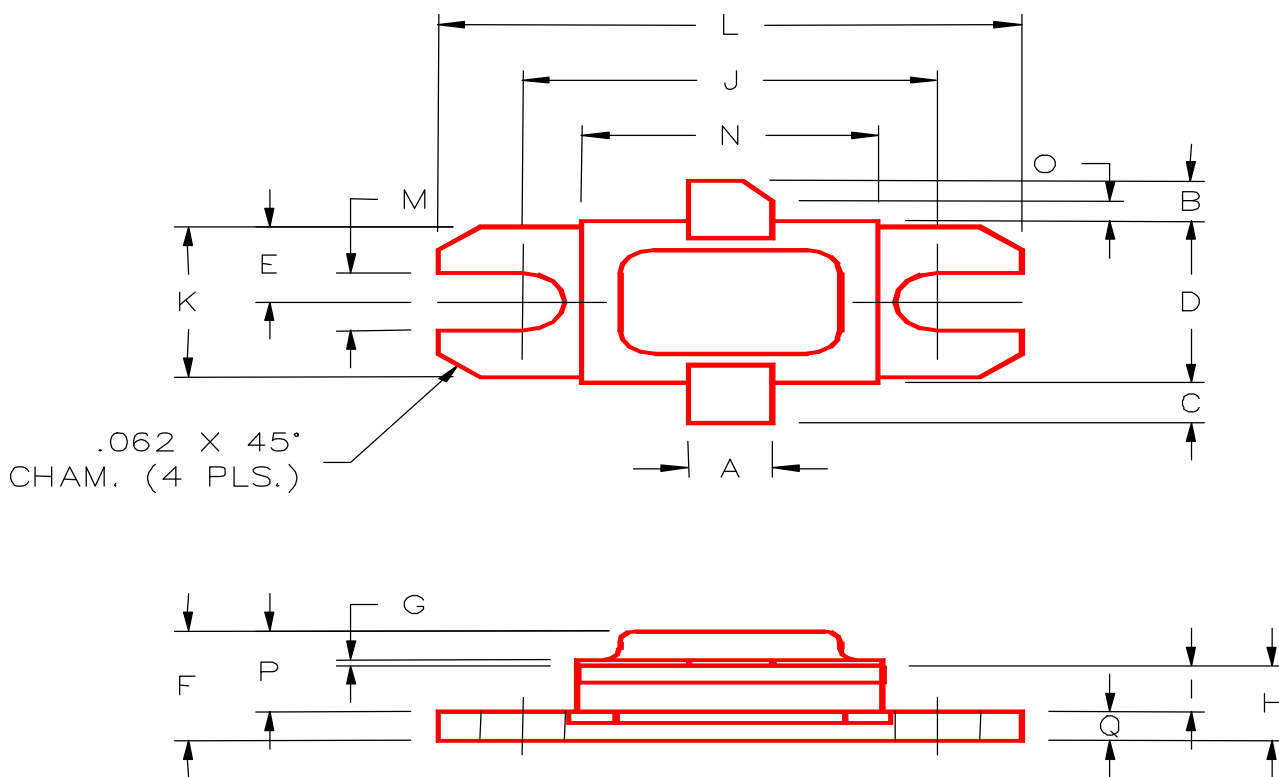
## TYPICAL PERFORMANCE



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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				