

# 10GHz Divide by 8 Prescaler

**FUJITSU**

## GaAs MICROWAVE FREQUENCY DIVIDER

**FMM110HG**

January, 1989

### DESCRIPTION

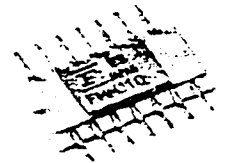
The FMM110HG is a GaAs Microwave Static Frequency Divider designed for dividing an input signal by 8 over a frequency range from 2.0 to 10.0 GHz. The device, operating with single power supply and excellent input signal sensitivity, is ideal for microwave frequency synthesizer applications.

The FMM110HG is fabricated using Fujitsu Advanced GaAs IC Technology.

### FEATURES

- Operation to 10.0 GHz.
- Divided by 8, OUT and  $\overline{\text{OUT}}$  Outputs.
- External 50 ohm Load Driving Capability.
- -5V DC or +5V DC Single Power Supply.
- Metal/Ceramic 14-pin Hermetic Flat Package.
- Wide Operation Temperature  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .

HG



### RECOMMENDED OPERATING CONDITIONS

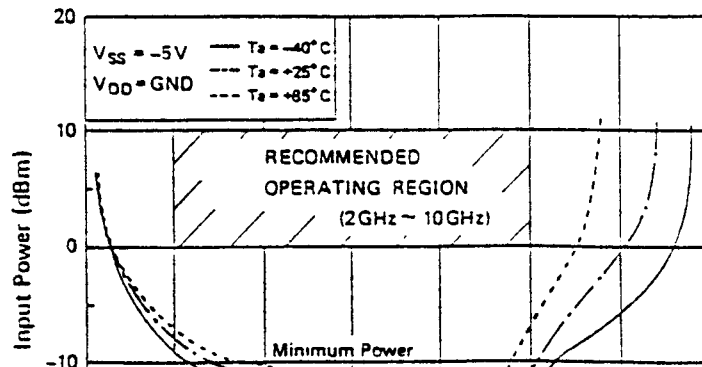
Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply Voltage	$V_{SS}$	-5.5	-5.0	-4.5	V
Ambient Temperature	$T_a$	-40	-	+85	$^{\circ}\text{C}$

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Supply Voltage	$V_{SS}$	-7 to 0	V
Input Voltage	$V_{IN}$	$V_{SS}$ to 0	V
Input Power	$P_{IN}$	+13	dBm
Storage Temperature	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Power Dissipation	$P_D$	1.0	W

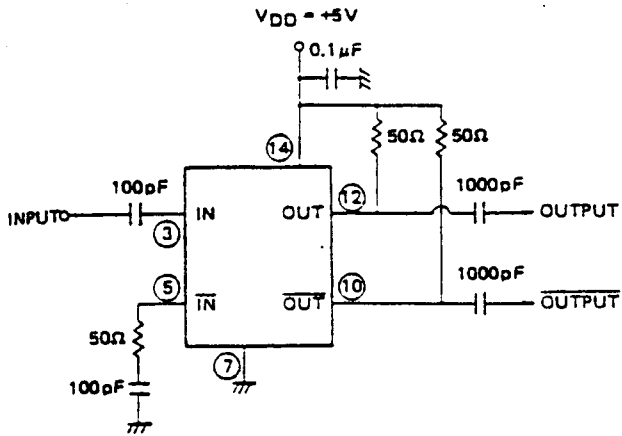
### ELECTRICAL CHARACTERISTICS ( $V_{SS} = -5\text{V}$ , $T_a = 25^{\circ}\text{C}$ )

Parameter	Symbol	Condition	Limits			Unit
			Min.	Typ.	Max.	
Power Supply Current	$I_{SS}$		-	120	-	mA
Maximum Operating Frequency	$f_{max}$	$P_{IN} = 0\text{dBm} \sim +10\text{dBm}$	10.0	12.0	-	GHz
Minimum Operating Frequency	$f_{min}$		-	0.6	2.0	GHz
Output Power	$P_O$		0	4	-	dBm

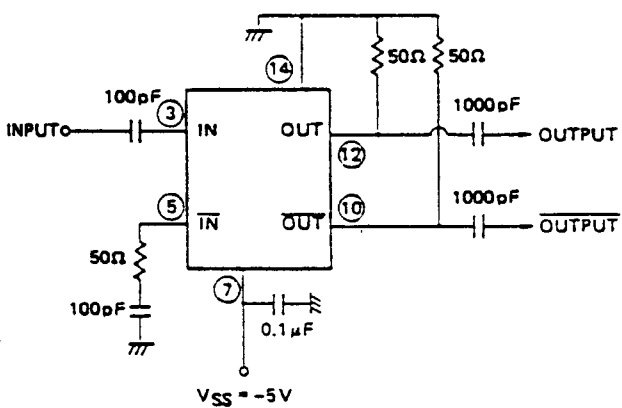


## TEST CIRCUIT

### POSITIVE SUPPLY VOLTAGE +5V OPERATION CIRCUIT

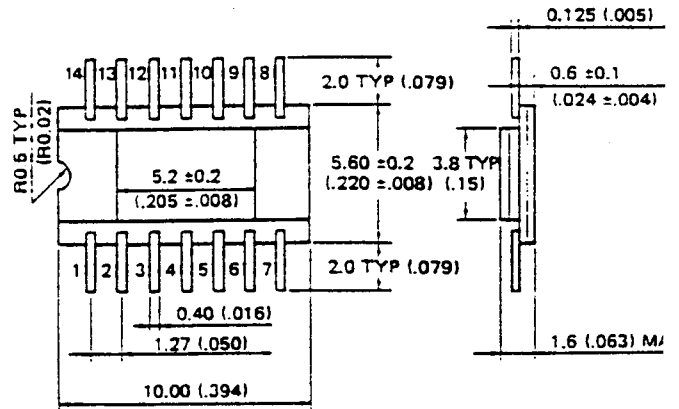


### NEGATIVE SUPPLY VOLTAGE -5V OPERATION CIRCUIT



The backside metal of the package must be grounded.

## PACKAGE DIMENSIONS/LEAD CONFIGURATIC



UNIT: mm (inch)

Lead No.	Symbol	Function
1	NC	No Connection
2	NC	No Connection
3	IN	Input
4	NC	No Connection
5	$\overline{\text{IN}}$	Complementary Input
6	NC	No Connection
7	VSS	Supply Voltage
8	NC	No Connection
9	NC	No Connection
10	$\overline{\text{OUT}}$	Complementary Output
11	NC	No Connection
12	OUT	Output
13	NC	No Connection
14	VDD	Supply Voltage