

# MB505-16

## ULTRA HIGH FREQUENCY PRESCALER

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The Fujitsu MB505 is a high frequency, up to 1.6GHz, prescaler used with a frequency synthesizer to form a Phase Locked Loop (PLL). It will divide the input frequency by the modulus of 128 or 256 and the output level is 1.6V peak to peak on ECL level.

Operation in the 1.6GHz range meets the specification for applications in Direct Broadcasting Satellite Systems (DBS), CATV systems, and UHF Transceivers.

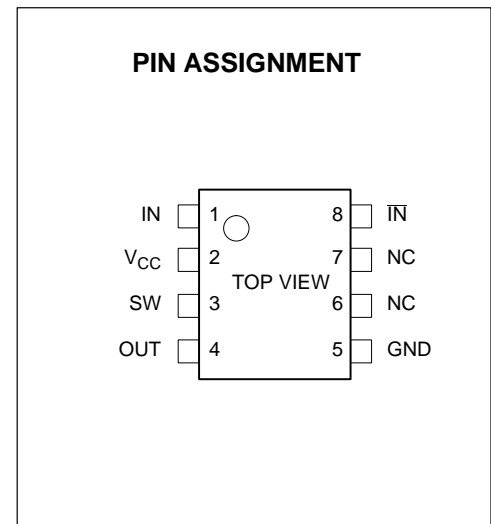
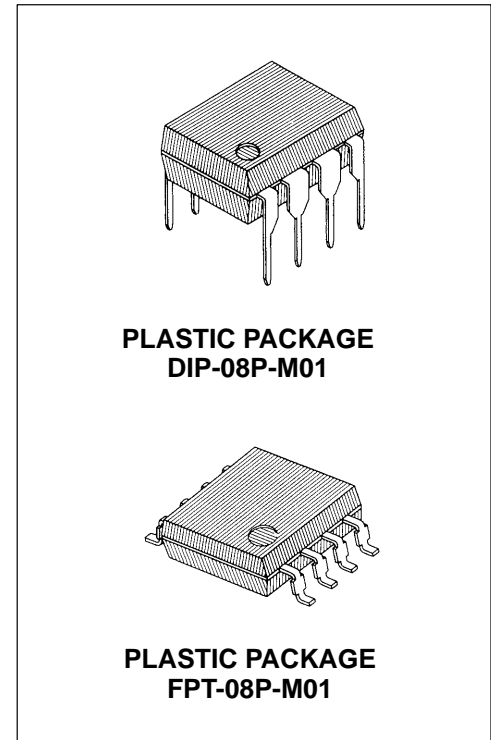
### FEATURES

- High Frequency Operation      1.6GHz max.
- Low Power Dissipation          45mW typ.
- Wide Operation Temperature    -40°C to +85°C
- Stable Output Amplitude         $V_{OUT} = 1.6V_{p-p}$
- Complete PLL synthesizer circuit with the Fujitsu MB87006A, PLL synthesizer IC
- Plastic 8-pin Standard Dual-In-Line Package or Flat Package

### ABSOLUTE MAXIMUM RATINGS (See Note)

Rating	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	-0.5 to +7.0	V
Input Voltage	$V_{IN}$	-0.5 to $V_{CC}$	V
Output Current	$I_O$	10	mA
Storage Temperature	$T_{STG}$	-55 to +125	°C

**Note:** Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields. However, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high impedance circuit.

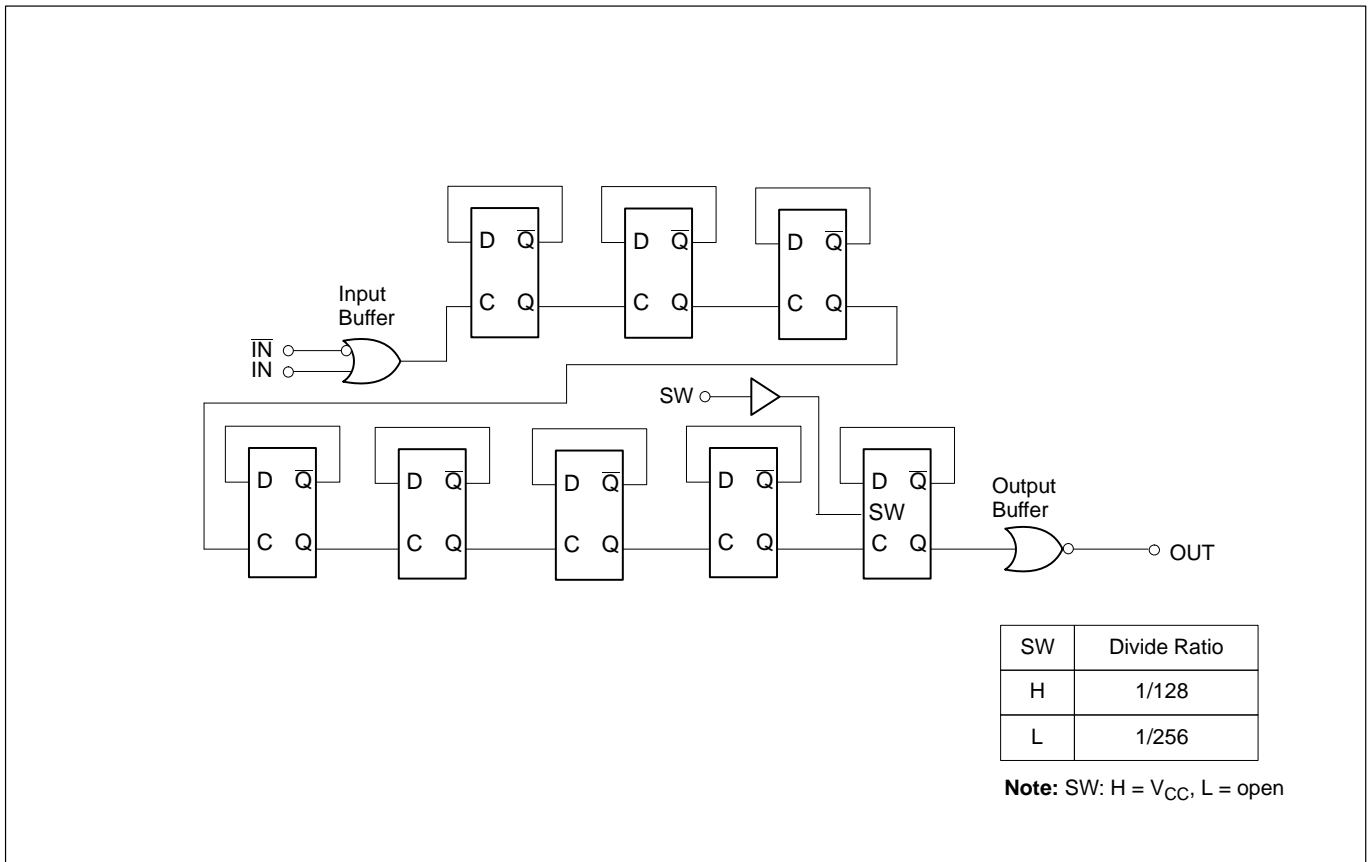


Figure 1. MB505 Block Diagram

### PIN DESCRIPTION

Pin Number	Symbol	Function
1	IN	Input
2	V <sub>CC</sub>	Power Supply Voltage
3	SW	Divide Ratio Control Input Selecting Divide Ratio (See Divide Ratio Table)
4	OUT	Output
5	GND	Ground
6	NC	No Connection
7	NC	No Connection
8	IN-bar	Complementary Input

## RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply Voltage	$V_{CC}$	4.5	5.0	5.5	V
Output Current	$I_O$		1.2		mA
Ambient Temperature	$T_A$	-40		+85	°C
Load Capacitance	$C_L$			12	pF

## ELECTRICAL CHARACTERISTICS

(Recommended Operating Conditions unless otherwise noted.)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Supply Current	$I_{CC}$			9		mA
Output Amplitude	$V_O$		1.0	1.6		$V_{p-p}$
Input Frequency	$f_{IN}$	with input coupling capacitor 1000pF	100		1600	MHz
Input Signal Amplitude	$P_{IN}$		-12		5.5	dBm
High Level Input Voltage for SW	$V_{IHS}^*$		$V_{CC} - 0.1$	$V_{CC}$	$V_{CC} + 0.1$	V
Low Level Input Voltage for SW	$V_{ILS}$		Open			V

Note: \*Design Guarantee

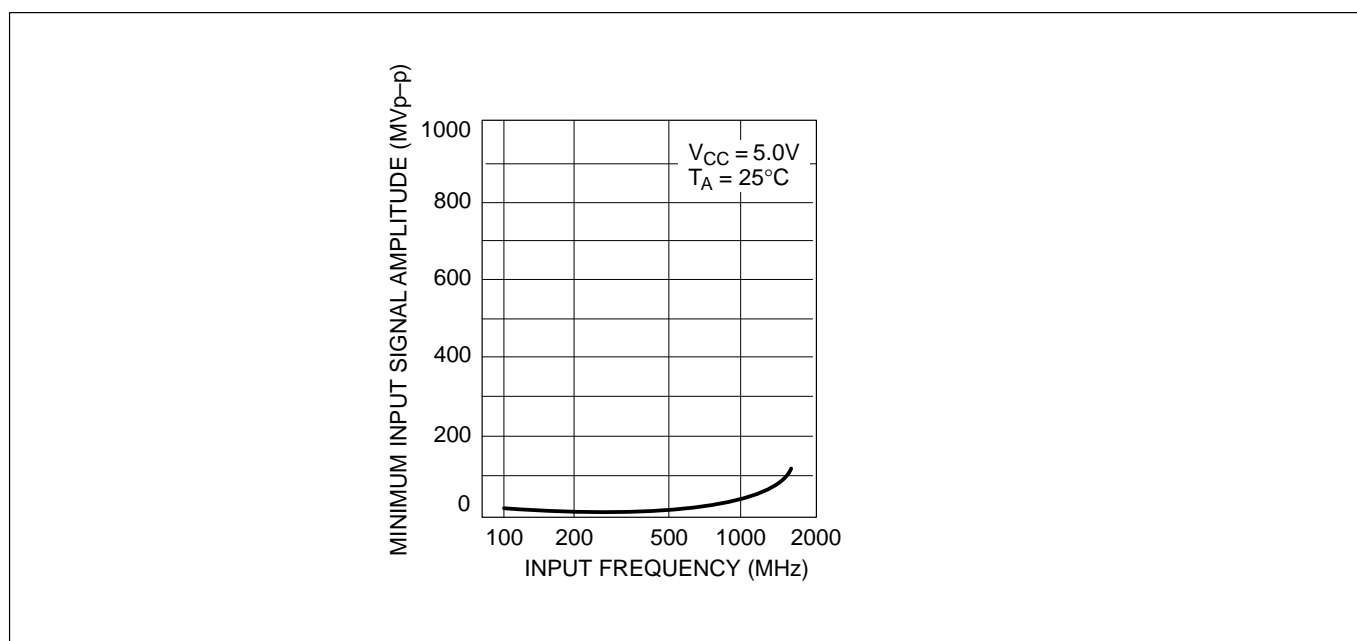
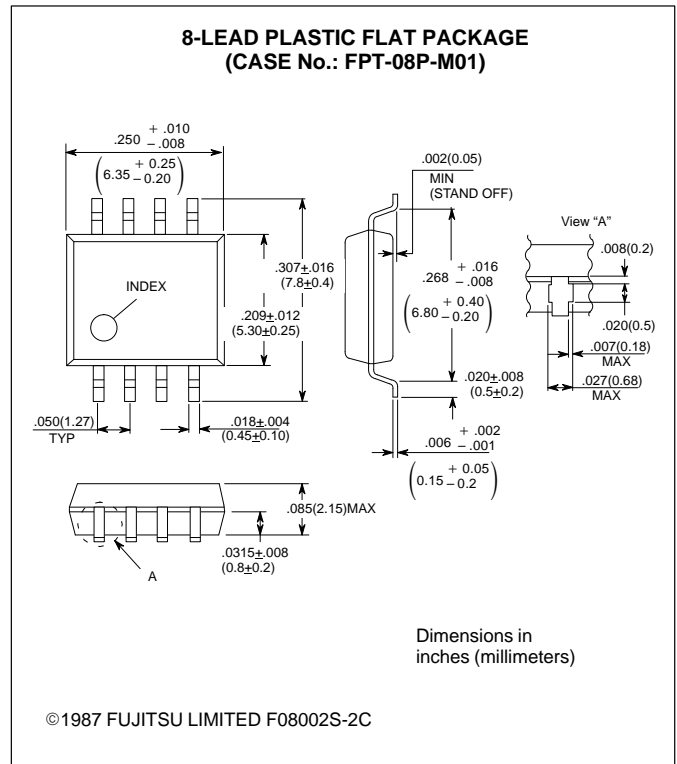
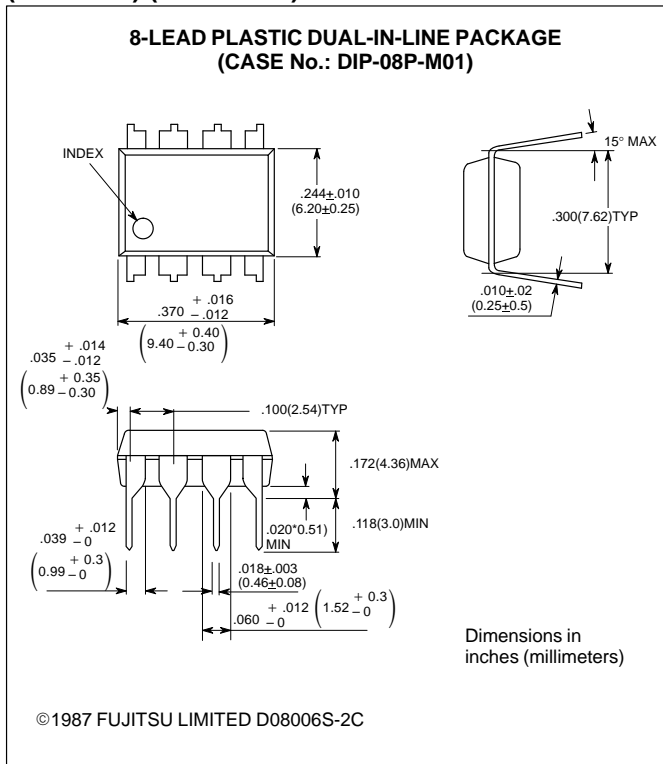


Figure 2. Input Signal Amplitude vs. Input Frequency

**PACKAGE DIMENSIONS**

(Suffix: -P) (Suffix: -PF)



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**FUJITSU LIMITED**

For further information please contact:

**Japan**

FUJITSU LIMITED  
International Marketing Div.  
Furukawa Sogo Bldg., 6-1, Marunouchi 2-chome  
Chiyoda-ku, Tokyo 100, Japan  
Tel: (03) 3216-3211  
Telex: 781-2224361  
FAX: (03) 3215-0662

**North and South America**

FUJITSU MICROELECTRONICS, INC.  
Integrated Circuits Division  
3545 North First Street  
San Jose, CA 95134-1804, USA  
Tel: 408-922-9000  
FAX: 408-432-9044

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**Europe**

FUJITSU MIKROELEKTRONIK GmbH  
Am Siebenstein 6-10,  
6072 Dreieich-Buchschlag,  
Germany  
Tel: (06103) 690-0  
Telex: 411963  
FAX: (06103) 690-122

**Asia**

FUJITSU MICROELECTRONICS ASIA PTE LIMITED  
51 Bras Basah Road,  
Plaza By The Park,  
#06-04 to #06-07  
Singapore 0719  
Tel: 336-1600  
Telex: 55573  
FAX: 336-1609