

# MB505-16 ULTRA HIGH FREQUENCY PRESCALER

#### **ULTRA HIGH FREQUENCY PRESCALER**

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  $V_{OUT} = 1.6V_{p-p}$ 

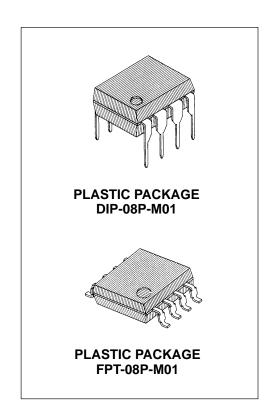
 Complete PLL synthesizer circuit with the Fujitsu MB87006A, PLL synthesizer IC

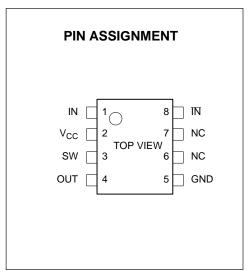
• Plastic 8-pin Standard Dual-In-Line Package or Flat Package

## **ABSOLUTE MAXIMUM RATINGS (See Note)**

Rating	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	-0.5 to +7.0	V
Input Voltage	V <sub>IN</sub>	-0.5 to V <sub>CC</sub>	V
Output Current	I <sub>O</sub>	10	mA
Storage Temperature	T <sub>STG</sub>	-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.

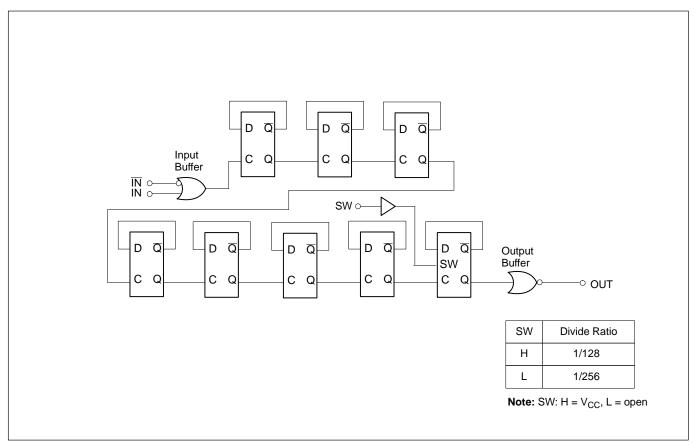


Figure 1. MB505 Block Diagram

# **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	ĪN	Complementary Input		

# **RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Value			Unit
		Min.	Тур.	Max.	Unit
Supply Voltage	V <sub>CC</sub>	4.5	5.0	5.5	V
Output Current	Io		1.2		mA
Ambient Temperature	T <sub>A</sub>	-40		+85	°C
Load Capacitance	C <sub>L</sub>			12	pF

# **ELECTRICAL CHARACTERISTICS**

(Recommended Operating Conditions unless otherwise noted.)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Тур.	Max.	Unit
Supply Curent	I <sub>CC</sub>			9		mA
Output Amplitude	Vo		1.0	1.6		V <sub>p-p</sub>
Input Frequency	f <sub>IN</sub>	with input coupling capacitor 1000pF	100		1600	MHz
Input Signal Amplitude	P <sub>IN</sub>		-12		5.5	dBm
High Level Input Voltage for SW	V <sub>IHS</sub> *		V <sub>CC</sub> -0.1	V <sub>CC</sub>	V <sub>CC</sub> +0.1	V
Low Level Input Voltage for SW	V <sub>ILS</sub>			Open		V

Note: \*Design Guarantee

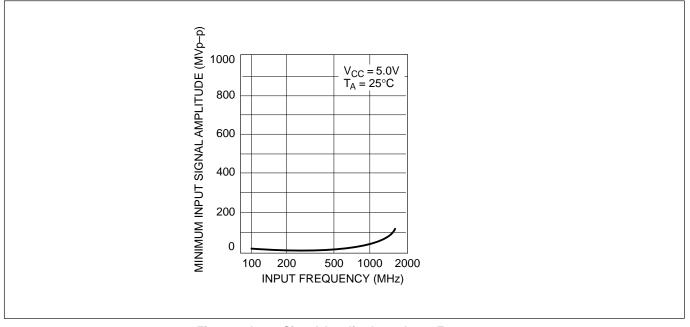
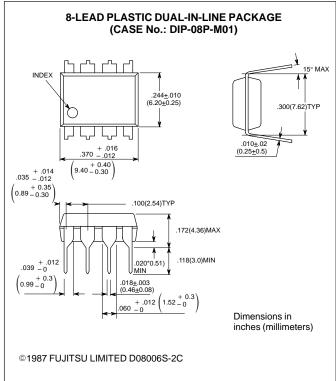


Figure 2. Input Signal Amplitude vs. Input Frequency

# PACKAGE DIMENSIONS

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



All Rights Reserved. Circuit diagrams utilizing Fujitsu products are included as a means of illustrating typical semiconductor applications. Complete information sufficient for construction purposes is not necessarily given. The information contained in this document has been carefully checked and is believed to be reliable. However, Fujitsu assumes no responsibility for inaccuracies.

# FUJITSU LIMITED

For further information please contact:

# Japan

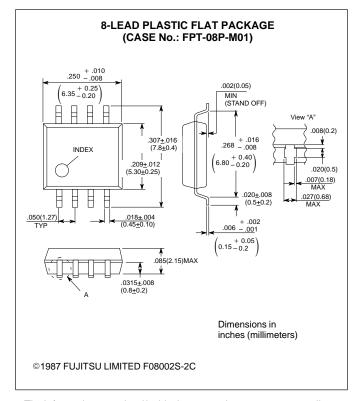
FUJITSU LIMITED International Marketing Div. Furukawa Sogo Bldg., 6-1, Marunouchi 2-chome Chiyoda-ku, Tokyo 100, Japan Tel: (03) 3216-3211

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



The information contained in this document does not convey any license under the copyrights, patent rights or trademarks claimed and owned by Fujitsu. Fujitsu reserves the right to change products or specifications without notice. No part of this publication may be copied or reproduced in any form or by any means, or transferred to any third party without prior written consent of Fujitsu.

#### **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