

MB506

ULTRA HIGH FREQUENCY PRESCALER

ULTRA HIGH FREQUENCY PRESCALER

The Fujitsu MB506 is a high frequency, up to 2.4GHz, 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.

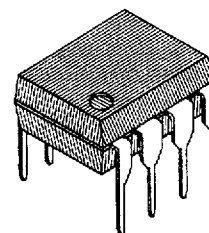
FEATURES

- High Frequency Operation 2.4GHz max.
- Power Dissipation 90mW 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

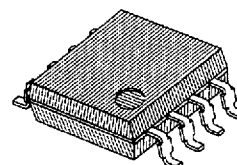
ABSOLUTE MAXIMUM RATINGS (See Note)

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

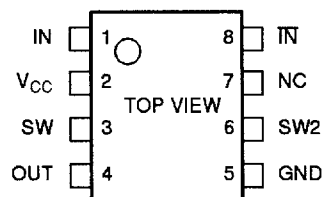


PLASTIC PACKAGE
DIP-08P-M01



PLASTIC PACKAGE
FPT-08P-M01

PIN ASSIGNMENT



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.

the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

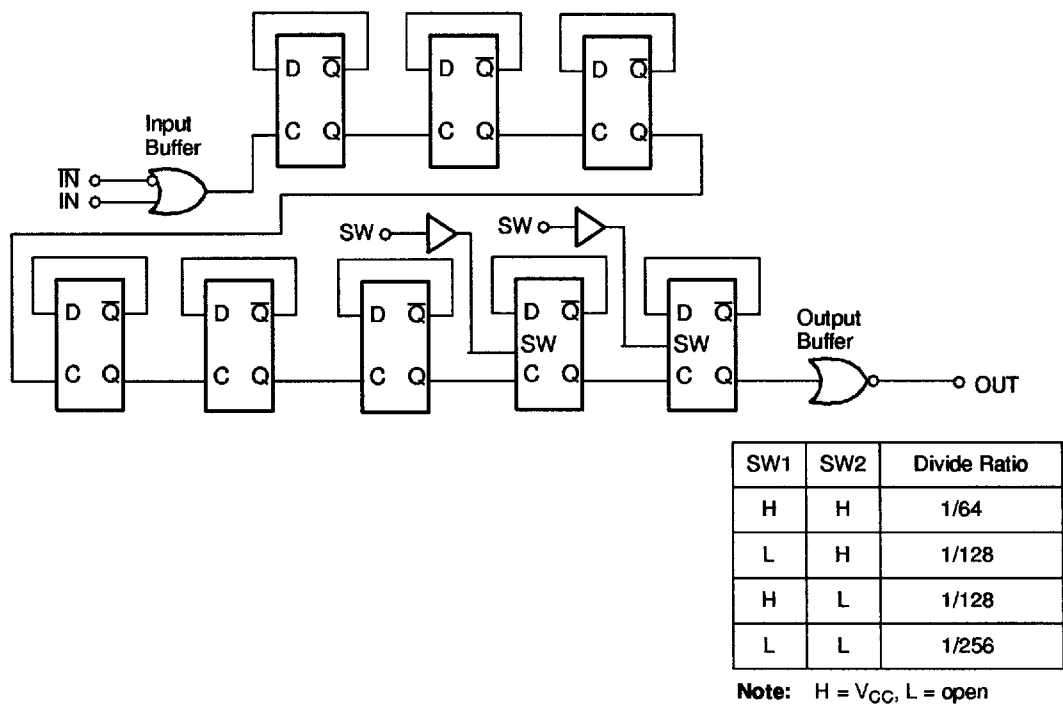


Figure 1. MB506 Block Diagram

PIN DESCRIPTION

PIn Number	Symbol	Function
1	IN	Input
2	V_{CC}	Power Supply Voltage
3	SW1	Divide Ratio Control Input Selecting Divide Ratio (See Divide Ratio Table)
4	OUT	Output
5	GND	Ground
6	SW2	Divide Ratio Control Input Selecting Divide Ratio (See Divide Ratio Table)
7	NC	No Connection
8	$\overline{IN}$	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}			18		mA
Output Amplitude	V_O		1.0	1.6		V_{p-p}
Input Frequency	f_{IN}	with input coupling capacitor 1000pF $T_A = -40^\circ\text{C}$ to 85°C	100		2200	MHz
		$T_A = -40^\circ\text{C}$ to 60°C	100		2400	
Input Signal Amplitude	P_{IN}	$f_{IN} = 100\text{MHz}$ to 1.3GHz	-16		5.5	dBm
		$f_{IN} = 1.3\text{MHz}$ to 2.4GHz	-4		5.5	
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

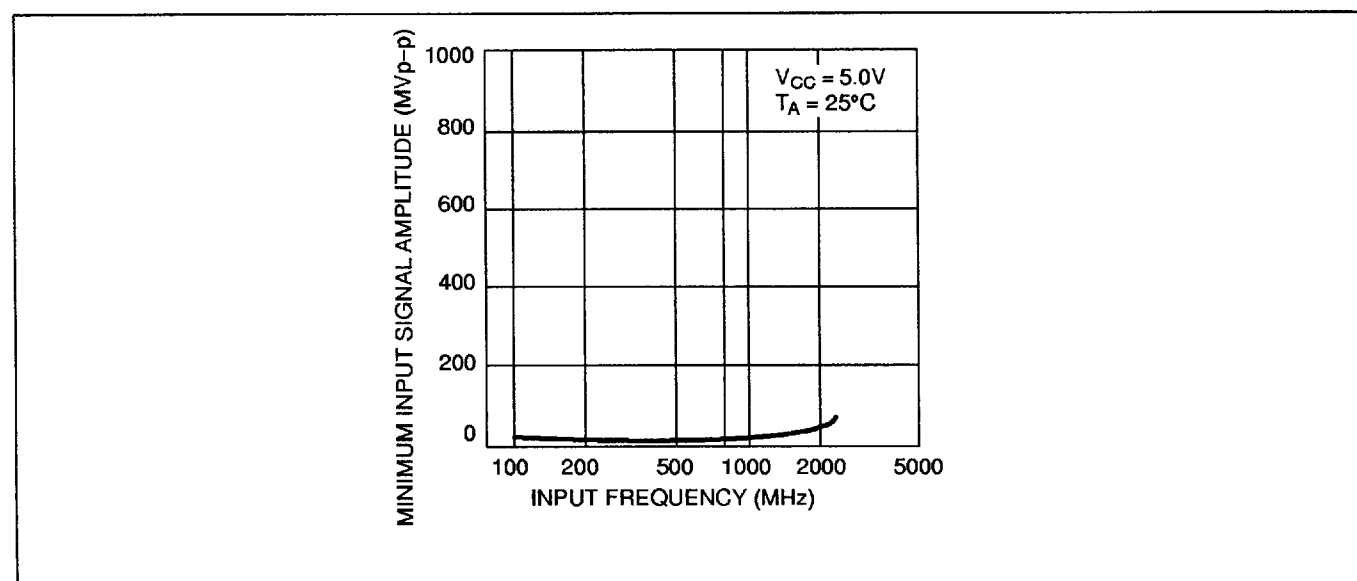
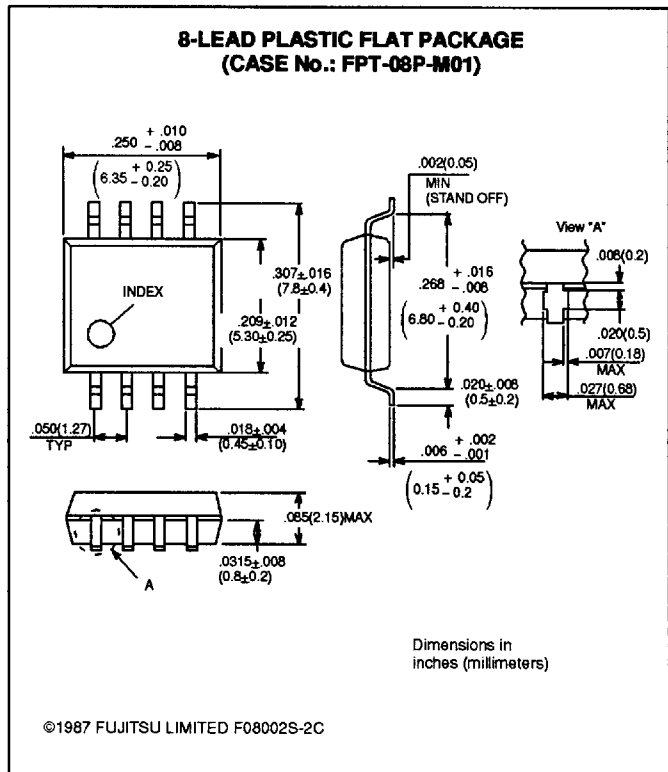
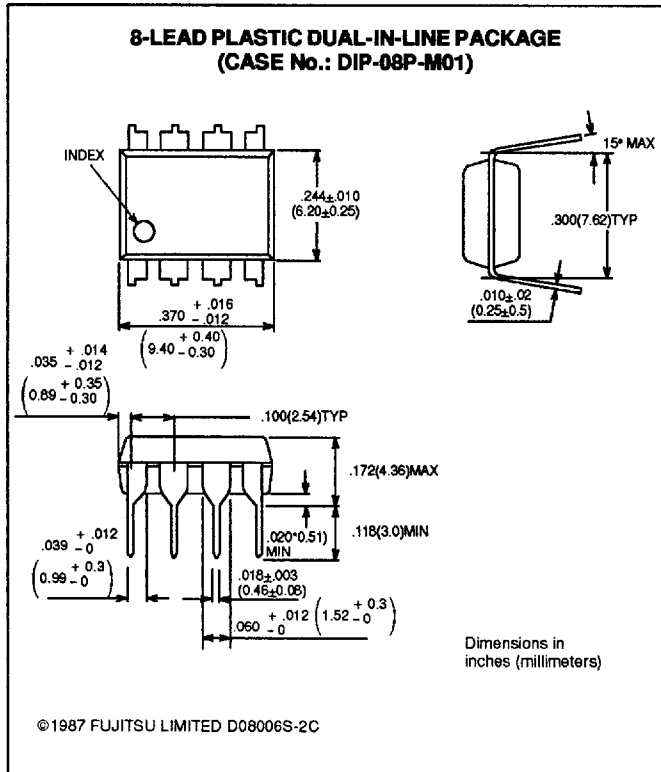


Figure 2. Input Signal Amplitude vs. Input Frequency

PACKAGE DIMENSIONS



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