

# MB506

## ULTRA HIGH FREQUENCY PRESCALER

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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.

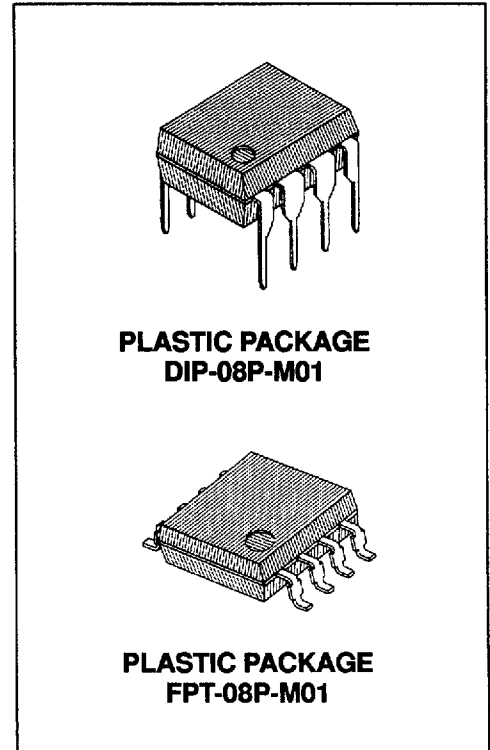
### FEATURES

- 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

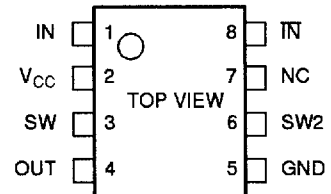
### ABSOLUTE MAXIMUM RATINGS (See Note)

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



### 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.

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

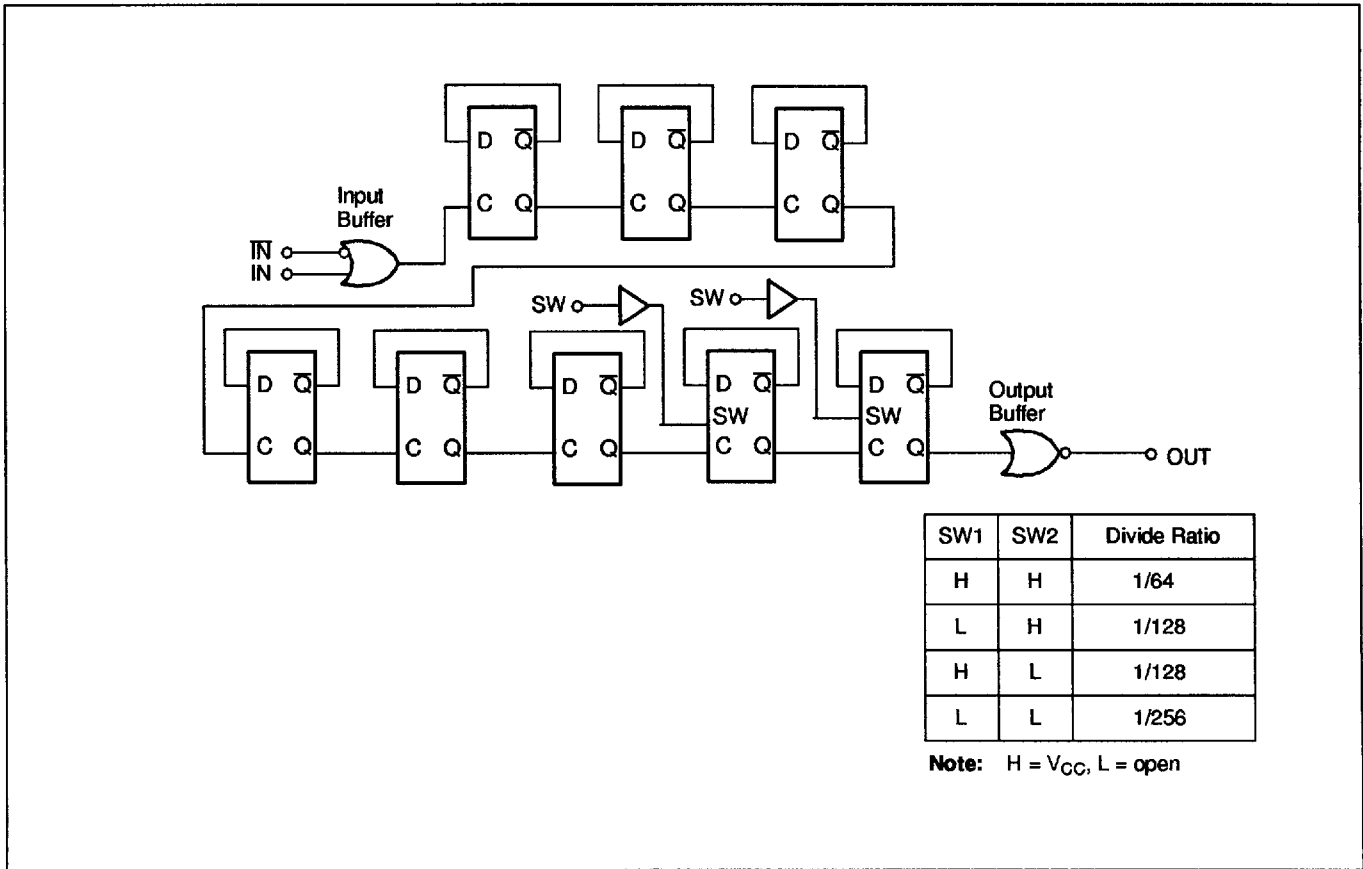


Figure 1. MB506 Block Diagram

## PIN DESCRIPTION

Pin Number	Symbol	Function
1	IN	Input
2	V <sub>CC</sub>	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	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	$I_{CC}$			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 $85^\circ\text{C}$	100		2200	MHz
		$T_A = -40^\circ\text{C}$ to $60^\circ\text{C}$	100		2400	
Input Signal Amplitude	$P_{IN}$	$f_{IN} = 100\text{MHz}$ to $1.3\text{GHz}$	-16		5.5	dBm
		$f_{IN} = 1.3\text{MHz}$ to $2.4\text{GHz}$	-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

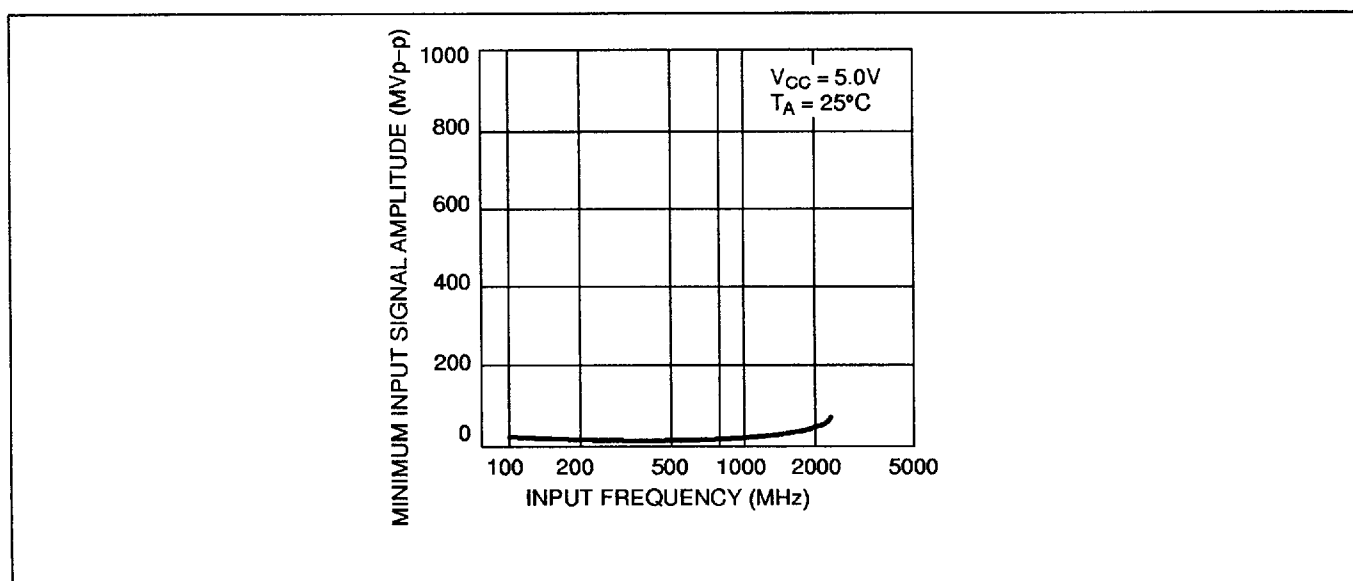
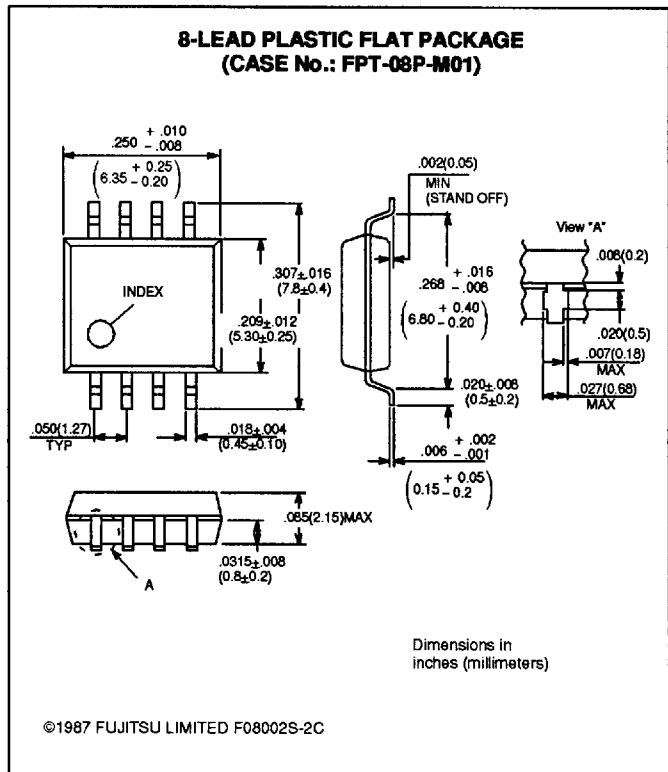
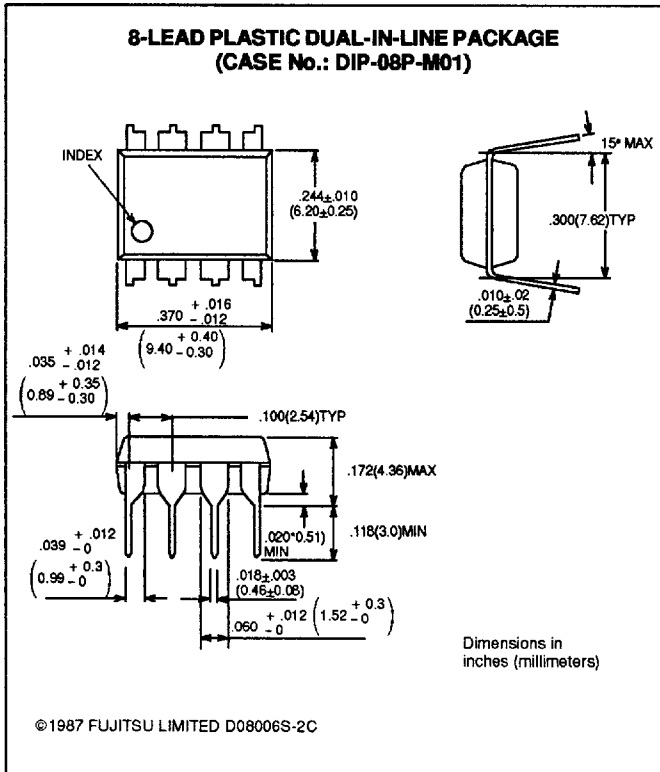


Figure 2. Input Signal Amplitude vs. Input Frequency

**PACKAGE DIMENSIONS**



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