Sept. 1995
Edition 3.0a

FUJITSU

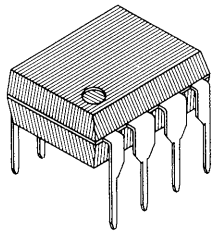
DATA SHEET

MB506

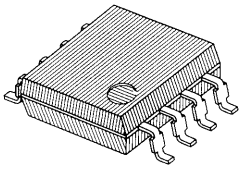
ULTRA HIGH FREQUENCY PRESCALER

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.



PLASTIC PACKAGE
DIP-08P-M01

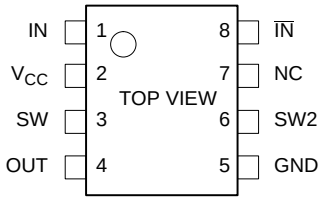


PLASTIC PACKAGE
FPT-08P-M01

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

PIN ASSIGNMENT



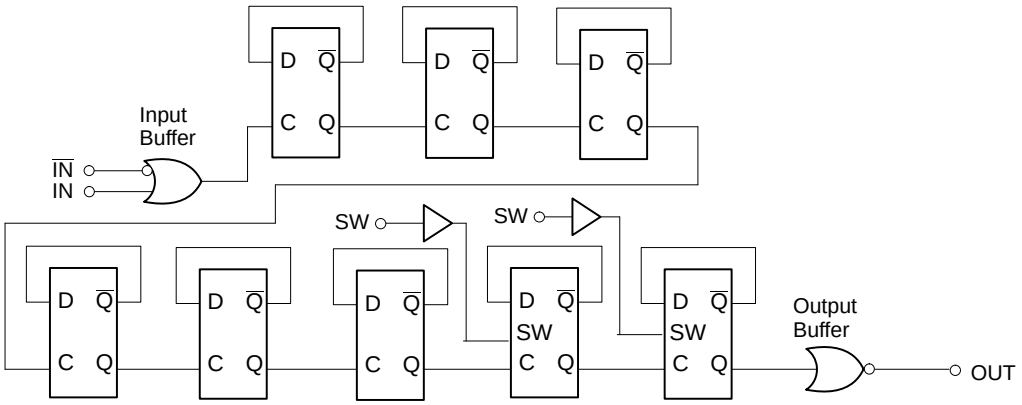
ABSOLUTE MAXIMUM RATINGS (See Note)

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

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.



SW1	SW2	Divide Ratio
H	H	1/64
L	H	1/128
H	L	1/128
L	L	1/256

Note: H = V_{CC}, L = open

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 Curent	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°C to 85°C	100		2200	MHz
			T_A = –40°C to 60°C	100		2400	
Input Signal Amplitude	P_{IN}	f_{IN} = 100MHz to 1.3GHz		–16		5.5	dBm
		f_{IN} = 1.3MHz 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

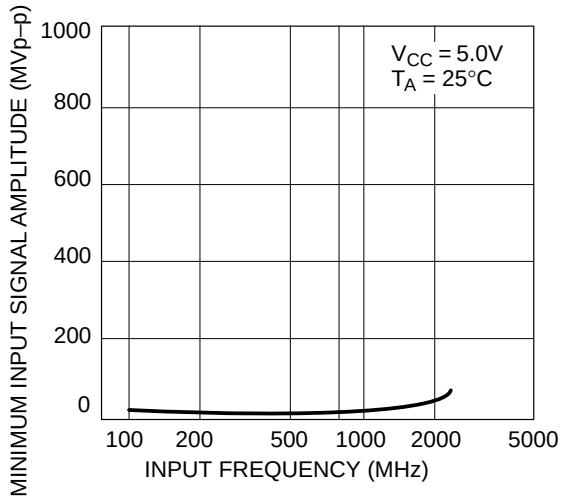
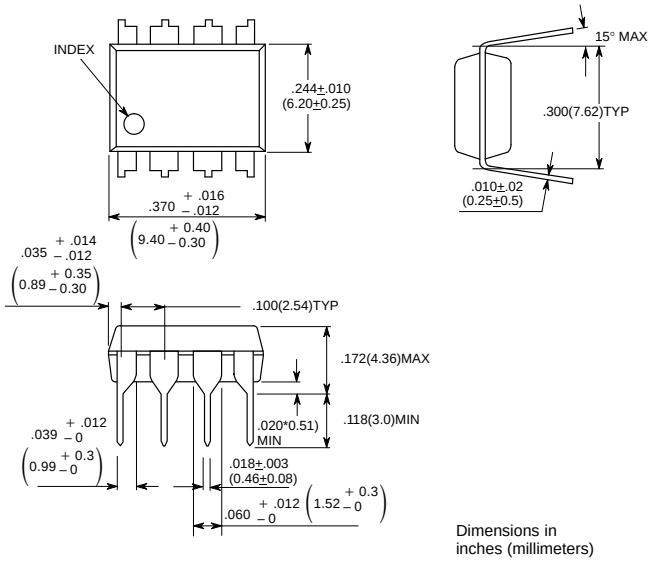


Figure 2. Input Signal Amplitude vs. Input Frequency

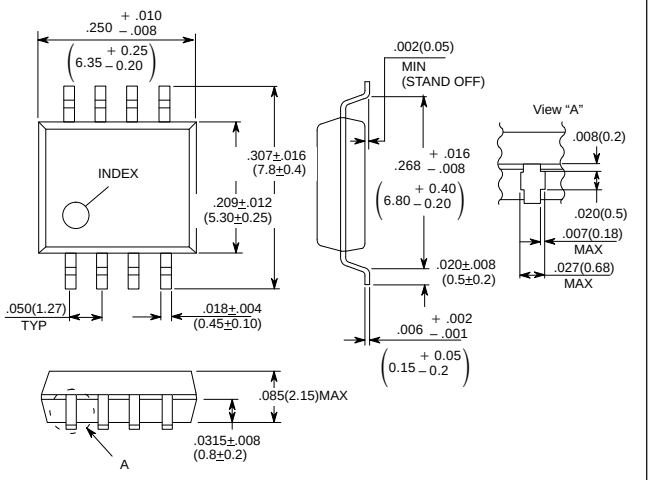
PACKAGE DIMENSIONS

8-LEAD PLASTIC DUAL-IN-LINE PACKAGE
(CASE No.: DIP-08P-M01)



Dimensions in
inches (millimeters)

8-LEAD PLASTIC FLAT PACKAGE
(CASE No.: FPT-08P-M01)



Dimensions in
inches (millimeters)

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