

MB510

2.7GHz TWO MODULUS PRESCALER

2.7GHz TWO MODULUS PRESCALER

The Fujitsu MB510 is an ultra high speed, two modulus prescaler that forms a Phase Locked Loop (PLL) when combined with a frequency synthesizer such as the Fujitsu MB87001A. It divides the input frequency by the modulus of 128/144 or 256/272, and operates at a low power supply current of 10mA at 5.0V.

Through the use of Fujitsu's Advanced Process Technology, the MB510 achieves extremely small stray capacitance from its internal elements.

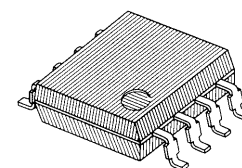
FEATURES

- High Frequency Operation: 2.7GHz max.
- Power Dissipation: 50mW typ.
- Pulse Swallow Function: 128/144, 256/272
- Wide Operation Temperature: -40°C to +85°C
- Stable Output Amplitude: $V_{OUT} = 1.6V_{p-p}$ typ.
- Built-in Termination Resistor
- Complete PLL synthesizer circuit with the Fujitsu MB87001A PLL synthesizer IC
- Package
Standard 8-pin Flat Package (Suffix: -PF)

ABSOLUTE MAXIMUM RATINGS (See Note)

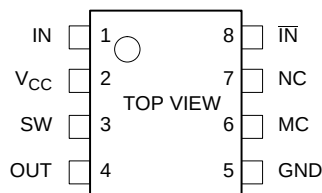
Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	-0.5 to +7.0	V
Input Voltage	V_{IN}	-0.5 to V_{CC}	V
Output Current	I_O	10	mA
Storage Temperature	T_{STG}	-55 to +125	°C

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.



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.

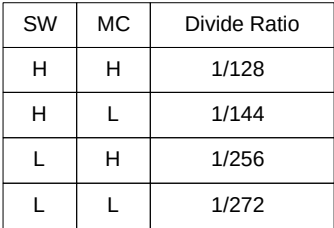


Figure 1. MB510 Block Diagram

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			8	pF

ELECTRICAL CHARACTERISTICS

(Recommended Operating Conditions unless otherwise noted)

Parameter	Symbol	Condition	Value			Unit
			Min.	Typ.	Max.	
Supply Current	I_{CC}			10.0	15.0	mA
Output Amplitude	V_O	Built-in a termination resistor. Load capacitance = 8pF	1.0	1.6		V_{p-p}
Input Frequency	f_{IN}	With input coupling capacitor 1000pF	10		2700	MHz
Input Signal Amplitude	P_{IN}	$f_{IN} = 10$ to 2200MHz	-10		10	dBm
		$f_{IN} = 2200$ to 2700MHz	-4		10	
High Level Input Voltage for MC Input	V_{IHM}		2.0			V
Low Level Input Voltage for MC Input	V_{ILM}				0.8	V
High Level Input Voltage for SW Input	V_{IHS}^*		$V_{CC} - 0.1$	V_{CC}	$V_{CC} + 0.1$	V
Low Level Input Voltage for SW Input	V_{ILS}		Open			V
High Level Input Current for MC Input	I_{IHM}	$V_{IH} = 2.0V$			0.4	mA
Low Level Input Current for MC Input	I_{ILM}	$V_{IL} = 0.8V$	-0.2			mA
Modulus Set-up Time MC to OUT	t_{SET}			16	26	ns

Note: *Design Guarantee

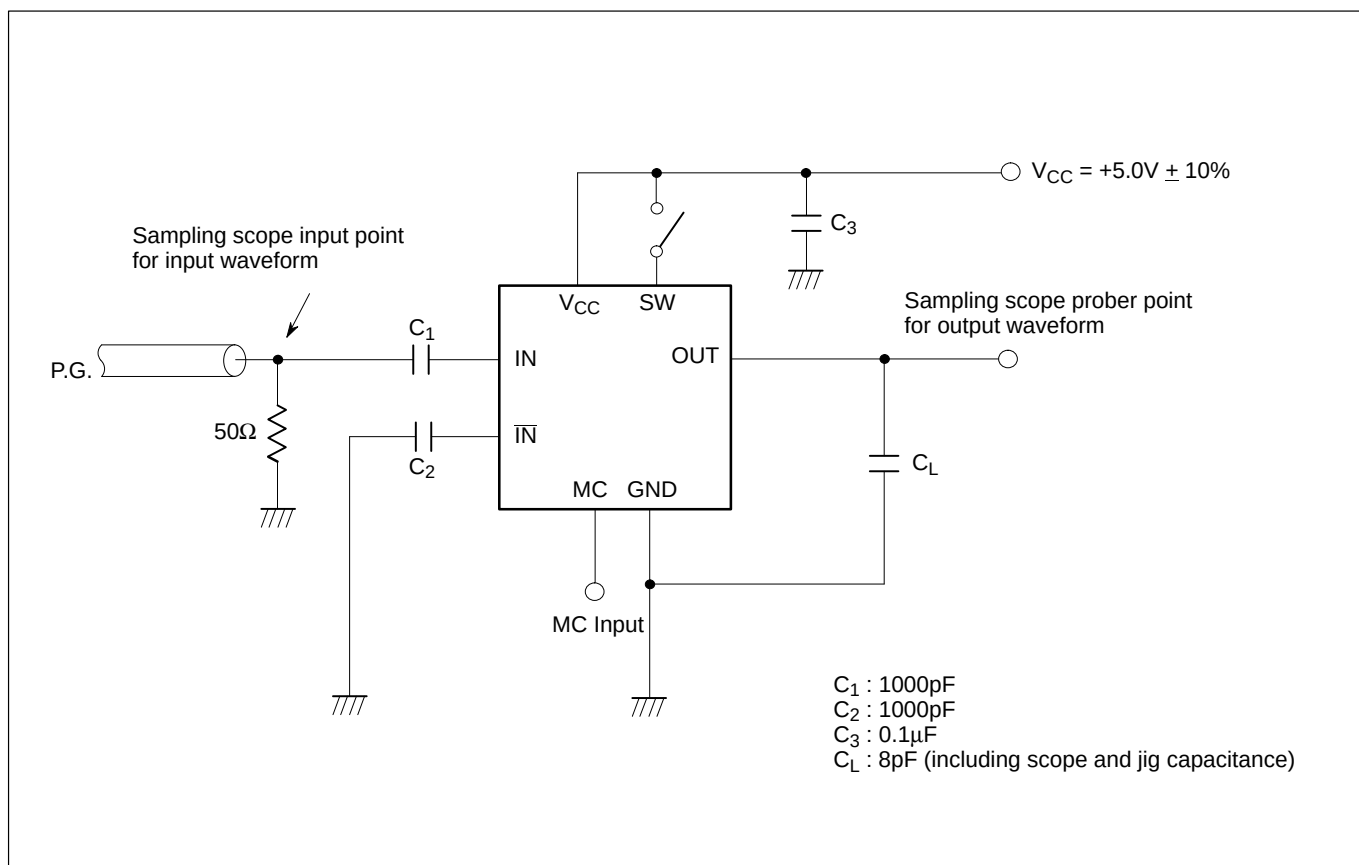


Figure 2. Test Circuit

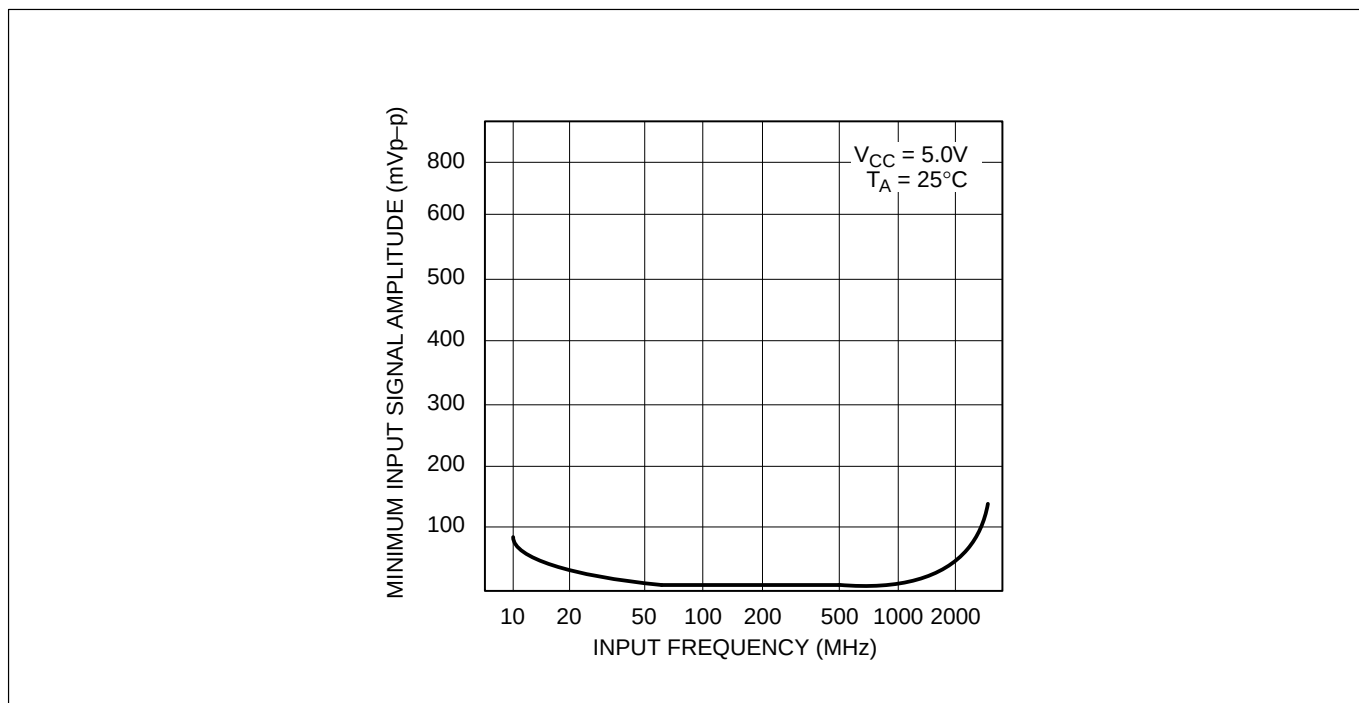


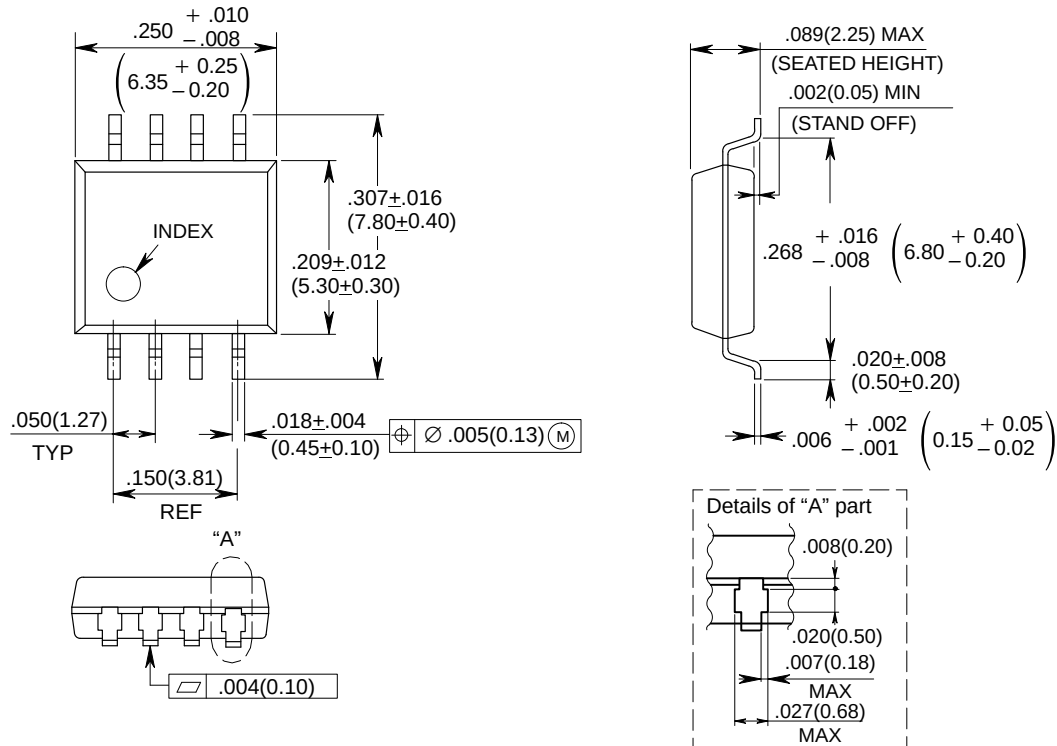
Figure 3. Input Signal Amplitude vs. Input Frequency

5

PACKAGE DIMENSIONS

(Suffix: -PF)

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



© 1988 FUJITSU LIMITED F08002S-3C

Dimensions in
inches (millimeters)

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.

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.