

# MB517

## LOW POWER & LOW VOLTAGE TWO MODULUS PRESCALER

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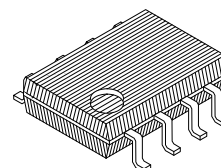
The Fujitsu MB517 is a low power two modulus prescaler used in phase locked loop (PLL) frequency synthesizer and divides the input frequency by the modulus of 64/65 or 128/129, respectively. The MB517 achieves extremely small stray capacitance of internal element, realized through the use of Fujitsu Advanced Process Technology.

As the result, high speed operation is achieved with low power supply current of 3.0mA typ., about sixth value of MB507 (18mA).

### FEATURES

- High frequency operation :  $f_{max} = 2.0\text{GHz}$  max.
- Pulse swallow function : 64/65, 128/129
- Low power supply current : 3.0mA typ. (at  $V_{cc} = 3\text{V}$ )  
MB507 : 18mA typ.
- Stable output amplitude : 1.1Vp-p typ.
- Wide operating temperature :  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Built-in a terminal resistor
- Plastic 8-pin Small-outline package (SOP) (Suffix: -PF)

PRELIMINARY



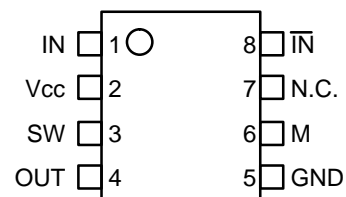
PLASTIC PACKAGE  
FPT-8P-M01

### ABSOLUTE MAXIMUM RATINGS

Ratings	Symbol	Value	Unit
Supply Voltage	$V_{cc}$	$-0.5$ to $+4.0$	V
Input Voltage	$V_{in}$	$-0.5$ to $V_{cc}$	V
Output Current	$I_o$	10	mA
Storage Temperature	$T_{STG}$	$-55$ to $+125$	$^{\circ}\text{C}$

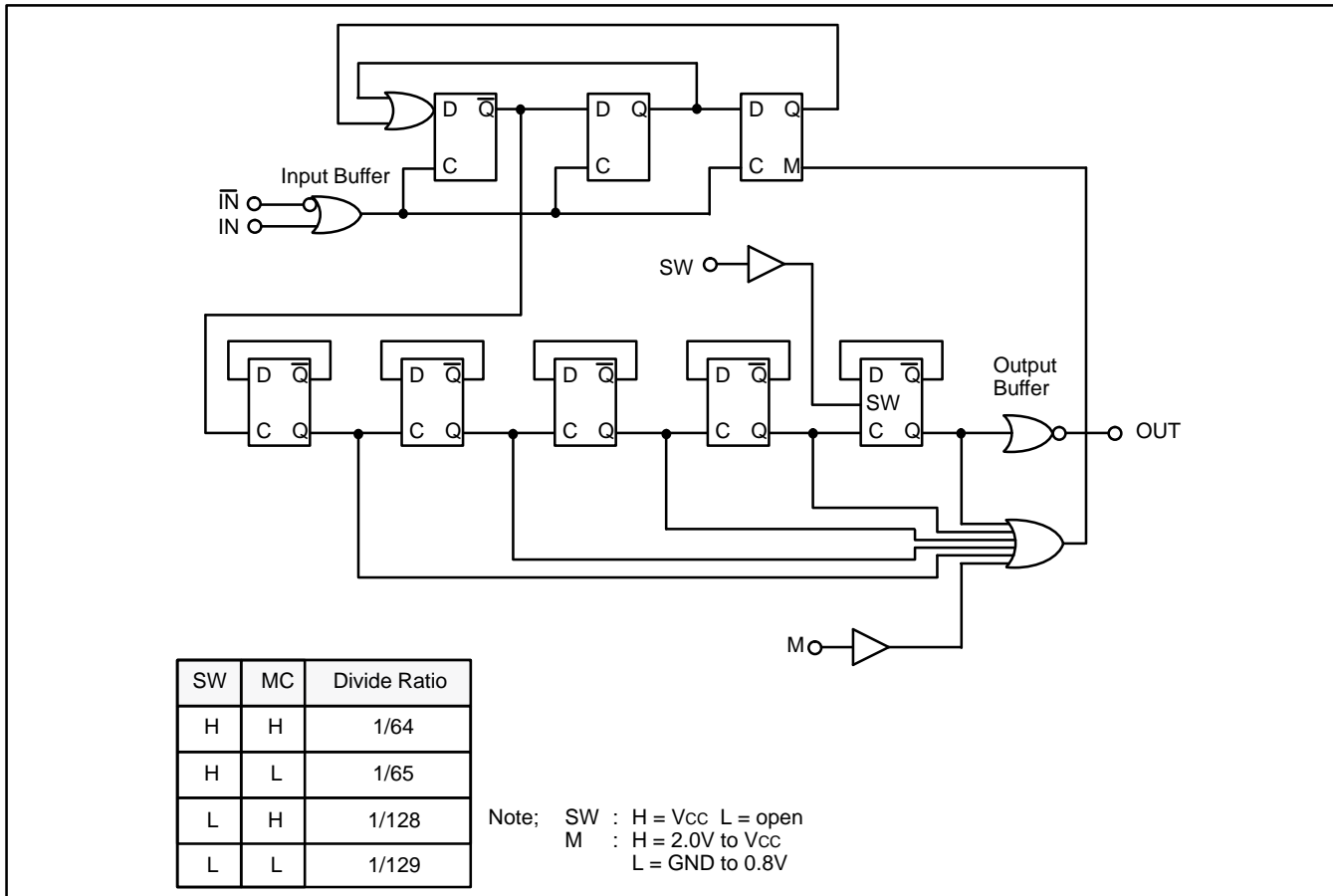
**NOTE:** Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### 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.

## BLOCK DIAGRAM



## PIN DESCRIPTION

Pin No.	Symbol	Function
1	IN	Input
2	V <sub>CC</sub>	Supply Voltage
3	SW	Divide Ratio Switching Input
4	OUT	Output
5	GND	Ground
6	M	Modulus Control Input
7	NC	Non Connection
8	IN <sub>̄</sub>	Complementary Input

## RECOMMENDED OPERATING CONDITIONS

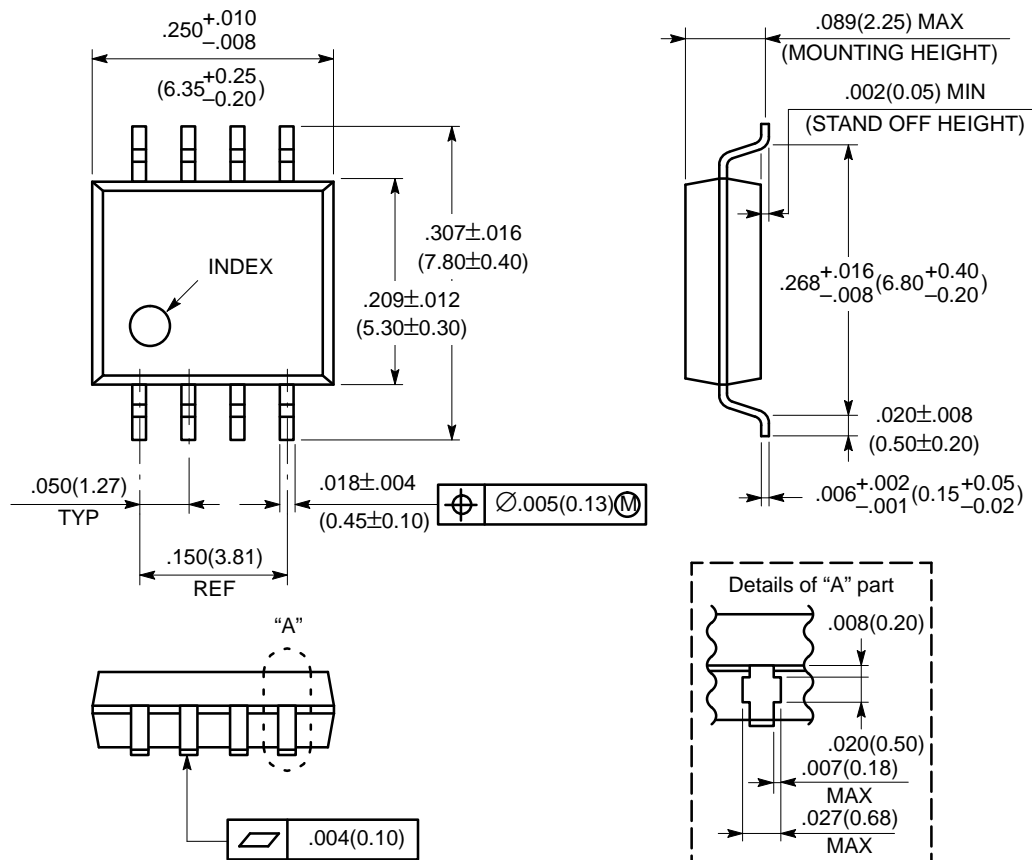
Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Supply Voltage	V <sub>CC</sub>	2.7	3.0	3.3	V
Output current	I <sub>O</sub>			500	μA
Operating Temperature	T <sub>a</sub>	−40		+85	°C

## ELECTRICAL CHARACTERISTICS

Parameter		Symbol	Conditions	Value			Unit
				Min.	Typ.	Max.	
Power Supply Current		I <sub>CC</sub>	V <sub>CC</sub> = 3.0V		3.0		mA
Output Amplitude		V <sub>O</sub>	C <sub>L</sub> ≤ 8pF, built-in R <sub>L</sub>	0.5	1.1		V
Input Frequency		f <sub>IN</sub>				2000	MHz
Input Signal Amplitude		V <sub>IN</sub>		−5		5	dBm
High Level Input Voltage	M Input	V <sub>IHM</sub>	V <sub>IHM</sub> = 1/2 V <sub>CC</sub> + 0.3	V <sub>IHM</sub>			V
Low Level Input Voltage		V <sub>ILM</sub>				0.8	V
High Level Input Voltage	SW Input	V <sub>IHS</sub>		V <sub>CC</sub> −0.1	V <sub>CC</sub>	V <sub>CC</sub>	V
Low Level Input Voltage		V <sub>ILS</sub>		OPEN			V
High Level Input Current	M Input	I <sub>IHM</sub>	V <sub>IH</sub> = 2.0V			30	μA
Low Level Input Current		I <sub>ILM</sub>	V <sub>IL</sub> = 0.8V	−30			μA
Modulus Set-up time		t <sub>SET</sub>			16	26	ns

# PACKAGE DIMENSIONS

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



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Dimensions in  
inches (millimeters)

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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.

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# FUJITSU LIMITED

For further information please contact:

## Japan

FUJITSU LIMITED  
Integrated Circuits and Semiconductor Marketing  
Furukawa Sogo Bldg., 6-1, Marunouchi 2-chome  
Chiyoda-ku, Tokyo 100, Japan  
Tel: (03) 3216-3211  
Telex: 781-2224361  
FAX: (03) 3216-9771

## 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

## Europe

FUJITSU MIKROELEKTRONIK GmbH  
Am Siebenstein 6-10  
6072 Dreieich-Buchschlag  
Germany  
Tel: (06103)690-0  
Telex: 411963 fmg d  
FAX: (06103)690-122

## Asia

FUJITSU MICROELECTRONICS ASIA PTE LIMITED  
No. 51 Bras Basah Road  
Plaza By The Park, #06-04/07  
Singapore 0718  
Tel: 336-1600  
Telex: 55573  
FAX: 336-1609