1.1GHz 2 Modulus Prescaler for Cellular Equipment Preliminary

Description

The CXA1541M is a 1.1GHz 2 modulus prescaler developed for cellular equipment use. A low current consumption of 3.7mA and small package makes it most suitable for lowering power consumption and increasing the compactness of equipments.

Features

- Ultra-low power consumption (3.7mA at V_{CC}=5.0V)
- Rated maximum operating frequency provided at 1.1GHz
- Selection of 64/65 and 128/129 frequency dividers

Applications

1 GHz band radio communications of cellular equipment

Structure

Bipolar silicon monolithic IC

8pin SOP (Plastic)

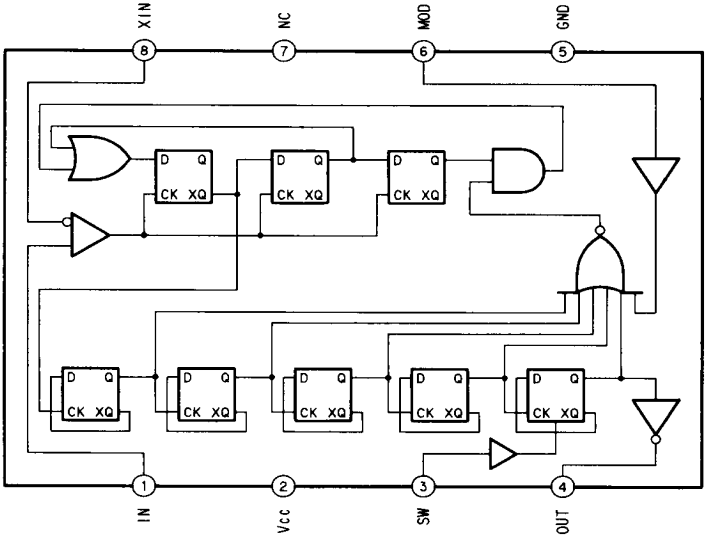
Absolute Maximum Ratings

• Supply voltage	V_{CC}	7.0	V
• Operating temperature	T_{okm}	−35 to +85	°C
• Storage temperature	T_{stg}	−65 to +150	°C
• Allowable power dissipation	P_D	300	mW

Operating Conditions

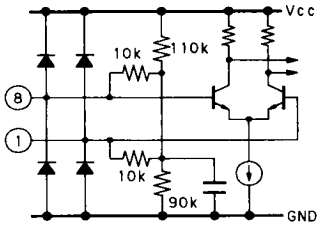
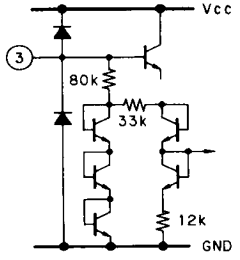
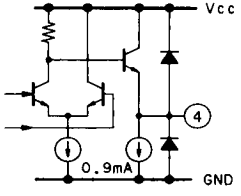
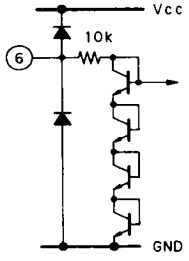
• Supply voltage	V_{CC}	4.5 to 5.5	V

Block Diagram and Pin Configuration



PE91X08-HP

Pin Description

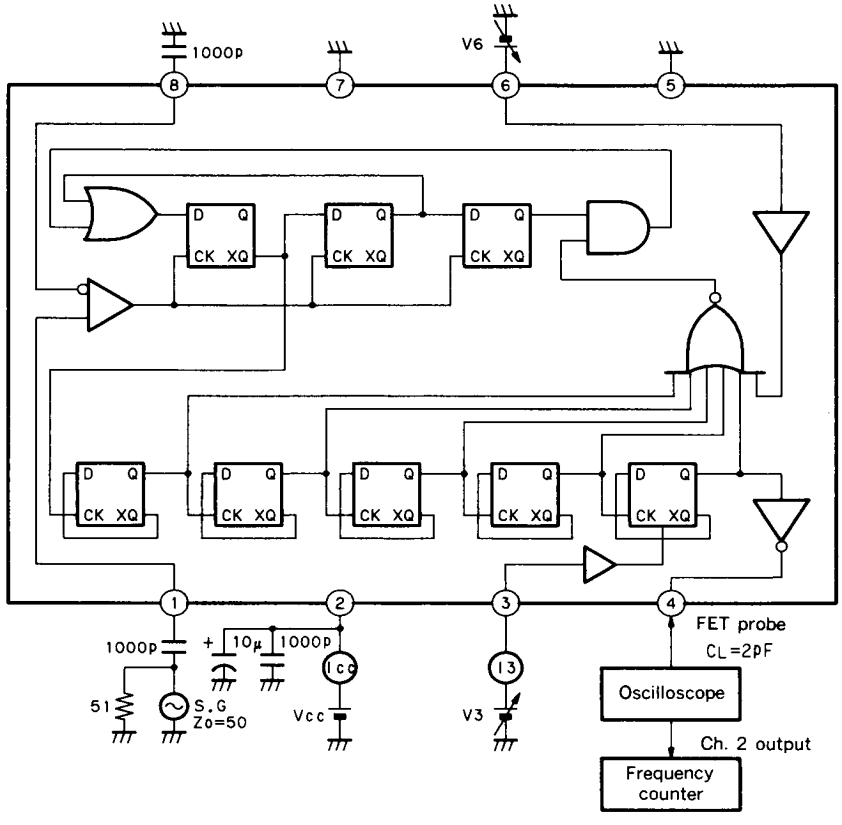
Pin No.	Symbol	Reference pin voltage (DC)	Equivalent circuit	Description
1	IN	2.2V		Input for signal frequency to be demultiplied. Differential input is used as indicated by equivalent circuit. For single ended input, connect a capacitor to one of the input pins.
8	XIN	2.2V		
2	V_{CC}	5.0V		V_{CC}
3	SW	(Open "L")		Switchover for the frequency demultiplied value (Refer to the Description of Operation)
4	OUT	3.6V		Output for frequency demultiplied signal
5	GND	0V		GND
6	MOD	(Open "L")		Switchover for the divider value (Refer to the Description of Operation)
7	NC	—		No connection

Electrical Characteristics

(Refer to Electrical Characteristics Test Circuit, V_{CC}=4.5V to 5.5V, Ta=-35°C to 85°C)

No.	Item		Symbol	Test condition	Test point	Min.	Typ.	Max.	Unit
1	Supply current		I_{CC}	fin=1.1GHz Pin=−10dBm MOD, SW="H"	I_{CC}		3.7	5.5	mA
2	Output amplitude		V_{OUT}	fin=1.1GHz Pin=−10dBm	4pin		1.5		V
3	Maximum operating frequency		f_{max}	Pin=−10dBm	4pin	1.1			GHz
4	"High" level voltage	MOD input	V_{IH}		6pin	2.5			V
	"Low" level voltage		V_{IL}		6pin			0.8	V
5	"High" level voltage	SW input	V_{IH}		3pin	V_{CC}−0.1	V_{CC}	V_{CC}+0.1	V
	"Low" level voltage		V_{IL}		3pin	−0.1	0	+0.1	V
6	"High" level current	MOD input	I_{IH}	$V_{IH}=V_{CC}$	I 6			0.5	mA
	"Low" level current		I_{IL}	V_{IL}=0V	I 6	−0.01			mA
7	"High" level current	SW input	I_{IH}	$V_{IH}=V_{CC}$	I 3			0.2	mA
	"Low" level current		I_{IL}	V_{IL}=0V	I 3	−0.01			mA

Electrical Characteristics Test Circuit

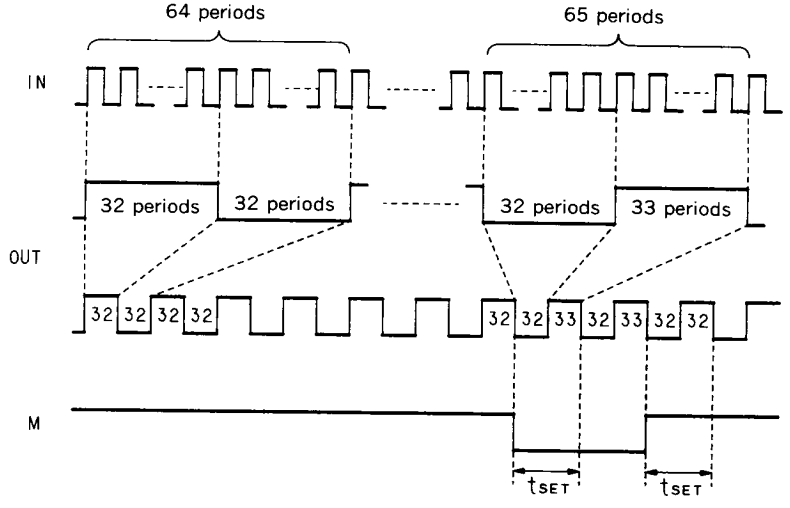


Description of Operation

The table below gives the divider value settings.

SW	MOD	Divider
H	H	64
	L	65
L	H	128
	L	129

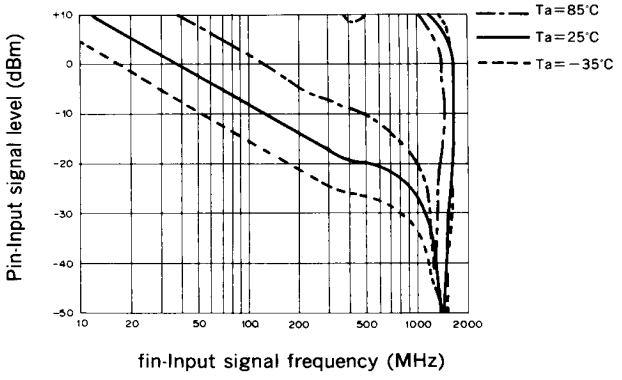
Timing Chart (For 2 modulus, 64/65 divider)



- When an extra cycle (65th cycle) occurs, the input signal is increased by one at the "High" to "Low" falling edge of the 1 st period.

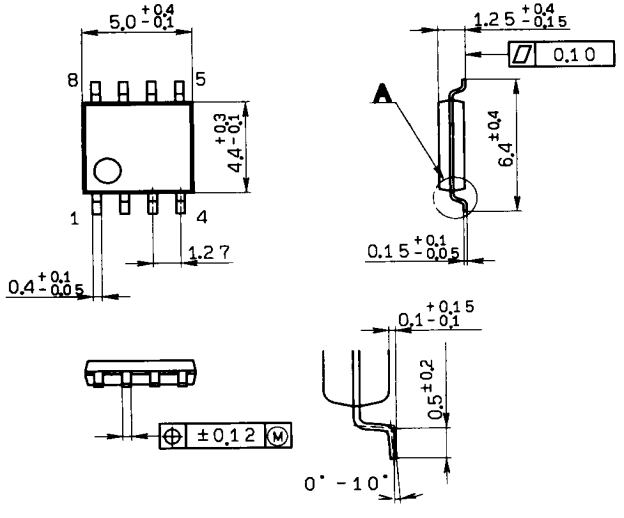
Characteristics Graph

Input Signal Level vs. Operating Frequency Characteristics Vcc=5V



Package Outline Unit : mm

8pin SOP (Plastic) 225mil



Detailed diagram of A

SONY NAME	SOP-8P-L03
EIAJ NAME	*SOP008-P-0225-A
JEDEC CODE	———