

Programmable Clock Oscillator

SG - 8002JF series (-40 to +85 °C)

- Using PLL technology and One Time PROM programmability for quick-turn custom version.
- Reflowable and high density mounting type SMD package.
- Operable 3.3 V or 5.0 V and Out put frequencies from 1.0 MHz to 40 MHz at 5.0 V (up to 125 MHz at 3.3 V).
- Output enable (OE : P type) or Standby (ST : S type) function allow more low current consumption.

Specifications

1. Absolute Maximum Ratings

Item	Symbol	PH / SH	PT / ST	PC / SC	Remarks
Storage Temperature	TSTG	- 55 to +125 °C			Stored as bare product
Maximum supply voltage	VDD	- 0.5 to 7.0 V			
Maximum input voltage	VIN	- 0.5 to VDD+0.5 V			
Soldering condition	TSOL	Twice at under +260 °C within 10 s or under +230 °C within 3 min.			

2. Operating Conditions

Item	Symbol	PH / SH	PT / ST	PC / SC	Remarks
Operating Temperature	TOPR	-40 to +85 °C			≤ 40 MHz (CL=15 pF)
			-40 to +85 °C		≤ 40 MHz (CL=15 pF)
				-40 to +85 °C	≤ 66.7 MHz (3.0 V CL=15 pF) ≤ 125 MHz (3.3 V CL=15 pF) ≤ 40 MHz (3.3 V CL=30 pF)
Operating voltage	VDD	4.5 to 5.5 V		2.7 to 3.6 V	
Input voltage	VIN	GND ~ VDD			
Output load condition	CL	15 pF			(≤ 40 MHz)
			15 pF		(≤ 40 MHz)
				15 pF 15 pF 30 pF	(≤ 66.7 MHz / 3.0 V) (≤ 125 MHz / 3.3 V) (≤ 40 MHz / 3.3 V)

3. Frequency Characteristics

Item	Symbol	PH / SH	PT / ST	PC / SC	Remarks
Output frequency range *	f _o	1.0 to 40 MHz		1.0 to 125 MHz 1.0 to 66.7 MHz	VDD=4.5 to 5.5 V VDD=3.0 to 3.6 V VDD=2.7 to 3.6 V
Frequency stability	f / f _o	B : +/- 50 × 10 ⁻⁶ C : +/- 100 × 10 ⁻⁶ M : +/- 100 × 10 ⁻⁶			-20 to +70 °C -20 to +70 °C -40 to +85 °C
Aging	f _a	+/- 5 × 10 ⁻⁶ Max.			

* Note :

Please contact to EPSON about Standard frequency.

4. Characteristics

Item		Symbol	PH / SH	PT / ST	PC / SC	Remarks
Current consumption		IOP	45 mA Max.		28 mA Max.	
Disable current		IOE	30 mA Max.		16 mA Max.	P type only
Standby current		IST	50 μ A Max.			S type only
OE or ST input voltage		V _{IH}	2.0 V		70 %V _{DD}	
		V _{IL}	0.8 V		20 %V _{DD}	
OE or ST input current		I _{IH}	5.0 μ A Max.			OE or ST = V _{DD}
		I _{IL}	10.0 μ A Max.			OE or ST = GND
Duty		t _w / t	45 to 55%			50 % V _{DD} , C _L =15 pF ($\leq$ 40 MHz)
				45 to 55%		1.4 V, C _L =15 pF ($\leq$ 40 MHz)
					45 to 55%	50 % V _{DD} , C _L =30 pF V _{DD} =3.0 to 3.6 V ($\leq$ 40 MHz)
					40 to 60%	50 % V _{DD} , C _L =15 pF V _{DD} =3.0 to 3.6 V ($\leq$ 125 MHz)
Output voltage		C-MOS TTL	V _{OH}	V _{DD} -0.4		I _{OH} =-16 mA I _{OH} = -8 mA
			V _{OL}	0.4 V		I _{OL} =16 mA I _{OL} = 8 mA
Output rise time		C-MOS	t _r	4.0 ns	4.0 ns 3.0 ns	20 % to 80 % V _{DD} C _L =30 pF 20 % to 80 % V _{DD} C _L =15 pF
		TTL			2.0 ns 4.0 ns	0.8 V to 2.0 V C _L =Max. 0.4 V to 2.4 V C _L =Max.
Output fall time		C-MOS	t _f	4.0 ns	4.0 ns 3.0 ns	80 % to 20 % V _{DD} C _L =30 pF 80 % to 20 % V _{DD} C _L =15 pF
		TTL			2.0 ns 4.0 ns	2.0 V to 0.8 V C _L =Max. 2.4 V to 0.4 V C _L =Max.
Oscillation start up time		tosc	10 ms Max.			

** Note :

Output wave form is not compatible with C-MOS level and TTL level.

Programmable wave form only for C-MOS level or TTL level.

5. External Dimensions

(Unit : mm)

