Crystal Oscillator (XO)

SG - 730CA

Preliminary

- Reflowable and high density mounting type SMD.(5×7 mm)
- Using the heat-resisting type AT cut quartz crystal.
  allows almost the same temperature soldering as universal SMD IC.
- Using C-MOS IC allows low current consumption.
- Operating supply voltage : 3.3 V or 5V.
- Output enable function can be used for low current consumption applications.

■ Specifications

1. Absolute Maximum Ratings

Item	Symbol	C (3.3 V)	H (5.0 V)	Condition
Supply voltage	V_{DD}	-0.5 V to 7.0 V		V_{DD}-GND
Input voltage	V_{IN}	-0.5 V to V_{DD}+0.3 V		OE or ST
Storage temperature	T_{STG}	-40 °C to +125 °C		
Soldering condition	T_{SOL}	Under +240°C within 10 s x 2 times		

2. . Operating Condition

Item	Symbol	C	H	Condition
Supply voltage	V_{DD}	3.3 V ~ 3.6 V	4.5 V ~ 5.5 V	V_{DD}-GND
Operating temperature	T_{OPT}	-40 °C to +85 °C		
Output load	CL	15 pF Max.		C-MOS level

3. Frequency Characteristics

Item	Symbol	C	H	Condition	
Output Frequency	f_o	1.5MHz ~ 80.0MHz	1.5MHz ~ 67.0MHz		
Frequency stability[$\times 10^{-6}$]	$\Delta f/f_o$	±25 Max.		S	-20 °C to +70 °C
		±50 Max.		B	
		±100 Max.		C	
		±50 Max.		L	-40 °C to +85 °C
		±100 Max.		M	
Aging[$\times 10^{-6}$]	f_A	±10 Max.		Ta=+25 °C, 10 year	

Note : Frequency stability is including calibration tolerance, reflow soldering drift,
operating temperature range (T_{OPT}), operating voltage range and load change (CL).

4. Electrical Characteristic

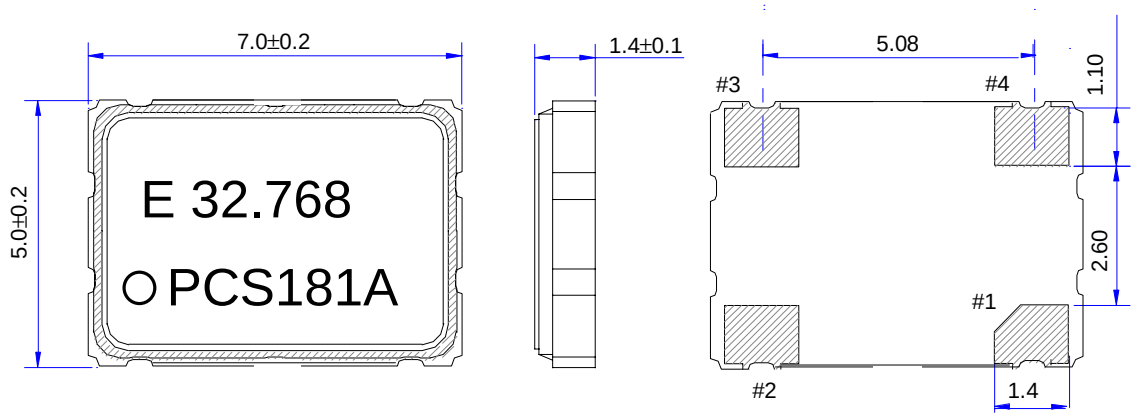
Item	Symbol	C	H	Condition
Supply current	I_{DD}	7mA Max.	12 mA Max.	No load, $f_o \leq 32$ MHz
		20 mA Max.	45 mA Max.	No load, 32 M < $f_o \leq$ 67 MHz
		40 mA Max.	-	No load, 67 M < f_o
Output disable current	I_{OE}	10 mA Max.	30 mA Max.	OE=GND, f_o =67 MHz
	I_{ST}	15 µA Max.	-	ST=GND, 67 M < f_o
Start-up time	t_{OSC}	10 ms Max.		90 % V_{DD} to be 0 s

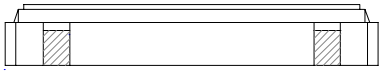
5. Output Characteristics

Item	Symbol	C	H	Condition
OE input voltage	V_{IH}	70 % V_{DD} Min.		OE termination
	V_{IL}	30 % V_{DD} Max.		
Duty	t_W/t	45 % ~ 55 %		1/2VDD level
High output voltage	V_{OH}	2.2 V Min.		VDD=2.7 V,I_{OH}=-8 mA
Low output voltage	V_{OL}	0.4 V Max.		VDD=2.7 V,I_{OL}=8 mA
Output rise time	t_{TLH}	4.0 ns Max.		20 % - 80 % V_{DD}
Output fall time	t_{THL}	4.0 ns Max.		80 % - 20 % V_{DD}

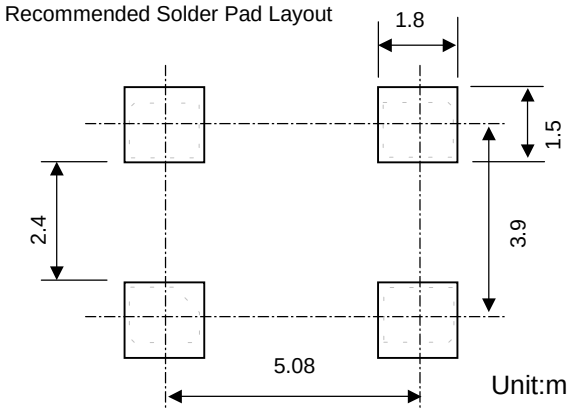
Note We recommend placing a 0.1µF capacitor between VDD and GND to obtain stable operation and protect against power line ripple.

■ External Dimensions





No.	Pin terminal
#1	OE or ST
#2	GND
#3	OUT
#4	V_{DD}



■ Numbering Information

E 32.768 1.Symbol 2.Output Frequency (MHz)
1 2

PCS 181A 3.Design Code 4.Product number
3 4

Design Code

Code	Frequency stabirity	Operating temperae
*CS / *HS	±25×10^{-6}	-20 °C ~ +70 °C
*CB / *HB	±50×10^{-6}	-20 °C ~ +70 °C
*CC / *HC	±100×10^{-6}	-20 °C ~ +70 °C
*CL / *HL	±50×10^{-6}	-40 °C ~ +85 °C
*CM / *HM	±100×10^{-6}	-40 °C ~ +85 °C

*C- (3.3 V), *H- (5.0V)

*; P or S P:3.3V and 5.0V / 1.5 MHz ~ 67 MHz S: 3.3V / 67 MHz ~ 80 MHz

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