



CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS

SG2016 / 3225 / 5032 / 7050CAN
SG-210STF

Product Number

SG2016CAN: X1G004801xxxx00
 SG-210STF: X1G004171xxxx00
 SG3225CAN: X1G005961xxxx15
 SG5032CAN: X1G004451xxxx00
 SG7050CAN: X1G004481xxxx00

- Frequency range : 1.2 MHz to 75 MHz (SG2016CAN)
1 MHz to 75 MHz (other than the above)
- Supply voltage : 1.8 V to 3.3 V Typ.
- Function : Standby (\overline{ST})
- Operating temperature : -40 °C to +105 °C



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks		
Output frequency range	fo	1.2 MHz to 75 MHz	SG2016CAN		
		1 MHz to 75 MHz	All others		
Supply voltage	Vcc	1.60 V to 3.63 V	1 MHz ≤ fo ≤ 60 MHz, T _{use} = +105 °C Max.		
		1.71 V to 3.63 V	60 MHz < fo ≤ 75 MHz, T _{use} = +85 °C Max.		
		2.25 V to 3.63 V	60 MHz < fo ≤ 75 MHz, T _{use} = +105 °C Max.		
Storage temperature	T _{stg}	-55 °C to +125 °C	SG2016CAN		
		-40 °C to +125 °C	All others		
Operating temperature	T _{use}	-20 °C to +70 °C, -40 °C to +85 °C, -40 °C to +105 °C	See of figure *1		
Frequency tolerance	f _{tol}	±25 × 10 ⁻⁶ , ±50 × 10 ⁻⁶	-20 °C to +70 °C		
		±50 × 10 ⁻⁶	-40 °C to +85 °C		
		±50 × 10 ⁻⁶ , ±100 × 10 ⁻⁶	-40 °C to +105 °C		
Current consumption	I _{cc}	V _{cc} = 1.8 V ± 10 %	V _{cc} = 2.5 V ± 10 %	V _{cc} = 3.3 V ± 10 %	
		1.5 mA Max.	1.6 mA Max.	1.8 mA Max.	No load condition, 1 MHz ≤ fo ≤ 20 MHz
		1.8 mA Max.	2.0 mA Max.	2.2 mA Max.	No load condition, 20 MHz < fo ≤ 40 MHz
		2.1 mA Max.	2.4 mA Max.	2.6 mA Max.	No load condition, 40 MHz < fo ≤ 60 MHz
		2.4 mA Max.	2.8 mA Max.	3.0 mA Max.	No load condition, 60 MHz < fo ≤ 75 MHz
Stand-by current	I _{std}	2.1 μA Max.	2.5 μA Max.	2.7 μA Max.	\overline{ST} = GND
Symmetry	SYM	45 % to 55 %	50 % V _{cc} level, L _{CMOS} ≤ 15 pF		
Output voltage	V _{OH}	90 % V _{cc} Min.			
	V _{OL}	10 % V _{cc} Max.			
	V _{OH}	V _{cc} - 0.4 V Min.			
	V _{OL}	0.4 V Max.			
Output load condition (CMOS)	L _{CMOS}	15 pF Max.			
Input voltage	V _{IH}	80 % V _{cc} Min.			
	V _{IL}	20 % V _{cc} Max.	\overline{ST} terminal		
Rise time and Fall time	t _r / t _f	3 ns Max. 3.5 ns Max. (@1.8 V ± 10 %)	20 % V _{cc} to 80 % V _{cc} level, L _{CMOS} = 15 pF		
Start-up time	t _{str}	3 ms Max.	t = 0 at 90 % V _{cc}		
Frequency aging	f _{age}	±3 × 10 ⁻⁶ / year Max.	+25 °C, First year		

[Model : SG2016 / 3225 / 5032 / 7050CAN]

Product name SG2016CAN25.000000MHzTJHA

(Standard form) ① ② ③ ④⑤⑥⑦

①Model ②Output(C: CMOS) ③Frequency ④Supply voltage

⑤Frequency tolerance ⑥Operating temperature range

⑦Internal identification code("A" is default)

④Supply voltage *See Figure 1	
T	1.8 V to 3.3 V Typ.
K	2.5 V to 3.3 V Typ.

⑤Frequency tolerance / ⑥Operating temperature range	
DB	±25 × 10 ⁻⁶ / -20 °C to +70 °C
JH	±50 × 10 ⁻⁶ / -40 °C to +105 °C
JG	±50 × 10 ⁻⁶ / -40 °C to +85 °C * only for 60 MHz < fo ≤ 75 MHz

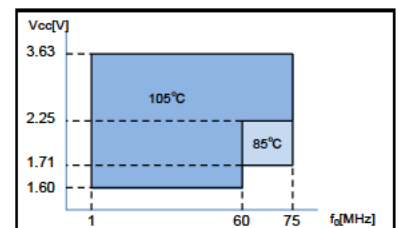


Figure 1 : The upper limit of Operating temperature and the related conditions

Please note that Supply voltage range (V_{cc}) depends on Output frequency (fo) and upper limit of Operating temperature (T_{use} Max.).

[Model : SG-210STF]

Product name SG-210STF25.000000MHzY

(Standard form) ① ②③ ④ ⑤

①Model ②Function(S: Standby) ③Supply voltage

④Frequency ⑤Frequency tolerance

③Supply voltage *See Figure 1	
T	1.8 V to 3.3 V Typ.

⑤Frequency tolerance	
S	±25 × 10 ⁻⁶ / -20 °C to +70 °C
Y	±50 × 10 ⁻⁶ / -40 °C to +105 °C
L	±50 × 10 ⁻⁶ / -40 °C to +85 °C * only for 60 MHz < fo ≤ 75 MHz



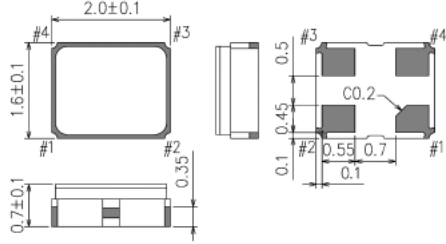
External dimensions

(Unit:mm)

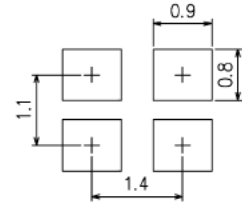
Footprint (Recommended)

(Unit:mm)

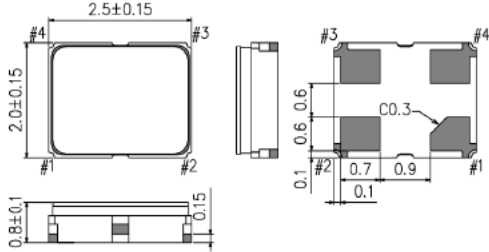
SG2016CAN



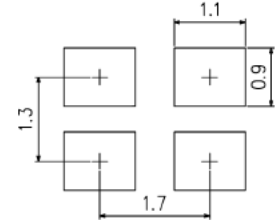
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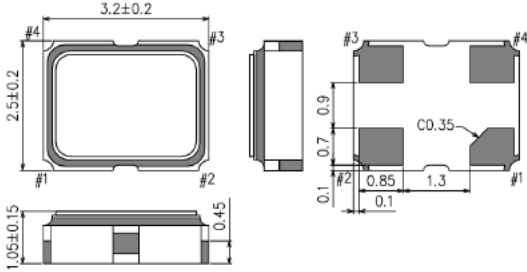
SG-210STF



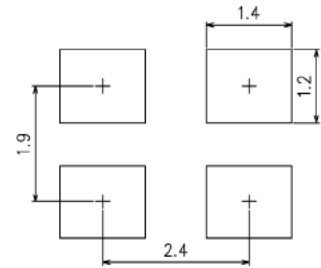
SG-210STF



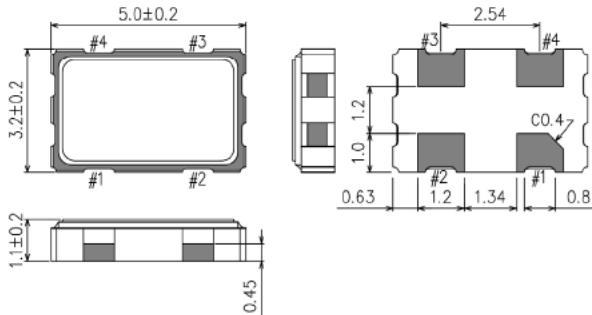
SG3225CAN



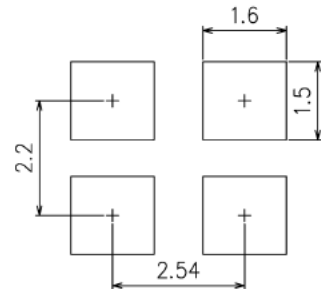
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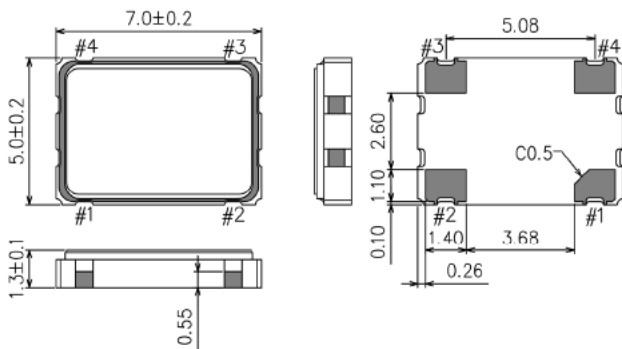
SG5032CAN



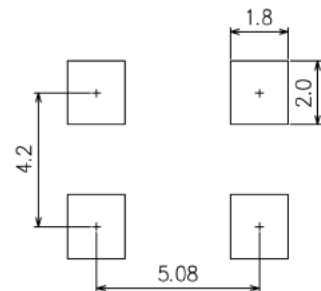
SG5032CAN



SG7050CAN



SG7050CAN



Pin Map

Pin	Connection	Function		
		ST terminal	Oscillator circuit	Output
1	ST	ST function	Oscillation	Specified frequency: Enable
		HIGH or "open"	Oscillation stop	High impedance: Disable
		LOW		
2	GND	Ground		
3	OUT	Clock output		
4	V _{CC}	Power supply		

Notes: To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

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