FLYiNG 汎翊國際有限公司
www.flying1688.com

CRYSTAL UNITS SPECIFICATION

Product Type	:	HC - 49US / SMD
Model	:	24.000MHz
Description	:	SMD/49US/24.000MHz/20pF/30ppm
SKC P/N	:	F49SM24000M20
SPEC No.	:	1 – 220518 – F49SM24000M20

DATE	:	18-May-22
Designer	:	
Checked By	:	
Approved By	:	

REVISION HISTORY

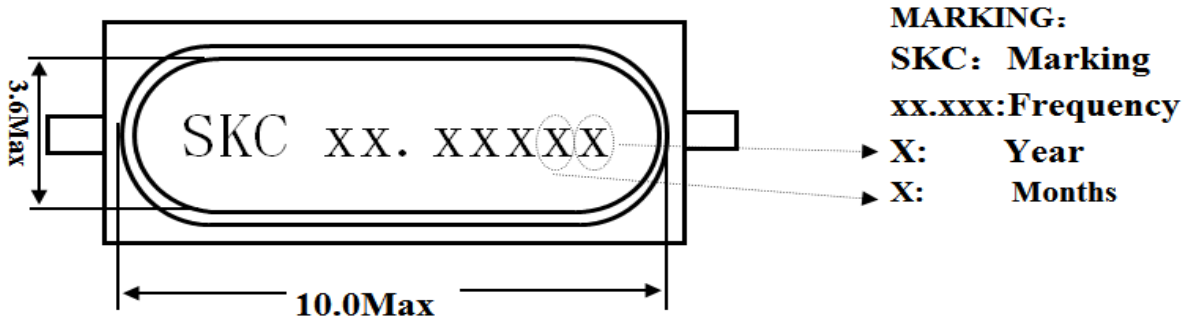
Rev	Revise Page	Revise Contents	Date	Ref. No.	Reviser
A	N/A	Initial Release	18-May-22	N/A	Aaron Lee

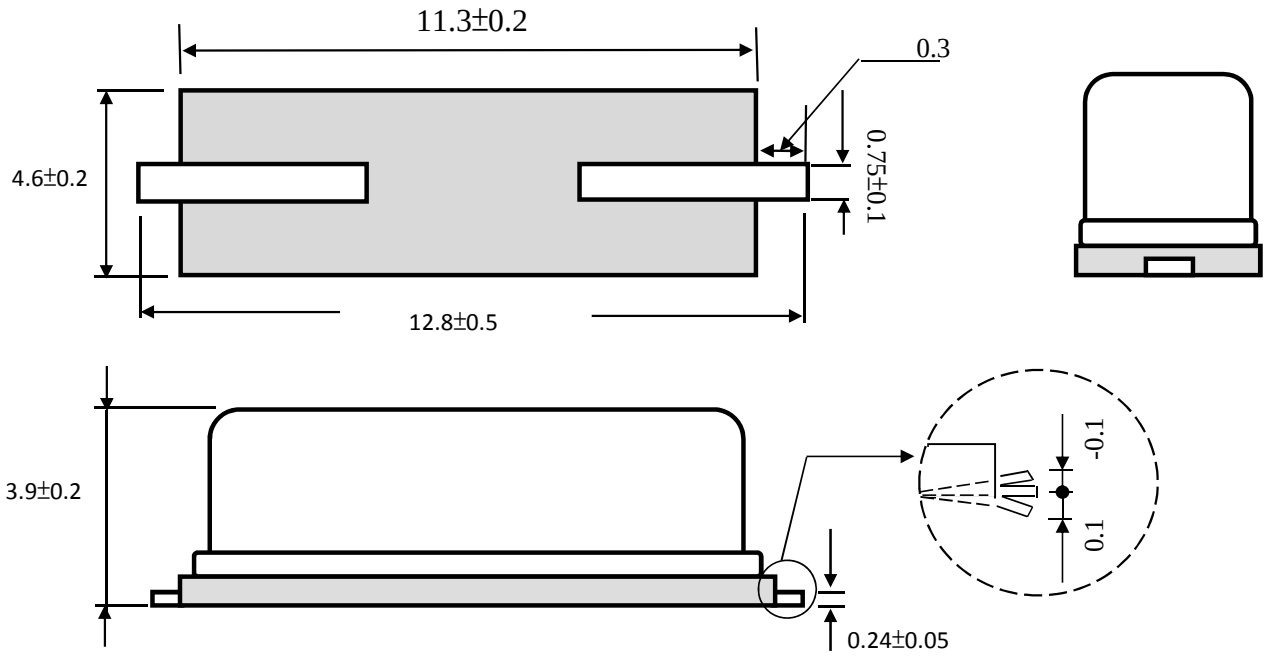
■ ELECTRICAL CHARACTERISTICS

1	Holder type		HC - 49US / SMD
2	Oscillation mode		■ Fundamental □ 3rd Overtone □ 5th Overtone
3	Crystal cutting type		AT CUT
4	Nominal frequency	F_L	24.000MHz
5	Frequency stability	Tol	± 30 ppm (ref at 25℃)
6	Operating temperature range	T_{OPR}	-20℃ to +70℃
7	Storage temperature range		-40℃ to +85℃
8	Temperature characteristic		± 30 ppm in item 6
9	Load capacitance	C_L	20 PF ± 0.2PF
10	Equivalent series resistance	ESR	35 Ohms max.
11	Drive level	D_L	100 uW
12	Shunt capacitance	C_0	5.0 PF max.
13	Aging rate per year		Less than ±5ppm / year
14	Insulation resistance		500M Ohms min. at DC 100V ± 10V
15	Test circuit		Measured in S&A 250B / 350B
16	Marking		SKC

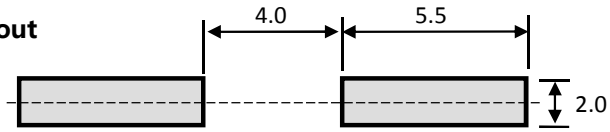
■ DIMENSIONS

(Unit:mm)





■ Suggested Layout

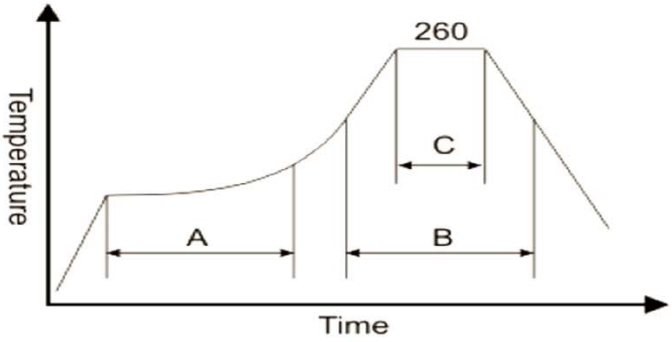


■ Date Code

YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
CODE	1	2	3	4	5	6	7	8	9	0	
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
CODE	A	B	C	D	E	F	G	H	K	L	M	N

*This date code will be cycled every ten years.

■ SUGGESTED REFLOW PROFILE

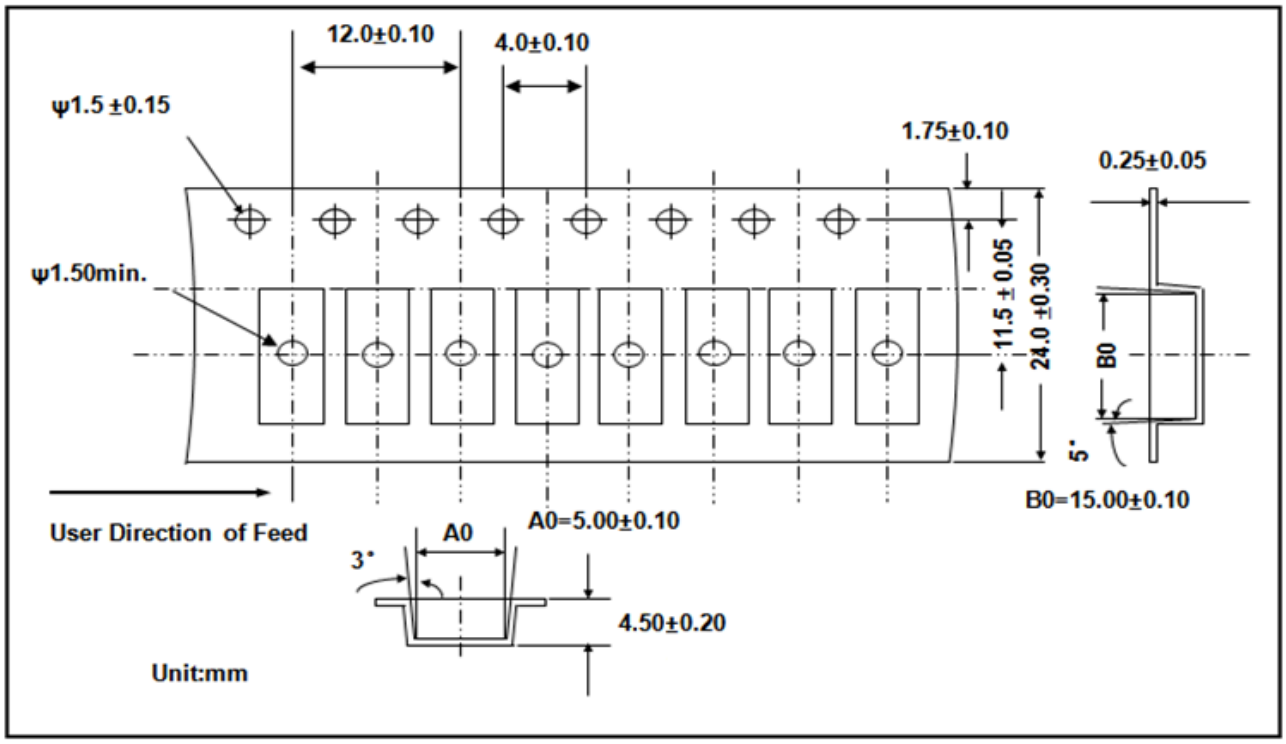


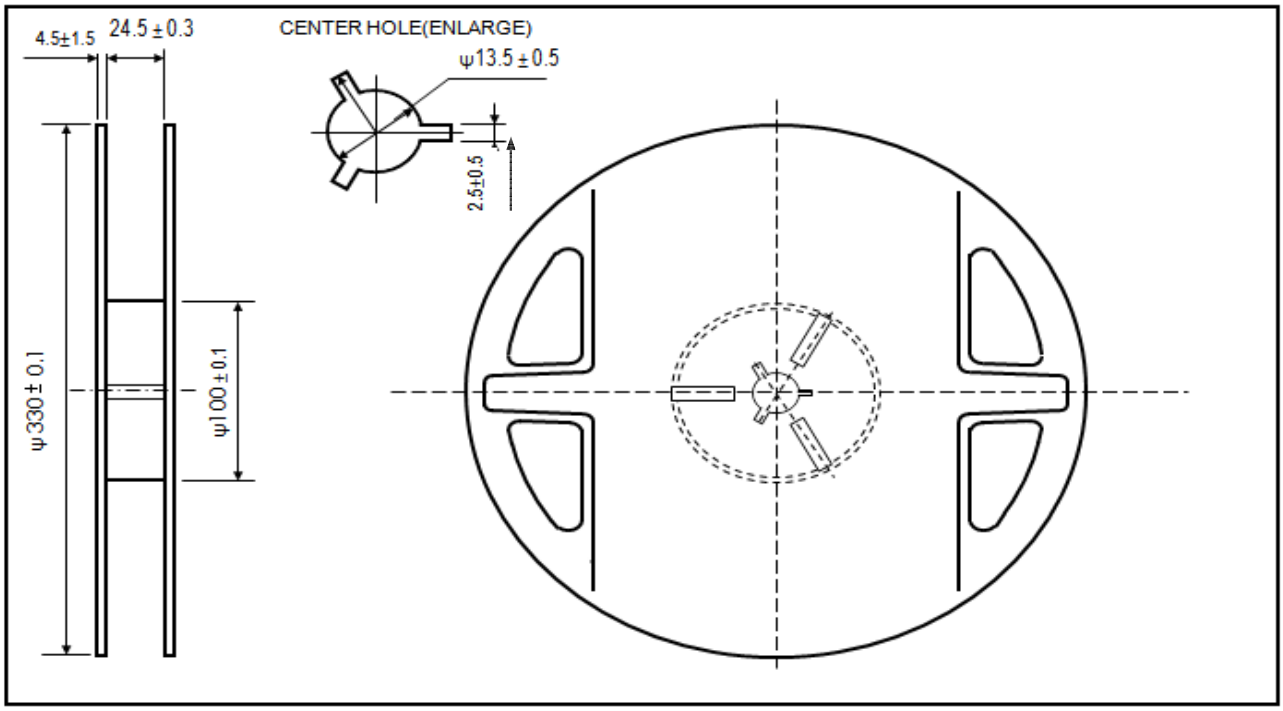
Note:

	Stage	Temperature	Time
A	Preheat	160~180°C	60~120 Sec
B	Primary Heat	220°C	60 Sec
C	Peak	260°C±5°C	10 Sec

■ EMBOSS CARRIER TAPE & REEL

(1000pcs / per reel)





MECHANICAL ENDURANCE : Provide that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

	ENVIRONMENTAL STABILITY	SPECIFICATION
1	Shock test	Dropping from 75 cm height 3 times on firm wood variation frequency less than ± 5ppm，and resistance less than ± 10%.
2	Sealing test	Less than 2.0x10-9 Pa-m3/sec.
3	Soldering heat resistance	Method : Put lead wire through 260℃ for 10 seconds. 95% be covered with solder. Judging : Test △F/F ≦ ±5ppm △F/Rr ≦ ±10% or ± 2Ω
4	Solderability	At 235℃ ± 5℃ for 5 sec. must more than 95% be covered with solder.
5	Humidity	Temperature : 40 ± 2℃ Length of Test : 96 Hrs Relative Humidity : 83% - 88%
6	Frequency drift	Method : Place crystal in a -20℃ to 70℃ constant temperature trough for 5 minutes then use 250B testing instrument to its is frequency tolerance variation. Judging reference : In accordance with customer specification.
7	Air tightness test	Sock crystal in alcohol. Place it in a compression room and compress at 0.4 ～ 0.45Mpa for 30 minutes. Then take it out and put it at room temperature to blow dry for 5 minutes. Judging : Insulation resistance > 500MΩ
8	Mechanical test	a. Lead pull Method : Fix the crystal. Add 1KG heavy weight no the lead-in axle for 10 ± 1 seconds. Judging : There should be on loosening、break、and poor contact of lead-in axle.

ENVIRONMENTAL STABILITY		SPECIFICATION
9	Mechanical test	b. Lead bend Method : Fix the crystal. Add 1KG weight at 2.5 ± 0.5mm from the crystal and bend the lead wire to 90°. Repeat this method 3 times. Judging : There should be on loosening、break、and poor contact of lead-in axle.
10	Insulation resistance	Method : Use a megavar (Dc100 ± 15V) to measure insulation resistance between lead wire and metal case for 1 minute ± 5 seconds. Judging : Insulation resistance > 500MΩ
11	Aging	Method : Place crystal at 85℃ ± 2℃ for 1000 hours. Conduct the test twice a week, 2 days < interval < 4 days. Conduct the first test after the first 24 hours. Conduct final measuring (measure under testing temperature) when the test is concluded. Judging : Test △f/f < ±5ppm
12	Temperature & Humidity cycling	Cycle : 5 cycles Temp : High Temp. +85℃ Low Temp. -40℃ HUM : 93% ± 3% Judging : Test △F/F < ±5ppm Freq. Drift ± 5ppm Max. Resistance Drift ± 10% Max. or ± 2Ω