

CRYSTAL SPECIFICATION



Customer : _____

Customer P/N : _____

Agent : _____

Agent Code : _____

SIWARD P/N : XTL741-F98-116

Customer Approval :

希華晶體科技股份有限公司 SIWARD CRYSTAL TECHNOLOGY CO., LTD.

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DATE : 2016/03/29

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CRYSTAL SPECIFICATION

1. Description : Quartz Crystal
 2. Nominal Frequency : 32.768 KHz
 3. Center Frequency : 32.768 KHz
 4. Dimension & Drawing No. : SF-2012 ; SXD-00341
 5. Oscillation Mode : Fundamental
 6. Cutting Mode :
 7. Packing Style : TP-177
 8. Measurement Instrument : S&A 250B(Calculated FL)
 9. Electrical Characteristics :
- [1] Operating Conditions :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Operating Temperature Range	Topt	-40		85	°C	
Storage Temperature Range	Tstg	-40		85	°C	
Load Capacitance	CL		9		pF	
Drive Level	DL		0.1	0.5	μW	

[2] Frequency Stability :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Tolerance	dF/Fo	-20		20	ppm	Refer to Center Frequency @25±3°C DL = 0.1μW
Freq. vs Temp. Coefficient	dF/dT			-0.04	ppm/°C ^2	
Turnover Temperature	TT	20	25	30	°C	
Aging	dF/F25	-3		3	ppm	Per Year

dF/Fo: Frequency Deviation Refer to Center Frequency

dF/F25: Frequency Deviation Refer to 25 °C Frequency

[3] Electrical Performance :

Item	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Equivalent Series Resistance	ESR			80000	Ω	@Series
Shunt Capacitance	C0	1	1.3	1.6	pF	
Motional Capacitance	C1	4	5	6	fF	
Insulation Resistance	IR	500			M Ω	@DC 100 Volt

10. Marking : Laser

<p>*Y=Last 1 digit of the year *WW=Week of the year * CL : 9 PF -> B</p>	<div style="border: 1px solid black; width: 150px; height: 80px; margin: 0 auto; text-align: center; line-height: 80px;">SYWWB</div>
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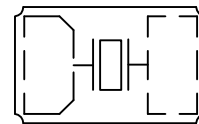
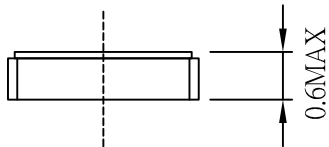
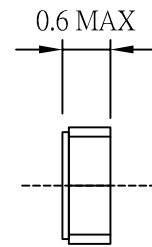
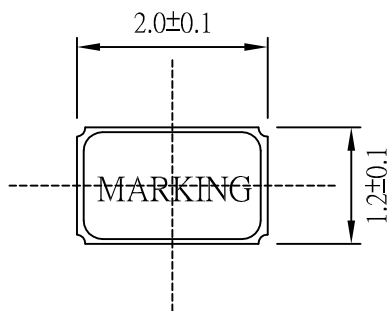
11. Remark :

<p>* Compliant with RoHS and Siward QAD-S-116 Standard.</p>

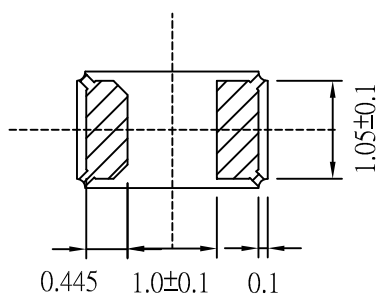
■Note

- 1.Tuning fork products oscillate at frequency bands that are close to the washing frequency of ultrasonic cleaning machine, which may cause resonance deteriorating the electrical characteristics in devices, and even damaging the overall structure of devices. Therefore, using ultrasonic cleaning machine to clean tuning fork devices should be avoided. If the use of this method to clean tuning fork devices is required, it's suggested to check the functionality of devices before and after the cleaning process.
- 2.Avoid mounting and processing by Ultrasonic welding this method has a possibility of an excessive vibration spreading inside the crystal products and becoming the cause of characteristic deterioration and not oscillating.
- 3.Manual soldering heat resistance
Pressing a soldering iron of 400°C on the terminal electrode for four seconds (twice).

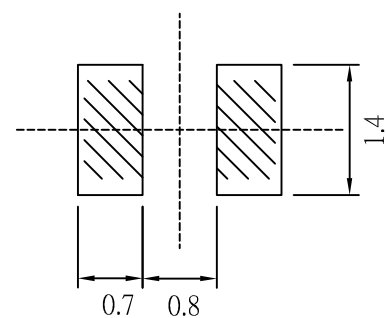
TOP VIEW



BOTTOM VIEW

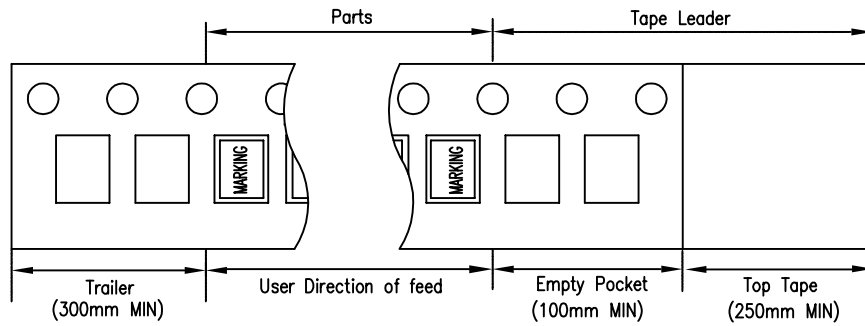
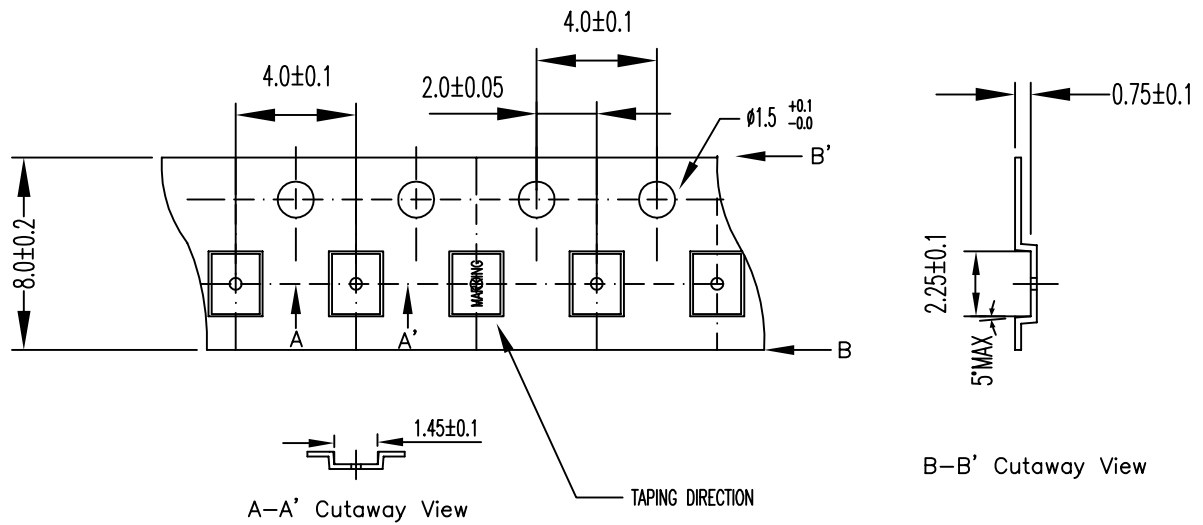


LAND PATTERN (REFERENCE)

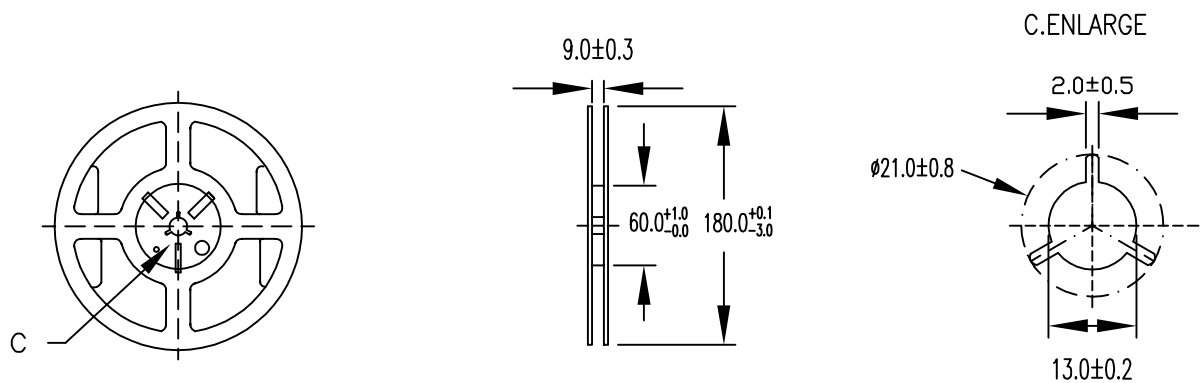


			DRAWING NAME		SF-2012	
			DRAWING NO.		SXD-00341	
1	NEW EDITION	'13.02.18	SCALE		UNIT	mm
NO.	MODIFY CONTENTS	DATE	APPROVE	Jason	DESIGNER	Edward

1.CARRIER TYPE



2.REEL : 3000PCS



			DRAWING NAME	SF-2012 REEL PACKING		
2	FLAG CHANGE	'15.06.05	DRAWING NO.	TP-177		
1	NEW EDITION	'13.02.18	SCALE		UNIT	mm
NO.	MODIFY CONTENTS	DATE	APPROVE	<i>Jason</i>	DESIGNER	<i>Edward</i>