Victorlands **Technical Specification**

Product name	**Quartz crystal unit**
Model	**2012/32.768KHz**
Product code	**K2A32768L5Q4B2**
Product parameters	12.5PF/±20PPM
Product reliability	P．2-8
Packing form	P．4-5

1. QUARTZ CRYSTAL UNIT SPECIFICATION

Description : Quartz Crystal

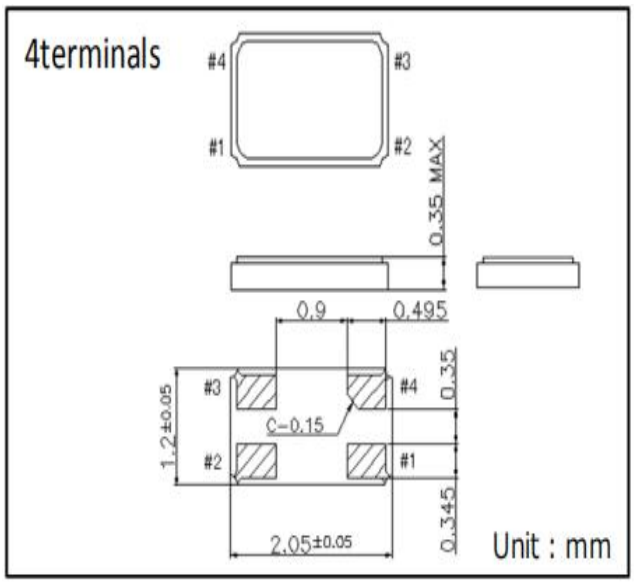
Product Type : SF-2012

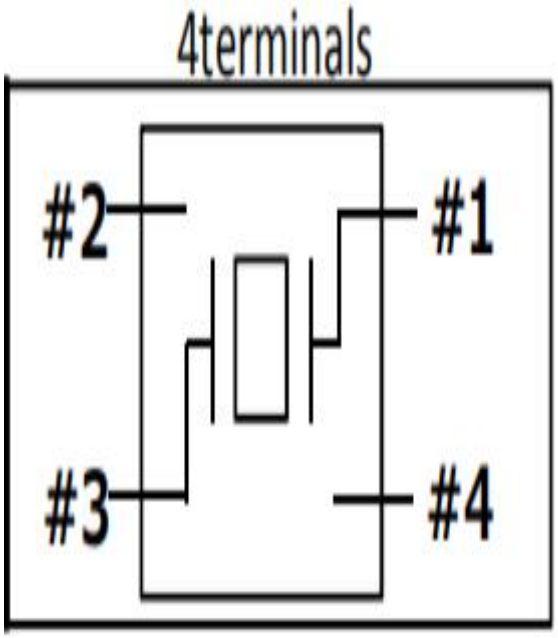
Measure equipment : S&A 250B

Electrical Characteristics

	Item	Symbol	Electrical Specification				Notes
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	FL		32.768000		KHz	
2	Oscillation Mode			Fundamental			
3	Load Capacitance	CL		12.5		pF	
4	Frequency Tolerance		-20		20	ppm	At 25℃±3℃
5	Equivalent Series Resistance	ESR			90	KΩ	
6	Drive Level	DL		0.1	0.5	μW	
7	Parabolic Coefficient		-	_	-0.04	PPM/℃^2	
8	Operating Temperature		-40		85	℃	
9	Storage Temperature		-40		85	℃	
10	Aging		-3		3	ppm	Per Year
11	Insulation Resistance		500			MΩ	At DC 100V
12	Shunt Capacitance	C0		1.5		pF	
13	Motional Capacitance	C1		6.50		fF	
14	Quality Factor	Q	13			K	

2. DIMENSIONS(Units:mm)

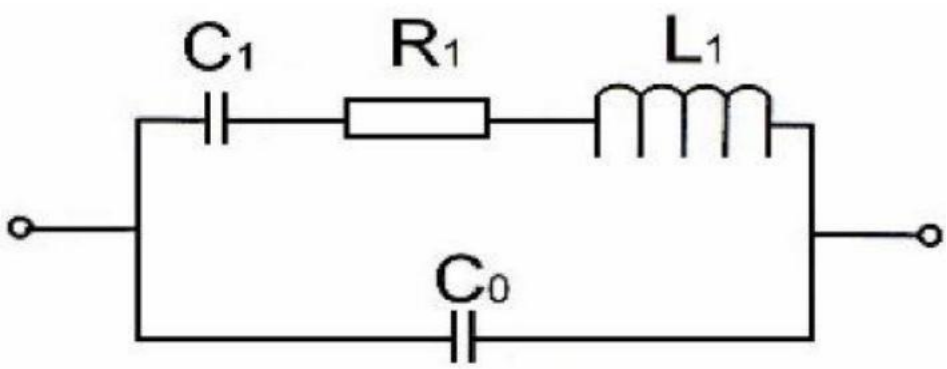




3. INSIDE STRUCTURE

No.	COMPONENTS	MATERIALS
1	Package	Ceramic(A 1203)
2	LID	KV(Fe/Co/Ni)
3	Crystal blank	SiO2
4	Electrode	(Cr+Au)
5	Adhesive	Resin, Ag

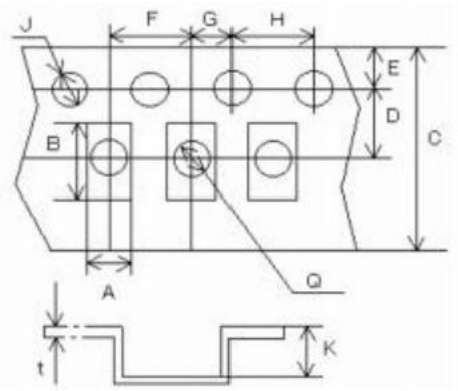
4. EQUIVALENT CIRCUIT

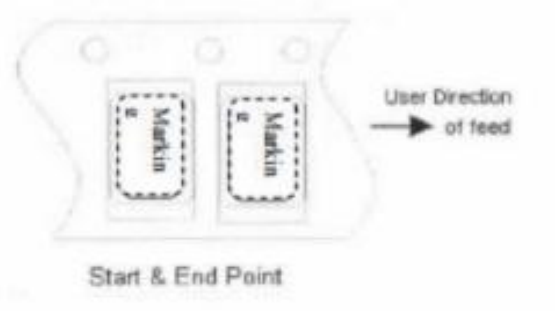


Equivalent Circuit

5. PACKING (Units: mm)

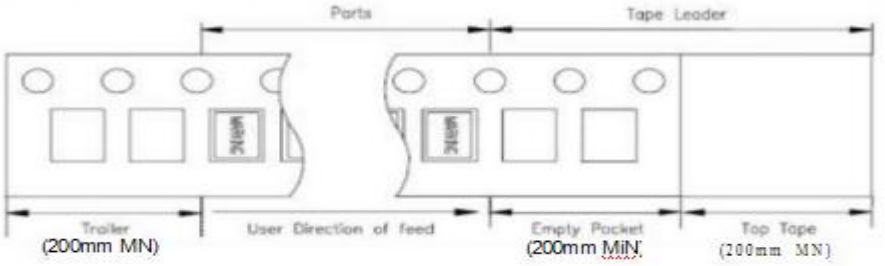
CARRIER TYPE



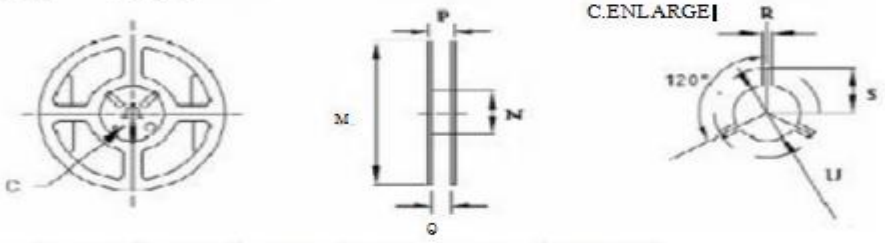


A	B	C	D	E	F	G	H	J	K	t
1.75	3.45	12.0	5.5	1.75	4.0	2.0	4.0	1.5	1.0	0.25

REMARK:



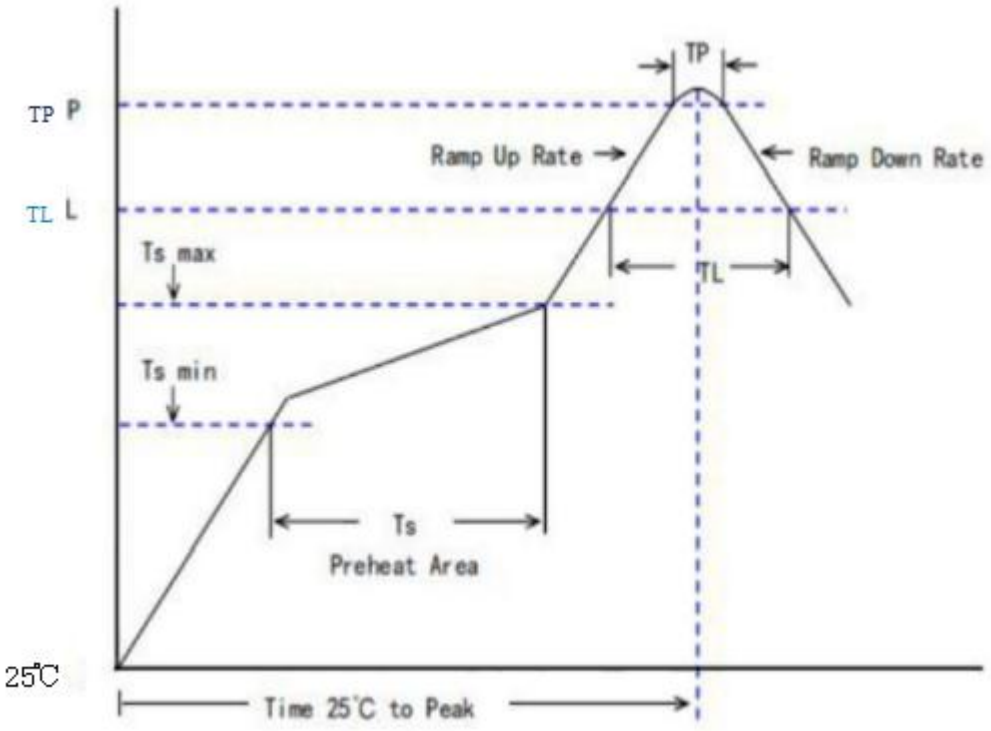
REEL:3000 PCS/Reel



M	N	P	Q	R	S	U
180	60	15.4	13.0	2.0	10.5	13.0

6. REFLOW PROFILES

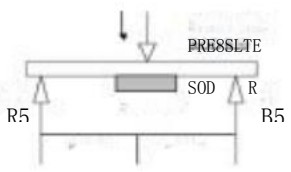
REFER:JEDEC JSTD-020D	
Profiles Feature	Pb-Freo Aasembly
Preheat/Soak Temperature Min(Ts min) Temperature Max(Ts max) Time(Ts)from(Ts min to Ts max)	 150℃ 200℃ 60-120 seconds
Ramp-up rate(TL to TP)	3℃/second max
Liquidous temperature(TL) Time(TL) maintained above TL	217℃ 60-150 seconds
Peak/Classification Temperature(TP)	260±5℃
Time within 5C of actual Peak Temperature(TP)	20~40 seconds
Ramp-down rate(TP to TL)	6℃/second max.
Time 25 •C to peak temperature	8 minutes max
Suggest reflow times	3 Times max

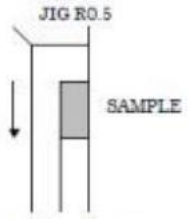
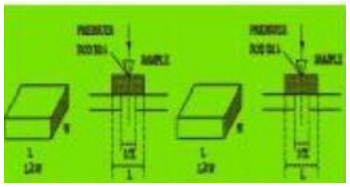


7. RELIABILITY SPECIFICATION

REFER		JISC 6701	
No.	ITBM	CONDITIONS	Criteria
1	HIGH TEMPERATURE	STORED AT 125±2℃ for 500±12H. THE CHARACTERISTIC PARAMETERS OF 250B MUST BE TESTED IN 24H AFTER BEING STATIC FOR MORE THAN 2H AT ROOM TEMPERATURE(25±2℃) If Custamer's temperature request is higher than the standard,Temperature test must be done for customer Requi rements.	A.C
2	LOW TEMPERATURE	STORED AT -40±2Cfor 500 ± 12H. THE CHARACTERIST IC PARAMETERS OF 250B MUST BE TESTED IN 24H AFTER BEING STATIC FOR MORE THAN 2H AT ROOM TEMPERATURE(25±2℃). If Customer's temperature request is higher than the standard.Temperature test must be done for customer Requirements.	A.C

3	HIGH TEMP.8 HUMI DITY	STORED AT 85±2℃ AND HUMIDITY 85% FOR 500±12H THE CHARACTERISTIC PARAMETERS OF 250B MUST BE TESTED IN 24H AFTER BE ING STAT IC FOR MORE THAN 2H AT ROOM TEMPERATURE(25±2℃).	A.C.D
4	TEMPERATURE SHOCK	1.-40+0/-6℃ 30 ±3MINUTES 分钟 2.25 ℃±2℃ 2 ～3MINUTES 分钟 3.125+4/-0 ℃30 ±3MINUTES 分钟 4. 25 ℃±2℃ 2 ～3MINUTES 分钟 THE CRYSTAL UNIT SHALL BE SUBJECTED TO 100 SUCCESSIVE CHANGE OF TEMPERATURE CYCLES. THE CHARACTERIST IC PARAMETERS OF 250B MUST BE TESTED IN 24H AFTER BEING STATIC FOR MORE THAN 2H AT ROOM TEMPERATURE(25±2℃).	A.C

5	SOLDERABILI TY	THE LEAD IS IMMERSED IN A 260±5℃ SOLDER BATH WITHIN 2±0.6 SECONDS	F
6	FINE LEAK	HELIUM BOMBING 5.0～5.5 Kgf / am ,FOR 2 HOURS	E
7	WELDING HEAT RESISTANCE	2 REFLOWS, THE MAXIMUM TEMPERATURE & TIME IS 265℃±5℃,15 ±5SEC. THE CHARACTERISTIC PARAMETERS OF 250B MUST BE TESTED IN 24H AFTER BEING STATIC FOR MORE THAN 2H AT ROOM TEMPERATURE(25±2℃).	A.C
8	FREE FALL	FREE DROPPING FROM 100cm HEIGHT 3 TIMES ON A HARD	B.C
9	VIBRATION	FREQUENCY:10～55Hz AMPLI TUDE(TOTAL EXCURSION):THE SCANNING FREQUENCY IS 0.750CT/MIN, AND THE PEAK ACCELERAT ION IS 5G SWEEP TIME:3 DIRECT ION(X,Y,Z)EACH FOR 2 Hrs.	A.C
10	TERMINAL STRENGTH	SHALL BE PRESSURIZED AT A SPEED OF APPROX.0.5mm/sec IN THE DIRECTION INDICATED BY THE ARROW UNTIL THE BENDING WIDTH REACHES 3mm AND HELD FOR 5 SECONDS 	A.C

11	ST ICKING TENDENCY	A R0.5 JIG SHALL BE USED TO APPLY A 10N DEAD LOAD IN THE DIRECTION INDICATED BY THE ARROW TO THE ELEMENT AND RETAIN IT FOR 10 SECONDS. 	A.C
12	ELEMENT ASSEMBLY STRENGTH	A R0.5 PRESSURI ZED BAR SHALL BE USED TO APPLY A 10N LOAD IN THE CENTER OF ELEMENT AND RETAIN IT FOR 10 SECONDS 	A.C
13	Mechanical Shock	100G, 6MS, HALF SINE SHOCK PULSE, 6AXIS*3TIMES	A.C

8PECIFICATIONS		
A	FREQUENCY CHANGE PERMITTED.	△F≤10PPM
B	FREQUENCY CHANGE PERMITTED.	△F≤20PPM
C	EQUIVALENT SERIES RESISTANCE CHANGE PERMITTED	△CI≤5KΩ or 20% Make use larger value
D	INSULATION RESISTANCE	>500MΩ
E	LEAK RATE LESS THAN	<1*1E-9 Pa •m³/sec
F	A NEW UNIFORM COATING OF SOLDER SHALL COVER A MINIMUM 95% OF THE SURFACE	

※ Each test done independently

※ Measurcment condition:Eloctrical characteristics measured by SA250B or equivalent