HOSONIC TECHNOLOGY (GROUP) CO., LTD.

CRYSTAL UNIT SPECIFICATIONS

Customer	满度科技
Customer P/N	
Product	SMD CRYSTAL 1.6*1.0
Nominal Frequency	32.768KHz
HOSONIC P/N	ETDH003270006E
Version	10W6
Issue Date	2024/11/5

HOSONIC		
Drawn	**Checked**	**Approved**
LUCY	**ZOE**	**JOHN**

Approved By Customer : _____

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Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0	2024-11-05		Initial released	

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I ELECTRICAL PARAMETERS

No.	Item	Symb.	Electrical Specification				Remark
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	F0		32.768		KHz	
2	Mode of Vibration			Fundamental			
3	Frequency Tolerance	ΔF/F0	-20	-	20	ppm	at 25℃±3℃
4	Operating Temperature Range	TOPR	-40	-	85	℃	
5	Temperature Coefficient	K	-	-	-0.04	ppm/(Δ℃)^2	*Note 1
6	Turnover Temperature		20	25	30	℃	
7	Storage Temperature	TSTG	-55	-	125	℃	*Note 2
8	Load capacitance	CL	-	6	-	pF	
9	Equivalent Series Resistance	ESR	-	-	90	KΩ	
10	Drive Level	DL	-	0.1	-	μW	
11	Insulation Resistance	IR	500	-	-	MΩ	At 100V_{DC}
12	Shunt Capacitance	C0	-	1.2	2	pF	
13	Aging	Fa	-3	-	3	ppm	First Year
14	Package type	SMD					

***Note 1: F（T）= K*（T-t0）*（T-t0）； t0=25℃**

***Note 2: Storage Temperature is only for the product itself, the temperature for the packing material is -4~40℃**

I STORAGE REQUIREMENT

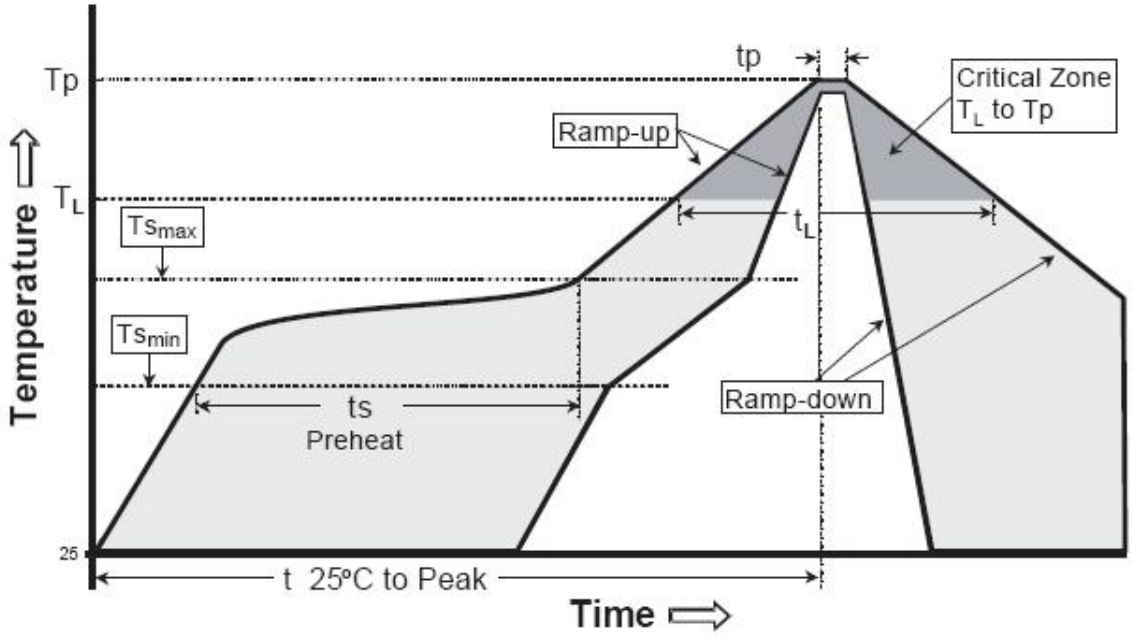
Storage environmental conditions: -4~40℃， 70%RH max.

Maximum storage time: 24 Months from date of manufacture.

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I REFLOW PROFILES

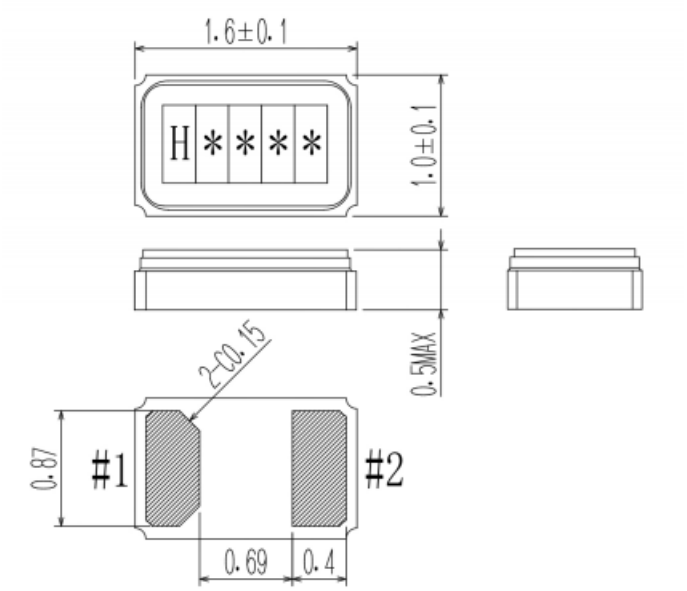
Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3℃/second max.
Preheat ■ Temperature Min (Ts min) ■ Temperature Max (Ts max) ■ Time (ts min to ts max)	 125℃ 200℃ 60~180 seconds
Time maintained above ■ Temperature (T_L) ■ Time (t_L)	 217℃ 60~150 seconds
Peak/Classification Temperature (Tp)	260℃
Time within 5℃ of actual Peak Temperature (t_p)	20~40 seconds
Ramp-down rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.
Suggest reflow times	**2 Times max**



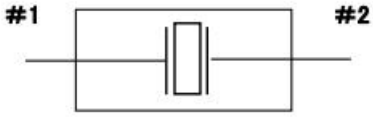
Remark：To reference JEDEC J-STD-020

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I OUTLINE DIMENSIONS (unit: mm)

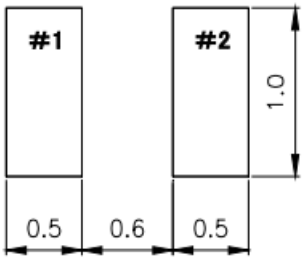


Lead Connection



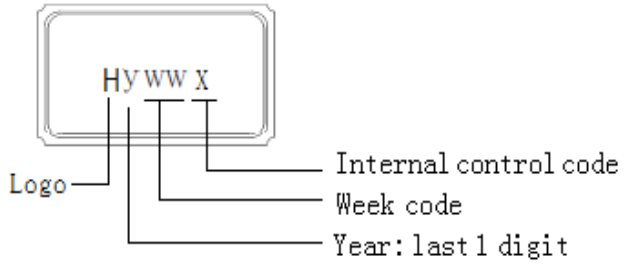
Materials :
Case : Alumina ceramics、Ni-plated、Au-plated
Lid : Kovar material、Ni-plated

I SOLDER PAD LAYOUT (unit: mm)



*Do not design any circuit patterns in the shaded area.

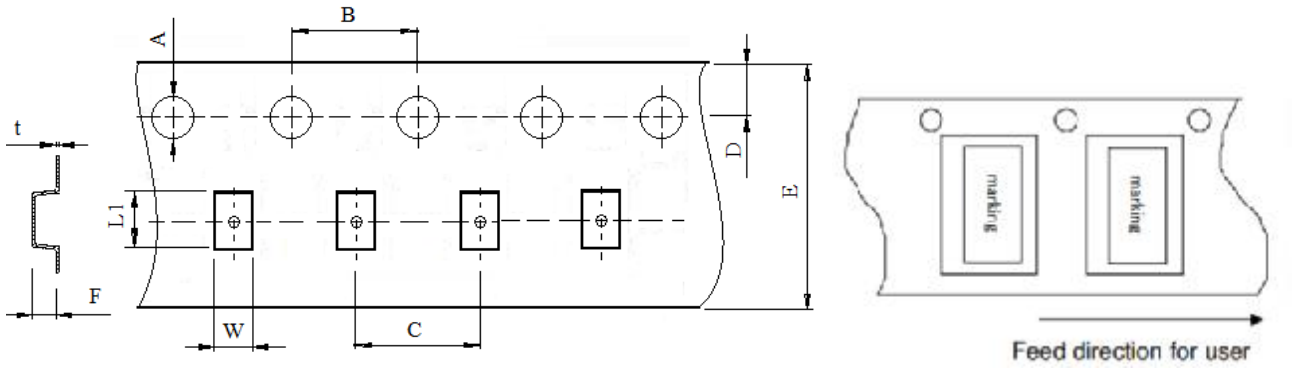
I MARKING:



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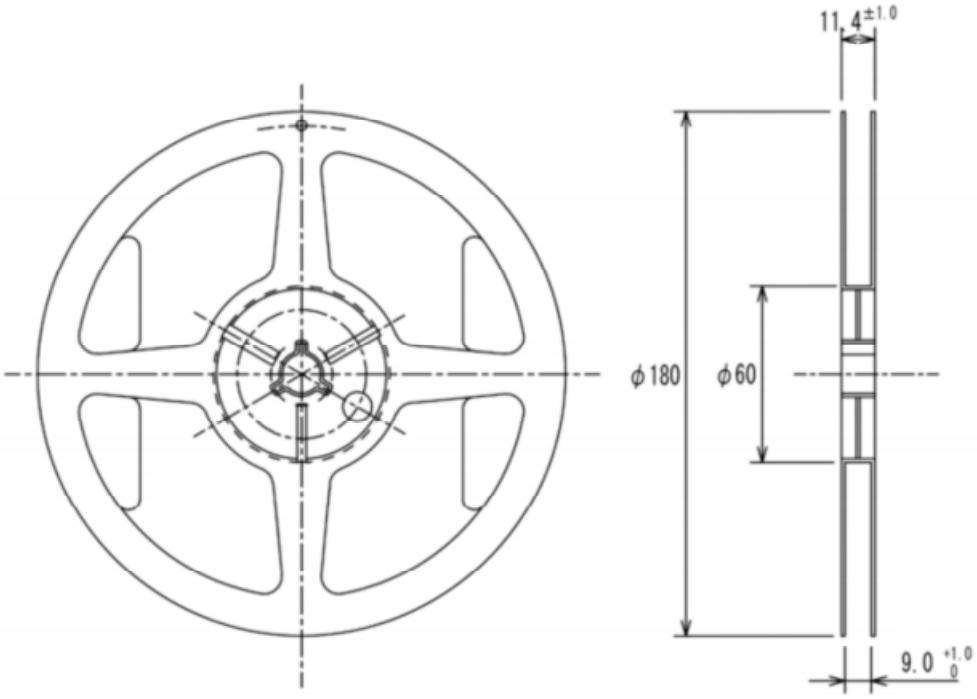
I PACKAGE *(units : mm)*

Tape Dimensions(unit : mm)



A	B	C	D	E	F	L1	W	t
1.50+0.1	4.0±0.1	4.0±0.1	1.75±0.1	8.0±0.1	0.6±0.05	1.8±0.05	1.2±0.05	0.23±0.05

Reel Dimensions(unit: mm)



*5000pcs/Reel

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I RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 125℃±3℃ Time: 1000±12 Hours	MIL-STD-202 Method 108
2	Low Temperature Storage	Temperature: -40℃±3℃ Time: 1000±12 Hours	JIS-C7021 B-12
3	Temperature Cycle	Temperature 1: -55℃±3℃ Temperature 2: 125℃±3℃ Temperature change between T1 and T2 at soonest Run 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
4	Solder Heat Resistance	Pre-heat: 125℃ 60~120 Seconds Solder Temperature: 250℃±5℃ Time: 30 Seconds	MIL-STD-202 Method 210
5	Drop Test	3 Times Free Fall from 75cm height to concrete floor.	IEC 60068-2-32
6	High Temperature, High Humidity Storage	Temperature: 85℃±5℃ Relative Humidity: 80%--85% Time: 1000Hours±12 Hours	MIL-STD-202 Method 103
7	Solderability	Dip in flux 5~10 seconds Temperature: 245℃±5℃ Time: 10 Seconds	J-STD-002
8	Aging	Temperature: 85℃±2℃ Time: 250±12Hours	MIL-STD-202 Method 108
9	Thermal Shock	Temperature 1: -55℃±3℃ Temperature 2: 125℃±3℃ Temperature change between T1 and T2: 5 seconds 100 cycles, maintain T1 and T2 for 5 minutes each in one cycle	MIL-STD-202 Method 107
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude: 1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202 Method 204

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