Hosonic

HOSONIC TECHNOLOGY (GROUP) CO., LTD.

RoHS COMPLIANT

SMD CRYSTAL UNIT SPECIFICATIONS

Customer	满度科技
Customer P/N	
Product	1612 Seam Sealing Crystal
Nominal Frequency	52.000000MHz
HOSONIC P/N	ETSB52E000002E
Version	10C0
Issue Date	2024/9/25

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

Approved By Customer : _____

深圳市满度科技有限公司
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Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0	2024-09-25		Initial released	

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I ELECTRICAL PARAMETERS

Electrical characteristics measured by S&A250B or equivalent.

No.	Item	Symb.	Electrical Specification				Remark
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	F0		52.000000		MHz	
2	Mode of Vibration			Fundamental			
3	Frequency Tolerance	ΔF/F0	-7	-	7	ppm	At 25℃±3℃
4	Operating Temperature Range	T_{OPR}	-40	-	105	℃	
5	Frequency Stability Ref. to 25℃	TC	-15	-	15	ppm	-40~100℃
			-20	-	20	ppm	100~105℃
6	Storage Temperature	T_{STG}	-55	-	125	℃	
7	Load capacitance	CL	-	8	-	pF	
8	Equivalent Series Resistance	ESR	-	-	30	Ω	
9	Drive Level	DL	-	-	300	μW	
10	Insulation Resistance	IR	500	-	-	MΩ	At 100V_{DC}
11	Shunt Capacitance	C0	-	-	2	pF	
12	Pulling Sensitivity	TS	9	-	15	ppm/pF	
13	Aging Per Year	Fa	-2	-	2	ppm	First Year
14	Package type	ETSB					

NOTE: Storage Temperature is only for the product itself,the temperature for the packing material is -4~40℃.

I STORAGE REQUIREMENT

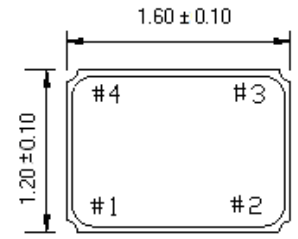
Storage environmental conditions: -4~40℃, 70%RH max.

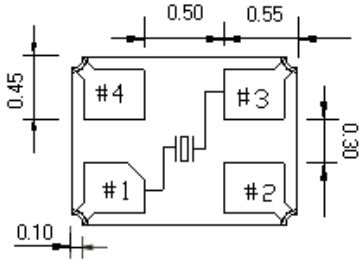
Maximum storage time: 24 Months from date of manufacture.

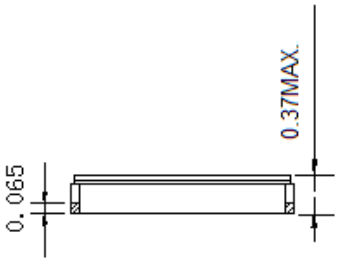
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I OUTLINE DIMENSIONS (UNIT: mm)

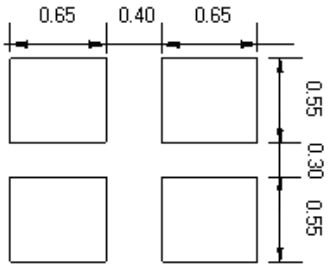
Top View







Recommended Solder Pattern

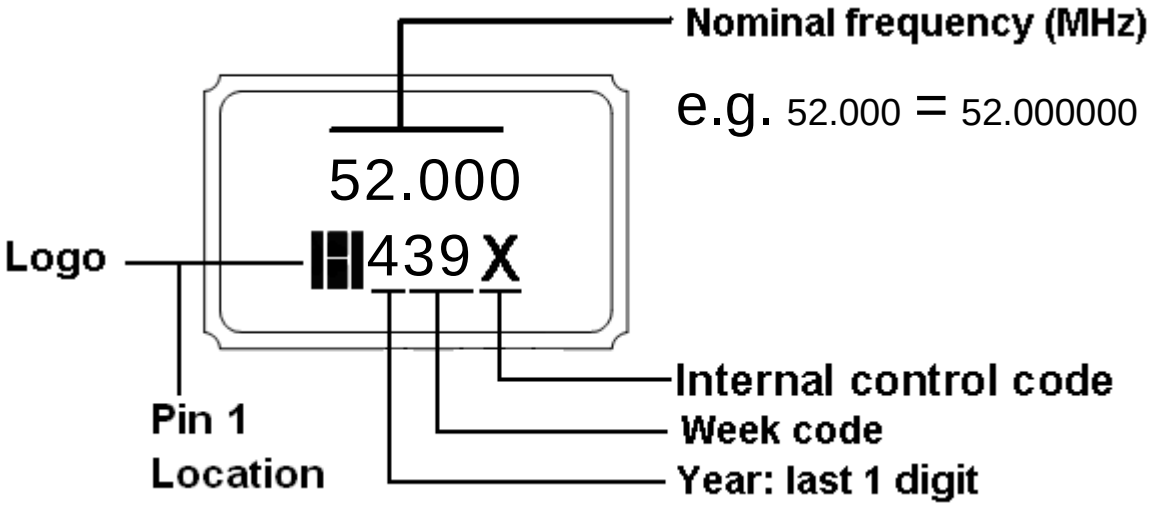


Pin	Connection
#1、#3	IN/OUT
#2	GND
#4	GND/NC

【NOTE】#2 is connected with a metal cover

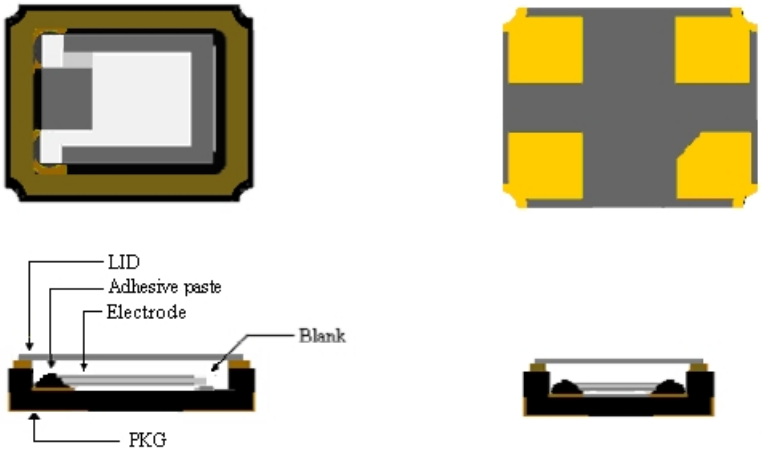
*unlabeled tolerance：± 0.1mm

I MARKING



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I PRODUCT LAYOUT

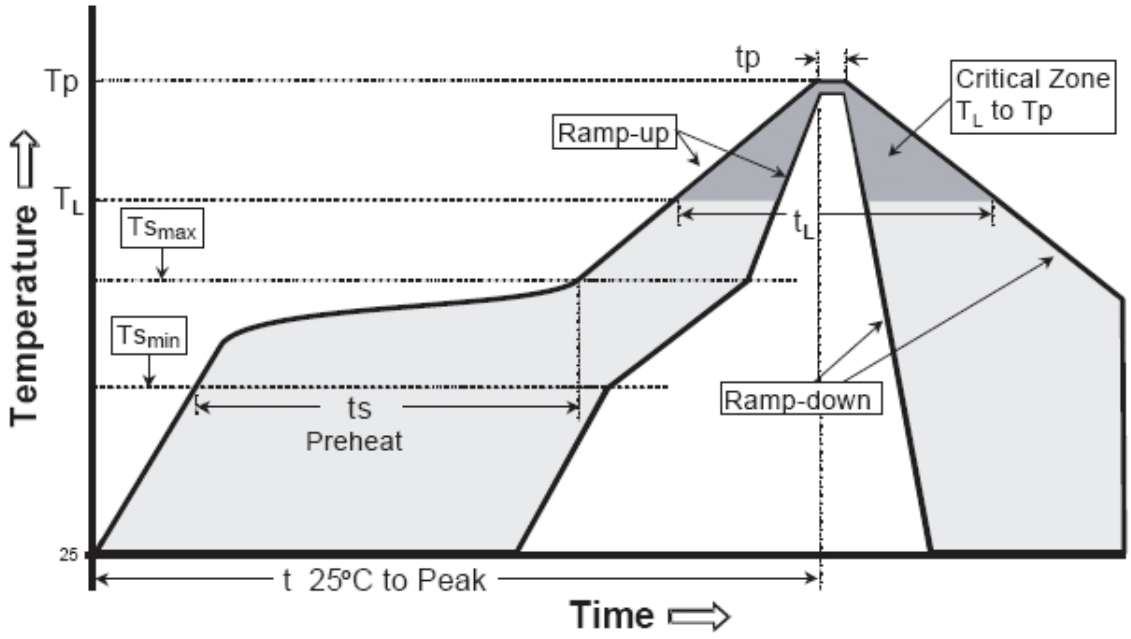


NO.	Part	Material	Remark
1	LID	KOVAR	
2	PKG	Al_2O_3	Base
3	Blank	SiO_2	Quartz
4	Adhesive paste	Ag/Silicon	Support
5	Electrode	Noble metal	

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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	**3 Times max**

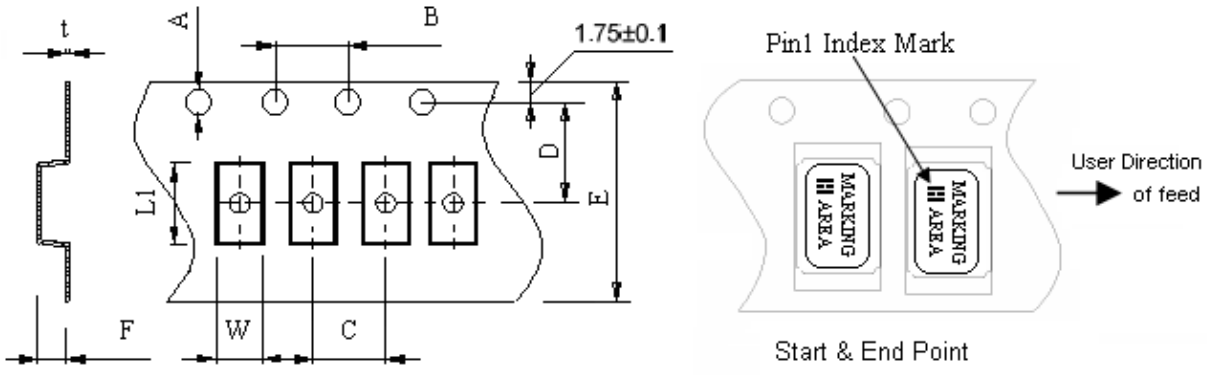


Remark：To reference JEDEC J-STD-020

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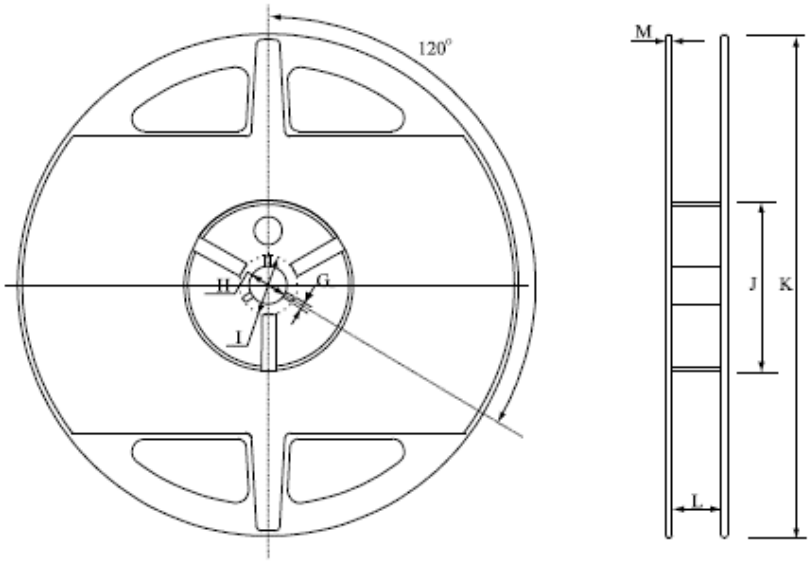
I PACKAGE(reference to EIA-481)

Tape Dimensions(unit : mm)



A	B	C	D	E	F	L1	W	t
1.5±0.1	4.0±0.1	4.0±0.1	3.5±0.1	8.0±0.1	0.6±0.1	1.8±0.1	1.4±0.1	0.25±0.05

Reel Dimensions(unit: mm)

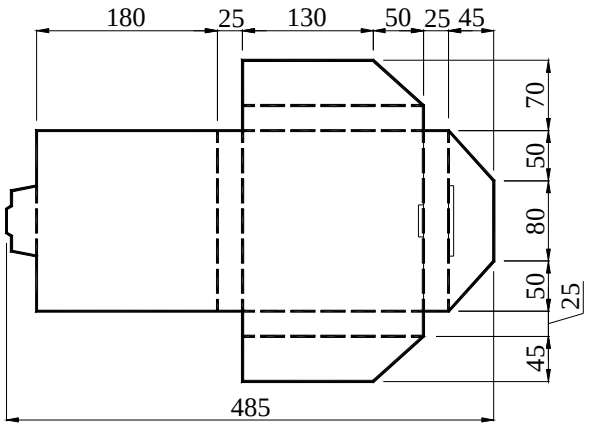


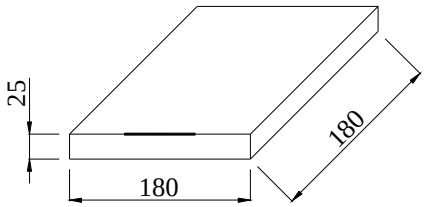
G	H	I	J	K	L	M
2.2±0.5	13.5±0.5	18.2±0.5	60.0±1.0	178.0±1.0	9.5±1.0	1.6±0.2

*5000pcs/Reel

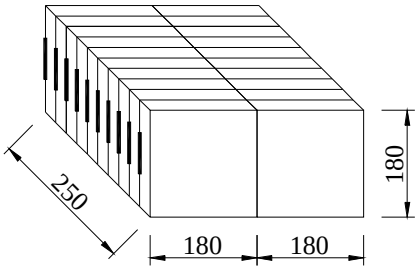
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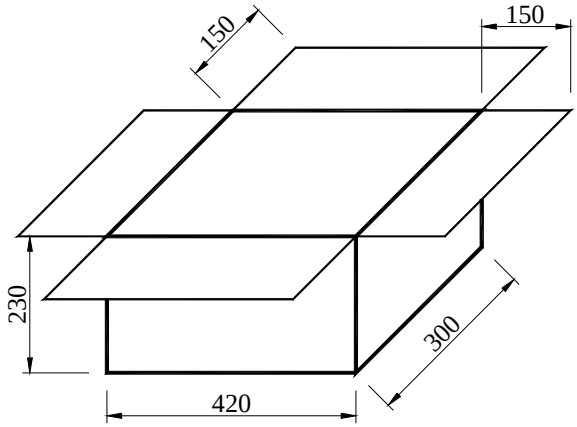
Carton Dimension (unit : mm)





1 reel = 1 Inner box





20 Inner boxes = 1 Carton

100kpcs = 1 Carton

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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: 260℃±5℃ Time: 30 Seconds	MIL-STD-202 Method 210
5	Drop Test	3 Times Free Fall from 150cm height to concrete floor.	IEC 60068-2-32
6	High Temperature, High Humidity Storage	Temperature: 85℃±5℃ Relative Humidity: 80%--85% Time: 250Hours±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 30 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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