



HOSONIC ELECTRONIC CO., LTD.



CRYSTAL UNIT SPECIFICATIONS

Customer	ADS
Customer P/N	
Product	DT-38 CRYSTAL
Nominal Frequency	32.768KHz
HOSONIC P/N	ETDB003270019E
Version	10W0
Issue Date	2015/4/25

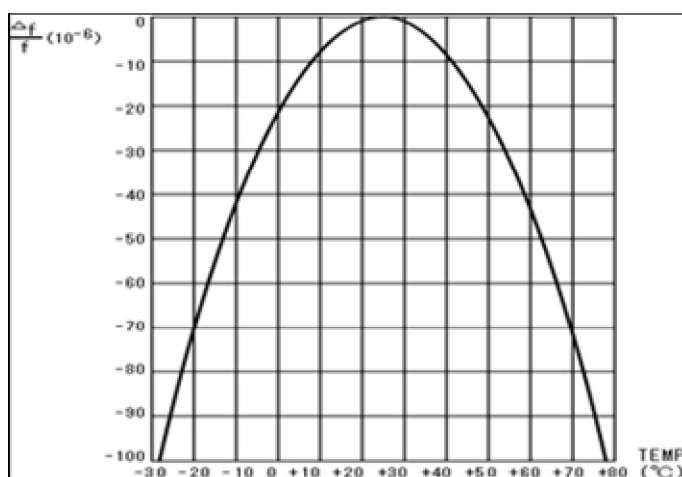
HOSONIC		
Drawn	Checked	Approved
LUCY	ZOE	JOHN

Approved By Customer : _____

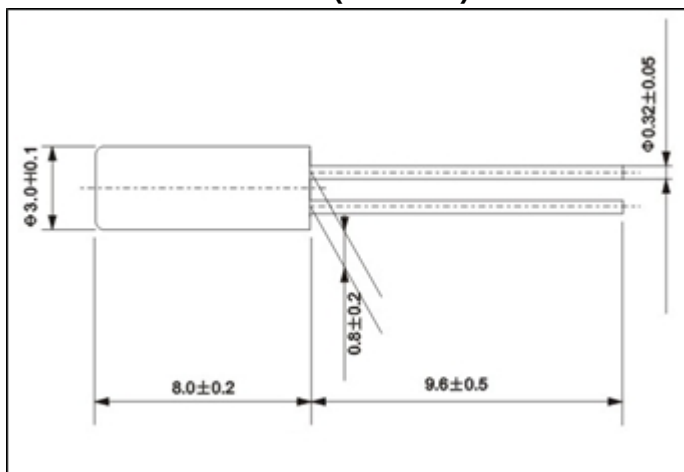
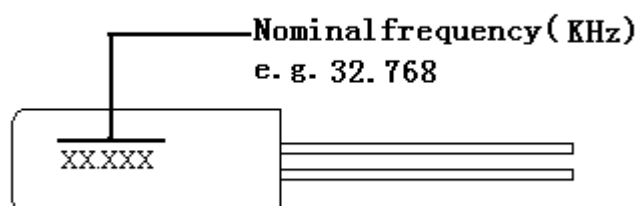
Revised Record				
Rev.	Rev. Date	Item	Content	Remark
1.0	2015-04-25		Initial released	

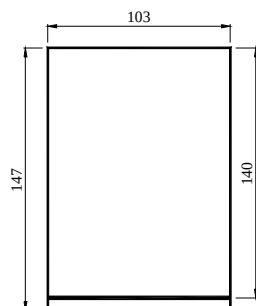
I ELECTRICAL PARAMETERS

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	$\Delta F/F0$	-20	-	20	ppm	at 25°C±3°C
4	Operating Temperature Range	T _{OPR}	-10	-	70	°C	
5	Temperature Coefficient		-0.035±0.01			ppm/(°C) ²	Ref. to 25°C
6	Turnover Temperature		20	25	30	°C	
7	Storage Temperature	T _{STG}	-40	-	85	°C	
8	Load capacitance	CL	-	12.5	-	pF	
9	Equivalent Series Resistance	ESR	-	-	30	KΩ	
10	Drive Level	DL	-	-	1	μW	
11	Insulation Resistance	IR	500	-	-	MΩ	At 100V _{DC}
12	Shunt Capacitance	C0	-	1.75	-	pF	
13	Aging Per Year	Fa	-5	-	5	ppm	First Year
14	Package type	DT-38					

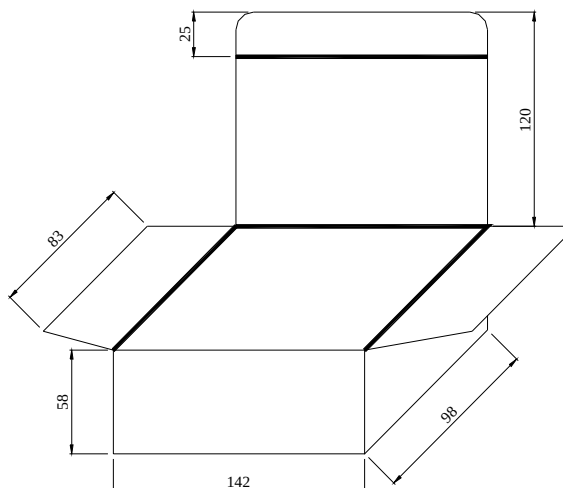
I FREQUENCY VS. TEMPERATURE CURVE


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

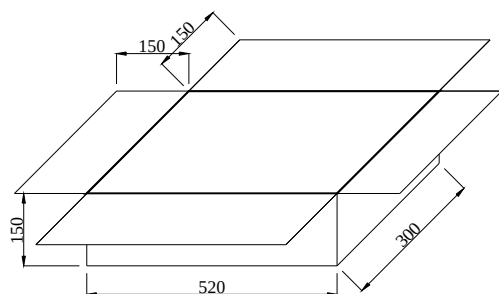
I Outline Dimensions (unit: mm)

I MARKING


I PACKAGE (units : mm)


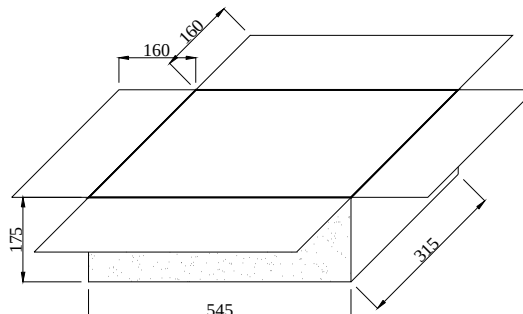
1000 PCS = 1 BAG



4 BAGS = 1 INNER BOX



20 INNER BOX = 1 BOX



1 BOX = 1 OUTER BOX

* 80 K PCS = 1 OUTER BOX

I RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Requirements
1	High Temperature Endurance	Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 2 Hours	$\Delta F: \pm 10\text{ppm Max.}$ $\Delta RR: \pm 15\%$ or 5kohm Max.
2	Low Temperature Endurance	Temperature: $-25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Time: 2 Hours	
3	Temperature Cycle	Temperature 1: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Temperature 2: $100^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Temperature change between T1 and T2 at soonest Run 5 cycles, maintain T1 and T2 30minutes each in one cycle	
4	Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	
5	Humidity Endurance	Temperature: 40°C Relative Humidity: 90%--95% Time: 48Hours	
6	Salt Spray Test	salt density: 5% Temperature: 35°C Time: 96 Hours	See to Note 1
7	Solderability	Dip in flux 3~5 seconds Temperature: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$	See to Note 2
8	Leakage	Helium: 0.5--0.6 Mpa Time: 1Hours	Leakage: 1×10^{-8} mbar.l/s Max.
9	Lead Strength(DIP)	1. Lead with the 0.9kg(9N)power(keep it for 30s $\pm$ 5s) 2. bend the crystal lead 90° with 0.45kg power and two times (which you want to bend should be more than 1.5mm from the case)	Lead is not abnormity
10	Vibration	Frequency Range: 10Hz~55Hz Amplitude: 1.5mm Cycle Time: 1-2min(10~55~10Hz) 2Hours in each direction, total 6Hours	$\Delta F: \pm 10\text{ppm Max.}$ $\Delta RR: \pm 15\%$ or 5kohm Max

Note 1: he appearance shall has no abnormity; $\Delta F: \pm 10\text{ppm Max.}$; $\Delta RR: \pm 15\%$ or 5kohm Max.

Note 2: The dipped surface of the leads should be at least 95% covered with continuous new solder coating