

**CRYSTAL UNIT SPECIFICATIONS**

<b>Customer</b>	ADS
<b>Customer P/N</b>	
<b>Product</b>	49SA CRYSTAL
<b>Nominal Frequency</b>	16.000000MHz
<b>HOSONIC P/N</b>	E49A16E000007E
<b>Version</b>	10C0
<b>Issue Date</b>	2015/4/25

<b>HOSONIC</b>		
<b>Drawn</b>	<b>Checked</b>	<b>Approved</b>
<b>LUCY</b>	<b>ZOE</b>	<b>JOHN</b>

**Approved By Customer :** \_\_\_\_\_



**HOSONIC ELECTRONIC CO., LTD.**



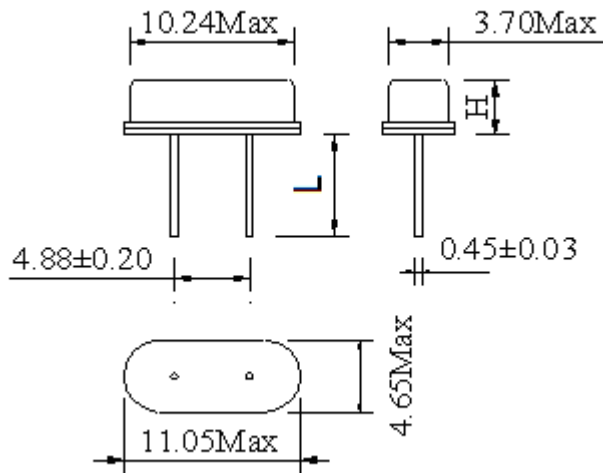
Revised Record

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

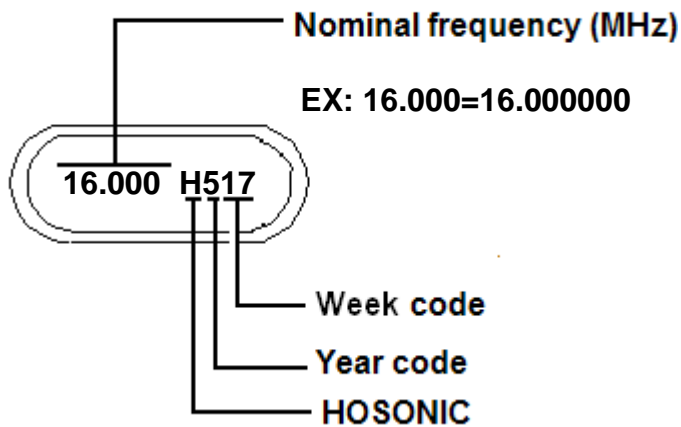
**I ELECTRICAL PARAMETERS**

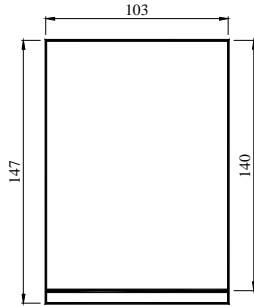
No.	Item	Symb.	Electrical Specification				Remark
			Min.	Typ.	Max.	Units	
1	Nominal Frequency	F0	16.000000			MHz	
2	Mode of Vibration		Fundamental				
3	Frequency Tolerance	$\Delta F/F0$	-30	-	30	ppm	at 25°C±3°C
4	Operating Temperature Range	T <sub>OPR</sub>	-20	-	70	°C	
5	Frequency Stability	TC	-30	-	30	ppm	Ref. to 25°C
6	Storage Temperature	T <sub>STG</sub>	-55	-	125	°C	
7	Load capacitance	CL	-	16	-	pF	
8	Equivalent Series Resistance	ESR	-	-	40	Ω	
9	Drive Level	DL	-	100	500	μW	
10	Insulation Resistance	IR	500	-	-	MΩ	At 100V <sub>DC</sub>
11	Shunt Capacitance	C0	-	-	7	pF	
12	Aging Per Year	Fa	-5	-	5	ppm	First Year
13	Package type	HC-49SA					

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

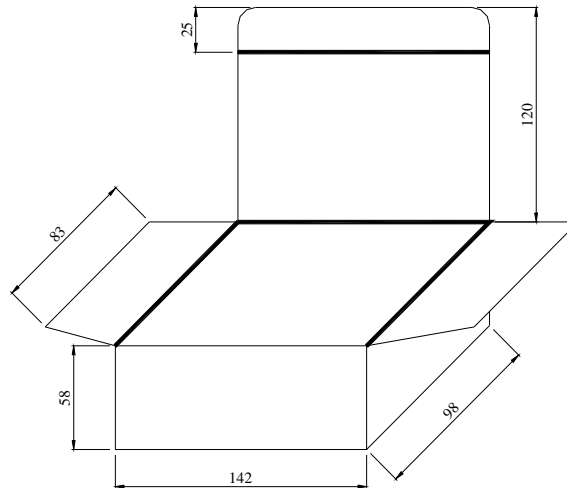
**I Outline Dimensions (unit: mm)**

$$L = 6.0 \pm 0.5 \quad H = 3.5 \text{MAX}$$

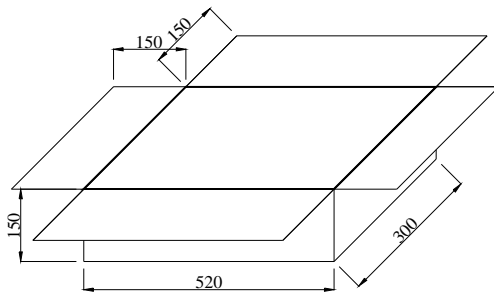
**I MARKING**

**I PACKAGE (units : mm)**

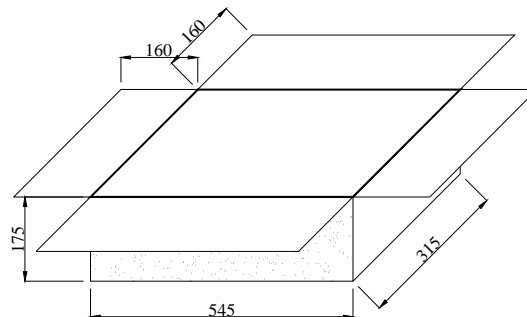
200 PCS = 1 BAG



5 BAGS = 1 INNER BOX



20 INNER BOX = 1 BOX



1 BOX = 1 OUTER BOX

\* 20 K PCS = 1 OUTER BOX

**I RELIABILITY SPECIFICATIONS**

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time: $1000 \pm 12$ Hours	MIL-STD-883E-1016
2	Temperature Cycle	Temperature 1: $-55^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Temperature 2: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Temperature change between T1 and T2 at soonest Run 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
3	Solder Heat Resistance	Pre-heat: $125^{\circ}\text{C}$ 60~120 Seconds Solder Temperature: $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time: 30 Seconds	MIL-STD-202F 210 E
4	Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	MIL-STD-202F-203B
5	High Temperature, High Humidity Storage	Temperature: $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Relative Humidity: 80%~85% Time: 250Hours $\pm$ 24 Hours	MIL-STD-202F-103B
6	Steam Aging	Temperature: $97^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time: 24 Hours $260^{\circ}\text{C}$ solder pot to check solderability	MIL-STD-883 C-1008.2B
7	Solderability	Dip in flux 5~10 seconds Temperature: $245^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time: 10 Seconds	MIL-STD-202F-208H
8	Aging	Temperature: $85^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Time: $250 \pm 12$ Hours	MIL-STD-202 F-108A
9	Thermal Shock	Temperature 1: $-55^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Temperature 2: $125^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Temperature change between T1 and T2: 5 seconds 100 cycles, maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-883E-1011.9B
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude: 1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202F-204D