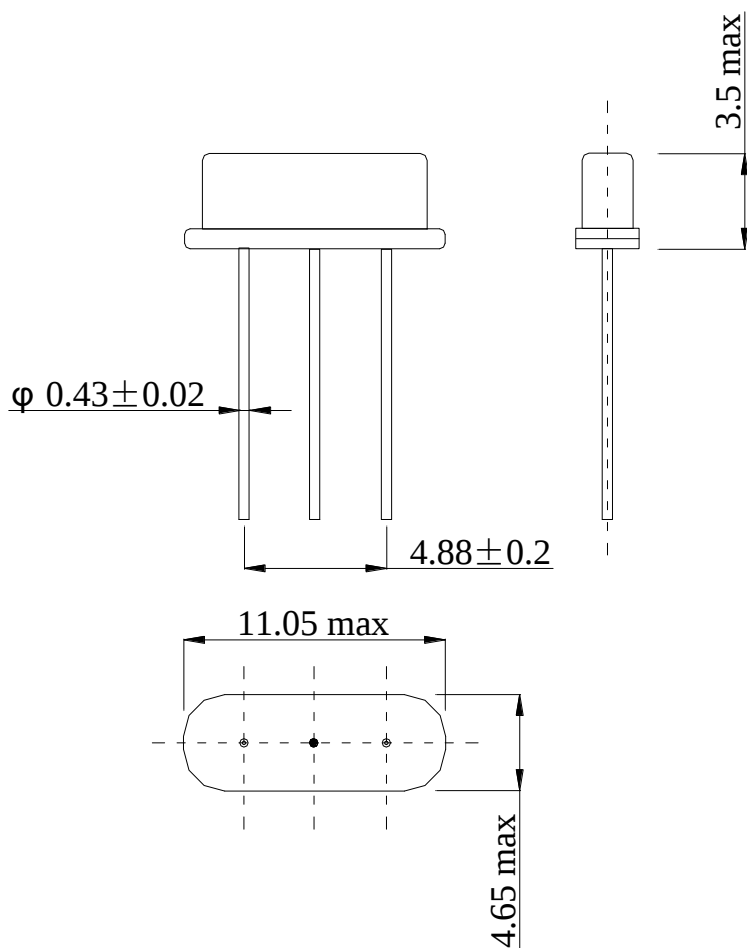


1. QUARTZ CRYSTAL UNIT SPECIFICATION

1.1 Frequency:	16.384MHz
1.2 Mode of Oscillation	AT Fundamental
1.3 Holder type :	HC-49/S-3PIN
1.4 Frequency tolerance:	±20ppm at 25℃
1.5. Equivalent resistance (Rr):	30Ω Max.
1.6 Operating temperature range:	-40℃ To +85℃
1.7 Storage temperature range:	-55℃~+125℃
1.8. Frequency stability:	±30ppm at -40℃ To +85℃
1.9 Loading capacitance (CL) :	12pF
1.10 Drive level (DL):	100 uW Typical
1.11 Shunt Capacitance (C0):	7.0pF MAX
1.12 Insulation resistance (IR) :	More than 500M ohms at DC 100V
1.13 Circuit:	Measured in S&A 250B
1.14 Aging:	±3 ppm Max (+25℃ 1 st Year)
1.15 Dimensions and marking	Refer to page.3
1.16 Other	RoHS Compliant (Pb free)

2. MARKING & DIMENSIONS



*Marking should be printed as following:

Logo, Nominal Frequency

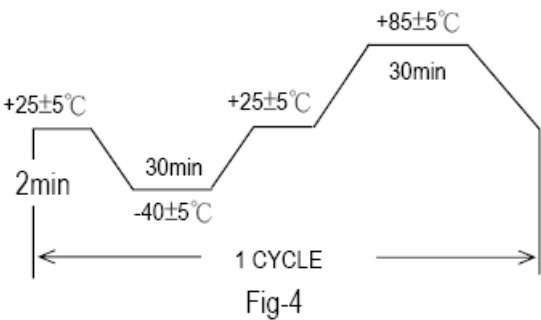
Logo: T

Nominal Frequency: (ex. 8.000 MHz $\rightarrow$ 8.000)

Marking: Laser marking

3.MECHANICAL/ENVIRONMENTAL CHARACTERISTICS

NO.	ITEM	CONDITIONS	SPECIFICATIONS
3.1	Leaking Test	Fully immersed into hot water at $90^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 3 minutes.	no air bubble are visible.
3.2		Take measurements with a helium leakage detector, or measure insulation resistance under pressure.	$1 \times 10^{-8} \text{ Pa.m}^3/\text{s}$ Max or $\text{IR} \geq 500 \text{ M}\Omega$
3.3	Drop Test	Dropping 6 times from the height of 75 cm onto hard wooden board of thickness more than 30mm.	The crystal must meet: $\Delta f \leq \pm 5 \text{ ppm}$ $\Delta R \leq 15\%$
3.4	Vibration Test	Vibration Frequency: 10~55Hz Cycle: 1.5 Min. Amplitude: 1.5mm P-P. Direction: X.Y.Z Time: 2 Hours / Each Direction	The crystal must meet: $\Delta f \leq \pm 5 \text{ ppm}$ $\Delta R \leq 15\%$
3.5	Solderability Test	The terminal lead wire is to be soaked in a $230^{\circ}\text{C} \pm 5^{\circ}\text{C}$ tin trough for 5 ± 0.5 seconds.	Tin over the wire $\geq 90\%$ The crystal must meet: $\Delta f \leq \pm 5 \text{ ppm}$ $\Delta R \leq 15\%$
3.6	Low Temperature Enduring	The samples crystal is to be tested after being placed in the environment of $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 96 hours, and recovered to room temperature for 2 hours.	The crystal must meet: $\Delta f \leq \pm 5 \text{ ppm}$ $\Delta R \leq 15\%$
3.7	High Temperature Enduring	The samples crystal is to be tested after being heated at $+85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 96 hours, and cooled to room temperature for 2 hours.	The crystal must meet: $\Delta f \leq \pm 5 \text{ ppm}$ $\Delta R \leq 15\%$

3.8	Humidity	The temperature is at $40 \pm 3^{\circ}\text{C}$, and at 93% $\pm 2\%$ RH after 96 hours, and cooled to room temperature for 2 hours.	The crystal must meet: $\Delta f \leq \pm 5\text{ppm}$ $\Delta R \leq 15\%$
3.9	Resistance to Solder Heat	Lead terminals are immersed up to 1.5mm from resonator's body in soldering bath of $350 \pm 5^{\circ}\text{C}$ for 3 ± 0.5 sec. And then resonator shall be measured after being placed in room temperature for 1 hour.	The crystal must meet: $\Delta f \leq \pm 5\text{ppm}$ $\Delta R \leq 15\%$
3.10	Thermal shock	Should be satisfied after supplying the following temperature cycle (10 cycles). (Refer to Fig-4). Temperature shift from low to high, high to low shall be done in $1^{\circ}\text{C}/\text{min}$.  Fig-4	The crystal must meet: $\Delta f \leq \pm 5\text{ppm}$ $\Delta R \leq 15\%$

4. PACKAGE

4.1 Quantity of package:

250 pieces of crystal unit	per bag
2500 pieces of crystal unit	per inner box, 10 bags
25000 pieces of crystal unit	per carton, 10 inner boxes