## Specification of Quartz Crystal Units



1	NDK Part Number	NX3215SA-32.768K-STD-MUA-8

2 NDK Specification Number STD-MUA-8

3 Type NX3215SA

4 Electrical Characteristics

4.1 Nominal Frequency ( $f_{\text{nom}}$ ) 32.768 kHz 4.2 Overtone order Fundamental

4.3 Frequency Tolerance  $\pm 20 \times 10^{-6} \text{ max.} (+25 ^{\circ}\text{C})$ 

4.4 Turning Point  $+ 25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 

4.5 Temperature coefficient  $-0.04 \times 10^{-6} / {}^{\circ}\text{C}^{2} \text{ max}.$ 

4.6 Equivalent Series Resistance  $(R_r)$  70 k $\Omega$  max.

4.7 Shunt Capacitance ( $C_0$ ) 1.0 ± 0.5 pF

4.8 Motional capacitance ( $C_1$ ) 4.0 ± 2.0 fF

4.9 Maximum Drive Level 0.5 μW max.

5 Measurement Circuit

5.1 Frequency Measurement

5.1.1 Measuring Instrument Network Analyzer (CNA-LF made in Transat corp.)

5.1.2 Load Capacitance ( $C_L$ ) 12.5 pF 5.1.3 Level of Drive 0.1  $\mu$ W

5.2 Equivalent Resistance Measurement

5.2.1 Measuring Instrument Network Analyzer (CNA-LF made in Transat corp.)

5.2.2 Load Capacitance ( $C_L$ ) Series 5.2.3 Level of Drive 0.1  $\mu$ W

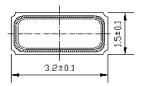
6 Operable Temperature Range -40 ~ +85 °C

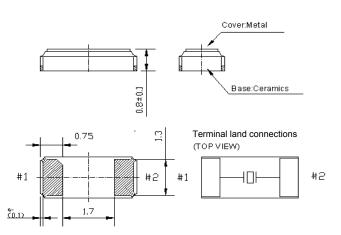
7 Storage Temperature Range -40 ~ +85 °C

8 Aging (at +25 °C)  $\pm 3 \times 10^{-6}$  Max. / 1 year

9 Dimension

(Unit: mm)





## Recommended soldering pattern

