

SPECIFICATION

1. Type : NX2520SG
2. Electrical characteristics
- 2.1. Nominal Frequency (F_0) : 19.2 MHz
- 2.2. Overtone Order : Fundamental, AT-Cut
- 2.3. Adjustment Tolerance : $\pm 10 \times 10^{-6}$ Max. (at + 30 °C)
- 2.4. Frequency stability over temperature : $\pm 12 \times 10^{-6}$ Max. (at - 30 to +85 °C)
The reference temp. shall be +30 °C
- 2.5. Temperature coefficient spec. (*Compliant with Qualcomm Mini-Spec. 80-V9690-9 Rev. E*)
- 2.5.1. Inflection temperature (T_0) : +30 °C
- 2.5.2. Constant range (C_0) : -12 to +12 ppm
- 2.5.3. 1st order coefficient range (C_1) : -0.4 to -0.1 ppm/°C
- 2.5.4. 2nd order coefficient range (C_2) : -6×10^{-4} to $+6 \times 10^{-4}$ ppm/°C²
- 2.5.5. 3rd order coefficient range (C_3) : $+8.5 \times 10^{-5}$ to $+11.5 \times 10^{-5}$ ppm/°C³
- 3.6. Equivalent Resistance (ESR) : 70Ω Max.
- 3.7. Shunt Capacitance (C_p) : 0.85pF ±15% (Not grounded)
- 3.8. Motional Capacitance (C_m) : 2.2fF ±15% (Not grounded)
- 3.9. Motional Inductance (L_m) : 31.2mH ±15% (Not grounded)
- 3.10. Pulling Sensitivity (PS) : 18 ppm/pF ±15% (at CL = 7pF)
This value is calculated by following formula.

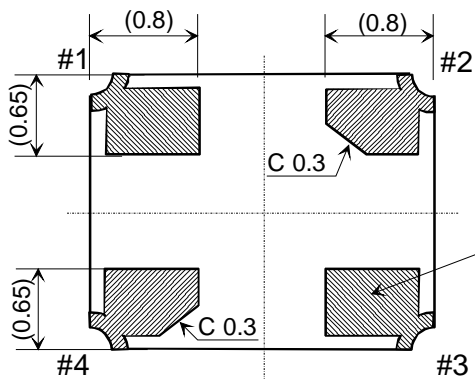
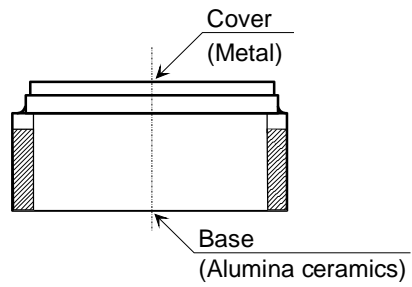
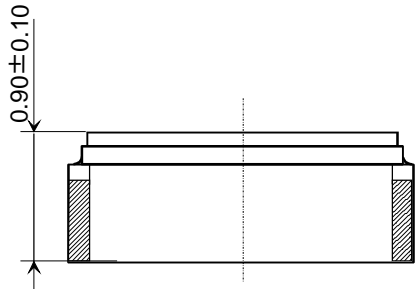
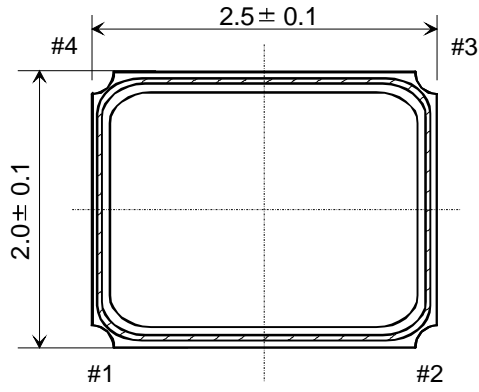
$$\text{Pulling Sensitivity(PS) [ppm/pF]} = \frac{C_m \times 1000}{2(C_p + C_L)^2}$$
Unit: C_0 (pF), C_1 (fF) and C_L (pF)
- 3.11. Spurious resistance : 1,100Ω (Min.) within $F_0 \pm 1$ MHz
- 3.12. Q-factor : 75,000 (Min.)
- 3.13. Insulation Resistance : Terminal to terminal insulation resistance also terminal to cover insulation resistance must be 500MΩ (Min.) when DC100V ±15V is applied.
4. Measurement circuit
- 4.1. Frequency measurement
- Measuring Instrument : IEC π -network
 - Load Capacitance (C_L) : 7 pF
 - Level of Drive : 10 μ W
- 4.2. Equivalent resistance measurement
- Measuring Instrument : IEC π -network
 - Load Capacitance (C_L) : Series
 - Level of Drive : 10 μ W

5. Other performances for crystal unit

5.1. Air-tightness	: Less than 1.1×10^{-9} Pa m ³ /s (Helium leak detector)
5.2. Ageing	: $\pm 1 \times 10^{-6}$ Max. /Year
5.3. Frequency drift after reflow	: $\pm 2 \times 10^{-6}$ Max. after two reflow passed.
5.4. Operating Temperature range	: -30 to +105 °C
5.5. Storage Temperature range	: -40 to +105 °C
5.6. Maximum drive level	: 100 μ W Max.

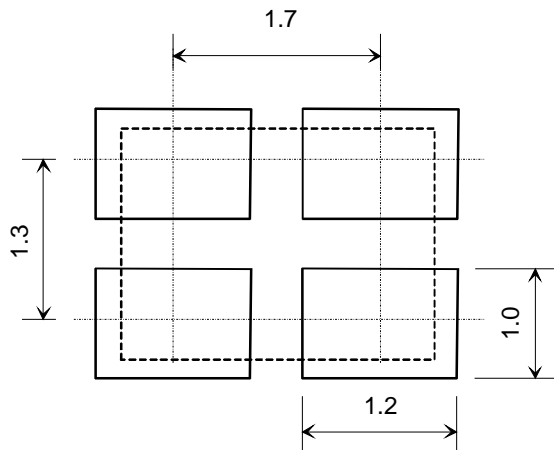
6. Thermistor characteristics

6.1. Size	: 0.6×0.3×0.3 (mm)
6.2. Resistance value (at +25°C)	: 100 (k Ω) \pm 1%
6.3. B Constant (+25/+50°C)	: 4250(K) \pm 1%

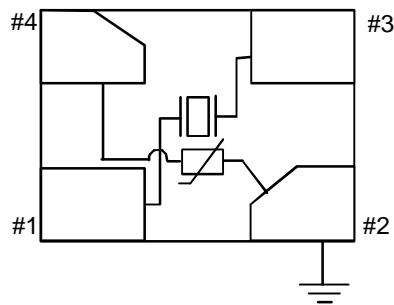


Terminal
Molybdenum metalize
(Au plating on Ni pre-plating)

Recommended land pattern



Terminal configuration
(TOP VIEW)



Terminal	Function
#1, #3	XTAL IN-OUT
#4	THERMISTOR IN
#2	THERMISTOR OUT
#2	GND (Connected with cover)