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|--|----------------|-----------|------------------|
| Specification | AXX2520 | Issue: 02 | Date: 2006-03-18 |
| Oscillator type : Quartz Crystal Unit in SMD package 2.5x2.0 mm | | | |
| RoHS compliant | | | |

| Parameter | min. | typ. | max. | Unit | Condition |
|--|--------------------------------------|------|------|------------------|---|
| Frequency range | 16 | | 80 | MHz | |
| Actual frequency f_0 | | | | MHz | |
| Crystal cut / Vibration mode | AT | | | | |
| Load capacitance C_L | 8 pF, 10 pF or Series | | | | |
| Overtone | 1 | | | | |
| Adjustment tolerance | $\pm 15 / \pm 20 / \pm 50 / \pm 100$ | | | ppm | @ 25°C +5°C |
| Frequency stability | | | | ppm | Overall (Note 1) |
| Frequency stability over temperature range | $\pm 10 \sim \pm 100$ | | | ppm | See table below |
| operating temperature range (steady state) | 0 | | +50 | °C | |
| | -10 | | +60 | °C | |
| | -20 | | +70 | °C | |
| | -40 | | +85 | °C | |
| long term (aging) | | | | ± 5 | ppm |
| Resonance resistance R_r | | | | 150 100 60 | Ω Ω Ω |
| | | | | | @ 16 ~ 20 MHz @ >20 ~ 30 MHz @ >30 ~ 80 MHz |
| Motional capacitance C_1 | | | | | fF |
| Static capacitance C_0 | | | | 7 | pF |
| Drive level | 20 | | 100 | μ W | |
| Insulation resistance | 500 | | | M Ω | 100 V DC |
| Storage temperature range | -40 | +85 | | °C | |
| Enclosure (see drawing) | 2.5 x 2.0 x 0.6 | | | | IEC 61637 |
| marking | Frequency (MHz) + Date Code | | | | |
| Packing | Tape & Reel | | | | IEC 60286-3 |

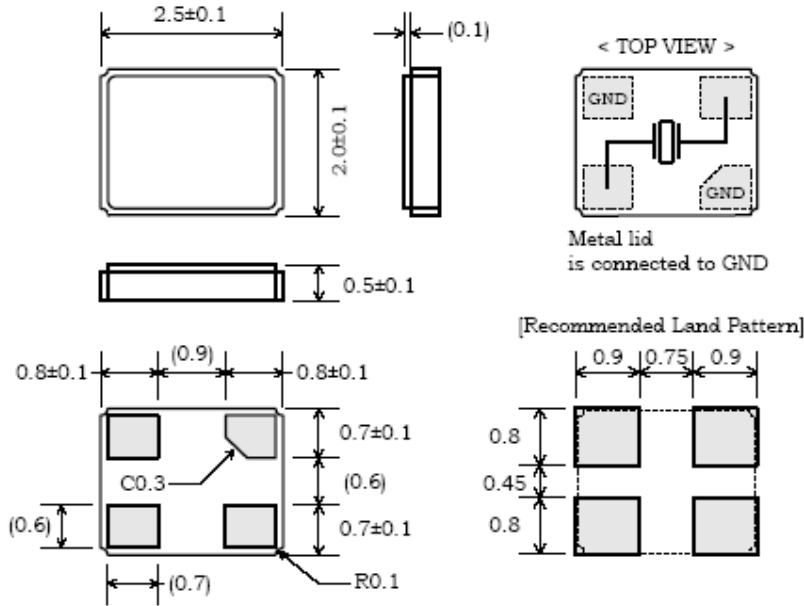
Notes:

- Overall frequency stability = initial tolerance + temp. stability + aging (1st year)
- Terminology and test conditions are according to IEC standard IEC60122-1, unless otherwise stated
- Measurement technique according to IEC 60444-5 or equivalent

Frequency vs. Temperature Stabilities

| 0° ~ +50°C | -10° ~ +60°C | -20° ~ +70°C | -40 ~ +85°C |
|---------------|---------------|---------------|---------------|
| ± 10 ppm | ± 15 ppm | ± 20 ppm | ± 30 ppm |
| ± 30 ppm | ± 30 ppm | ± 30 ppm | ± 50 ppm |
| ± 50 ppm | ± 50 ppm | ± 50 ppm | ± 100 ppm |
| ± 100 ppm | ± 100 ppm | ± 100 ppm | |

Enclosure drawing



Environmental conditions

| Test | IEC 60068 Part ... | IEC 61178-1 clause ... | Test conditions |
|---|--------------------|------------------------|---|
| Visual inspection, dimensions | | 4.5 4.6 | Enclosure styles as in IEC 60122-3, if applicable |
| Sealing tests | 2-17 | 4.8.2 | Gross leak: Test Qc, Fine leak: Test Qk |
| Solderability Resistance to soldering heat | 2-20 | 4.8.3 | Test Ta (235 ± 5)°C Method 1 Test Tb Method 1A, 5s |
| Shock | 2-27 | 4.8.8 | Test Ea, 3 x per axes 100g, 6 ms half-sine pulse |
| Bump | 2-29 | 4.8.6 | Test Eb, 4000 bumps per Axes, 40g, 6 ms |
| Free fall | 2-32 | 4.8.9 | Test Ed procedure 1, 2 drops from 1m height |
| Vibration, sinusoidal | 2-6 | 4.8.7 | Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 1 kHz, 10g |
| Rapid change of temperature | 2-14 | 4.8.5 | Test Na, 10 cycles at extremes of operating temperature range |
| Dry heat | 2-2 | 4.8.11 | Test Ba, 16 h at upper temperature indicated by climatic category |
| Damp heat, cyclic | 2-30 | 4.8.12 | Test Db variant 1 severity b), 55°C/95% r.H., 6 cycles |
| Cold | 2-1 | 4.8.13 | Test Aa, 2 h at lower temperature indicated by climatic category |
| Climatic sequence | 1-7 | 4.8.14 | Sequence of 4.8.11, 4.8.12 (1 st cycle), 4.8.13, 4.8.12 (5 cycles) |
| Damp heat, steady state | 2-3 | 4.8.15 | Test Ca, 56 days |
| Endurance tests - ageing - extended aging | | 4.9.1 4.9.2 | 30 days @ 85°C 1000h, 2000h, 8000h @85°C |