

TYPE FN SEAM SEALED CRYSTAL CLOCK CXO

TYPE FN : SEAM SEALED CRYSTAL CLOCK 7 × 5 × 1.55 mm SURFACE MOUNT PACKAGE

ELECTRICAL SPECIFICATIONS

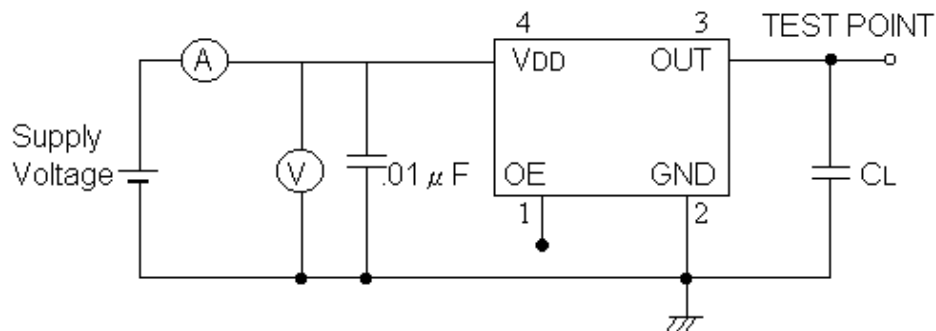
eCERA Parts Number : FN2500002

| Item | Symbol | Specifications | | | | Notes |
|---------------------------|---------|---|-----|-----|---------|---------------------|
| | | Min | Typ | Max | Units | |
| Nominal frequency | FO | 25.000000 | | | MHz | |
| Mode of Oscillation | OT | <input checked="" type="checkbox"/> Fundamental <input type="checkbox"/> 3 Overtone <input type="checkbox"/> 5 Overtone | | | | |
| Frequency Stability | FT | ± 50 | | | ppm | working temperature |
| Working temperature range | TR | -10~70 | | | °C | |
| Supply Voltage | Vcc/Vdd | 3.3 | | | V | ± 10% |
| Fan out type | LT | CMOS | | | | |
| Current consumption | OI/Idd | 10 | | | mA | Max. |
| Symmetry | DC/SY | 45 ~ 55 | | | % | |
| Rise / Fall time | rf | 5 | | | ns | Max. |
| Output Voltage Vol | | 0.33 | | | V | |
| Output Voltage Voh | | 2.97 | | | V | |
| E / D (PIN#1) | | Enable | | | | |
| Output driving ability | CL | 15 | | | pF | |
| Storage temperature range | | -55 ~ 125 | | | °C | |
| Aging | | 3 | | | ppm/yr. | |
| Unit Weight | | 0.154±0.005 | | | g | |

※ This product doesn't include harmful substance that stipulated by SONY SS-00259 Level 1 and S-AT2-001 Level 1 standard.

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TEST DIAGRAM



CL: 15 pF

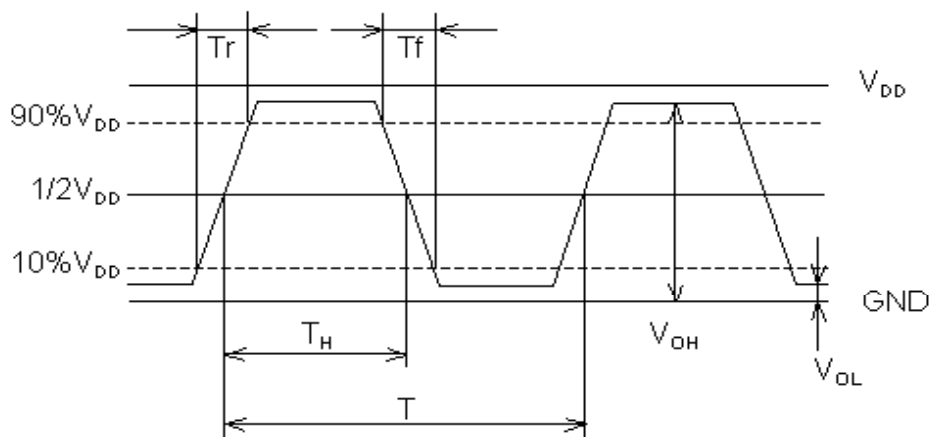
(Including Probe and Fixture Capacitance)

Reset Function :

Logic 0 On Pad - Disable Output to High Impedance

Logic 1 or Open On Pad 1 - Oscillator Output

WAVEFORM CONDITIONS



$$\text{Symmetry} = \frac{T_H}{T} \times 100 (\%)$$

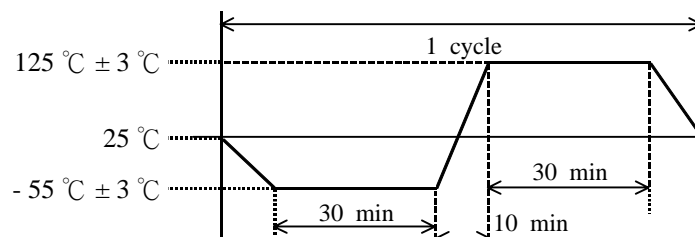
Notes:

1. Pad 1 options
 - a. N/C
 - b. Control input (output enable/disable)
2. Waveform measurement system should have a min. Bandwidth of 5 times the frequency being tested.

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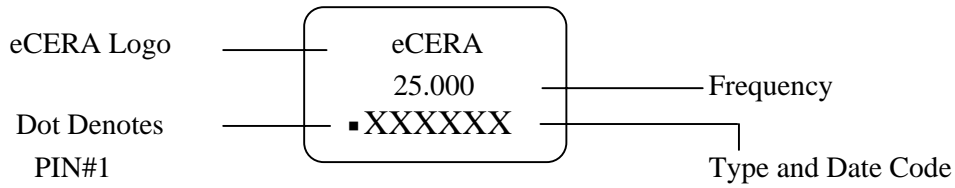
RELIABILITY SPECIFICATIONS

| NO. | TEST ITEM | TEST METHODS | | | | | | | | | | |
|-----------------------------|--|---|-----------------------------|--------------|-------------|-------------|------------|-----------------------|----------------|----------------------------|------|--|
| 1 | DROP TEST | Device are dropped from a height of 75 cm onto 2 mm thickness stainless plate executing 3 times of random drops. | | | | | | | | | | |
| 2 | MECHANICAL SHOCK | Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. | | | | | | | | | | |
| 3 | VIBRATION | <table border="0"> <tr> <td>Frequency range</td> <td>10 ~ 2000 Hz</td> </tr> <tr> <td>Amplitude</td> <td>1.5 mm</td> </tr> <tr> <td>Sweep Time</td> <td>20 minute</td> </tr> <tr> <td>Test Time</td> <td>2 hours for each direction</td> </tr> </table> | Frequency range | 10 ~ 2000 Hz | Amplitude | 1.5 mm | Sweep Time | 20 minute | Test Time | 2 hours for each direction | | |
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| Amplitude | 1.5 mm | | | | | | | | | | | |
| Sweep Time | 20 minute | | | | | | | | | | | |
| Test Time | 2 hours for each direction | | | | | | | | | | | |
| 4 | SOLDERABILITY | <table border="0"> <tr> <td>MIL - STD - 202 Method 208H</td> <td></td> </tr> <tr> <td>Temperature</td> <td>245°C ± 5°C</td> </tr> <tr> <td>Material</td> <td>H63A (Silver 2 ~ 3 %)</td> </tr> <tr> <td>Immersion time</td> <td>5 ± 0.5 seconds</td> </tr> <tr> <td>Flux</td> <td>Rosin resin methyl alcohol solvent (1 : 4)</td> </tr> </table> | MIL - STD - 202 Method 208H | | Temperature | 245°C ± 5°C | Material | H63A (Silver 2 ~ 3 %) | Immersion time | 5 ± 0.5 seconds | Flux | Rosin resin methyl alcohol solvent (1 : 4) |
| MIL - STD - 202 Method 208H | | | | | | | | | | | | |
| Temperature | 245°C ± 5°C | | | | | | | | | | | |
| Material | H63A (Silver 2 ~ 3 %) | | | | | | | | | | | |
| Immersion time | 5 ± 0.5 seconds | | | | | | | | | | | |
| Flux | Rosin resin methyl alcohol solvent (1 : 4) | | | | | | | | | | | |
| 5 | RESISTANCE TO SOLDERING HEAT | Ref. MIL-STD-202G Method 210F Heat solder iron to 320 ± 5°C and apply to the termination for a duration of 4-5 | | | | | | | | | | |
| 6 | LOW TEMP. STORAGE | Leave at - 55 °C ± 3°C for 1000 ± 12 hours | | | | | | | | | | |
| 7 | HIGH TEMP. STORAGE | Leave at 125 °C ± 3°C for 1000 ± 12 hours | | | | | | | | | | |
| 8 | THERMAL SHOCK | Total 100 cycles of the following temperature cycle | | | | | | | | | | |
| 9 | GROSS LEAK TEST | 5kgf/cm ² Helium bombing for 2hours, bubble test in 125 ± 5°C FC#40 for 60 sec or equivalent auto test Ref. MIL-STD-883E Method 1014.10 | | | | | | | | | | |
| 10 | FINE LEAK TEST | 5Kgf/cm ² Helium bombing for 2 hours, leak rate less than 1*10 ⁽⁻⁸⁾ atm.c.c/sec Ref. MIL-STD-883E Method 2007.2 | | | | | | | | | | |
| 11 | FREQ. Vs. TEMPERATURE | '-40°C ~ 85°C , from low temp. 5°C step up to high temp. Ref. eCERA E0-Q-3R-019 | | | | | | | | | | |

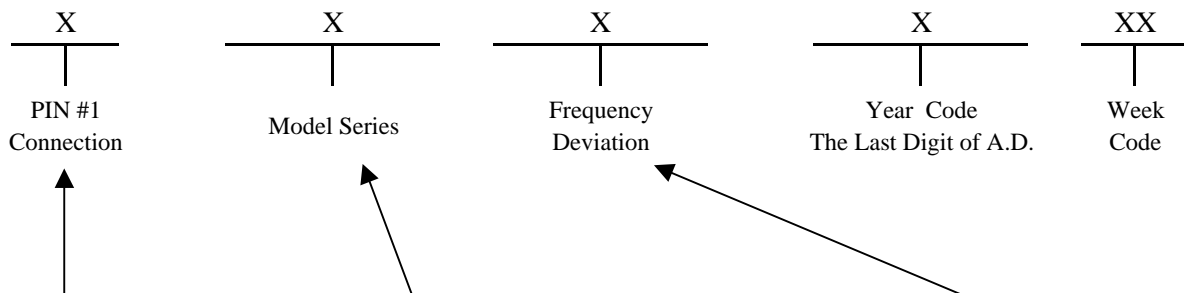


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MARKING



TYPE AND DATE CODE



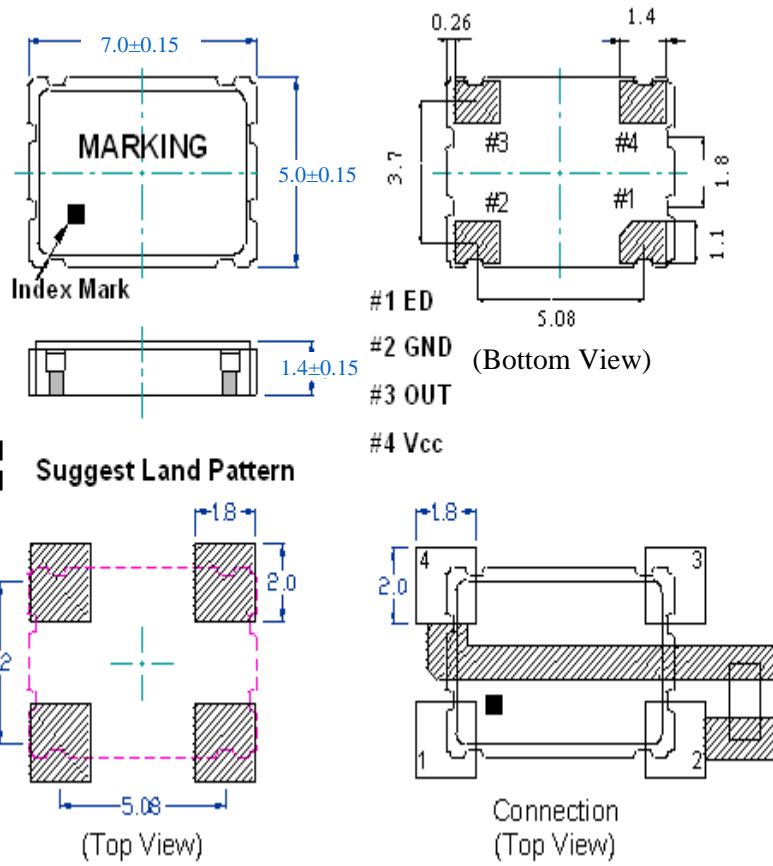
| | |
|---|-------------------|
| E | PIN#1:EN,PIN#2:NC |
| N | PIN#1:NC,PIN#2:NC |
| D | PIN#1:NC,PIN#2:EN |

| Supply Voltage(Vdd) | | | |
|---------------------|---------|--------------|----------------|
| 7x5 CXO | Marking | Fan Out Type | Supply Voltage |
| | B | CMOS | 5.0V |
| | C | CMOS | 3.3V |
| | F | CMOS | 1.8V |
| | G | CMOS | 2.8V |
| | H | CMOS | 2.5V |
| | I | CMOS | 3.0V |
| | J | HCMOS | 3.3V |
| | K | LVC MOS | 3.3V |
| | L | HCMOS | 5.0V |
| | M | CMOS | 2.85V |
| | N | LVPECL | 3.3V |
| | P | PECL | 3.3V |
| | Q | LVDS | 3.3V |
| | R | CMOS | 3.1V |
| | S | PECL | 2.5V |
| T | LVDS | 2.5V | |
| U | LVPECL | 2.5V | |
| V | LVC MOS | 2.85V | |

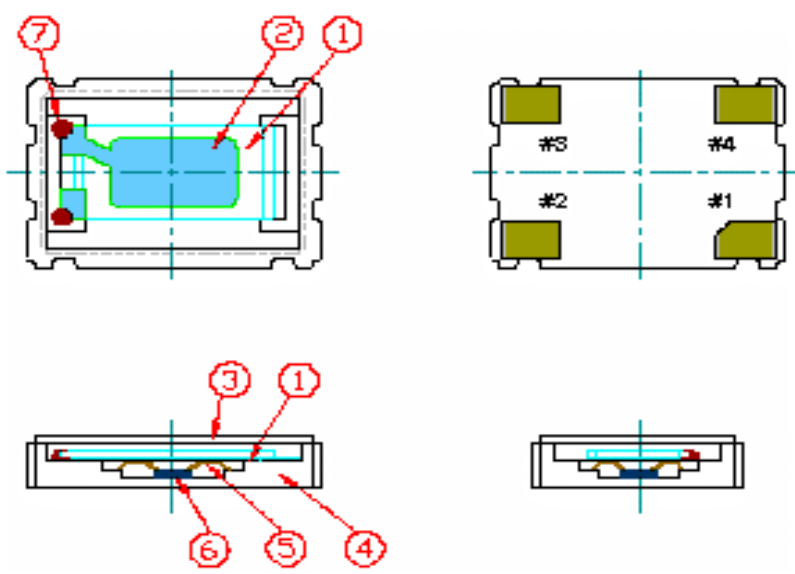
| Frequency | | |
|-----------|-------|-----|
| 1 | ±20 | PPM |
| 2 | ±25 | PPM |
| 3 | ±30 | PPM |
| 4 | ±15 | PPM |
| 5 | ±50 | PPM |
| 0 | ±100 | PPM |
| 7 | ±70 | PPM |
| 8 | ±18 | PPM |
| 9 | ±10 | PPM |
| 6 | ±37.5 | PPM |
| A | ±5 | PPM |
| B | 0~+50 | PPM |
| C | ±75 | PPM |
| D | ±35 | PPM |
| E | ±40 | PPM |
| F | ±9 | PPM |
| G | 0~+15 | PPM |
| H | ±8 | PPM |
| I | ±7 | PPM |

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DIMENSIONS: Units : mm



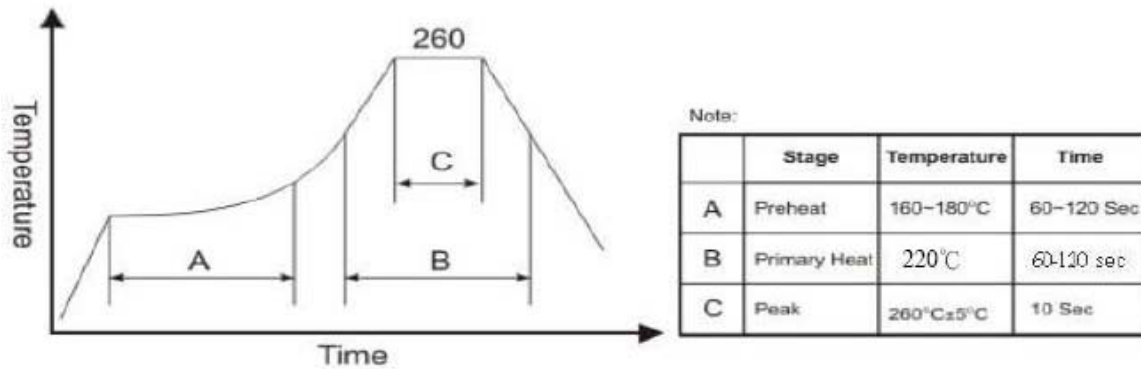
#1 ED
 #2 GND (Bottom View)
 #3 OUT
 #4 Vcc



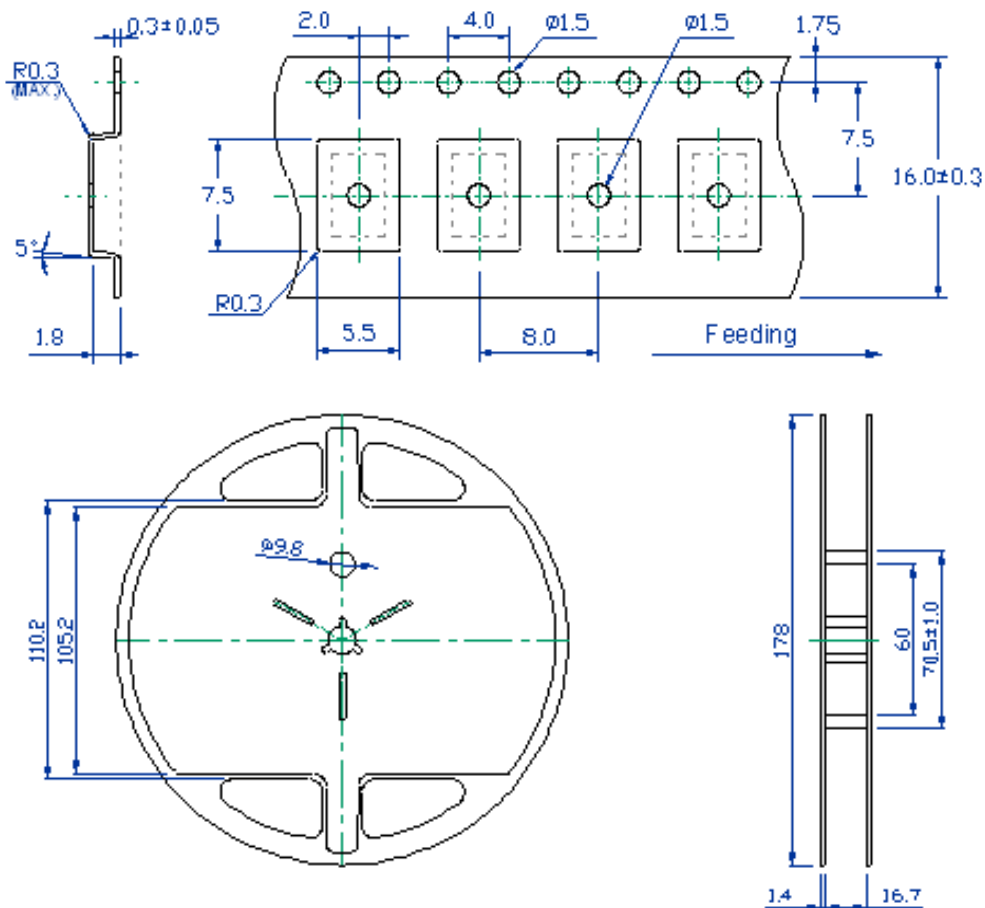
| | |
|---|---------------------|
| 1 | Quartz Blank |
| 2 | Electrode |
| 3 | Lid |
| 4 | Base |
| 5 | Wire Bonding |
| 6 | Die |
| 7 | Conductive adhesive |

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SUGGESTED IR REFLOW PROFILE



PACKING



1. 230mm minimum leader which consist of carrier and/or tape followed by a minimum of 160mm of empty carrier tape sealed with cover tape.
2. 160mm minimum trailer of empty carrier tape sealed with cover tape.

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PACKING

