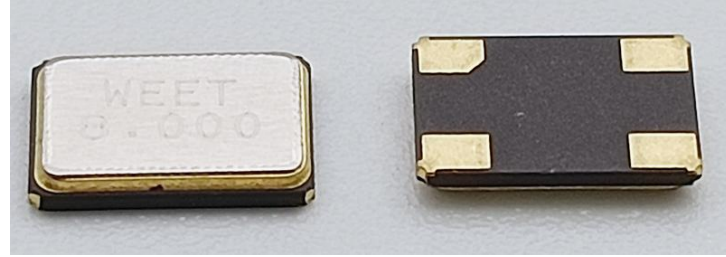


Features

- AT-cut Crystal Construction
- Ultra miniature Ceramic surface mount with Metal Lid
- High temperature, high precision and reliability Characteristics
- Package Size: 5.0×3.2×0.8mm
- Pb-free and RoHS/Green compliant



Applications

- Industrial applications
- Portable devices
- Short-range Wireless module
- Computers, Modems, Microprocessors

Electrical Specifications

| Item | Symb. | Min. | Typ. | Max. | Unit | Notes |
|---------------------------|------------------|----------------------|------|----------|------|-------------------|
| Frequency Range | Freq. | 8.000 | | 50.000 | MHz | |
| Oscillation Mode | | Fundamental (AT-cut) | | | | |
| Frequency Tolerance | $\Delta f/f$ | | | ± 10 | ppm | at 25°C±2°C |
| Operating Temperature | T _{use} | -20 | | 70 | °C | |
| | | -40 | | 85 | °C | |
| Storage Temperature Range | T _{sta} | -55 | | 125 | °C | |
| Shunt Capacitance | C ₀ | | | 5 | pF | |
| Drive Level | DL | | 10 | 300 | μW | |
| Load Capacitance | CL | 8 | | 20 | pF | |
| Insulation Resistance | IR | | | 500 | MΩ | at DC 100V |
| Aging | f _{age} | | | 3 | ppm | 1st. Year at 25°C |

Frequency Stability & Operating Temperature Range

| Temp. \ FT | ±10ppm | ±15ppm | ±20ppm | ±30ppm |
|----------------|--------|--------|--------|--------|
| -20°C to +70°C | △ | ★ | ★ | ★ |
| -40°C to +85°C | | △ | ★ | ★ |

★: Available △: Conditional

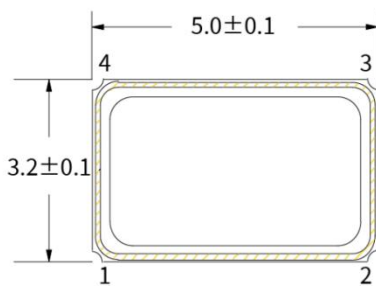


Equivalent Series Resistance

| Frequency Range | ESR(Max.) |
|-----------------------|-----------|
| 8MHz ≤ Freq. < 10MHz | 100 Ω |
| 10MHz ≤ Freq. < 16MHz | 80 Ω |
| 16MHz ≤ Freq. < 20MHz | 50 Ω |
| 20MHz ≤ Freq. < 24MHz | 40 Ω |
| 24MHz ≤ Freq. ≤ 50MHz | 30 Ω |

Dimensions (mm)

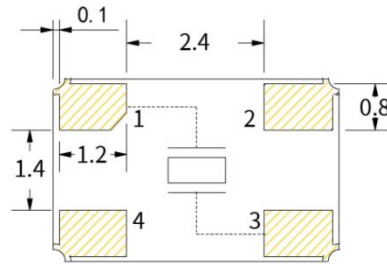
• TOP VIEW



• SIDE VIEW



• BOTTOM VIEW

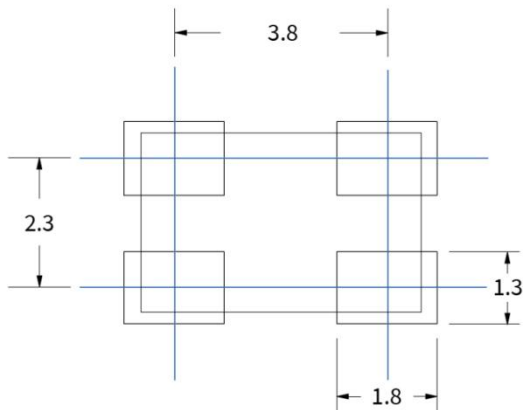


• SIDE VIEW



| Pin | Function |
|-----|----------|
| 1 | Xtal |
| 2 | GND |
| 3 | Xtal |
| 4 | GND |

Solder pad layout(mm)

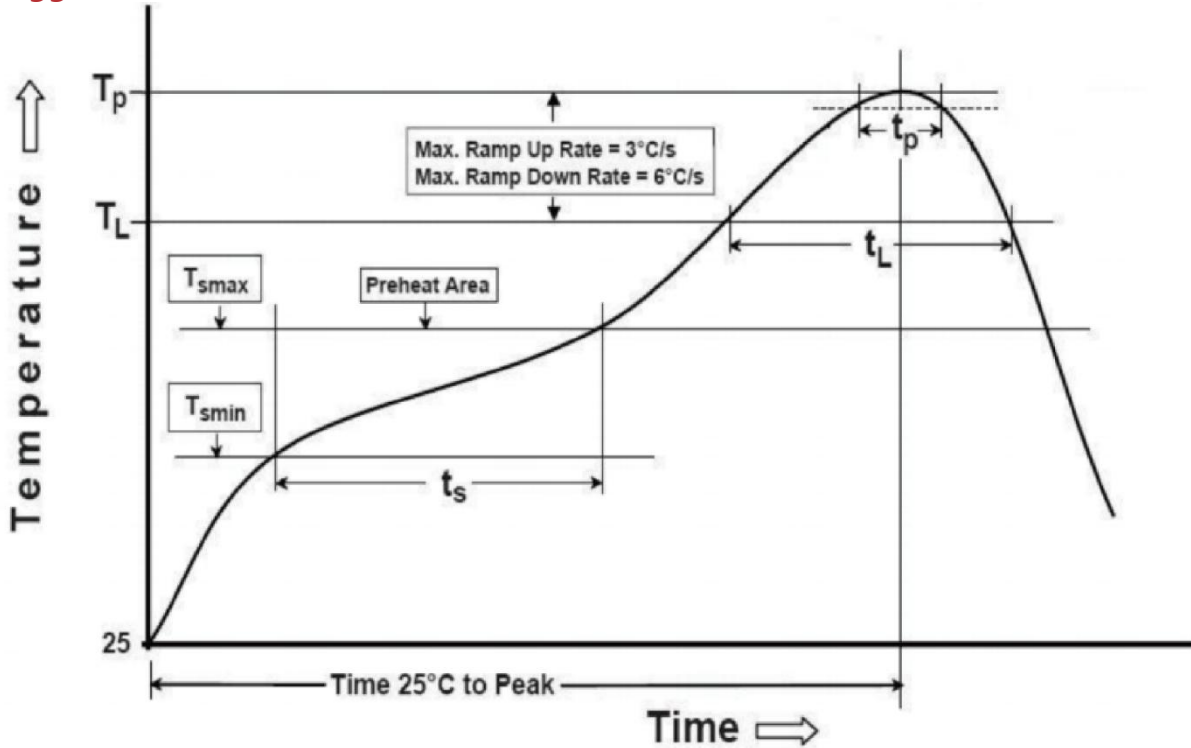


Product Structure

- Metal Lid
- Coated Electrode, Quartz Blank
- Solder Pads, Ceramic Base



Suggested Reflow Profile

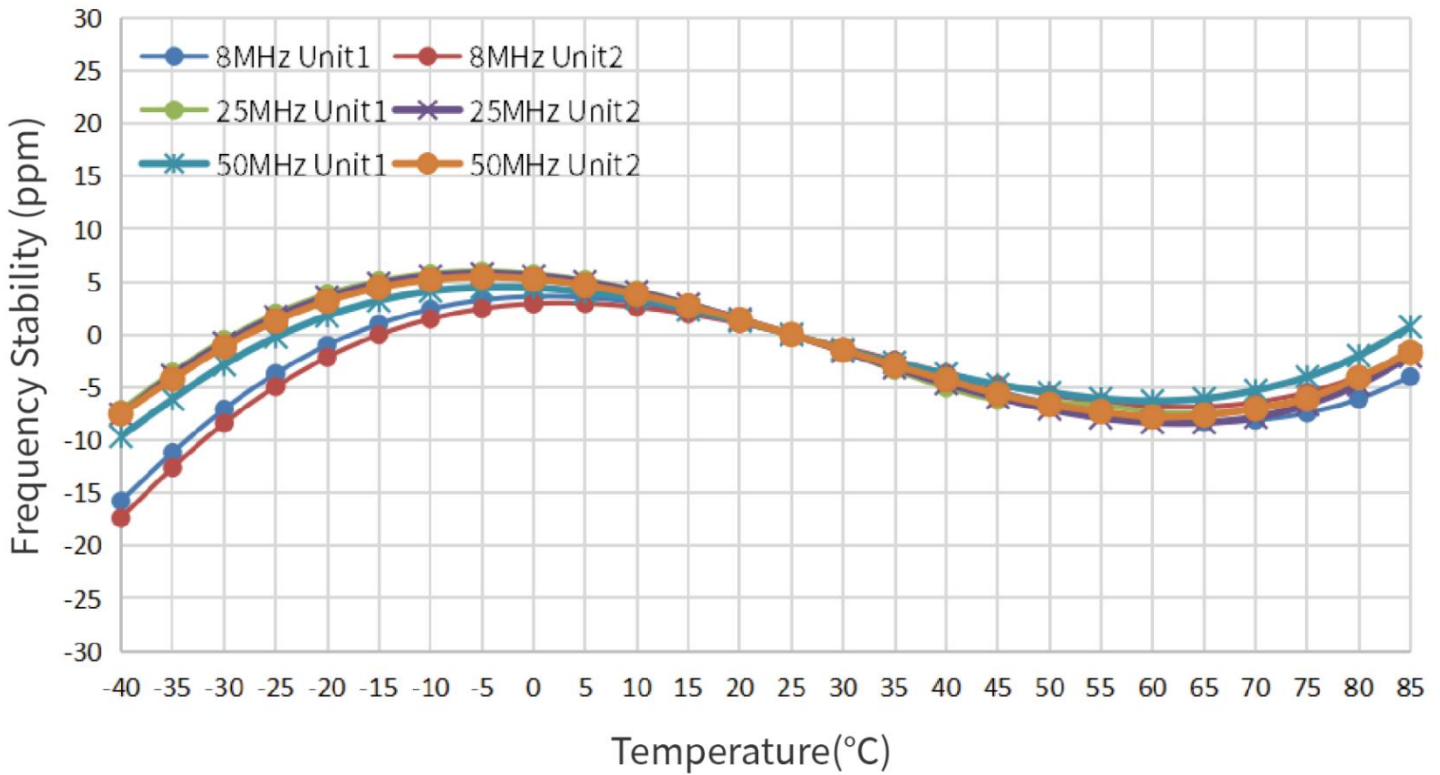


| Profile Feature | Sn - Pb Eutectic Assembly | Preheat / Soak |
|---|----------------------------------|----------------------------------|
| Preheat / Soak ● Temperature Min (T _s min) ● Temperature Max (T _s max) ● Time (T _s min to T _s max) | 100°C 150°C 60-120 seconds | 150°C 200°C 60-120 seconds |
| Ramp - up rate (T _L to T _p) | 3°C/ second max. | 3°C/ second max. |
| Time maintained above ● Liquidous temperature (T _L) ● Time (t _L) maintained above T _L | 183°C 60-150 seconds | 217°C 60-150 seconds |
| Peak package body temperature (T _p) | 235°C | 260°C |
| Time within 5° C of the specified classification temperature (T _p) | 20 seconds | 30 seconds |
| Ramp - down rate (T _p to T _L) | 6°C/ second max. | 6°C/ second max. |
| Time 25° C to peak temperature | 6 minutes max. | 8 minutes max. |
| Suggest reflow times | 2 Times max. | |



Frequency Temperature Characteristics

Frequency Stability vs. Temperature (5X 5032 Package)



PN Structure:

WQC-SMD50328.000F1010F30TR

WQC-SMD5032 8.000MHz 10pF±10ppm -40+85C ±30ppm Tape Reel RoHS

| WQC- | SMD5032 | 8.000 | F | 10 | 10 | F | 30 | T | R |
|--------|---------------------|----------------|------------------|---------------------|-----------------------|-----------------|-----------|------|---|
| Series | Frequency Code(MHz) | AT-Fundamental | Load Capacitance | Frequency Tolerance | Operating Temperature | Frequency Drift | Tape Reel | RoHS | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |



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1. Frequency Code(MHz)

| | | | | |
|---------|---------|--------|----------|----------|
| 8.000 | 8.192 | 10.000 | 11.0592 | 11.2896 |
| 12.000 | 12.288 | 13.000 | 13.560 | 14.31818 |
| 14.7456 | 16.000 | 16.384 | 18.432 | 19.6608 |
| 20.000 | 22.1184 | 24.000 | 24.576 | 25.000 |
| 26.000 | 27.000 | 27.120 | 28.63636 | 30.000 |
| 32.000 | 40.000 | 48.000 | 50.000 | |

3. Capacitance

| | |
|----|------|
| 06 | 6pF |
| 08 | 8pF |
| 10 | 10pF |
| 12 | 12pF |
| 20 | 20pF |

4. Frequency Tolerance

| | |
|----|--------|
| 10 | ±10ppm |
| 20 | ±20ppm |

5. Operating Temperature

| | |
|---|---------|
| E | -20+70C |
| F | -40+85C |

6. Frequency Drift

| | |
|----|--------|
| 10 | ±10ppm |
| 15 | ±15ppm |
| 20 | ±20ppm |
| 30 | ±30ppm |

7. Packing

| | |
|---|-----------|
| T | Tape Reel |
| B | Bulk |

8. RoHS

| | |
|---|------|
| R | RoHS |
|---|------|

