



QESM04

SMD 6.0x3.5 Crystal – Ceramic SMD packaged
Specification (Rev-D)

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September 01th, 2006

Electrical Characteristics

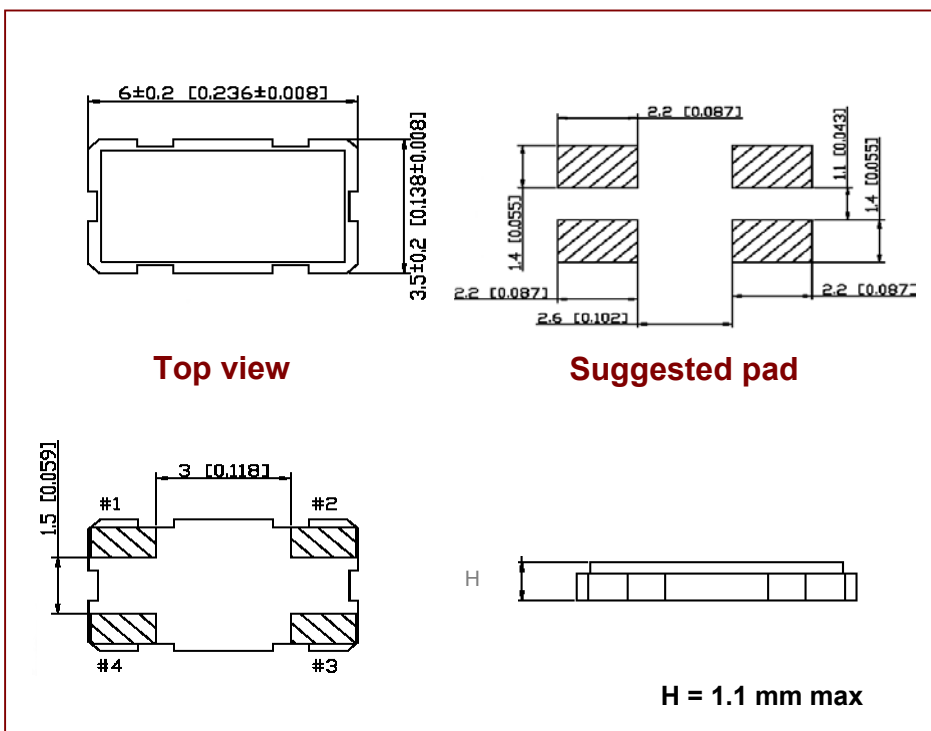
| Electrical Parameters | Unit | Minimum | Typical | Maximum | Test conditions |
|----------------------------------|-------|-----------------------|---------|---------|-------------------------------|
| Frequency range | MHz | 10 | | 80 | |
| Frequency Tolerance (at 25°C) | ± ppm | 10 | 30 | 50 | Refer to Ordering Information |
| Temperature Stability | ± ppm | 10 | 30 | 50 | Refer to Ordering Information |
| Operating Temperature Range | °C | | -20/+70 | -40/+85 | Refer to Ordering Information |
| Storage temperature range | °C | -40 | | +85 | |
| Shunt capacitance C ₀ | pF | | | 7.0 | |
| Load capacitance | pF | 10pF ~ 30pF or series | | | Refer to Ordering Information |
| Drive level | µW | | 10 | 100 | |
| Aging (First Year) | ± ppm | | | 3 | Ref at 25°C |
| Insulator resistance | MΩ | 500 | | | At 100V _{DC} |

Customized specification upon request

ESR vs. frequency range and Mode of vibration

| Frequency range (MHz) | Mode of vibration | Max ESR (Ω) | Frequency range (MHz) | Mode of vibration | Max ESR (Ω) |
|-----------------------|-------------------|-------------|-----------------------|----------------------|-------------|
| 10.000 to 10.999 | Fund. / AT | 100 | 16.000 to 39.999 | Fund. / AT | 40 |
| 11.000 to 11.999 | Fund. / AT | 80 | 40.000 to 80.000 | 3 rd / AT | 70 |
| 12.000 to 15.999 | Fund. / AT | 60 | | | |

Mechanical Characteristics



| Marking for QESM04 | |
|--------------------|-----------------------------------|
| Line 1 | Manuf code +Temex code (6 digits) |
| Line 2 | Frequency in MHz (6digits) |

| Mechanical conditions | |
|-----------------------|---|
| Vibration | 10g, 10Hz to 2KHz according to standard CEI 68-2-63 |
| Shocks | 100g, 6ms according to standard CEI 68-2-27 |

Note 1 : QESM04 is fully RoHS compliant.

QESM04

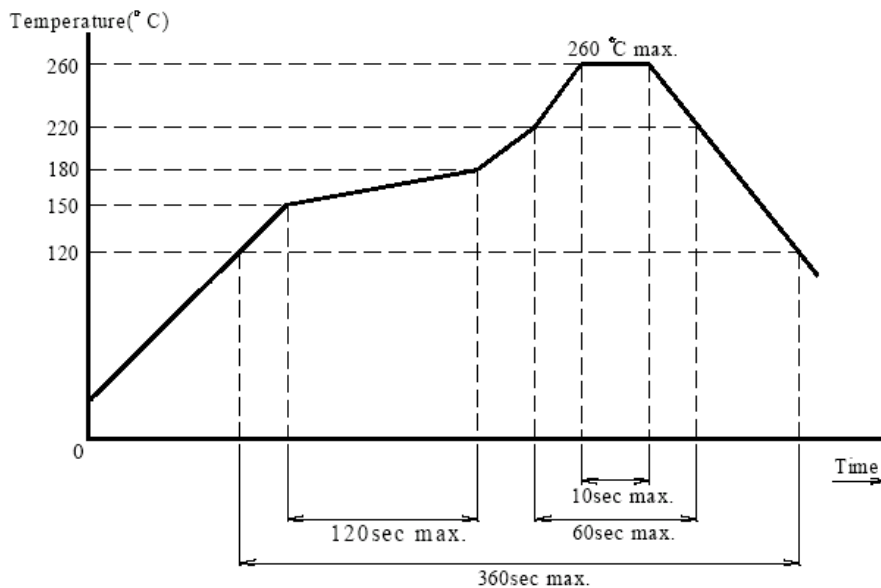
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Ordering Information

| Part numbering system | | | | | | |
|--|---|--|---|--|--|------------------------------------|
| QESM04 | 1 | 10 | JQ | 10 | 08 | 39.000MHZ |
| Package type | Vibration mode | Frequency tolerance | Operating temperature range | Frequency stability | Load Capacitance | Nominal Frequency (MHz) |
| SMD Package QESM04 : SMD ceramic 6.0 x 3.5 4 pads | 1=Fundamental 3=3 rd overtone | 10=±10ppm 20=±20ppm 30=±30ppm 50=±50ppm | D=-40°C F= -30°C H=-20°C J=-10°C L=0°C M=+50°C N=+55°C O=+60°C Q=+70°C T=+85°C | 10=±10ppm 20=±20ppm 30=±30ppm 50=±50ppm | 00=series 10=10pF 30=30pF Please, enter the value of load capacitance | Please enter the nominal frequency |

Suggested Reflow Soldering Profile

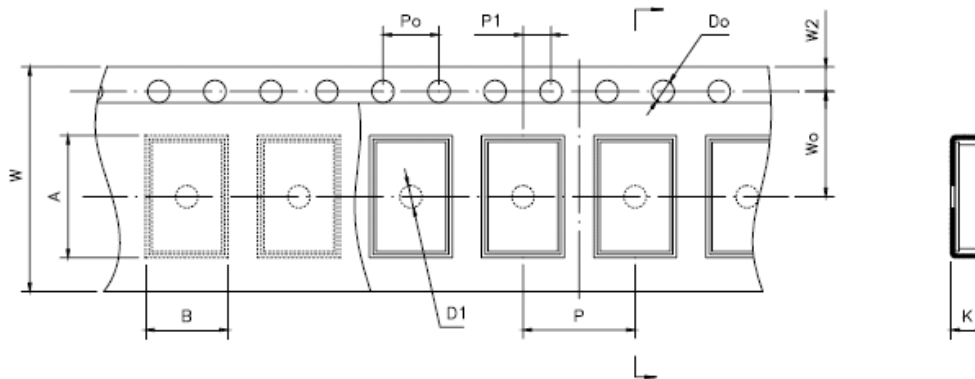


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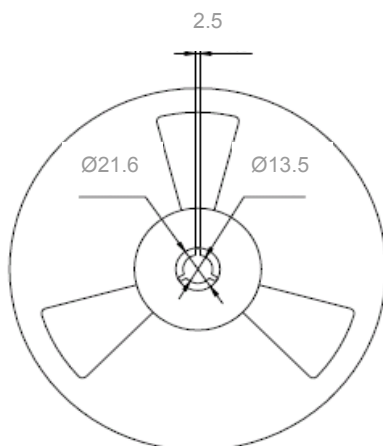
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▣ Tape Drawing



| | Code | Dimension | Tolerance |
|---|------|-----------|-----------|
| Pitch of components | P | 8.0 | ± 0.1 |
| Pitch of sprocket hole | Po | 4.0 | ± 0.1 |
| Length from hole center to component center | P1 | 2.0 | ± 0.1 |
| Width of carrier tape | W | 16.0 | ± 0.3 |
| Width of adhesive tape | W0 | 7.5 | ± 0.1 |
| Height of component hole | A | 7.1 | ± 0.1 |
| Width of component hole | B | 4.7 | ± 0.1 |
| Gap of hold down tape and carrier tape | W2 | 1.75 | ± 0.1 |
| Diameter of sprocket hole | Do | ∅ 1.5 | ± 0.05 |
| Diameter of feed hole | D1 | ∅ 1.5 | ± 0.25 |
| Total of tape thickness | K | 1.5 | ± 0.1 |

▣ Reel Drawing



Multiple : 1Kpcs per Reel

Unit : mm

