



actual size

Quartz Crystal · MQ1-SMC

SMD Crystal Version · 11.7 x 7.8 mm

- automotive temperature range available
- reflow soldering temperature: 260 °C max.
- package height 3.6 mm max.



RoHS compliant

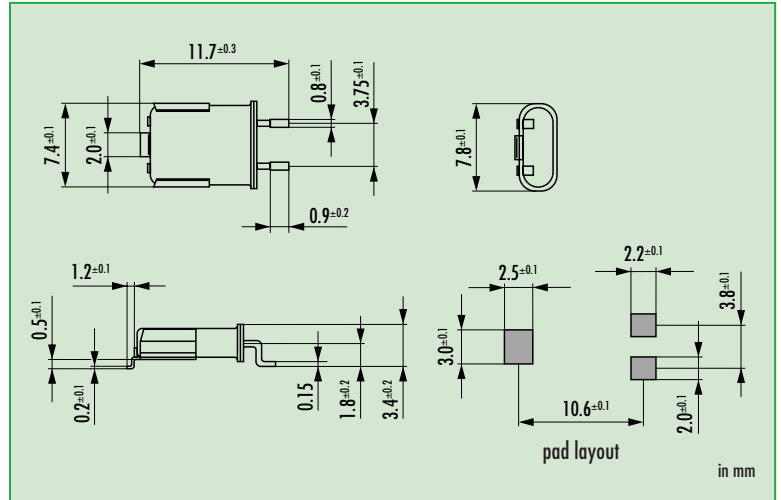


Pb free: pins / pads

General Data

| type | MQ1 (UM-1-SMC) |
|------------------------------|----------------------------------|
| frequency range | 0.9216 / 1.0 MHz (fund. SL-cut) |
| | 4.00 ~ 40.00 MHz (fund. AT-cut) |
| | 20.0 ~ 105.0 MHz (3rd OT AT-cut) |
| | 50.0 ~ 175.0 MHz (5th OT AT-cut) |
| | 70.0 ~ 250.0 MHz (7th OT AT-cut) |
| frequency tolerance at 25 °C | ± 5 ppm ~ ± 30 ppm |
| load capacitance C_L | 12 pF ~ 32 pF or series |
| shunt capacitance C_0 | < 7 pF |
| storage temperature | -55 °C ~ +125 °C |
| drive level max. | 500 µW (100 µW recommended) |
| aging | < ± 3 ppm first year |

Dimensions



Frequency Stability vs. Temperature

| | | ± 3 ppm | ± 5 ppm | ± 10 ppm | ± 30 ppm | ± 50 ppm | ± 100 ppm |
|------------------|------|---------|---------|----------|----------|----------|-----------|
| 0 °C ~ +60 °C | | ○ | ○ | ○ | | | |
| -20 °C ~ +70 °C | STD. | | ○ | ○ | ● | | |
| -40 °C ~ +85 °C | T1 | | | ○ | ○ | ● | |
| -40 °C ~ +90 °C | T4 | | | | ○ | ○ | ○ |
| -40 °C ~ +105 °C | T2 | | | | ○ | ○ | ○ |
| -40 °C ~ +125 °C | T3 | | | | | | ○ |

● standard
○ available

ESR (series resistance R_s)

| frequency in MHz | vibration mode | ESR max. in Ω | ESR typ. in Ω |
|------------------|----------------|----------------------|----------------------|
| 0.92 / 1.000 | fund.- SL | 3000 | 800 |
| 4.00 ~ 4.9999 | fund.- AT | 150 | 80 |
| 5.00 ~ 9.9999 | fund.- AT | 80 | 40 |
| 10.0 ~ 14.999 | fund.- AT | 40 | 20 |
| 15.0 ~ 40.000 | fund.- AT | 30 | 15 |
| 20.0 ~ 49.999 | 3rd OT - AT | 80 | 70 |
| 50.0 ~ 105.00 | 3rd OT - AT | 60 | 50 |
| 50.0 ~ 175.00 | 5th OT - AT | 150 | 100 |
| 70.0 ~ 250.00 | 7th OT - AT | 100 | 80 |

Order Information

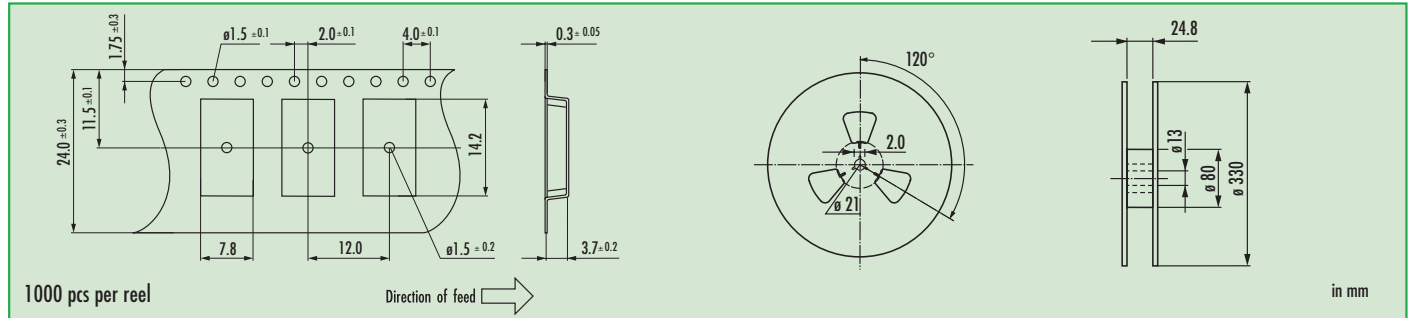
| Q | frequency | type | load capacitance in pF | stability at 25 °C | stability vs. temp. range | SMD version | option |
|--------|--------------------|------|-------------------------------|--------------------|---------------------------|-------------|---|
| Quartz | 0.9216 ~ 250.0 MHz | MQ1 | 12 pF ~ 32 pF S for series | ± 5 ~ ± 30 ppm | see table | SMC | blank = -20 °C ~ + 70 °C T1 = -40 °C ~ + 85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C T4 = -40 °C ~ + 90 °C FU = for fundamental frequencies ≥ 20 MHz 3OT = 3rd overtone 5OT = 5th overtone 7OT = 7th overtone TR = taped |

Example: Q 30.0-MQ1-30-30/50-SMC-FU (Suffix LF = RoHS compliant / Pb free pins or pads)

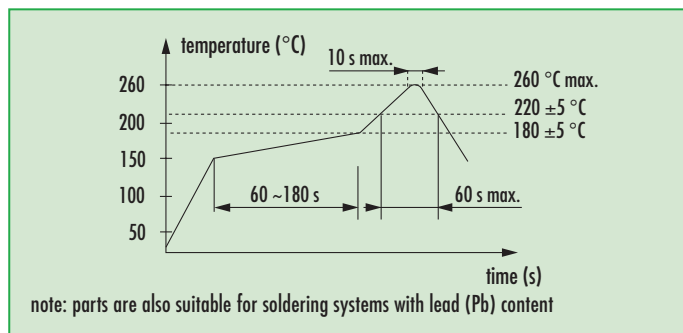


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Taping Specification



Reflow Soldering Profile



Marking

frequency
company code / date code