

- Low height SMD package for low frequencies
- Frequency range 3.2MHz to 70.0MHz
- Fully RoHS compliant
- Standard EIA tape and reel



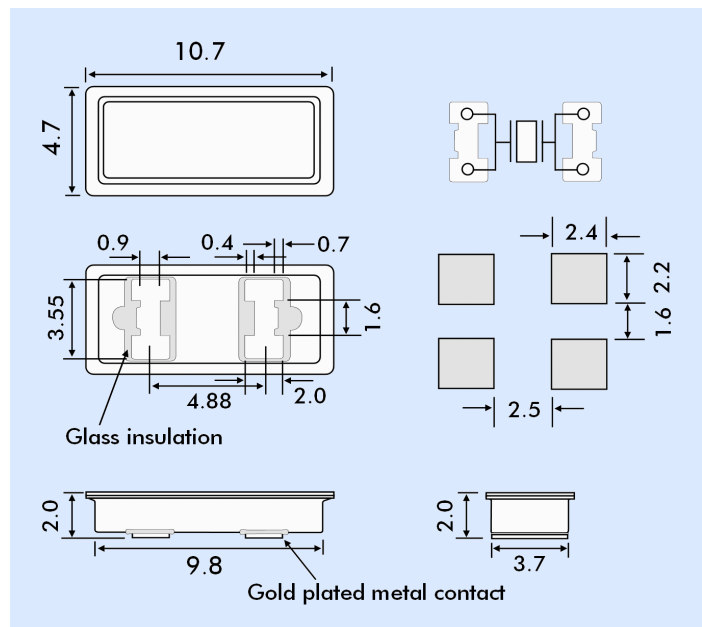
### DESCRIPTION

MS2 crystals provides low frequency clock signals, from 3.2MHz, in a low-profile SMD package with a height of 2.0mm. The construction comprises of a glass to metal substrate and resistance-welded metal lid offering enhanced hermetic properties. Premium grade AT-strip crystal plate is mounted at both ends for high shock and low g sensitivity.

### SPECIFICATION

|                                 |   |
|---------------------------------|---|
| <b>Frequency Range</b>          |   |
| AT-Cut Fundamental:             | 3.2MHz to 30.0MHz                                   |
| AT-Cut 3rd Overtone:            | 27.0MHz to 70.0MHz                                  |
| BT-Cut Fundamental:             | 24.0MHz to 48.0MHz                                  |
| Calibration Tolerance at 25°C*: | from ±10ppm at 25°C (±30ppm standard)               |
| <b>Frequency stability</b>      |   |
| AT-Cut:                         | ±30ppm over -10° to +60°C                           |
| BT-Cut:                         | ±100ppm over -10° to +60°C                          |
| Storage Temperature:            | -40°~+85°C  |
| Equivalent Series Resistance:   | See table   |
| Shunt Capacitance (C0):         | 7pF maximum   |
| Load Capacitance (CL):          | Series or from 10pF to 32pF (Customer specified CL) |
| Ageing:                         | <±5ppm per year at +25°C                            |
| Drive level:                    | 0.5mW maximum                                       |
| Reflow Soldering:               | 10s maximum, 260°C twice or 180s at 230°C, once.    |
| Packaging:                      | 24mm EIA tape and reel, 1k per.                     |

### OUTLINE & DIMENSIONS



### EQUIVALENT SERIES RESISTANCE

| Frequency Range MHz       | ESR Ω Max. |
|---------------------------|------------|
| <b>AT-Cut Fundamental</b> |            |
| 3.2~3.4                   | 300        |
| 3.5~4.0                   | 150        |
| 4.1~4.9                   | 120        |
| 5.0~5.9                   | 100        |
| 6.0~8.9                   | 80         |
| 9.0~9.9                   | 60         |
| 10.0~12.9                 | 50         |
| 13.0~30.0                 | 45         |

| Frequency Range MHz        | ESR Ω Max. |
|----------------------------|------------|
| <b>AT-Cut 3rd Overtone</b> |            |
| 25.0~30.0                  | 150        |
| 30.0~50.0                  | 100        |
| 50.0~70.0                  | 80         |
| <b>BT-Cut Fundamental</b>  |            |
| 24.0~40.0                  | 40         |

### PART NUMBER GENERATION

Part numbers for MS2 crystals are generated as follows:

