



QUARTZ CRYSTAL - HC49S-SMD SERIES LOW PROFILE SURFACE MOUNT PACKAGE RESISTANCE WELDED

FEATURES

- Height 4.0mm, or 3.0mm, compact unit for surface mount
- Metal case and completely sealed, high resolution characteristics
- Copes with high density mounting and is the optimum for mass production



ELECTRICAL SPECIFICATIONS

| | |
|--|---|
| Nominal frequency | 3.000MHz to 100.0MHz |
| Operating temperature | -10 to 60°C (Standard) <i>optional:</i> -20 to 70°C , -40 to 85°C |
| Storage temperature | -40 to 85°C |
| Frequency tolerance at 25°C | ±30ppm (Standard) <i>Other options available please specify</i> |
| Frequency Stability over operating temperature range | ±30ppm (Standard) <i>Other options available please specify</i> |
| Load Capacitance | 18pf (Standard) <i>Other options available:</i> 16pF,20pF,30pF,series, or specify |
| Equivalent series resistance (ESR) | See Table |
| Parallel capacitance(Co) | 7pf Max |
| Drive Level | 100µW Typ |

ESR and OPERATING MODE

| Frequency Range MHz | E.S.R (Ω Max) | Mode |
|---------------------|---------------|-------------------|
| 3.000~5.999 | 150 | Fundamental AT |
| 6.000~7.999 | 60 | Fundamental AT |
| 8.000~15.999 | 50 | Fundamental AT |
| 16.000~30.000 | 30 | Fundamental AT |
| 24.000~40.320 | 30 | Fundamental AT |
| 24.000~29.999 | 120 | Third Overtone/AT |
| 30.000~49.999 | 80 | Third Overtone/AT |
| 50.000~100.000 | 60 | Third Overtone/AT |

Mechanical Characteristics

| | |
|--------------------------|--|
| Resistance to shock: | ±3ppm Max, ±3ΩMax, Drop test 3 times on a hard wood plate from 100cm height |
| Resistance to vibration: | ±3ppm Max, ±3Ω Max |



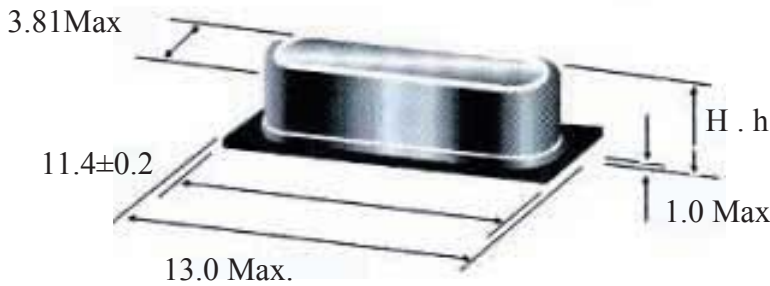
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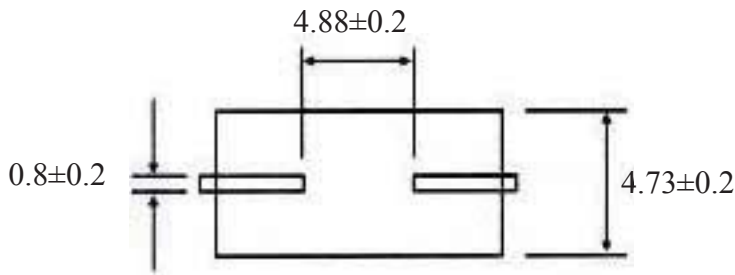
Reliability

| | | |
|---------------------------|---------------|--|
| Aging | | ±3PPM Max/Year |
| Air tightness | (1)Gross leak | should be immersed in hot water (90±5°C) for 5 minutes |
| | (2)Fine leak | should be less than 5x10 ⁻⁸ atmcc/sec by helium leak detector |
| Low drive characteristics | | Measured ΔI,C1,3point at 1.0,10,100μW |

Dimensions



H: 4.0±0.2 (std)
 h: 3.0±0.2



Ordering

| HC49S-SMD - | 20.000 | - 18 | - 30 | - A | - 30 |
|-------------|------------------------------------|--|----------------------------|---|------------------------------|
| Series | Frequency in MHz | Load Capacitance (pf) | Frequency Tolerance in ppm | Operating Temperature Range | temperature stability in ppm |
| | Please specify frequency required. | 18pf (std) Options: 12,16,20, 30, s (series) or specify | ±30ppm (std) | A=-10 to 60°C (std) B=-20 to 70°C C=-40 to 85°C | ±30ppm (std) |