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|--|---|---|
| Quartz Crystal Series | Features ◆RoHS Compliant ◆Low profile type |  |
| HC-49/S (49S) HC-49/SS (49SS) | | |

| Electrical Specifications | | |
|---------------------------|-----------------------------------|------------------------------|
| Item | Specifications | Remarks |
| Nominal Frequency Range | 3.000MHz to 30.000MHz | Fund.; AT-Cut |
| | 20.000MHz to 48.000MHz | Fund.; BT-Cut |
| | 30.000MHz to 110.000MHz | 3 rd O.T.; AT-Cut |
| Frequency Tolerance | ±20ppm(Standard) at 25°C±3°C | Others are offered |
| Load Capacitance | Fund.:10pF to ∞, O.T.:5pF to ∞ | Please specify |
| Series Resistance | As ESR table | |
| Shunt Capacitance | 7pF Max | |
| Drive Level | 10μW to 100μW | 1000μW Max |
| Operating Temperature | -20°C to +70°C(Standard) | Others are offered |
| Storage Temperature | -55°C to +125°C / -65°C to +135°C | |
| Stability vs. Temperature | ±20ppm(Standard) | Others are offered |
| Insulated Resistance | 500MΩ | Minimum at 100Vdc |
| Aging | ±2ppm/year | Maximum |

| ESR(Series Resistance) | | | | | |
|------------------------|-------|---------|----------------|----------------------|---------|
| Frequency(MHz) | Mode | Ohm Max | Frequency(MHz) | Mode | Ohm Max |
| 3.0~3.999 | Fund. | 120 | 10.0~12.999 | Fund. | 40 |
| 4.0~4.999 | Fund. | 90 | 13.0~19.999 | Fund. | 35 |
| 5.0~5.999 | Fund. | 90 | 20.0~30.0 | Fund. | 25 |
| 6.0~6.999 | Fund. | 65 | 20.0~48.0(BT) | Fund. | 25 |
| 7.0~7.999 | Fund. | 55 | 29.999~49.999 | 3 rd O.T. | 100 |
| 8.0~8.999 | Fund. | 50 | 50.0~89.999 | 3 rd O.T. | 80 |
| 9.0~9.999 | Fund. | 45 | 90.0~110.0 | 3 rd O.T. | 120 |

| Stability vs. Temperature | | | | | | | | |
|---------------------------|-----------------|--------|--------|--------|--------|---------|---------|----------|
| | | | | | | | | Remarks |
| | | 1 | 2 | 3 | 5 | 6 | 7 | |
| ◆ Standard | | | | | | | | |
| ◇ Please specify | | ±10ppm | ±20ppm | ±30ppm | ±50ppm | ±100ppm | ±150ppm | |
| B | -10°C to +60°C | ◇ | ◇ | ◇ | | | | |
| C | -20°C to +70°C | ◇ | ◆ | ◇ | ◇ | ◇ | ◇ | Standard |
| D | -40°C to +85°C | ◇ | ◇ | ◇ | ◆ | ◇ | ◇ | |
| E | -45°C to +125°C | | | ◇ | ◇ | ◆ | ◇ | |

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|------------------------------|--|
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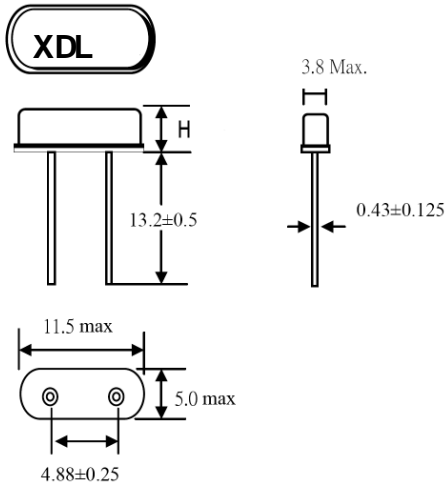
Ordering Information

| Q | R | Type | Pin | XX.XXXX | M | Mode | CL pF | Freq.Tolerance at 25°C | Operating Temp. | Stability Vs.Temp. | Option |
|-------------|---|------|---------|------------------|-----|----------------------------|----------|---------------------------|--------------------|-----------------------|-------------|
| Q: Quartz | | 49S | | Center frequency | M: | F:Fund.:AT | See | ±10ppm to | See Table | See Table | F:Lead Free |
| R:Resonator | | 49SS | Blank:2 | 3.0 to 110.0MHz | MHz | O: 3 rd O.T.:AT | Table | ±150ppm | See Table | See Table | T:T&R |
| | | | | | | | | | | | Blank: Bulk |

Example: QR49S16.0000MFK2C2FT

(Crystal, HC-49/S, 2pins, 16.0000MHz, Fund AT, 20pF, ±20ppm, -20 to +70deg. ±20ppm, Lead free, T&R)

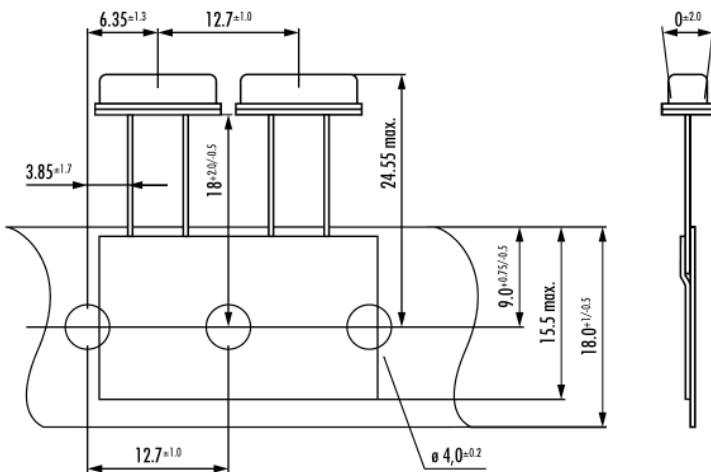
Dimensions



| TYPE | | H |
|------|----------|-----------|
| 49S | HC-49/S | 3.68 Max. |
| 49SS | HC-49/SS | 2.50 Max. |

Unit:mm

Taping Specification



1000pcs/Reel

Load Capacitance Codes

| | | | |
|---------|---------|---------|-----------|
| 7pF: E | 8pF: F | 9pF: B | 10pF: R |
| 12pF: T | 15pF: H | 16pF: I | 18pF: J |
| 20pF: K | 22pF: L | 25pF: G | 27pF: M |
| 30pF: N | 32pF: P | 33pF: W | Series: S |

Quartz Crystal Series

HC-49/S (49S)
HC-49/SS (49SS)

Reflow Soldering Profile

