



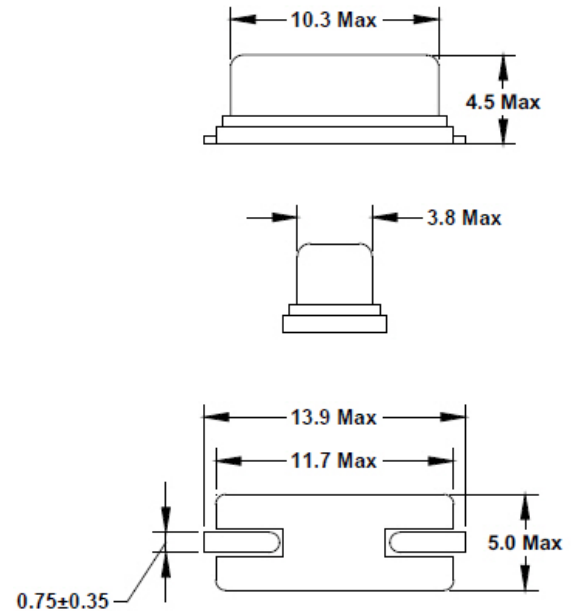
13.9x5mm SMD Crystal

C4SD
(former HC49SDLF)
DATASHEET

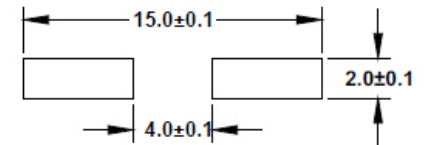
- Tolerances down to 10ppm
- Stabilities down to 5ppm
- Temperature Ranges as wide as -55°C to +125°C

| • SPECIFICATIONS | |
|----------------------------------|------------------------------|
| PARAMETERS | MAX (unless otherwise noted) |
| Frequency Range | 3.200 ~ 80.000 MHz |
| Frequency Tolerance @ 25°C | (see options on page 2) |
| Frequency Stability, ref @ 25°C | (see options below) |
| Temperature Range | |
| Operating (TOPR) | (see options below) |
| Storage (TSTG) | -55°C ~ +125°C |
| Shunt Capacitance (Co) | 7pF |
| Load Capacitance (CL) | (see options on page 2) |
| Drive Level | 0.5 mW (0.1 mW Typical) |
| Aging per year | ±3 PPM |
| Maximum Soldering Temp / Time | 260°C / 10 Seconds |
| Moisture Sensitivity Level (MSL) | 1 |
| Termination Finish: | Sn/3.0Ag/0.5Cu |
| Seal Method | Resistance Weld |
| Lead (Pb) Free | Yes |
| RoHS Compliant | No Exemptions |

Crystal has a ±30ppm tolerance specification for all standard part numbers.



Recommended HC49SD Solder Pad Layout



Dimensions are in millimeters.

Note: Dimensional drawing is for reference to critical specifications defined by size measurements. Certain non-critical visual attributes, such as side castellations, etc. may vary.

| Frequency Range (MHz) | Operating Mode | Max ESR Ω |
|-----------------------|----------------|-----------|
| 3.200 ~ 3.500 | Fundamental | 300 |
| >3.500 ~ 4.000 | Fundamental | 200 |
| >4.000 ~ 5.000 | Fundamental | 150 |
| >5.000 ~ 6.000 | Fundamental | 120 |
| >6.000 ~ 7.000 | Fundamental | 100 |
| >7.000 ~ 9.000 | Fundamental | 80 |
| >9.000 ~ 13.000 | Fundamental | 60 |
| >13.000 ~ 20.000 | Fundamental | 40 |
| >20.000 ~ 40.000 | Fundamental | 30 |
| 24.000 ~ 70.000 | 3rd OT | 100 |
| >70.000 ~ 80.000 | 3rd OT | 70 |

•Available Operating Temperatures and Stabilities*

| Stability Temperature | ±5 PPM | ±10 PPM | ±15 PPM | ±20 PPM | ±25 PPM | ±30 PPM | ±50 PPM | ±100 PPM |
|-----------------------|--------|---------|---------|---------|---------|---------|---------|----------|
| -10 to +60°C | O | O | O | O | O | O | O | O |
| -20 to +70°C | Δ | O | O | O | O | O | O | O |
| -40 to +85°C | X | X | O | O | O | O | O | O |
| -40 to +105°C | X | X | X | X | X | Δ | O | O |
| -40 to +125°C | X | X | X | X | X | X | Δ | O |
| -55 to +125°C | X | X | X | X | X | X | Δ | O |

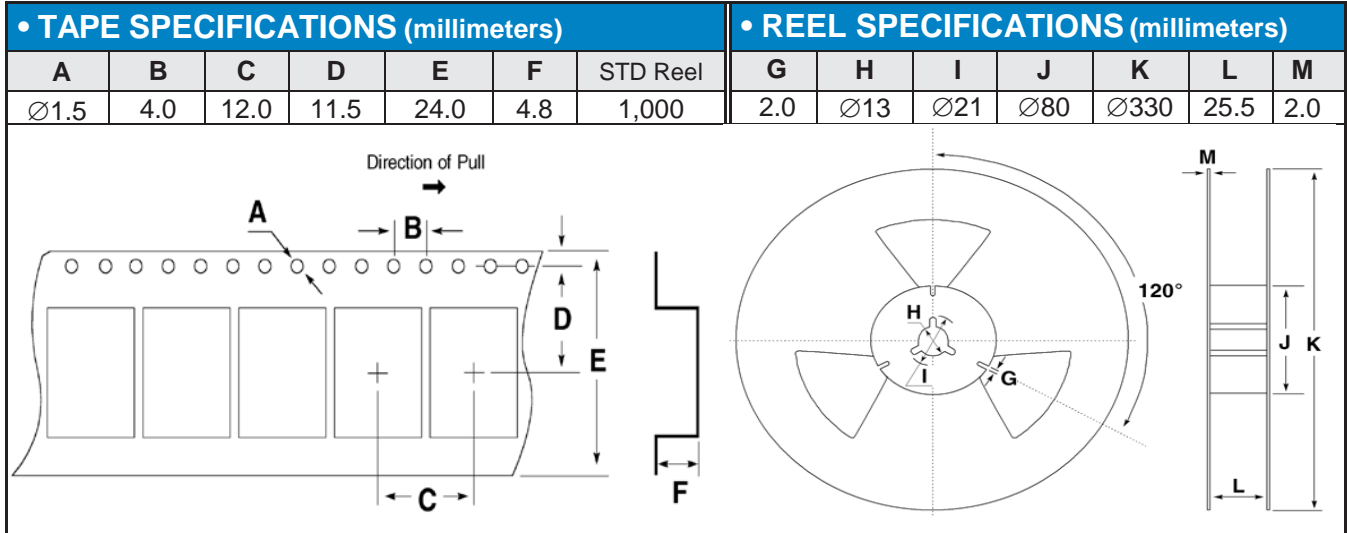
Key: O=Available, X=Not Available, Δ=Consult Fox Technical Support
* Does Not imply a stocked part

| | | | |
|--|---|---------------------|----------------------------------|
| <p>© Copyright 2017 Fox Electronics. All rights reserved</p> | Title / Description: C4SD SERIES STANDARD SPECIFICATIONS | | |
| | Drawing Number: 100954 | | Size: A |
| | Part Number: | | Cage: 61429 |
| | Draftsperson: CMR | Approved: RB | Revision Date: 08/23/2017 |



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Available Options & Part Identification for Crystal Model C4SD*
F C4SD C B M F 25.0

| F | C4SD | C | B | M | F | 25.0 |
|------------|---------------------|---|---|--|--|------------------------|
| FOX | Model Number | Tolerance B=50ppm C=30ppm D=25ppm E=20ppm F=15ppm H=10ppm | Stability A=100ppm B=50ppm C=30ppm D=25ppm E=20ppm F=15ppm H=10ppm L=5ppm | Load Capacitance A=Series E=10pF G=12pF J=15pF K=16pF L=18pF M=20pF N=22pF Q=30pF R=32pF | Operating Temperature D=-10 to +60C F=-20 to +70C M=-40 to +85C P=-40 to +105C I=-40 to +125C T=-55 to +125C | Frequency (MHz) |

*Not all frequency, tolerance, stability, load, and operating temperature combinations may be available.

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• HC49SDFL Standard Crystals

| Part Number | Frequency | Tolerance | Stability | Temp Range | CL |
|------------------|-----------|------------|------------|--------------|------|
| FOXSDLF/036S | 3.579545 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 18pF |
| FOXSDLF/0368-20 | 3.686400 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/040 | 4.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/041 | 4.194304 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/049-20 | 4.915200 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/060-20 | 6.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/073-20 | 7.372800 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/080-20 | 8.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/081-20 | 8.192000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/100-20 | 10.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/115-20 | 11.059200 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/120-20 | 12.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/128-20 | 12.288000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/143-20 | 14.318180 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/147-20 | 14.745600 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/160-20 | 16.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/200-20 | 20.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/221-20 | 22.118400 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/240F-20 | 24.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/245F-20 | 24.576000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/250F-20 | 25.000000 | +/- 30 ppm | +/- 50 ppm | -20 to +70 C | 20pF |
| FOXSDLF/0368R-20 | 3.686400 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/040R | 4.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/060R-20 | 6.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/073R-20 | 7.372800 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/080R-20 | 8.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/100R-20 | 10.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/115R-20 | 11.059200 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/120R-20 | 12.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/143R-20 | 14.318180 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/160R-20 | 16.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/200R-20 | 20.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/240FR-20 | 24.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/245FR-20 | 24.576000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |
| FOXSDLF/250FR-20 | 25.000000 | +/- 30 ppm | +/- 50 ppm | -40 to +85 C | 20pF |

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