

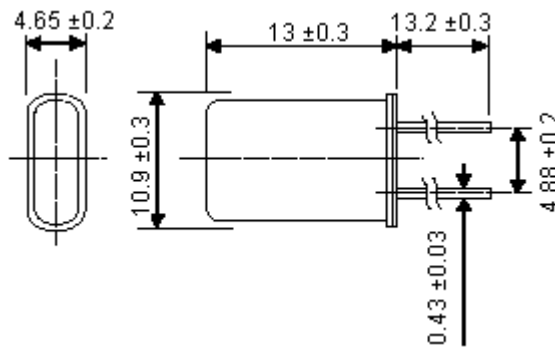
HC-49/U

Features and Applications:



- General, industrial, microcontrollers
- Cost Effective
- Well established product
- Wide frequency range
- Superior resistance weld HC-49/U metal case

Supplied loose as standard. Taped product available to special order



Dimensions : Millimetres

Specification Table

| | | | |
|------------------------------|--|-------------------|-------------------|
| Nominal Frequency Range | 1.8 to 32 MHz | 24 to 75 MHz | 75 to 200 MHz |
| Vibration Mode | Fundamental (AT) | 3rd Overtone (AT) | 5th Overtone (AT) |
| Frequency Tolerance at 25°C | ±20 or ± 30 ppm | | |
| Temperature Stability | ±30 or ± 50 ppm | | |
| Operating Temperature Range | -10°C to +60°C (Option : -20°C to +70°C) | | |
| Storage Temperature Range | -20°C to +70°C (Option : -30°C to +80°C) | | |
| Load Capacitance | 8 pF to 32 pF or series | | |
| Equivalent Series Resistance | See ESR table below | | |
| Shunt Capacitance | 5 pF maximum (≤18 MHz) or 7 pF maximum (>18 MHz) | | |
| Drive Level | 200 μW maximum (≤5 MHz) 100 μW maximum (>5 MHz) | | |
| Insulation Resistance | 500 MΩ minimum at 100 V dc | | |
| Aging | ±5 ppm per year | | |

ESR Table

| Case | Vibration | HC 49U |
|------------------|-----------|-----------|
| Frequency | Mode | Ω Maximum |
| 1 - 1,8 MHz | F | 3,000 |
| 1.8 - 2 MHz | F | 500 |
| 2.01 - 2.399 MHz | F | 450 |
| 2.4 - 2.99 MHz | F | 300 |
| 3 - 3.5 MHz | F | 150 |

ESR Table

| Case | Vibration | HC 49U |
|----------------|-----------|------------------|
| Frequency | Mode | Ω Maximum |
| 3.5 - 3.99 MHz | F | 90 |
| 4 - 4.99 MHz | F | 80 |
| 5 - 5.99 MHz | F | 70 |
| 6 - 6.99 MHz | F | 60 |
| 7 - 7.99 MHz | F | 50 |
| 8 - 9.99 MHz | F | 40 |
| 10 - 13.99 MHz | F | 35 |
| 14 - 23.99 MHz | F | 25 |
| 24 - 25 MHz | F / 3 | 25 / 50 |
| 25 - 30 MHz | F / 3 | 25 / 50 |
| 30 - 75 MHz | 3 | 50 |
| 75 - 125 MHz | 5 | 80 |
| 125 - 150 MHz | 5 | 100 |
| 150 - 200 MHz | 5 | 120 |

Part Number Table

| Case | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range 60 = -10 to +60 70 = -20 to +70 | Load Capacitance pf 00 = Series | Vibration Mode AT Cut F = Fund 0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---|------------------------------------|--|-----------------|
| HC49U | 1.8432 | 20 | 50 | 60 | 30 | ATF | XTL-1012 |
| HC49U | 2 | 50 | 100 | 60 | 20 | ATF | XTL-1014 |
| HC49U | 2.4576 | 20 | 50 | 60 | 30 | ATF | XTL-1017 |
| HC49U | 3.2768 | 20 | 30 | 60 | 12 | ATF | XTL-1020 |
| HC49U | 3.579545 | 20 | 50 | 60 | 20 | ATF | XTL-1021 |
| HC49U | 3.6864 | 20 | 50 | 60 | 30 | ATF | XTL-1023 |
| HC49U | 3.6864 | 30 | 50 | 70 | 30 | ATF | XTL-1024 |
| HC49U | 4 | 20 | 10 | 70 | 30 | ATF | XTL-1027 |
| HC49U | 4 | 20 | 50 | 60 | 30 | ATF | XTL-1028 |
| HC49U | 4 | 30 | 50 | 70 | 30 | ATF | XTL-1029 |
| HC49U | 4.096 | 20 | 20 | 70 | 30 | ATF | XTL-1031 |
| HC49U | 4.096 | 30 | 50 | 70 | 30 | ATF | XTL-1032 |
| HC49U | 4.194304 | 20 | 30 | 60 | 12 | ATF | XTL-1033 |
| HC49U | 4.608 | 20 | 50 | 60 | 30 | ATF | XTL-1037 |

Part Number Table

| Case | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stab (PPM) | Temperature Range 60 = -10 to +60 70 = -20 to +70 | Load Capacitance pf 00 = Series | Vibration Mode AT Cut F = Fund 0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|------------------------|---|------------------------------------|--|-----------------|
| HC49U | 4.9152 | 20 | 50 | 60 | 30 | ATF | XTL-1040 |
| HC49U | 4.9152 | 30 | 50 | 70 | 30 | ATF | XTL-1041 |
| HC49U | 5 | 20 | 50 | 60 | 30 | ATF | XTL-1043 |
| HC49U | 5.0688 | 20 | 50 | 60 | 0 | ATF | XTL-1044 |
| HC49U | 6 | 20 | 50 | 60 | 30 | ATF | XTL-1051 |
| HC49U | 6 | 30 | 50 | 70 | 30 | ATF | XTL-1053 |
| HC49U | 6.144 | 20 | 50 | 60 | 30 | ATF | XTL-1055 |
| HC49U | 6.5536 | 20 | 30 | 60 | 12 | ATF | XTL-1057 |
| HC49U | 7.3728 | 20 | 50 | 60 | 30 | ATF | XTL-1059 |
| HC49U | 8 | 20 | 50 | 60 | 30 | ATF | XTL-1062 |
| HC49U | 8 | 30 | 50 | 70 | 30 | ATF | XTL-1064 |
| HC49U | 10 | 20 | 10 | 70 | 30 | ATF | XTL-1069 |
| HC49U | 10 | 20 | 50 | 60 | 30 | ATF | XTL-1070 |
| HC49U | 11 | 20 | 30 | 60 | 30 | ATF | XTL-1073 |
| HC49U | 11.0592 | 20 | 30 | 60 | 20 | ATF | XTL-1074 |
| HC49U | 12 | 20 | 30 | 60 | 30 | ATF | XTL-1079 |
| HC49U | 12.288 | 20 | 50 | 60 | 30 | ATF | XTL-1081 |
| HC49U | 14.31818 | 20 | 50 | 60 | 0 | ATF | XTL-1083 |
| HC49U | 14.7456 | 20 | 30 | 60 | 30 | ATF | XTL-1087 |
| HC49U | 16 | 20 | 30 | 60 | 30 | ATF | XTL-1089 |
| HC49U | 19.6608 | 20 | 50 | 60 | 30 | ATF | XTL-1096 |
| HC49U | 20 | 20 | 30 | 60 | 0 | ATF | XTL-1098 |
| HC49U | 22.1184 | 20 | 50 | 60 | 30 | ATF | XTL-1114 |
| HC49U | 24 | 20 | 50 | 60 | 0 | ATF | XTL-1120 |
| HC49U | 32 | 20 | 30 | 60 | 0 | ATF | XTL-1131 |

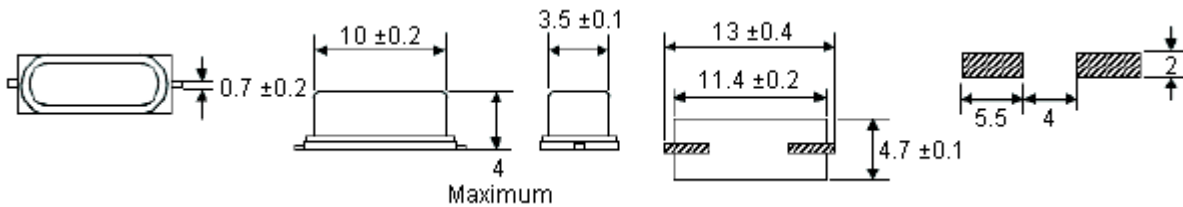
HC-49/SM



Features and Applications:

Designed for applications where board height is critical

- General, industrial, microcontrollers
- Cost effective
- Surface mount
- Low profile (4 mm height)
- Superior resistance weld HC49/4SMX metal case
- Supplied taped and reeled



Dimensions : Millimetres

Specification Table

| | | |
|------------------------------|--|-------------------|
| Nominal Frequency Range | 3.5 to 32 MHz | 24 to 70 MHz |
| Vibration Mode | Fundamental (AT) | 3rd Overtone (AT) |
| Frequency Tolerance at 25°C | ±20, ±30 or ±50 ppm (Options : ±10, ±15 ppm) | |
| Temperature Stability | ±30 or ± 50 ppm | |
| Operating Temperature Range | -10°C to +60°C or -20°C to +70°C | |
| Storage Temperature Range | -20°C to +70°C or -30°C to +80°C | |
| Load Capacitance | 8 pF to 33 pF or series | |
| Equivalent Series Resistance | See ESR table below | |
| Shunt Capacitance | 5 pF maximum (≤18 MHz) or 7 pF maximum (>18 MHz) | |
| Drive Level | 200 µW maximum (≤5 MHz) 100 µW maximum (>5 MHz) | |
| Insulation Resistance | 500 MΩ minimum at 100 V dc | |
| Aging | ±5 ppm per year | |

ESR Table

| Case | Vibration | HC 49SM |
|----------------|-----------|-----------|
| Frequency | Mode | Ω Maximum |
| 3.5 - 3.99 MHz | F | 150 |
| 4 - 4.99 MHz | F | 120 |
| 5 - 5.99 MHz | F | 100 |
| 6 - 6.99 MHz | F | 80 |
| 7 - 7.99 MHz | F | 80 |

ESR Table

| Case | Vibration | HC 49SM |
|----------------|-----------|------------------|
| Frequency | Mode | Ω Maximum |
| 8 - 9.99 MHz | F | 70 |
| 10 - 13.99 MHz | F | 50 |
| 14 - 23.99 MHz | F | 40 |
| 24 - 25 MHz | F / 3 | 40 / 80 |
| 25 - 30 MHz | F / 3 | 40 / 80 |
| 30 - 70 MHz | 3 | 80 |

Part Number Table

| Case | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range 60 = -10 to +60 70 = -20 to +70 | Load Capacitance pf 00 = Series | Vibration Mode AT Cut F = Fund 0.3 Overtone | Ant Part Number |
|--------|-----------------|---------------------------|-----------------------------|---|------------------------------------|--|-----------------|
| HC49SM | 3.579545 | 30 | 50 | 60 | 16 | ATF | XTL-5014 |
| HC49SM | 3.6864 | 30 | 50 | 60 | 16 | ATF | XTL-5014 |
| HC49SM | 4 | 30 | 50 | 60 | 16 | ATF | XTL-5021 |
| HC49SM | 4.9152 | 30 | 50 | 60 | 16 | ATF | XTL-5025 |
| HC49SM | 6 | 30 | 50 | 60 | 30 | ATF | XTL-5032 |
| HC49SM | 8 | 30 | 50 | 60 | 16 | ATF | XTL-5038 |
| HC49SM | 10 | 30 | 50 | 60 | 16 | ATF | XTL-5043 |
| HC49SM | 11.0592 | 30 | 50 | 60 | 16 | ATF | XTL-5048 |
| HC49SM | 12 | 30 | 50 | 60 | 16 | ATF | XTL-5050 |
| HC49SM | 16 | 30 | 50 | 60 | 16 | ATF | XTL-5055 |
| HC49SM | 20 | 30 | 50 | 60 | 16 | ATF | XTL-5062 |

HC-49/S

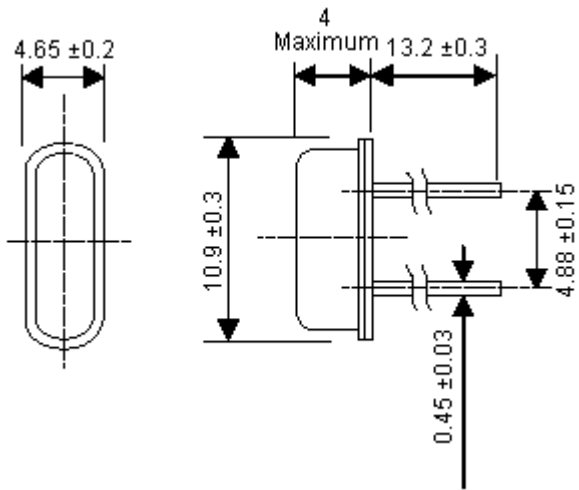


Features and Applications:

Designed for applications where board height space is critical

- General, industrial, microcontrollers
- Cost effective
- Surface mount
- Low profile (4 mm height)
- Superior resistance weld HC49/4H metal case

Supplied loose as standard. Taped product available to special order



Dimensions : Millimetres

Specification Table

| | | |
|------------------------------|--|-------------------|
| Nominal Frequency Range | 3.5 to 32 MHz | 24 to 70 MHz |
| Vibration Mode | Fundamental (AT) | 3rd Overtone (AT) |
| Frequency Tolerance at 25°C | ±20, ±30 or ±50 ppm (Options : ±10, ±15 ppm) | |
| Temperature Stability | ±30 or ± 50 ppm | |
| Operating Temperature Range | -10°C to +60°C (Option : -20°C to +70°C) | |
| Storage Temperature Range | -20°C to +70°C (Option : -30°C to +80°C) | |
| Load Capacitance | 8 pF to 32 pF or series | |
| Equivalent Series Resistance | See ESR table below | |
| Shunt Capacitance | 5 pF maximum (≤18 MHz) or 7 pF maximum (>18 MHz) | |
| Drive Level | 200 μW maximum (≤5 MHz) 100 μW maximum (>5 MHz) | |
| Insulation Resistance | 500 MΩ minimum at 100 V dc | |
| Aging | ±5 ppm per year | |

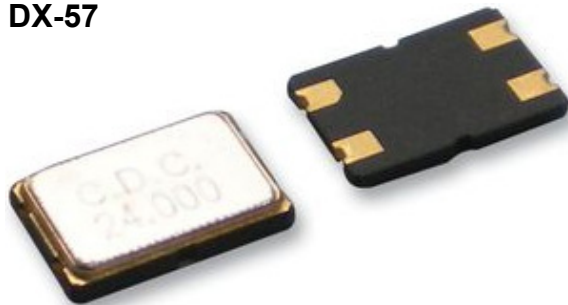
ESR Table

| Case | Vibration | HC 49S |
|----------------|-----------|-----------|
| Frequency | Mode | Ω Maximum |
| 3.5 - 3.99 MHz | F | 150 |
| 4 - 4.99 MHz | F | 120 |
| 5 - 5.99 MHz | F | 100 |
| 6 - 6.99 MHz | F | 80 |
| 7 - 7.99 MHz | F | 80 |
| 8 - 9.99 MHz | F | 70 |
| 10 - 13.99 MHz | F | 50 |
| 14 - 23.99 MHz | F | 40 |
| 24 - 25 MHz | F / 3 | 40 / 80 |
| 25 - 30 MHz | F / 3 | 40 / 80 |
| 30 - 70 MHz | 3 | 80 |

Part Number Table

| Case | Frequency (MHz) | Frequency Tolerance (PPM) | Temperature Stability (PPM) | Temperature Range 60 = -10 to +60 70 = -20 to +70 | Load Capacitance pf 00 = Series | Vibration Mode AT Cut F = Fund 0.3 Overtone | Ant Part Number |
|-------|-----------------|---------------------------|-----------------------------|---|------------------------------------|--|-----------------|
| HC49S | 3.579545 | 30 | 50 | 70 | 20 | ATF | XTL-3012 |
| HC49S | 3.6864 | 30 | 50 | 70 | 30 | ATF | XTL-3015 |
| HC49S | 4 | 20 | 50 | 60 | 30 | ATF | XTL-3018 |
| HC49S | 4.194304 | 30 | 50 | 60 | 30 | ATF | XTL-3024 |
| HC49S | 4.433619 | 30 | 50 | 60 | 20 | ATF | XTL-3026 |
| HC49S | 4.9152 | 30 | 50 | 70 | 30 | ATF | XTL-3028 |
| HC49S | 6 | 30 | 50 | 60 | 30 | ATF | XTL-3035 |
| HC49S | 7.3728 | 15 | 30 | 60 | 18 | ATF | XTL-3039 |
| HC49S | 7.68 | 30 | 50 | 60 | 30 | ATF | XTL-3042 |
| HC49S | 8 | 30 | 50 | 70 | 30 | ATF | XTL-3044 |
| HC49S | 9.8304 | 30 | 50 | 60 | 30 | ATF | XTL-3048 |
| HC49S | 10 | 30 | 50 | 70 | 30 | ATF | XTL-3052 |
| HC49S | 11.0592 | 30 | 50 | 70 | 30 | ATF | XTL-3060 |
| HC49S | 12 | 30 | 50 | 70 | 30 | ATF | XTL-3064 |
| HC49S | 16 | 30 | 50 | 70 | 30 | ATF | XTL-3069 |
| HC49S | 18.432 | 30 | 50 | 60 | 30 | ATF | XTL-3074 |
| HC49S | 20 | 30 | 50 | 70 | 12 | ATF | XTL-3078 |
| HC49S | 24 | 50 | 50 | 60 | 30 | ATF | XTL-3085 |

DX-57



Features and Applications:

- Communication Equipment, PDA's, Wireless security systems
- Cost effective
- Surface mount
- Ultra thin ceramic package
- Height 1.4 mm maximum
- Supplied taped and reeled

