

Low Profile SMD Type Crystal Units



FEATURES

- Low cost
- Industry standard
- Wide frequency range
- Excellent aging
- Surface mount
- Compliant to RoHS directive 2002/95/EC


RoHS
COMPLIANT

This part is a miniature AT cut strip crystal unit packaged for surface mounting.

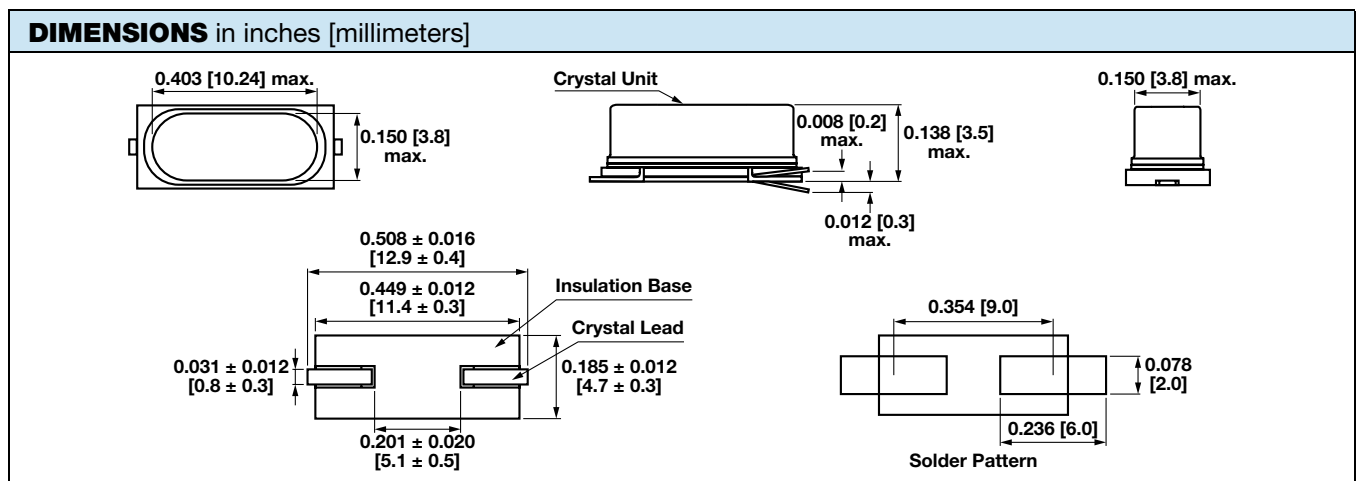
STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER | SYMBOL | CONDITION | UNIT | MIN. | TYP. | MAX. |
|-----------------------------|----------------|---------------------|------------|----------|----------|----------|
| Frequency range | F_0 | | MHz | 3.200 | - | 66.000 |
| Frequency tolerance | $\Delta F/F_0$ | at 25 °C | ppm | ± 10 | ± 30 | ± 50 |
| Temperature stability | T_C | ref. to 25 °C | ppm | ± 10 | ± 30 | ± 50 |
| Operating temperature range | T_{OPR} | | °C | - 20 | - | + 70 |
| Storage temperature range | T_{STG} | | °C | - 40 | - | + 85 |
| Shunt capacitance | C_0 | | pF | - | - | 7 |
| Load capacitance | C_L | customer specified | pF | 10 | - | series |
| Insulation resistance | I_R | 100 V _{DC} | M Ω | 500 | - | - |
| Drive level | D_L | | μ W | - | 100 | 500 |
| Aging | F_a | at 25 °C, per year | ppm | - 5 | - | + 5 |

EQUIVALENT SERIES RESISTANCE (ESR) AND MODE OF VIBRATION (MODE)

| FREQUENCY RANGE (MHz) | MAX. ESR (Ω) | MODE | FREQUENCY RANGE (MHz) | MAX. ESR (Ω) | MODE |
|-----------------------|-----------------------|----------------|-----------------------|-----------------------|--------------------------|
| 3.200 to 4.499 | 150 | fundamental/AT | 9.000 to 9.999 | 60 | fundamental/AT |
| 4.500 to 5.999 | 120 | fundamental/AT | 10.000 to 12.999 | 50 | fundamental/AT |
| 6.000 to 6.999 | 100 | fundamental/AT | 13.000 to 29.999 | 40 | fundamental/AT |
| 7.000 to 7.999 | 90 | fundamental/AT | 30.000 to 66.000 | 80 | 3 rd overtone |
| 8.000 to 8.999 | 80 | fundamental/AT | | | |

DIMENSIONS in inches [millimeters]





| ORDERING INFORMATION | | | | |
|----------------------|---|---|---------------|-------------------------------|
| XT49ML | R | -20 | 20M | e2 |
| MODEL | OTR blank = standard R = - 40 °C to + 85 °C | LOAD blank = series -20 = 20 pF -30 = 30 pF -32 = 32 pF | FREQUENCY/MHz | JEDEC LEAD (Pb)-FREE STANDARD |

| GLOBAL PART NUMBER | | | | | | | | | | | | |
|--------------------|---|---|---|---|------|---|--------------|--------|---|-----------|---|---|
| X | T | 9 | M | L | 2 | 0 | A | N | A | 2 | 0 | M |
| MODEL | | | | | LOAD | | PACKAGE CODE | OPTION | | FREQUENCY | | |

| GLOBAL PART NUMBERING | | | | | | | | | | | | |
|--|---|---|---|--|---|--|---|--|---|---|---|---|
| X | T | 9 | S | 2 | 0 | A | N | A | 4 | 0 | M | |
| MODEL NUMBER | | | | LOAD CAPACITANCE | | PACKAGE CODE | | OPTIONS | | FREQUENCY | | |
| XT9U = XT49U XT9S = XT49S XT9SL = XT49SL XT9M = XT49M XT9ML = XT49ML XTU1 = XTUM1 | | | | 18 = 18 pF 20 = 20 pF NL = series to be specified by customer | | Tape and reel G = RF5 (XT9U, XT9S, XT9SL) H = RF7 (XT9M, XT9ML) Bulk A = B04 (all models) | | NA = no additional options RR = extended temperature of - 40 °C to + 85 °C Contact factory for all other options | | 4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency | | |
| Example: XT49S-20 40M | | | | | | | | | | | | |
| X | T | 2 | 6 | T | T | A | 3 | 2 | K | 7 | 6 | 8 |
| MODEL NUMBER | | | | OPERATING TEMPERATURE (OTR) | | PACKAGE CODE | | FREQUENCY | | | | |
| XT26T = XT26T XT38T = XT38T | | | | T = - 10 °C to + 60 °C | | Bulk A = B04 (all models) | | 32K768 = 32.768 kHz K is used as decimal place holder in frequency | | | | |
| Example: XT26T 32.768K | | | | | | | | | | | | |
| X | T | 5 | 7 | 2 | 0 | A | 4 | 0 | M | | | |
| MODEL NUMBER | | | | LOAD CAPACITANCE | | PACKAGE CODE | | FREQUENCY | | | | |
| XT57 = XT57C XT46 = XT46C XT36 = XT36C | | | | 18 = 18 pF 20 = 20 pF NL = series to be specified by customer | | Tape and reel H = RF7 Bulk A = B04 (all models) | | 4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency | | | | |
| Example: XT57C-20 40M | | | | | | | | | | | | |



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