# X53 CERAMIC SURFACE-MOUNT CRYSTAL

## FEATURES

- Not recommended for new designs
- Small SMD package, 4 pad version
- Tight Tolerance & Stability available
- Wide Temperature Range -55° to +125°C
- Applications: Bluetooth, Wireless applications, Mobile phones,...

5.0 x 3.2 x 0.9 mm

| Item | Symbol | Specification |
|---|---|---|
| Frequency Range | Fo | 8 MHz ~ 150 MHz |
| Operation Mode | | 8.0 MHz ~ 70.0 MHz Fundamental (see options)<br>50.0 MHz ~ 150.0 MHz 3rd-overtone (see options) |
| Operating temperature Range | To | -20° to +70°C (see options) |
| Frequency Tolerance at 25°C | Δf/F | ± 50ppm max. (see options) |
| Temperature Stability | Δf/F | ± 50ppm max. (see options) |
| Load Capacitance (CL) | CL | series or 6 pF to 50 pF (see options) |
| Equivalent Series Resistance | ESR | See Table 1 |
| Shunt Capacitance (Co) | Co | 5pF Max |
| Insulation Resistance | Ri | 500 MΩ min. (at 100Vdc) |
| Drive Level | DL | 100µW typical, 300µW max. |
| Aging | Δf/F | ±2ppm max (at 25°C, first year) |
| Packing Unit | | 1000pcs / reel |
| Soldering Condition | | 260°C, 10 sec x2 max |
| | | **Customer specifications on request** |

## TABLE 1: Standard ESR

| Frequency (MHz) | ESR (Ω) max. | Frequency (MHz) | ESR (Ω) max. |
|---|---|---|---|
| 8.0 - 9.99 | 100 | 50.0 - 150.0, 3rd overtone | 100 |
| 10.0 - 29.9 | 60 | | |
| 30.0 - 70.0 | 40 | | |

## OPTIONS & ORDERING INFORMATION

X53- ..... ..... ..... ..... ..... ..... MHz - .....

| Freq. Tolerance | Freq. Stability | Operating Temp. | Load Capacitance | Mode | Frequency in MHz | ESR if other than STD |
|---|---|---|---|---|---|---|
| **10 =** ±10 ppm | **10 =** ±10 ppm | **D =** -10° / +60°C | Please specify CL in | **F =** Fundamental | Please specify the | Specify a value in Ω |
| **15 =** ±15 ppm | **15 =** ±15 ppm | **E =** 0° / +70°C | **pF** or **S** for Series | **D =** 3rd overtone | frequency in MHz | |
| **20 =** ±20 ppm | **20 =** ±20 ppm | **F =** -20° / +70°C | | | | |
| **25 =** ±25 ppm | **25 =** ±25 ppm | **G =** -30° / +75°C | | | | |
| **30 =** ±30 ppm | **30 =** ±30 ppm | **H =** -30° / +85°C | | | | |
| **50 =** ±50 ppm | **50 =** ±50 ppm | **K =** -40° / +85°C | | | | |
| | | **L =** -40° / +105°C | | | | |
| | | **M =** -40° / +125°C | | | | |
| | | **N =** -55° / +125°C | | | | |

* Note : Not all combinations are possible, please consult us.

# OUTLINE DIMENSIONS