X32   CERAMIC SURFACE-MOUNT CRYSTAL

FEATURES

3.2 x 2.5 x 0.70 mm

- Small SMD package
- Tight Tolerance & Stability available
- Automotive Temperature Range
- Applications: Bluetooth, Wireless applications, GPS, IoT, ...
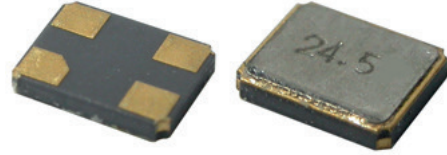
Item	Symbol	Specification
Frequency Range	Fo	8 MHz ~ 200 MHz
Operation Mode		8.0 MHz ~ 54.0 MHz Fundamental (see options)
		40.0 MHz ~ 200 MHz 3rd-overtone (see options)
Operating temperature Range	To	-20° to +70°C (see options)
Frequency Tolerance at 25°C	$\Delta f/F$	± 50ppm max. (see options)
Temperature Stability	$\Delta f/F$	± 50ppm max. (see options)
Load Capacitance (CL)	CL	series or 6 pF to 32 pF (see options)
Equivalent Series Resistance	ESR	See Table 1
Shunt Capacitance (Co)	Co	3pF Max
Insulation Resistance	Ri	500 MΩ min. (at 100Vdc)
Drive Level	DL	10µ W typical, 100µ W max.
Aging	$\Delta f/F$	±2ppm max (at 25°C, first year)
Packing Unit		3000pcs / 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 - 8.99	600	12.0 - 19.99	80
9.0 - 9.99	400	20.0 - 25.9	70
10.0 - 10.99	200	26.0 - 54.0	50
11.0 - 11.99	120	40.0 - 200.0 (3rd OT)	80

OPTIONS & ORDERING INFORMATION

X32- .... MHz - ....

Freq. Tolerance	Freq. Stability	Operating Temp.	Load Capacitance	Mode	Frequency in MHz	ESR if other than STD
10 = ±10 ppm	**05** = ± 5 ppm	**D** = -10° / +60°C	Please specify CL in **pF** or **S** for Series	**F** = Fundamental	Please specify the frequency in MHz	Specify a value in Ω
15 = ±15 ppm	**10** = ±10 ppm	**E** = 0° / +70°C		**D** = 3rd overtone		
20 = ±20 ppm	**15** = ±15 ppm	**F** = -20° / +70°C				
25 = ±25 ppm	**20** = ±20 ppm	**G** = -30° / +75°C				
30 = ±30 ppm	**25** = ±25 ppm	**H** = -30° / +85°C				
50 = ±50 ppm	**30** = ±30 ppm	**K** = -40° / +85°C				
	50 = ±50 ppm	**L** = -40° / +105°C				
		M = -40° / +125°C				

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

OUTLINE DIMENSIONS

Top View

Recommended Solder Pattern

3.20 ± 0.10

2.50 ± 0.10

0.70 MAX

Top View

Bottom View

Suggested Layout

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