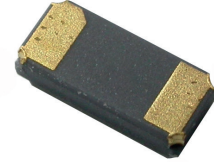


# X31EL 32.768 kHz SURFACE-MOUNT CRYSTAL

## FEATURES

- Miniature SMD package
- LOW ESR 50 kOhm max.
- Applications: Wireless applications, Commercial and Industrial applications

3.2 x 1.5 x 0.7 mm



Item	Symbol	Specification
Nominal Frequency	Fo	32.768 kHz
Cut		XY-cut
Operating temperature Range	To	-40° to +85°C
Frequency Tolerance at 25°C	Δf/F	± 20ppm
Temperature coefficient	β	-0.040 ppm/°C² max
Load Capacitance (CL)	CL	12.5 pF standard (see options)
Equivalent Series Resistance	ESR	50 kOhm max
Quality Factor	Q	30000 typ.
Shunt Capacitance (Co)	Co	1.3 pF typ.
Insulation Resistance	Ri	500 MΩ min. (at 100Vdc)
Drive Level	DL	1.0 μW max.
Aging	Δf/F	±3ppm max (at 25°C, first year)
Packing Unit		3000pcs / reel
Soldering Condition		260°C, 10 sec x2 max
		<b>Customer specifications on request</b>

## OPTIONS & ORDERING INFORMATION

X31EL-	..... —	..... —	32.768 kHz
Freq. Tolerance		Load Capacitance	
20 = ±20 ppm		12.5 = 12.5 pF	
		9 = 9.0 pF	
		7 = 7.0 pF	
		6 = 6.0 pF	

## OUTLINE DIMENSIONS

