

86SMX CRYSTALS

ISSUE 10; 1 NOVEMBER 2010 – RoHS 2002/95/EC

Not recommended for new designs

Description

- Industry standard SMD crystal
- Plastic encapsulated
- Low profile version also available please contact our sales offices for details
- Please see the 87SMX for a low cost alternative
- Stock parts listed at the beginning of this chapter

General Specifications

- Load Capacitance (C_L): 10pF to 50pF or Series
- Drive Level: 100 μ W max
- Ageing: ± 5 ppm max per year at 25°C
- Shunt Capacitance (C_0): 5pF max

Standard Frequency Tolerances and Stabilities

- ± 10 ppm, ± 20 ppm, ± 30 ppm, ± 50 ppm, ± 100 ppm, ± 150 ppm,

Operating Temperature Ranges

- 0 to 50°C
- -10 to 60°C
- -20 to 70°C
- -40 to 85°C

Storage Temperature Range

- -40 to 90°C

Environmental

- Drop: 75cm drop (3 times) onto hard wooden board
- Vibration: 1.5mm amplitude, 10Hz-55Hz, 1min in 3 mutually perpendicular planes, duration 2hrs each plane

Packaging

- Loose in bulk pack, 100pcs per bag
- Tape and reel in accordance with EIA-481-D, 1kpcs per reel (please see pages 372 & 373)

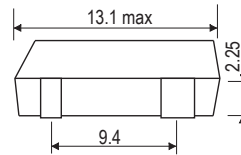
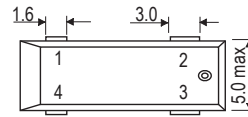
Ordering Information (*minimum required)

- Frequency*
- Model*
- Frequency Tolerance (@25°C)*
- Frequency Stability (over operating temperature range)*
- Operating Temperature Range*
- Load Capacitance*
- Overtone*

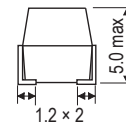
Example

- 10.0MHz 86SMX
50/50/-40 to 85C/10 FUND

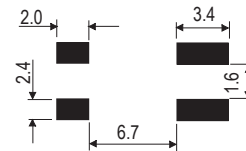
Outline (mm)



Pad Connections
 1. Crystal
 2. N/C
 3. N/C
 4. Crystal



Solder Pad Layout





Electrical Specifications – maximum limiting values

Frequency Range	Frequency Tolerance @25°C ±2°C	Operating Temperature Range	Frequency Stability Available Over Operating Temperature Range		ESR Max	Vibration Mode
			Minimum	Maximum		
3.579545 to <4.0MHz	±10ppm to ±100ppm	0 to 50°C	±10ppm	±100ppm	200Ω	Fundamental AT cut
		-10 to 60°C	±20ppm			
		-20 to 70°C	±30ppm			
		-40 to 85°C	±50ppm	±150ppm		
4.0 to <4.5MHz		0 to 50°C	±10ppm	±100ppm	150Ω	
		-10 to 60°C	±20ppm			
		-20 to 70°C	±30ppm			
		-40 to 85°C	±50ppm	±150ppm		
4.5 to <5.0MHz		0 to 50°C	±10ppm	±100ppm	120Ω	
		-10 to 60°C	±20ppm			
		-20 to 70°C	±30ppm			
		-40 to 85°C	±50ppm	±150ppm		
5.0 to <6.0MHz		0 to 50°C	±10ppm	±100ppm	100Ω	
		-10 to 60°C	±20ppm			
		-20 to 70°C	±30ppm			
		-40 to 85°C	±50ppm	±150ppm		
6.0 to <9.0MHz	0 to 50°C	±10ppm	±100ppm	80Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
9.0 to <10.0MHz	0 to 50°C	±10ppm	±100ppm	60Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
10.0 to <13.0MHz	0 to 50°C	±10ppm	±100ppm	50Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
13.0 to <19.0MHz	0 to 50°C	±10ppm	±100ppm	35Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
19.0 to <40.0MHz	0 to 50°C	±10ppm	±100ppm	25Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
30.0 to < 35.0MHz	0 to 50°C	±10ppm	±100ppm	80Ω	3rd Overtone AT cut	
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
35.0 to <40.0MHz	0 to 50°C	±10ppm	±100ppm	70Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
40.0 to <45.0MHz	0 to 50°C	±10ppm	±100ppm	65Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
45.0 to <50.0MHz	0 to 50°C	±10ppm	±100ppm	60Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			
50.0 to <90.0MHz	0 to 50°C	±10ppm	±100ppm	80Ω		
	-10 to 60°C	±20ppm				
	-20 to 70°C	±30ppm				
	-40 to 85°C	±50ppm	±150ppm			

Note: For other frequency / specification combinations please contact our sales offices

