

## Miniature SMD Watch Crystal



The XT38P is a 2.5 mm height plastic molded 32.768 kHz SMD crystal unit. This thermoplastic molded rugged part is perfect for your SMD applications in limited circuit space using the watch frequency.

### FEATURES

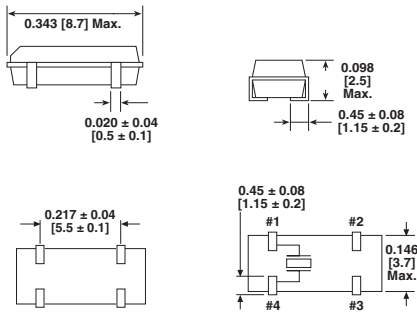
- 2.5 mm height
- Industry standard footprint
- Long term stability
- Tape and reel, 3000 pcs
- 100 % Lead (Pb)-free and RoHS compliant



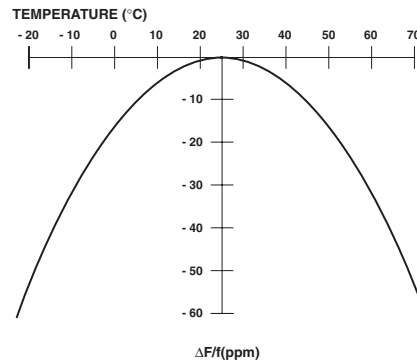
STANDARD ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	CONDITION	UNIT	MIN	TYPICAL	MAX
Frequency Range	F <sub>O</sub>		kHz		32.768	
Frequency Tolerance	ΔF/F <sub>O</sub>	at 25 °C	ppm	- 20		+ 20
Frequency Coefficient	K	parabolic coefficient	ppm/°C <sup>2</sup>	- 0.027	- 0.035	- 0.043
Operating Temperature Range	T <sub>OPR</sub>		°C	- 40		+ 85
Storing Temperature Range	T <sub>STG</sub>		°C	- 55		+ 125
Shunt Capacitance	C <sub>O</sub>		pF		1.0	
Motional Capacitance	C <sub>1</sub>		fF		2.0	
Load Capacitance	CL		pF		12.5	
Insulation Resistance	IR		MΩ	500		
Drive Level	DL		μW			1.0
Aging (first year)	Fa	at 25 °C ± 3 °C	ppm		± 3.0	
Equivalent Series Resistance(ESR)	Rs		KΩ			50

### DIMENSIONS in inches [millimeters]

#### XT38PA



### PARABOLIC TEMPERATURE CURVE



ORDERING INFORMATION			
XT38P	A	32.768 kHz	e6
MODEL	PAD LAYOUT	FREQUENCY/kHz	JEDEC Lead (Pb)-free STANDARD

To determine frequency stability, use parabolic curvature (k).  
For example: What is stability at 45 °C?

- 1) Change in Temperature (°C) = 45 - 25 = 20 °C
- 2) Change in Frequency = - 0.042 ppm\*(Δ°C)  
= - 0.042 ppm\*(20)<sup>2</sup>  
= - 16.8 ppm(max)

GLOBAL PART NUMBER												
X	T	3	8	P	A	A	3	2	K	7	6	8
MODEL					PAD LAYOUT	PACKAGE CODE	FREQUENCY					



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