

32.768kHz Series Tuning Fork Crystal Units

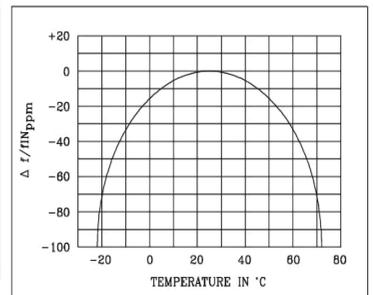
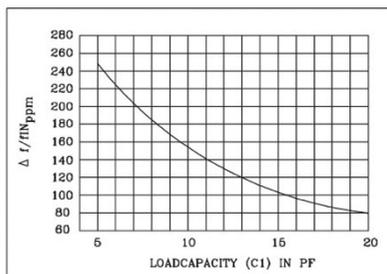
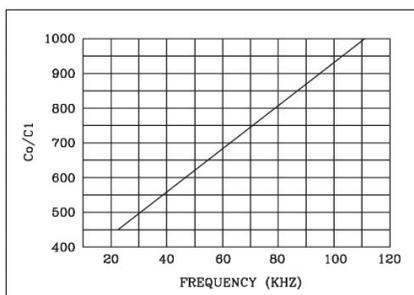
The 32.768kHz tuning fork crystal unit is the most widely used frequency control product. TAITIEN's tuning-fork-type crystals have low power consumption ideal for portable application. Their different package sizes provide the customers more choices for time management. TAITIEN's tuning-fork-type crystals are cost effective real time clock products.

Type	XA	XB		XD(AEC-Q200 Certified)				XN	
Size(mm)	3 x 8	1 x 4	2 x 6	1.2 x 1	1.6 x 1	2.0 x 1.2	3.2 x 1.5	6.9 x 1.4	8.0 x 3.8
Package	DIP	DIP	DIP	SMD	SMD	SMD	SMD	SMD	SMD
RoHS	Yes	Yes*	Yes*						
Outline									

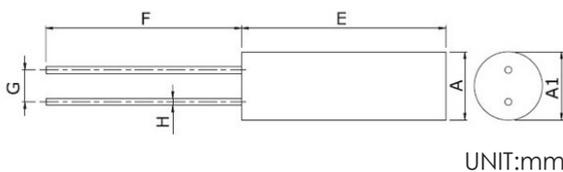
ELECTRICAL SPECIFICATION

Nominal Frequency	32.768000 kHz
Mode of Vibration	Fundamental
Storage Temp. Range (T _{STR})	-55°C ~+125 °C
Turnover Temperature (TM)	25±5 °C
Temperature Coefficient (β)	-(0.03±0.01) ppm/°C ²
Frequency vs. Temperature (Δf / fM)	β x (T-TM) ² ppm
Series Resistance (R1)	65~90 KΩ Max.
Level of Drive (DL)	0.1±0.01 uW Typ. 0.5 uW Max.
Aging (first year) (Δf / f0)	±3 ppm Max.
Quality Factor (Q)	30000~60000 Typ.
Shunt Capacitance (C0)	3~7 pF Max.
Load Capacitance (CL)	6, 7, 9, 12.5 pF (Please contact us)
Frequency Tolerance(f _{tol})	±20 ppm @ 25±5 °C
Insulation Resistance	500 MΩ Min. @ DC 100±15 V

FREQ. vs. CAPACITANCE RATIO (C0/C1) (TYP.) FREQ. vs. LOAD CAPACITANCE (TYP.) FREQ. vs. TEMPERATURE (TYP.)



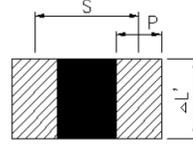
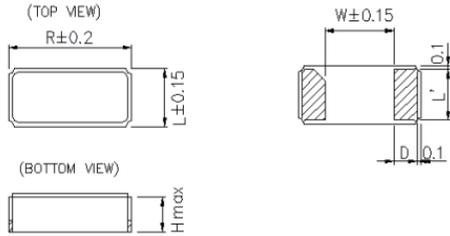
DIMENSION (mm) – XA / XB Type



TYPE	A	A'	E	F	G	H
XA	3.0	3.1max	8.0max	10±1	0.8±0.2	∅0.32±0.07
XB-N	2.0	2.1max	6.0max	5.0min	0.7±0.2	∅0.28±0.05
XB-J	1.0	1.2max	4.6max	5.7min	0.3±0.05	∅0.18±0.03

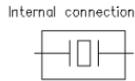
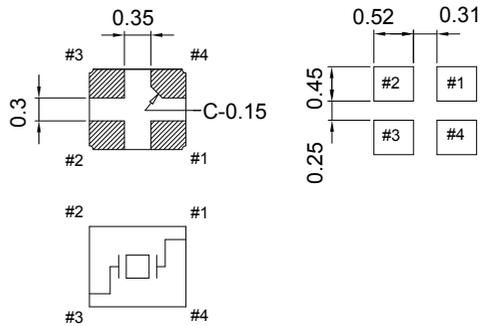
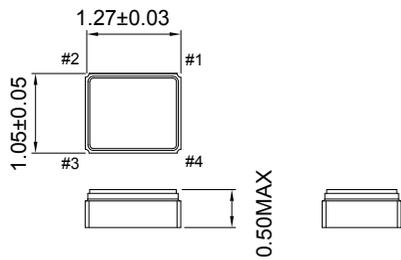
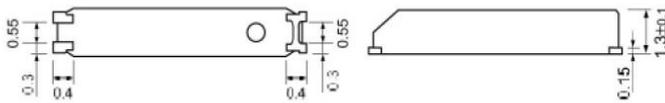
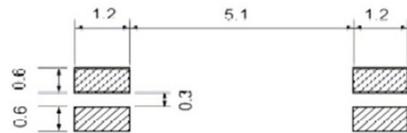
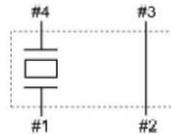
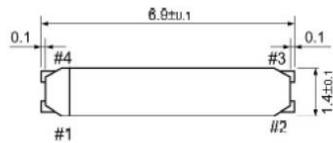
Note: not all combination of options are available. Other specifications may be available upon request.

Specifications subject to change without notice.

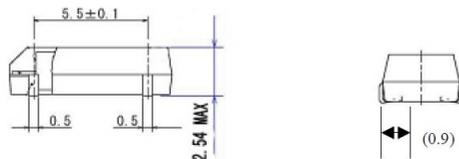
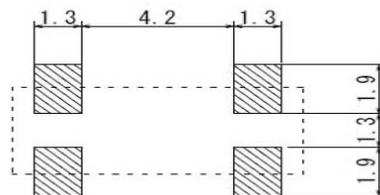
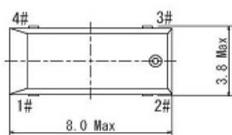
DIMENSION (mm) – XD Type
SOLDER PAD LAYOUT (mm)


Do not design any patterns on shaded area
Recommended soldering pattern

Model	R	L	H	W	L'	D	S	P	ΔL'
3215	3.2	1.5	0.9	1.7	1.3	0.6	2.5	1.1	1.8
2012	2.0	1.2	0.6	0.8	1.0	0.5	1.4	0.6	1.1
1610	1.6	1.0	0.5	0.7	0.87	0.4	1.1	0.5	1.0


DIMENSION (mm) – XD-1210 Type
SOLDER PAD LAYOUT (mm)

DIMENSION (mm) – XN Type
SOLDER PAD LAYOUT (mm)


* Do not connect to external with #2 and #3

DIMENSION (mm) – XN Type
SOLDER PAD LAYOUT (mm)


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