







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.

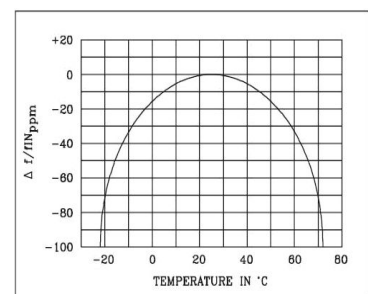
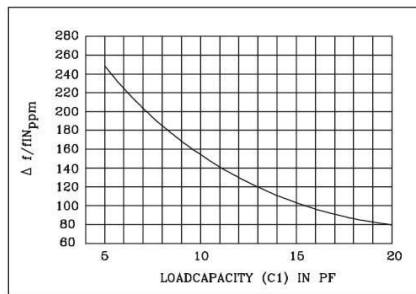
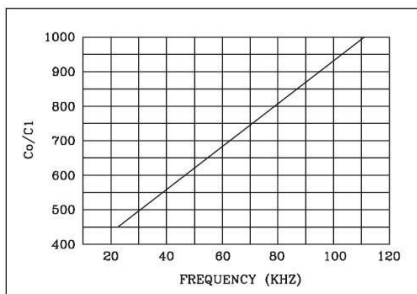
Type	XA	XB		XD			XN	
Size (mm)	3 x 8	1 x 4	2 x 6	2.0 x 1.2	3.2 x 1.5	4.1 x 1.5	6.9 x 1.4	8.0 x 3.8
Package	DIP	DIP	DIP	SMD	SMD	SMD	SMD	SMD
RoHS	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Outline								

ELECTRICAL SPECIFICATION FREQ. STABILITY vs. TEMP. RANGE

Nominal Frequency	32.768000 kHz	Temp.(°C)	ppm	10~ -100	10~ -150
Mode of Vibration	Fundamental				
Storage Temp. Range (T _{STR})	-55°C ~+125 °C	-20~+70		O	O
Turnover Temperature (TM)	25±5 °C	-40~+85		X	O
Temperature Coefficient (β)	-(0.03±0.01) ppm/°C ²	* O: Available X: Not available			
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)	9pF, 12.5 pF				
Frequency Tolerance(f _{tol})	±20 ppm @ 25±5 °C				
Insulation Resistance	500 Ω @ DC 100±15 V				

Specifications subject to change without notice

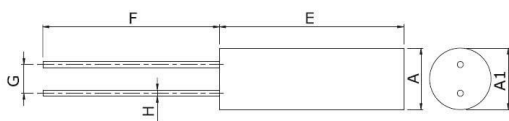
FREQ. vs. CAPACITANCE RATIO (C0/C1) FREQ. vs. LOAD CAPACITANCE (TYP.) FREQ. vs. TEMPERATURE (TYP.)



<http://www.ruitai.com> E-Mail: ruitairt@163.com_Rev(2) 07/2014
 Specifications subject to change without notice Page 1 of 2



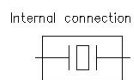
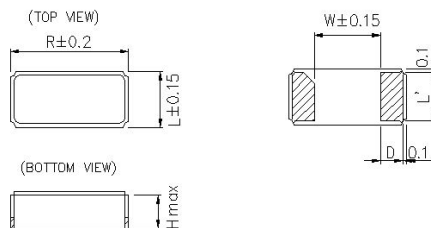
DIMENSION (mm) – XA / XB Type



UNIT:mm

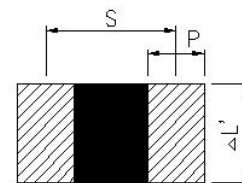
TYPE	A	A'	E	F	G	H
XA	3.0	3.1max	8.0max	10±1	0.8±0.2	∅0.32±0.07
XB-N	2.0	2.1max	6.0max	5.0min	0.7±0.2	∅0.28±0.05
XB-J	1.0	1.2max	4.6max	5.7min	0.3±0.05	∅0.18±0.03

DIMENSION (mm) – XD Type



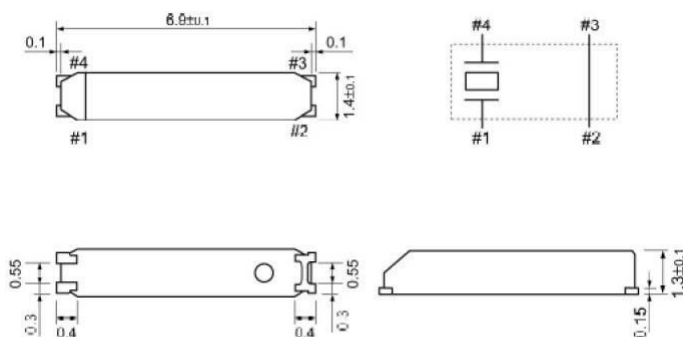
Model	R	L	H	W	L'	D	S	P	ΔL'
4115	4.1	1.5	0.9	2.7	1.3	0.6	3.4	1.1	1.8
3215	3.2	1.5	0.9	1.7	1.3	0.6	2.5	1.1	1.8
2012	2.0	1.2	0.6	0.8	1.0	0.5	1.4	0.6	1.1

SOLDER PAD LAYOUT (mm)



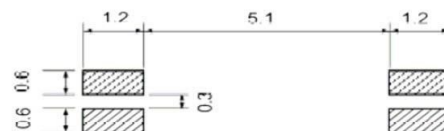
Do not design any patterns on shaded area
 Recommended soldering pattern

DIMENSION (mm) – XN Type



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

SOLDER PAD LAYOUT (mm)



DIMENSION (mm) – XN Type

SOLDER PAD LAYOUT (mm)

