



Features

- Crystal Unit for Automotive Electronics.
- Metal package, lead type.
- A resistance weld hermetic sealed type.
- Suitable for high density assembly and mass production.

Applications

- Engine control

Standard Frequencies (kHz)

4000.000	12000.000
5000.000	16000.000
6000.000	18000.000
8000.000	20000.000
10000.000	

* Please inquire about frequencies other than the above.

Specifications

Items	Symbol	Specification	Units	Remarks
Frequency Range	F ₀	3200~20000	kHz	
Overtone Order	—	Fundamental	—	
Frequency Tolerance	ΔF/F	±100	ppm	@ 25°C
Frequency Temperature Characteristics	ΔF/T	±200	ppm	ref@ 25°C Over Operating Temp Range
Motional Series Resistance	Cl	Table 1	ohm	
Level of Drive	—	Table 2	μW	
Load Capacitance	CL	12	pF	
Operating Temp. Range	T _{OPR}	-40~+125	°C	
Storage Temp. Range	T _{STG}	-40~+125	°C	

* Please inquire about specifications other than the above.

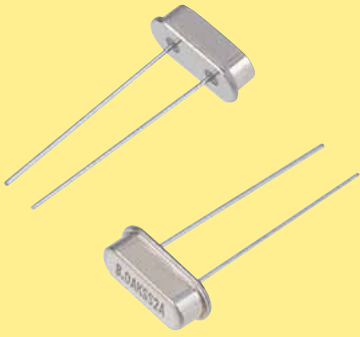
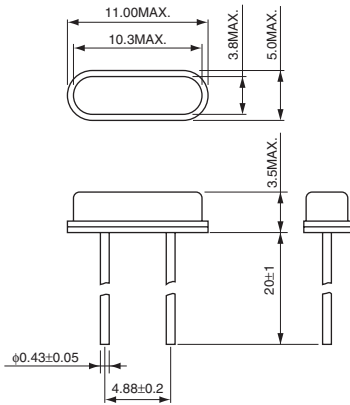
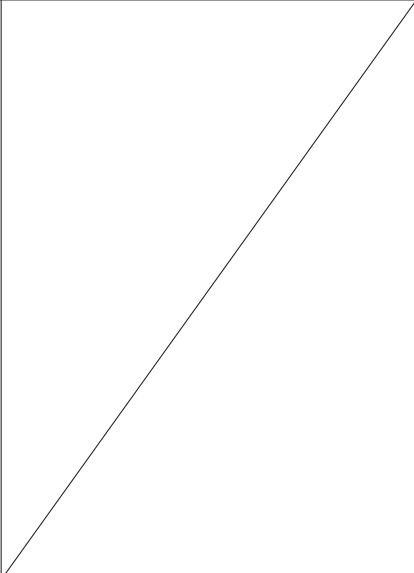

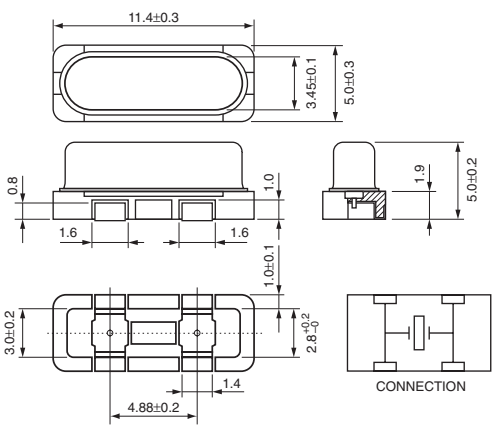
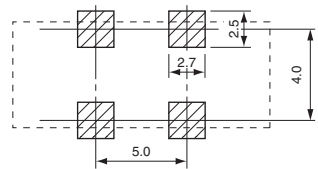
Table1 Motional Series Resistances

Frequency Range	Motional Series Resistance	Units
3200~3499kHz	300	ohm
3500~4099kHz	150	
4100~4799kHz	120	
4800~5999kHz	100	
6000~11999kHz	90	
12000~13499kHz	70	
13500~20000kHz	50	

Table2 Level of Drive

Frequency Range	Level of Drive	Units
3200~15999kHz	10(500 max.)	μW
16000~20000kHz	10(300 max.)	

Dimensions / Recommended Land Patterns

Product Type	Dimensions (Unit : mm)	Recommended Land Pattern (Unit : mm)
<p>HC-49/U-S</p>  <p>Pb Free RoHS Conforming</p>		
<p>CX-49F</p>  <p>Pb Free RoHS Conforming</p>		
<p>CX-49L</p> 