



Specification	AXX49T	Issue: 01	Date: 2005-01-15
Oscillator type : Quartz Crystal Unit HC-49/U with reduced height			

Parameter	min.	typ.	max.	Unit	Condition
Frequency range	3		150	MHz	
Crystal cut	AT/BT				
Mode	1	3 ~ 48		MHz	Fundamental mode
	3	20 ~ 100		MHz	3 rd overtone
	5	60 ~ 150		MHz	5 th overtone
Load capacitance C_L	5 ~ 50 pF or Series			pF	See ordering code
Adjustment tolerance	$\pm 5 \sim \pm 50$			ppm	See ordering code
Frequency stability					
Frequency stability over temperature range	$\pm 3 \sim \pm 50$			ppm	See Table 1
operating temperature range (steady state)	-40		+105	°C	See Table 1
long term (aging)		± 2	± 5	ppm	per year
Resonance resistance R_r max				Ω	See Table 2
Motional capacitance C_1				fF	
Static capacitance C_0				7 pF	
Drive level	0,01	100	1000	μ W	
Insulation resistance	500			M Ω	100 V DC
Storage temperature range	-45		+105	°C	
Enclosure (see drawing)	HC-49T				IEC 60122-3 Type EH
Can height	T1: 11.5 max T2: 10.5 max T3: 9.3 max			mm mm mm	
Flange width	max. 4.65			mm.	
SMD configuration	Optional				See ordering code
marking	Frequency (MHz) AXX49T wwAXyy				Side 1 Date Code & MfG Code
Packing	Bulk / Tape & reel				T&R On request

Notes:

1. Terminology and test conditions are according to IEC standard IEC60122-1, unless otherwise stated
2. Measurement technique according to IEC 60444-5 or equivalent

Table 1: Frequency Stability over Temperature

	ppm	± 3	± 5	± 7	± 10	± 15	± 20	± 30	± 50
°C	Code	1	2	3	4	5	6	7	8
-10 ~ +60	A	●	●	●	●	●	●	●	●
-20 ~ +60	B		●	●	●	●	●	●	●
0 ~ +70	C		●	●	●	●	●	●	●
-10 ~ +70	D		●	●	●	●	●	●	●
-20 ~ +70	E		●	●	●	●	●	●	●
-30 ~ +60	F			●	●	●	●	●	●
-20 ~ +85	G				●	●	●	●	●
-30 ~ +70	H				●	●	●	●	●
0 ~ +85	I				●	●	●	●	●
-40 ~ +85	J					●	●	●	●
-40 ~ +90	K						●	●	●
-40 ~ +105	L							●	●

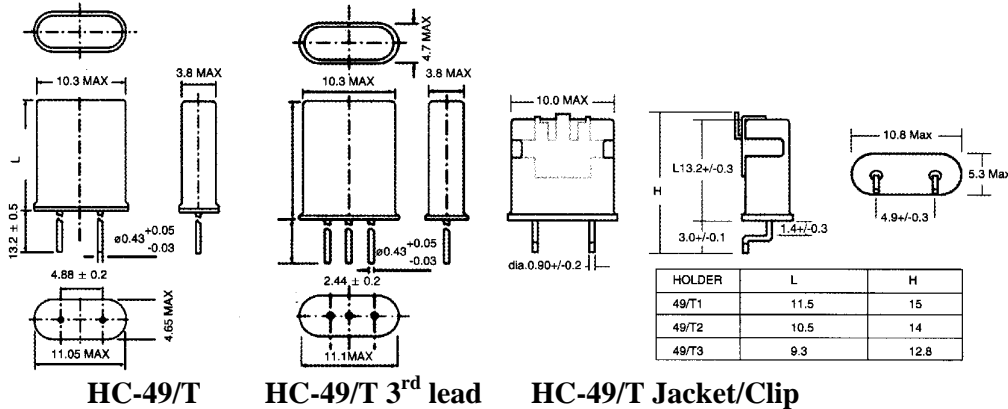
Table 2: Resistance Rr

Frequency [MHz]	Mode	Rrmax [Ω]
3.0 ~ 4.999	1	90
5.0 ~ 9.999	1	40
10 ~ 48	1	25
20 ~ 100	3 rd	40
60 ~ 150	5 th	80

Ordering Code:

Type	Frequency	Load capacitance	Mode	Adjustment Tolerance	Freq. stability over temperature	Package Option	Packing
T1 ... T3 = Height option	[MHz]	SR: Series 18: 18 pF	1: Fund 3, 5: OT	[±ppm]	Code :Table 1	J: Jacket/Clip 3: 3 rd lead	B: Bulk T&R: Tape& Reel
AXX49T1	4.000	18	1	10	A3	J	T&R

Enclosure drawings



HC-49/T HC-49/T 3rd lead HC-49/T Jacket/Clip

Environmental conditions

Test	IEC 60068 Part ...	IEC 61178-1 clause ...	Test conditions
Visual inspection, dimensions		4.5 4.6	Enclosure styles as in IEC 60122-3, if applicable
Sealing tests	2-17	4.8.2	Gross leak: Test Qc, Fine leak: Test Qk
Solderability Resistance to soldering heat	2-20	4.8.3	Test Ta (235 ± 5)°C Method 1 Test Tb Method 1A, 5s
Shock	2-27	4.8.8	Test Ea, 3 x per axes 100g, 6 ms half-sine pulse
Bump	2-29	4.8.6	Test Eb, 4000 bumps per Axes, 40g, 6 ms
Free fall	2-32	4.8.9	Test Ed procedure 1, 2 drops from 1m height
Vibration, sinusoidal	2-6	4.8.7	Test Fc, 30 min per axes, 10 Hz - 55 Hz 0,75mm; 55 Hz - 1 kHz, 10g
Rapid change of temperature	2-14	4.8.5	Test Na, 10 cycles at extremes of operating temperature range
Dry heat	2-2	4.8.11	Test Ba, 16 h at upper temperature indicated by climatic category
Damp heat, cyclic	2-30	4.8.12	Test Db variant 1 severity b), 55°C/95% r.H., 6 cycles
Cold	2-1	4.8.13	Test Aa, 2 h at lower temperature indicated by climatic category
Climatic sequence	1-7	4.8.14	Sequence of 4.8.11, 4.8.12 (1 st cycle), 4.8.13, 4.8.12 (5 cycles)
Damp heat, steady state	2-3	4.8.15	Test Ca, 56 days
Endurance tests - ageing - extended aging		4.9.1 4.9.2	30 days @ 85°C 1000h, 2000h, 8000h @85°C