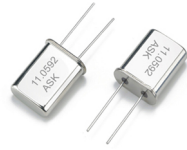




X1 Series



- HC49/U Type package
- AT cut available
- Resistance weld seal
- Insulator tab, 3rd lead and custom lead length options available
- Wide frequency range

PART NUMBER GUIDE

X1 - 16.384 - 20 - 7C - 18

PACKAGE TYPE

X1 : HC-49/U (H:13.5mm)
X1T : HC-49/UT (H:11.3mm)
X1U : HC-49/U (H:9.5mm)

LOAD CAPACITANCE

18 : 18pF
 8~50pF or Series

FREQUENCY

1.8432MHz~150.000MHz

TABLE 1

FREQUENCY TOLERANCE AT 25°C

20 : ± 20ppm
 ±10ppm~± 50ppm

ELECTRICAL SPECIFICATIONS

MODEL	X1
Frequency Range	1.8432 to 150.000MHz
Operating Temperature Range	-10 to +60°C, -20 to +70°C, -40 to +85°C or specify
Storage Temperature Range	-40 to +85°C
Frequency Tolerance (at 25°C)	±15, 30, 50ppm(STD)
Frequency Stability over Operating Temperature Range	±30, 50, 100ppm(STD)
Load Capacitance (CL)	Custom CL 10pF, 16pF, 18pF, 20pF or specify
Drive Level	0,01 to 2,000 μW
Shunt Capacitance (Co)	7pF Max
Aging (at 25°C)	±3 - 5ppm/year Max
Insulation Resistance	500 MΩ Min at 100VDC

E.S.R (Equivalent Series Resistance)

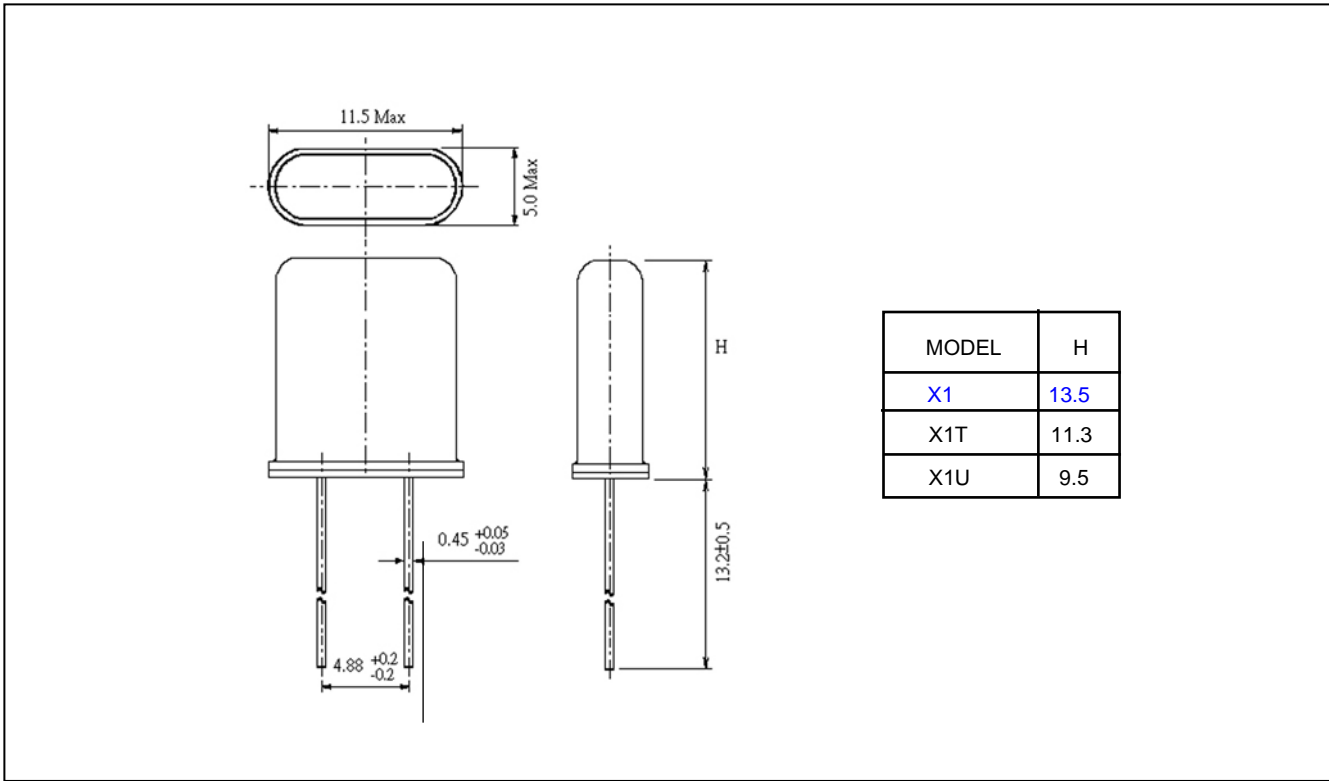
Frequency Range (MHz)	ESR (Max)	Mode of Oscillation
1.8432~1.999	600	Fundamental
2.000 ~ 2.999	500	Fundamental
3.000~3.499	150	Fundamental
3.500~3.999	120	Fundamental
4.000~4.999	100	Fundamental
5.000~5.999	80	Fundamental
6.000~6.999	60	Fundamental
7.000~7.999	50	Fundamental
8.000~9.999	40	Fundamental
10.000~12.999	30	Fundamental
13.000~30.000	25	Fundamental
24.000~29.999	60	Fundamental
30.000~85.000	40	Fundamental

* : Available

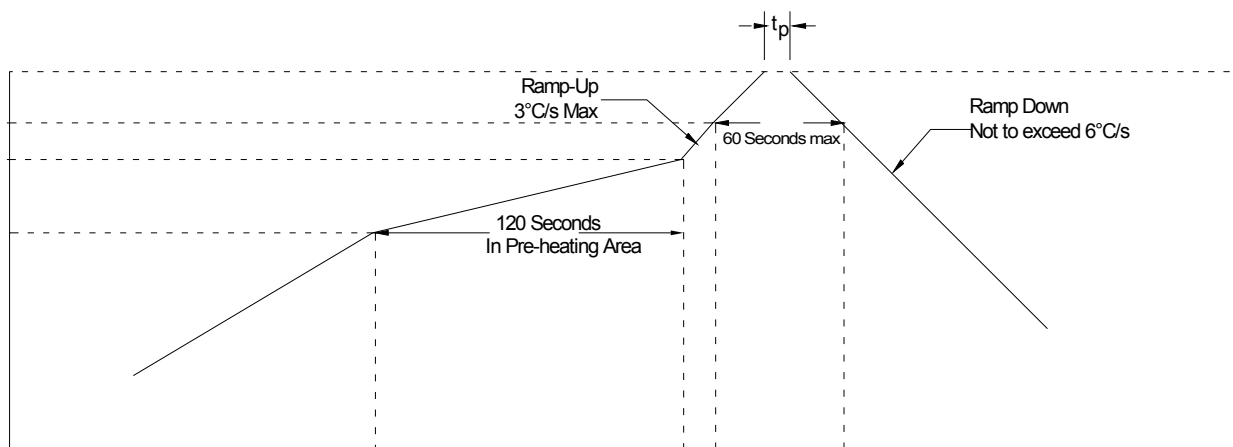
TABLE 1

FREQUENCY STABILITY VS. TEMPERATURE RANGE							
Temp	Stability	±10	±15	±20	±30	±50	±100
		1	2	3	4	5	6
0~+70°C	A	*	*	*	*	*	*
-10~+60°C	B	*	*	*	*	*	*
-20~+70°C	C	*	*	*	*	*	*
-40~+85°C	D			*	*	*	*
-40~+90°C	E			*	*	*	*
-40~+105°C	F				*	*	*

MECHANICAL DIMENSION



Recommended reflow soldering conditions



RoHS compliance - Reflow soldering temperature : 260°C max.

ENVIRONMENTAL / MECHANICAL SPECIFICATIONS

RELIABILITY TEST SPECIFICATION

Test item	Equipment	Condition	Specification
1.SOLDERABILITY TEST	ASK-REL001、RC-328A	1.Soldering Temperature:235±5℃, DIPPING time:5±0.5S 2.Soldering Temperature:260±5℃, DIPPING time:10±1S	1. MIL-STD-883CMETHOD 2003.7 2. MIL-STD-202F,METHOD 210A
2. HERMETICITY TEST	UL-306S	Miss and do not control roughly (hubble-bubble machine); Nothing air bubble creation s thin leave out 1 * 10 E-8 ATM.CC/SEC.	MIL-STD-883C METHOD 1014.9
3. VIBRATION TEST	HG-V4、S&A 250B	Enable Crystal(10g) from 10-55-10Hz,X、Y、 Z horizontal,1 Minute vibration/time, 1time/ 2 hours.	JIS C5025 TEST A MIL-STD-883C,METHOD 2007.2
4. MECHANICAL SHOCK	HPC-200、S&A 250B	Enable Crystal 50G(490m/s ²) time=11 ms speed=3.4 m/s half sine wave oscillation	JIS C5026 MIL-STD-883C,METHOD 2002
5. DROP TEST	HARD BOARD.S&A250B	75CM HIGH,3 TIMES ON HARD BOARD	'JIS C6701
6. SALT SPRAY	H-SST-60、RC-328A	5% NaCL,35℃±2℃ CHAMBER,48 hrs., PH:6.5~7.2	JIS C5028 & MIL-STD-202F'METHOD 101D
7. HIGH&LOW TEMP STORAGE TEST(Static test)	H-PTH-80CK & HM101-3ABN, S&A 350B/250B	High temperature: 125℃±2℃,1000hr; Low temperature:-40℃±3℃,1000hrs	MIL-STD-883C,METHOD 1011.8& JIS C5030
8. Temp & Hum cycling test	H-PTH-80CK CHAMBER , S&A 350B/250B	Temperature:-10℃±2℃ ~ 65℃±2℃, Humidity:93±3%,1 cycle need 24 hrs. 5cycles.	MIL-STD-883C,METHOD 1010.7
9. HIGH TEM. & HUM. STORAGE TEST	H-PTH-80CK CHAMBER , S&A350B/250B	Temperature:40℃±2 , Humidity:85+3,-2%,Store 96 hrs	JIS C5023
10. Aging test	H-PTH-80CK CHAMBER , S&A350B/250	Temperature: 85℃±2, 1000hrs	JIS C5031