

# HC TYPE HC-49/T

- HC-49/T Type Package
- AT-Cut Crystal Design
- Resistance Weld Seal
- Tape and Reel, Insulator Tab, Three Leads, and Custom Lead Length Options Available
- Pb-free and RoHS Compliance



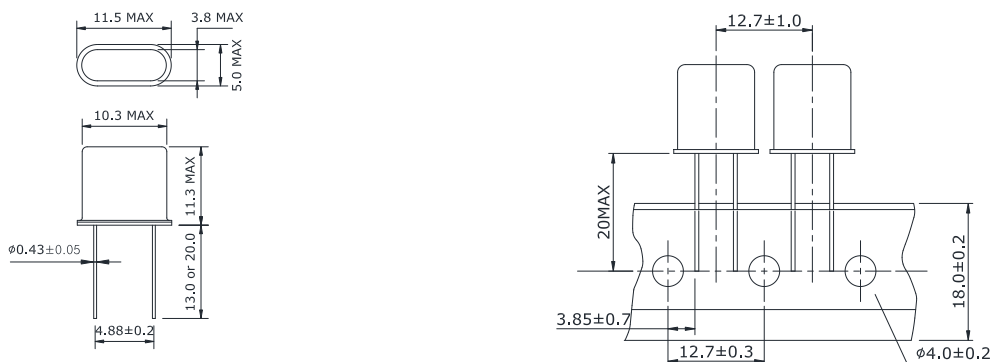
## ■ ELECTRICAL SPECIFICATIONS

Frequency Range	4.000 to 60.000 MHz
Operating Temperature Range	-20 to +70 °C, -40 to +85 °C, or specify
Storage Temperature Range	-40 to +85 °C
Frequency Tolerance (at 25 °C)	±15, ±30, ±50 ppm(STD), or specify
Frequency Stability	±10 to ±50 ppm(-20 to +70 °C)
Over Operating Temperature Range	±20 to ±100 ppm(-40 to +85 °C)
Load Capacitance (CL)	18 pF(STD), Custom CL≥10 pF or Series Resonant
Drive Level	100 μW(1000 μW Max.)
Shunt Capacitance (C0)	7.0 pF Max.
Aging (at 25 °C)	±3 ppm/year Max.
Insulation Resistance	500 MΩ Min. at 100 V <sub>DC</sub>

## ■ EQUIVALENT SERIES RESISTANCE(ESR)

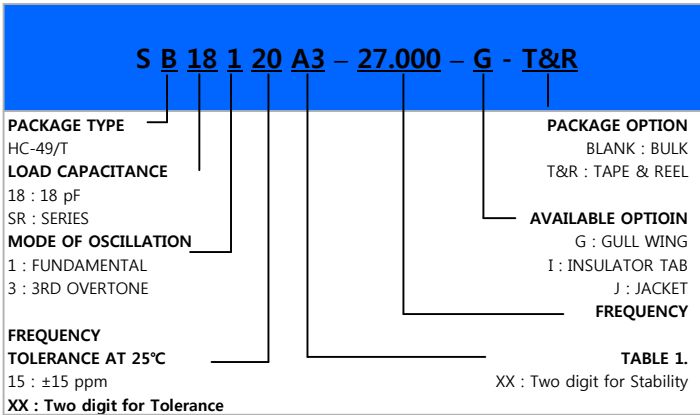
Frequency Range(MHz)	ESR(Ω Max.)	Mode of Oscillation
4.000 ~ 4.999	100	Fundamental
5.000 ~ 5.999	80	Fundamental
6.000 ~ 6.999	60	Fundamental
7.000 ~ 7.999	50	Fundamental
8.000 ~ 8.999	40	Fundamental
10.000 ~ 12.999	30	Fundamental
13.000 ~ 30.000	25	Fundamental
24.000 ~ 29.999	60	3rd overtone
30.000 ~ 60.000	40	3rd overtone

## ■ MECHANICAL DIMENSIONS (mm)



**■ PART NUMBERING GUIDE**

**■ TABLE 1.**



**FREQUENCY STABILITY VS. TEMPERATURE RANGE**

Temp	Stability	±10	±15	±20	±30	±50	±100
		3	4	5	6	7	8
-10~70°C	D	*	*	*	*	*	*
-20~70°C	E	*	*	*	*	*	*
-30~60°C	F	*	*	*	*	*	*
-20~85°C	G		*	*	*	*	*
-30~70°C	H			*	*	*	*
-30~85°C	I				*	*	*
-40~85°C	J				*	*	*
-40~90°C	K				*	*	*
-40~105°C	L				*	*	*
-40~125°C	M						

**■ ENVIRONMENTAL & MECHANICAL SPECIFICATIONS**

Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-202, Method 213, Condition C
Vibration	MIL-STD-883, Method 2007, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Solderability	MIL-STD-883, Method 2003

**■ REFLOW PROFILE**

**■ MARKING GUIDE**

