

7X Series 7.0 x 5.0 mm SMD Crystal

Feature

- AT-cut Crystal Construction
- Ceramic surface mount with Metal Lid
- Package Size: 7.0 x 5.0 x 1.0mm
- Excellent heat resistance, high precision, and high reliability
- Pb-free and RoHS/Green compliant

Applications

- Industrial applications
- Portable devices
- Short-range Wireless module
- Computers, Modems, Microprocessors



Electrical Specifications

Item	Symb.	Min.	Typ.	Max.	Unit	Notes
Frequency Range	Freq.	6.000		50.000	MHz	
Oscillation Mode		Fundamental (AT-cut)				
Frequency Tolerance	$\Delta f/f$			± 10	ppm	at 25°C $\pm 2^\circ\text{C}$
Operating Temperature	T_use	-20		70	°C	
		-40		85	°C	
Storage Temperature Range	T_sta	-55		125	°C	
Shunt Capacitance	C0			5	pF	
Drive Level	DL		100	300	μW	
Load Capacitance	CL	8		20	pF	
Insulation Resistance	IR			500	M Ω	at DC 100V
Aging	f_age			3	ppm	1st. Year at 25°C

Frequency Stability & Operating Temperature Range

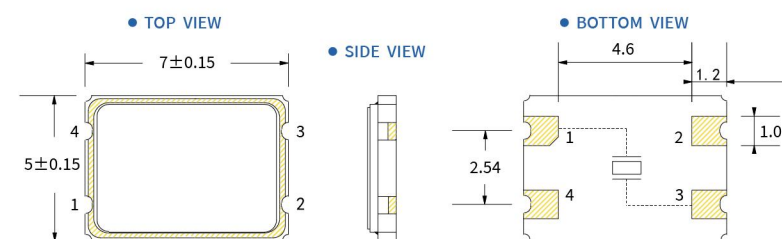
Temp.	FT	$\pm 10\text{ppm}$	$\pm 15\text{ppm}$	$\pm 20\text{ppm}$	$\pm 30\text{ppm}$
	-20°C to +70°C	Δ	Δ	★	★
-40°C to +85°C		Δ	★	★	★

★: Available Δ : Conditional

Equivalent Series Resistance

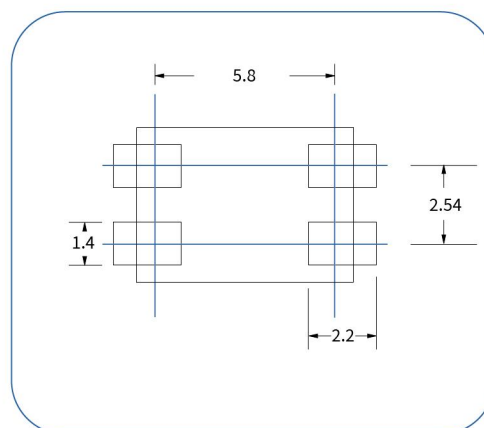
Frequency Range	ESR(Max.)
6MHz \leq Freq. < 8MHz	100 Ω
8MHz \leq Freq. < 10MHz	60 Ω
10MHz \leq Freq. < 14MHz	50 Ω
14MHz \leq Freq. < 20MHz	40 Ω
20MHz \leq Freq. \leq 50MHz	30 Ω

Dimensions (UNIT:mm)

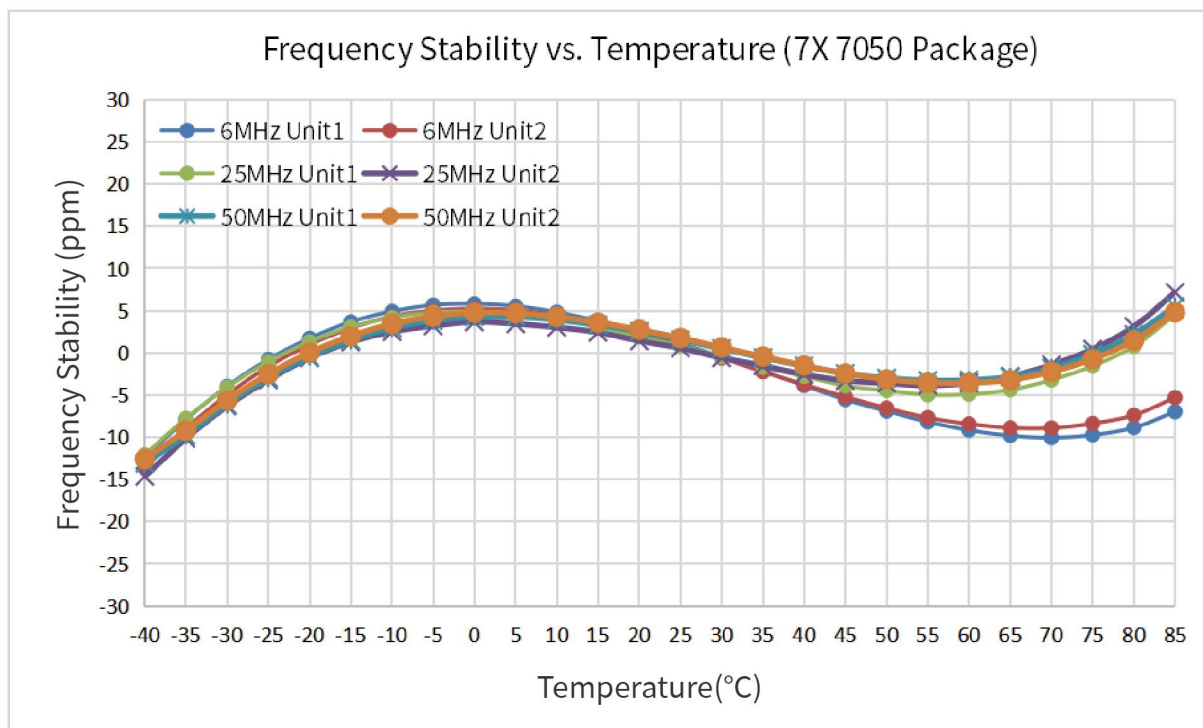


Pin	Function
1	Xtal
2	GND
3	Xtal
4	GND

Solder pad layout (UNIT:mm)



Frequency Temperature Characteristics

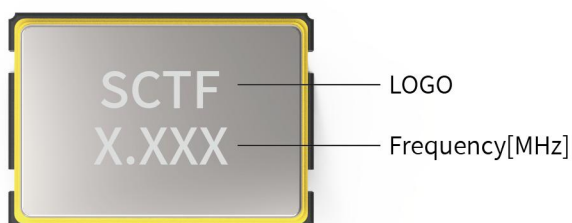


Product Structure & Marking Information

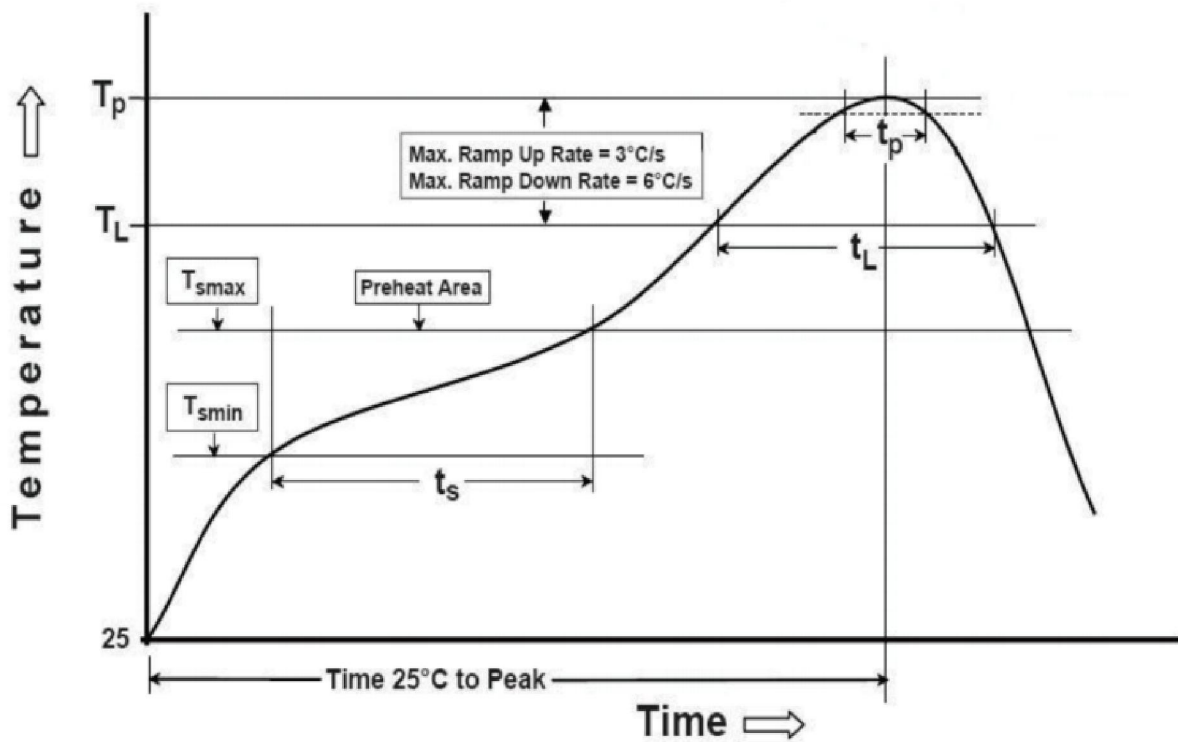
Product Structure



Marking Information



Suggested Reflow Profile

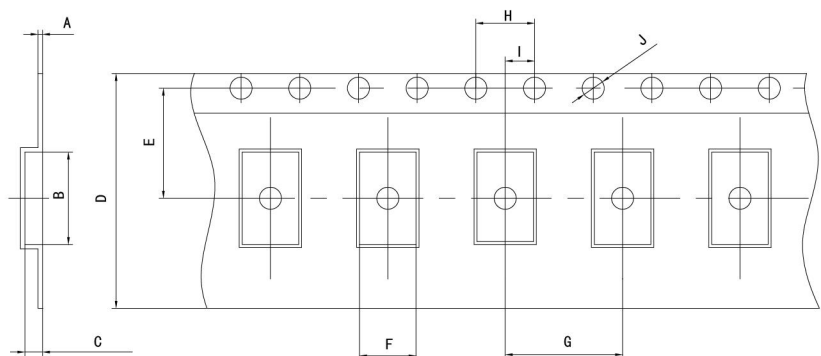
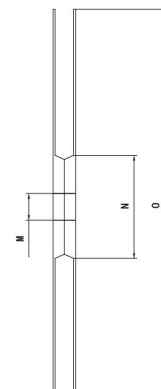
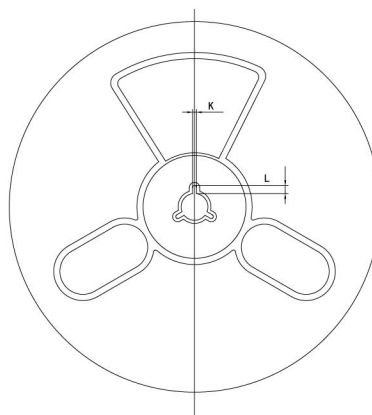


Profile Feature	Sn - Pb Eutectic Assembly	Preheat / Soak
Preheat / Soak <ul style="list-style-type: none"> ● Temperature Min (T_s min) ● Temperature Max (T_s max) ● Time (T_s min to T_s max) 	100°C 150°C 60-120 seconds	150°C 200°C 60-120 seconds
Ramp - up rate (T _L to T _p)	3°C/ second max.	3°C/ second max.
Time maintained above <ul style="list-style-type: none"> ● Liquidous temperature (T_L) ● Time (t_L) maintained above T_L 	183°C 60-150 seconds	217°C 60-150 seconds
Peak package body temperature (T _p)	235°C	260°C
Time within 5° C of the specified classification temperature (T _p)	20 seconds	30 seconds
Ramp - down rate (T _p to T _L)	6°C/ second max.	6°C/ second max.
Time 25° C to peak temperature	6 minutes max.	8 minutes max.
Suggest reflow times	2 Times max.	

7X Series 7.0 x 5.0 mm SMD Crystal

Packaging Information

T=Tape and reel (1,000pcs/reel)



Pocket Tape Dimensions(mm)

Series	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
7X	0.3±0.05	7.5±0.1	1.8±0.1	16±0.3	7.5±0.1	5.5±0.1	8.0±0.1	4.0±0.1	2.0±0.1	φ1.5±0.1	2.0±0.2	4.0±1.0	φ13±0.5	φ60±1	φ180±1

Common Frequencies – MHz

7X Series				
6.000	6.144	7.3728	8.000	10.000
11.0592	12.000	12.288	14.31818	14.7456
16.000	16.384	19.6608	20.000	24.000
24.576	25.000	27.000	30.000	32.000
36.000	40.000	48.000		