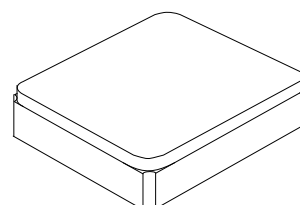


XTS4202

Features:

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- Moisture Sensitivity Level (MSL) : Level-1

38.400000 MHz
TSX



SM1612-4

Description and Applications:

Surface mount 1.6mmx1.2mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

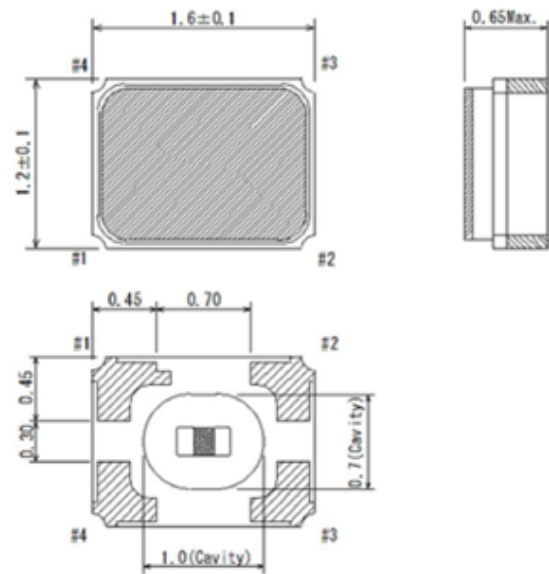
Electrical Specifications:

XTS4202	Specification
Nominal Frequency	38.400000 MHz
Mode of Oscillation	AT-cut Fundamental
Storage Temperature Range	-40°C to +125°C
Operating Temperature Range	-30°C to +105°C
Frequency Stability over Operating Temperature Range	+/-12 ppm (referred to the value at 29°C for temperature range -30°C to 85°C)
Frequency Make Tolerance (FL)	+/-10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	80 Ω max
Frequency Drift After Reflow	+/- 2 ppm after four times reflow
Aging	+/-0.7 ppm / first year
Motional Capacitance (C1)	1.2 fF min and 3.1fF max
Pulling Sensitivity(TS)	11.5 ppm/pF typ.
Load Capacitance (CL)	7 pF
Insulation Resistance	500 M Ω min
Spurious Mode Series Resistance	1100 Ω Min. (@ +/- 1MHz)
Quality Factor	75000 Min.

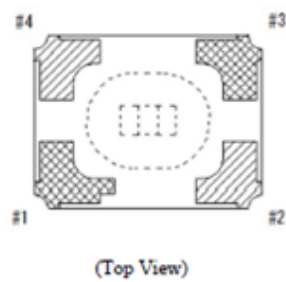
Nominal Drive Level	50 uW typ and 200uW max
Unit Weight	4 +/-0.5mg
Thermistor Characteristics	
Resistance Value(at 25°C)	100KΩ +/- 1%
Beta Constant	4250K +/- 1%
Rated Power(at 25°C)	100mW Max
Specification(Crystal curve fitting)	
Inflection Temperature	+29°C +/- 1.5°C
First-order Curve Fitting Parameter (C ₁)	-0.40 to -0.10 ppm/°C
Second-order Curve Fitting Parameter (C ₂)	- 4.5 to 4.5 x10 ⁻⁴ ppm/°C ²
Third-order Curve Fitting Parameter (C ₃)	8.5 to 11.5 x10 ⁻⁵ ppm/°C ³
Residual frequency stability slope	+/-50 ppb /°C max

Mechanical Dimensions (mm):

1) Dimension (Unit : mm)

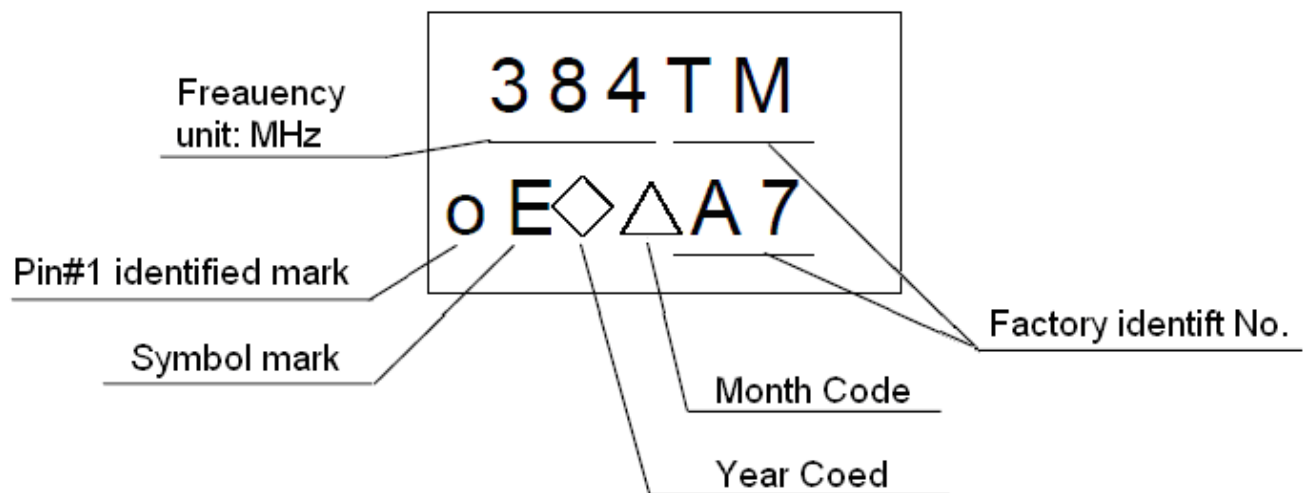


2) Circuit



Pin	Connection
1	XTAL
2	GND, thermistor
3	XTAL
4	Thermistor

Marking:



Nominal frequency omits the figure below the first place of decimals.

Ex) 38.4 MHz..... [384]

△Month Code Table:

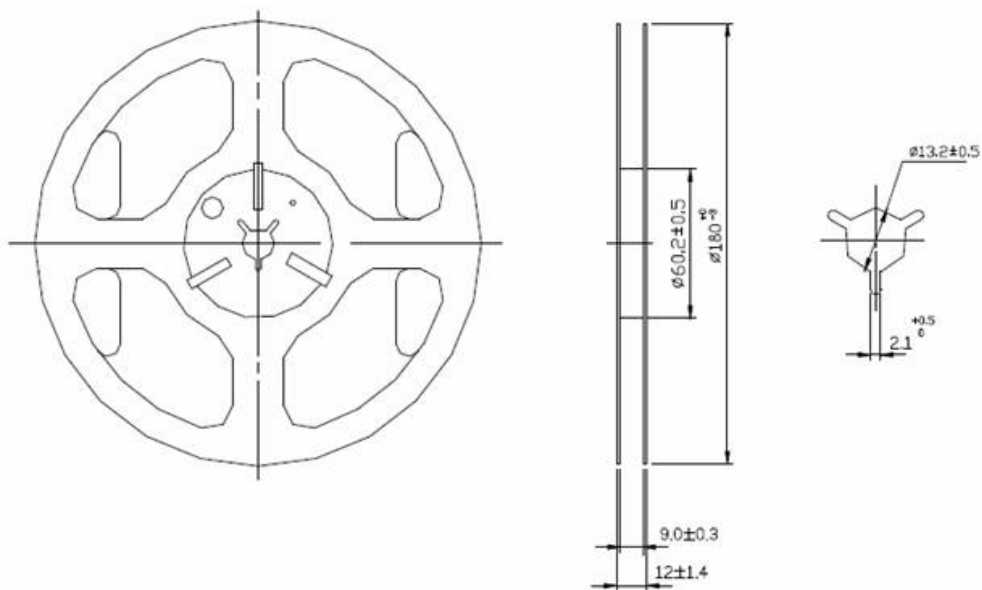
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Month Code	1	2	3	4	5	6	7	8	9	X	Y	Z

◇Year Code Table:

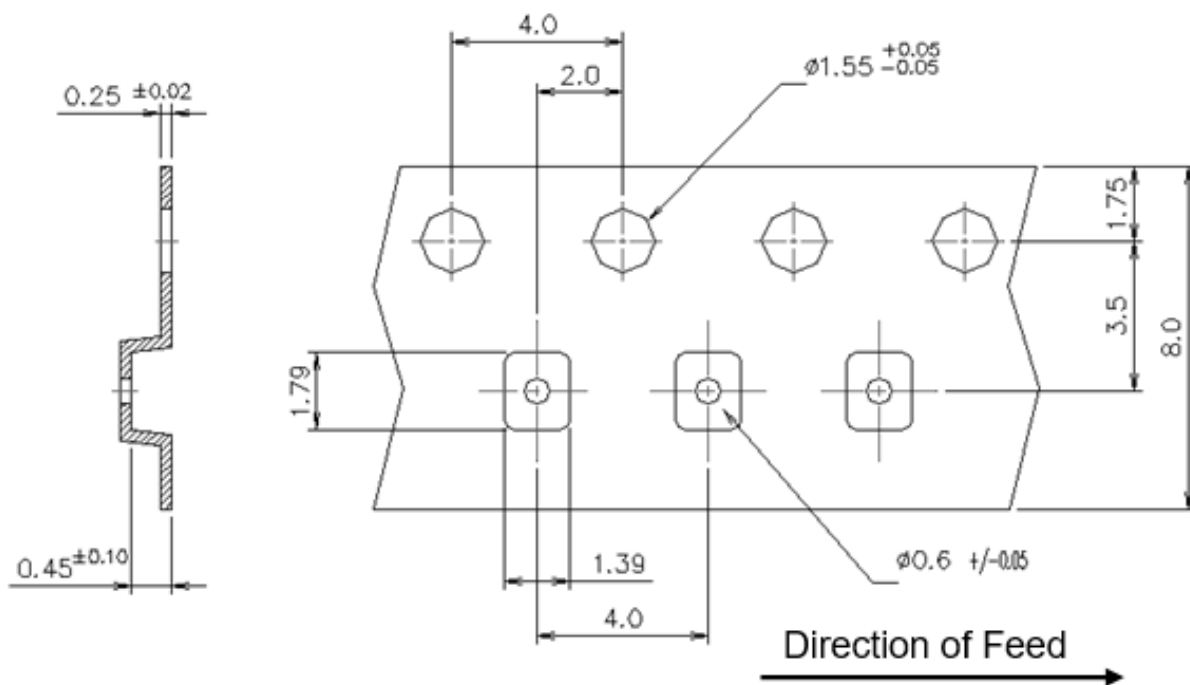
Year	2017	2018	2019	2020	2021
Code	7	8	9	0	1
Year	2022	2023	2024	2025	2026
Code	2	3	4	5	6

Reel Dimensions (mm):

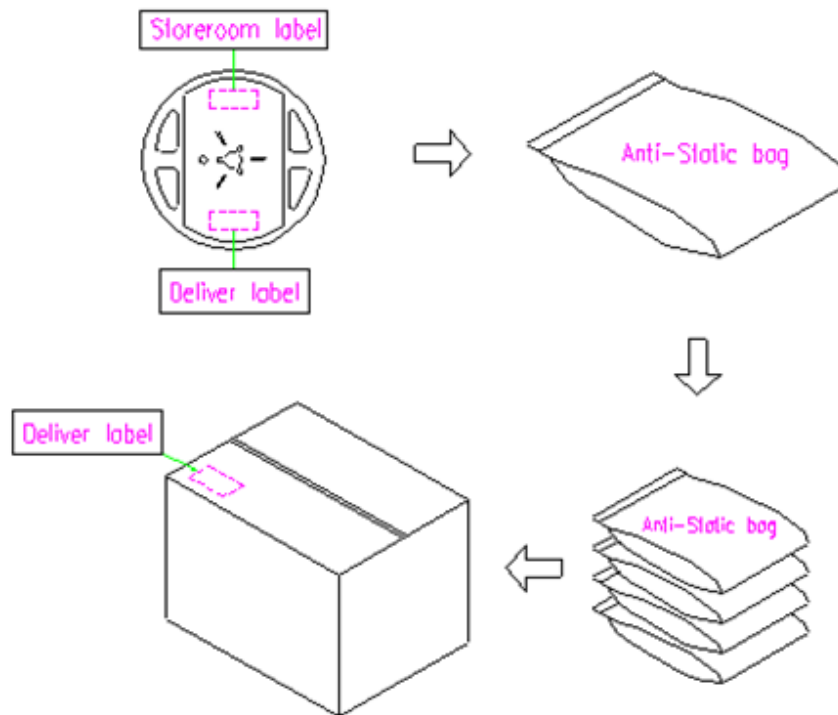
Reel Count: 7" = 3000



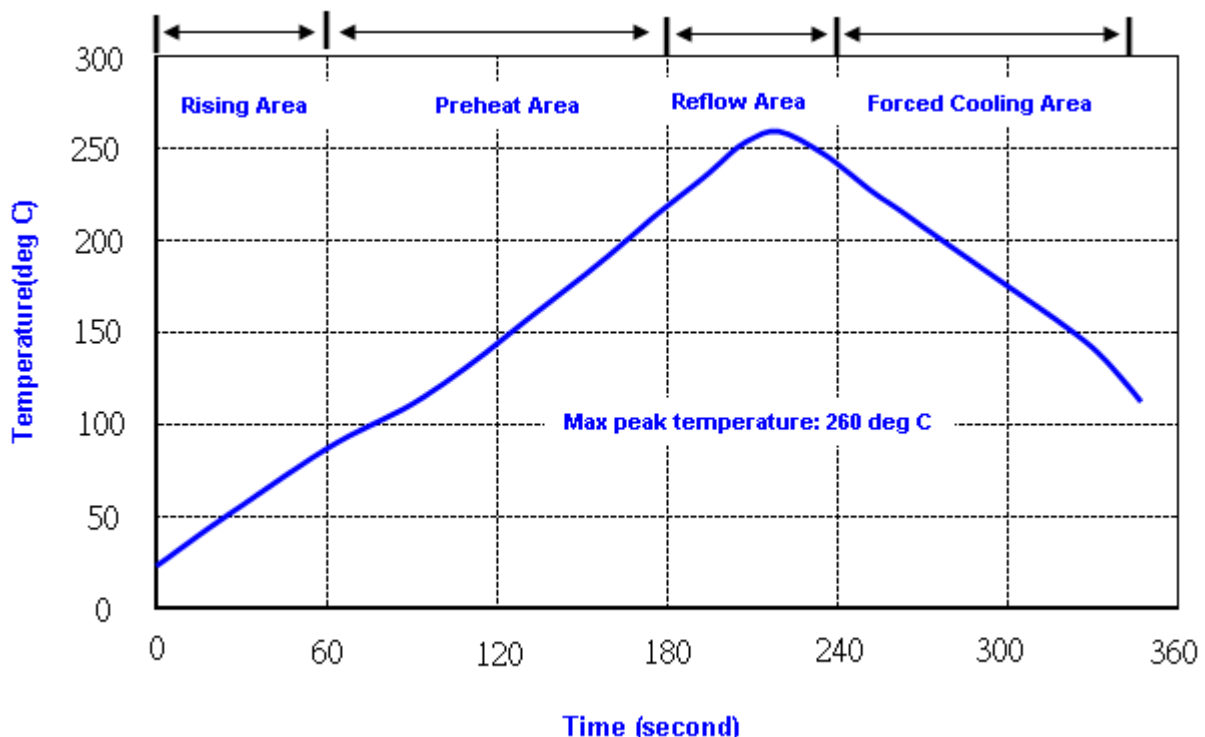
Tape Dimensions (mm):



Packing Quantity/Packing:



Reflow Profile:



Note: 1. Max peak temperature: 260 $\pm$ 5 deg C; Time: 10 $\pm$ 2 sec
2. Temperature: 217 $\pm$ 5 deg C; Time: 90~100 sec

Reliability Specifications

Test name	Test process / method	Reference standard
Mechanical characteristics		
resistance to Soldering heat (IR reflow)	Temp./ Duration : 260°C /10sec ×2 times Total time : 4min.(IR-reflow)	EIAJED-4701 -300(301)M(II)
Vibration	Total peak amplitude : 1.5mm Vibration frequency : 10 to 55 Hz Sweep period : 1.0 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202F method 201A
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202F method 213C
Solderability	Solder Temperature:265±5°C Duration time: 5±0.5 seconds.	MIL-STD 883G method 2003
Environmental characteristics		
Thermal Shock	Heat cycle conditions -55 °C (30min) ↔ 125 °C (30min) * cycle time : 10 times	MIL-STD 883G method 1010.7
Humidity test	Temperature : 70 ± 2 °C Relative humidity : 90~95% Duration : 96 hours	MIL-STD 202F method 103B
Dry heat (Aging test)	Temperature 125 ± 2 °C Duration 168 hours	MIL-STD 883G method 1008.2 condition C
PCT test	Pressure: 2.06kg/cm ² (2.03*10 ⁵ pa) Temperature 121 ± 2 °C Relative humidity : 100% Duration : 24 hours	EIAJED-4701-3 B-123A



CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.