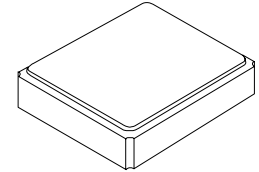


**XTS4204J**

**76.8000 MHz**  
**TSXR**



**SM1612-4**

## Features:

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

## 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.

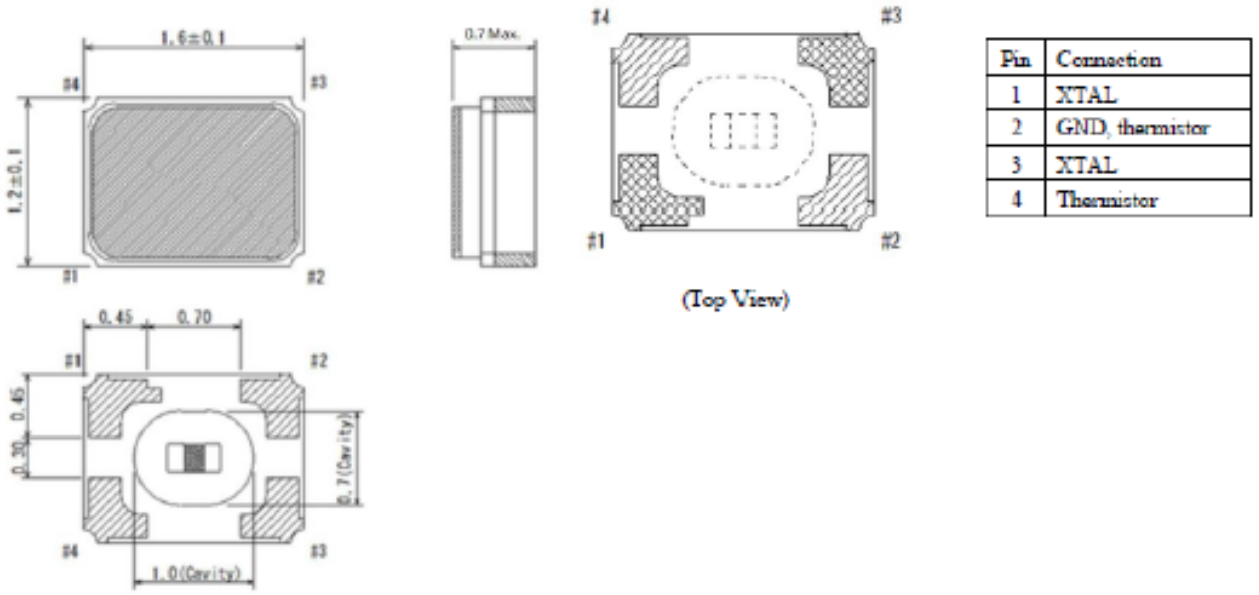
## Electrical Specifications:

<b>XTS4204J</b>	<b>Specification</b>
Nominal Frequency	76.800000 MHz
Mode of Oscillation	AT-cut Fundamental
Storage Temperature Range	-40°C to +105°C
Operating Temperature Range	-30°C to +105°C
Frequency Stability over -30°C to +85°C	+/-12 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+6+/-16 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	30 Ω max
Frequency Drift After Reflow	+/- 2 ppm after two times reflow
Aging	+/-0.7 ppm / year
Pulling Sensitivity(TS)	10~15 ppm/pF
Load Capacitance (CL)	7 pF
Insulation Resistance	500 MΩ min
Spurious Mode Series Resistance	1100Ω Min. (@ +/- 1MHz)

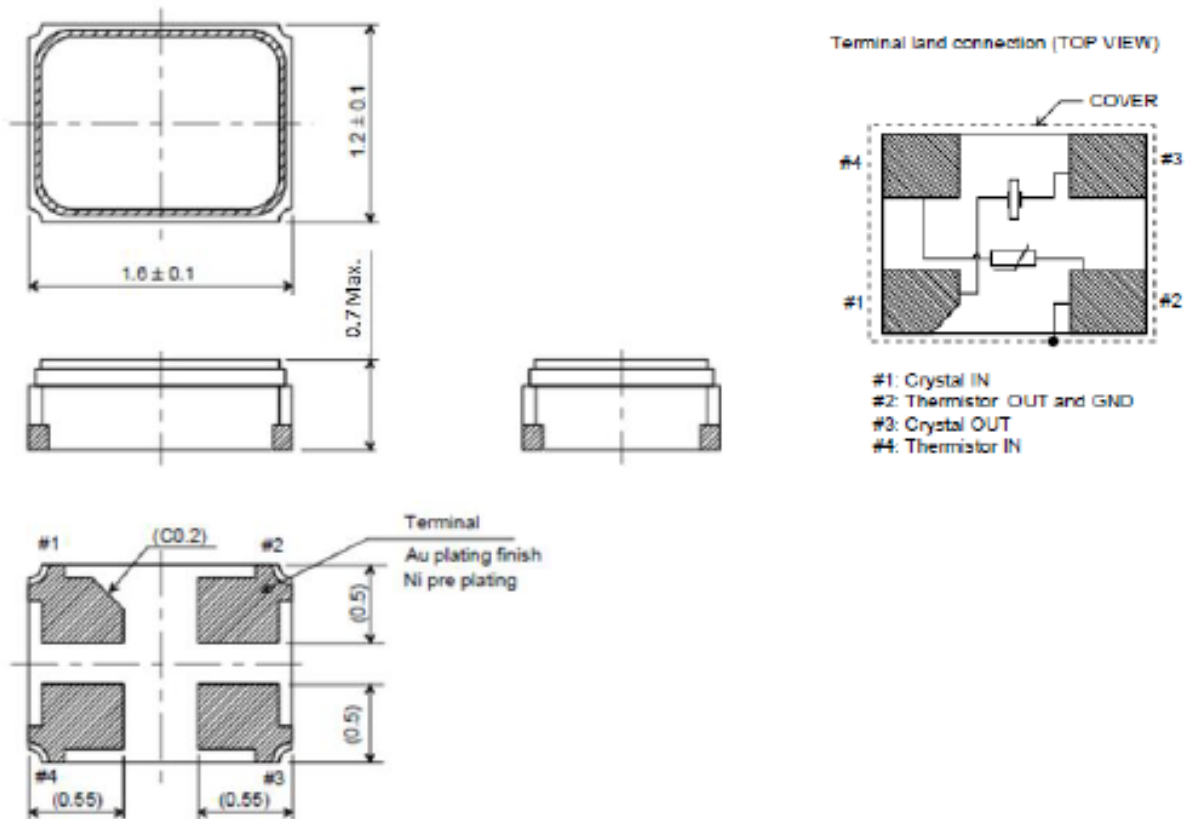
Nominal Drive Level	10uW min 200uW typical 250uW max
Q Factor	50K min
<b>Drive level dependency (0.01uW to 250uW to 0.01uW)</b>	
Frequency (max - min)	6 ppm max
Frequency (repeatability)	0.7 ppm max
ESR (max - min) / ESR min	10%
ESR	30 $\Omega$ max
<b>Thermistor Characteristics</b>	
Storage Temperature Range	-40°C to +105°C
Operating Temperature Range	-30°C to +105°C
Resistance Value(at 25°C)	100K $\Omega$ +/- 1%
Beta Constant	4250K +/- 1%
Rated Power(at 25°C)	100mW Max
<b>Specification(Crystal curve fitting)</b>	
Inflection Temperature	+24.5°C +/- 2°C
First-order Curve Fitting Parameter (C <sub>1</sub> )	-0.40 to -0.10 ppm/°C
Second-order Curve Fitting Parameter (C <sub>2</sub> )	-6.0 to +6.0 x10 <sup>-4</sup> ppm/°C <sup>2</sup>
Third-order Curve Fitting Parameter (C <sub>3</sub> )	+8.5 to +11.5 x10 <sup>-5</sup> ppm/°C <sup>3</sup>
Residual frequency stability slope	+/-100 ppb /°C @ -30°C to -15°C +/-50 ppb /°C @ -15°C to +70°C +/-100 ppb /°C @ +70°C to +85°C
5°C small orbit hysteresis1	+/-100 ppb /°C @ -30°C to -15°C +/-50 ppb /°C @ -15°C to +70°C +/-100 ppb /°C @ +70°C to +85°C
5°C small orbit hysteresis2	100 ppb /pk-pk max @ -30°C to +85°C

# Mechanical Dimensions (mm):

Base1:



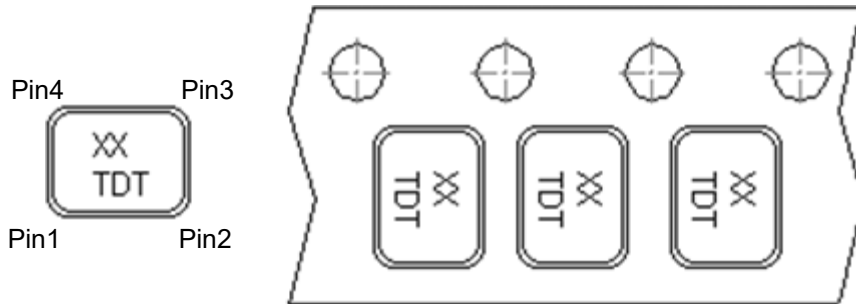
Base2:



# Marking:

Line 1: XX; Frequency (76)

Line 2: T; Traceable Code + D; date Code of Year/Month+ T ; Traceability code (1 or no letter)

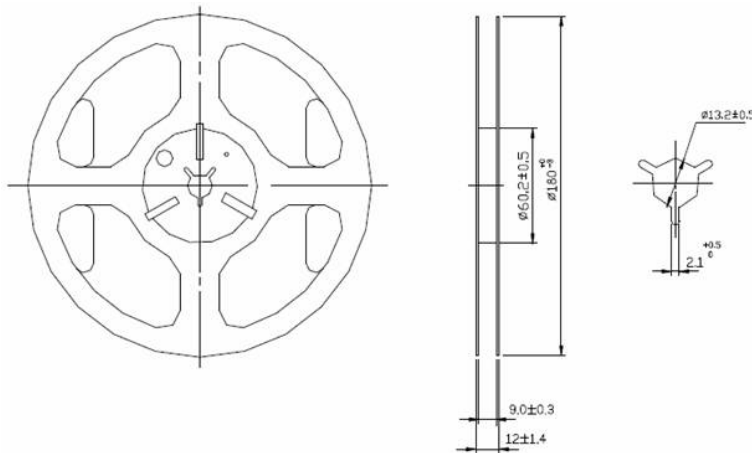


## Date Code Table: Year/Month

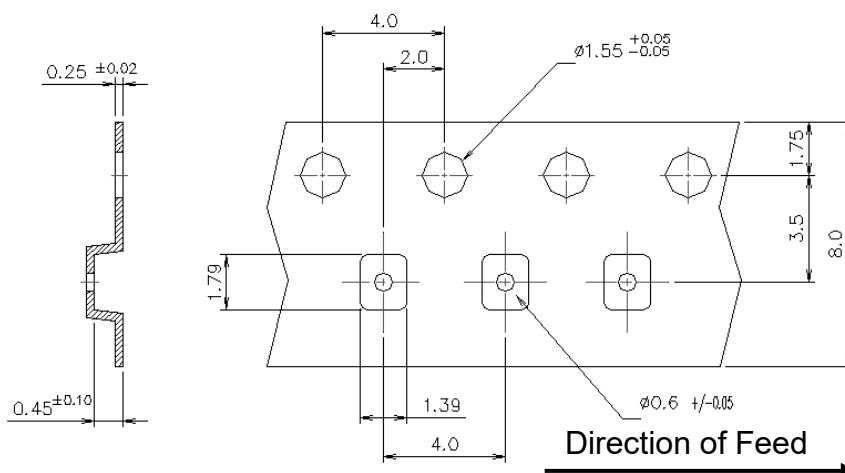
Year/Month	1	2	3	4	5	6	7	8	9	10	11	12
2020	a	b	c	d	e	f	g	h	i	j	k	m
2021	n	p	q	r	s	t	u	v	w	x	y	z
2022	A	B	C	D	E	F	G	H	J	K	L	M
2023	N	P	Q	R	S	T	U	V	W	X	Y	Z
2024	a	b	c	d	e	f	g	h	i	j	k	m
2025	n	p	q	r	s	t	u	v	w	x	y	z

## Reel Dimensions (mm):

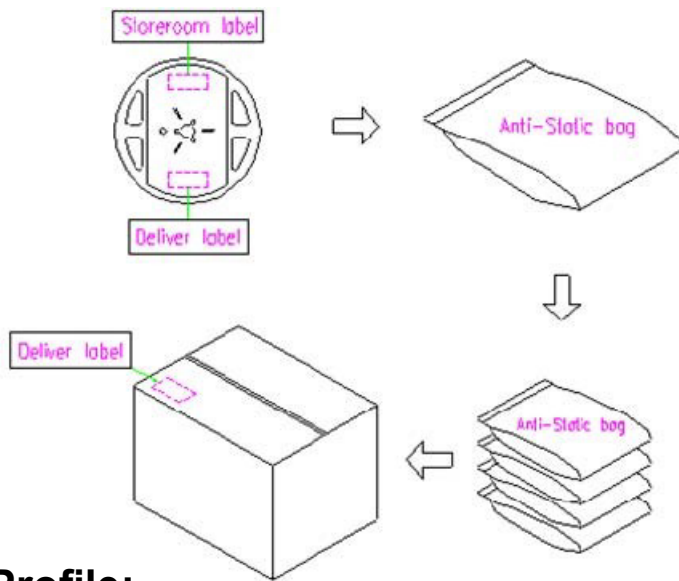
Reel Count: 7" = 1000



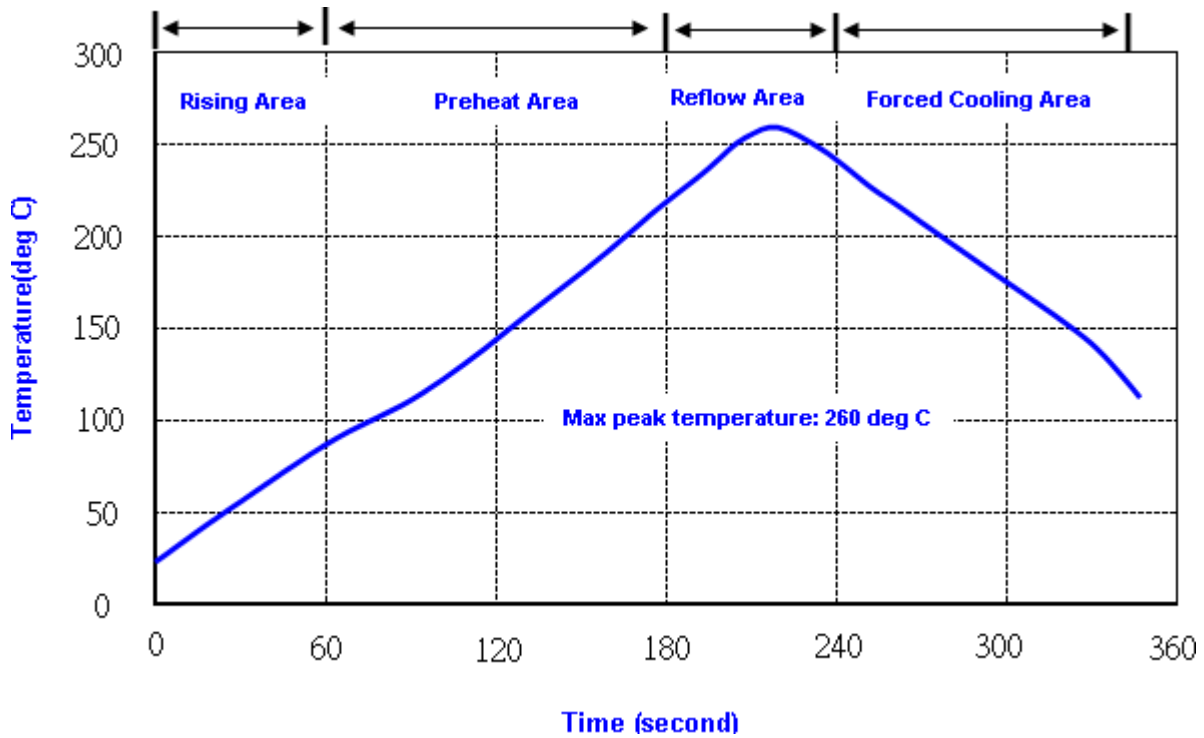
## Tape Dimensions (mm):



## 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
<b>Mechanical characteristics</b>		
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
<b>Environmental characteristics</b>		
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 <sup>2</sup> (2.03*10 <sup>5</sup> pa) Temperature : 121 ± 2 °C Relative humidity : 100% Duration : 24 hours	EIAJED-4701-3 B-123A