



RFM Integrated Device, Inc.

PRODUCT SPECIFICATION

Part Number: XTL2004

XTAL, 96 MHz, +/-16ppm
-40C to +105C, 9.9pf

Crystal Unit SMD 2.0x1.6 96.0MHz

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 2.0mmx1.6mm crystal unit for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

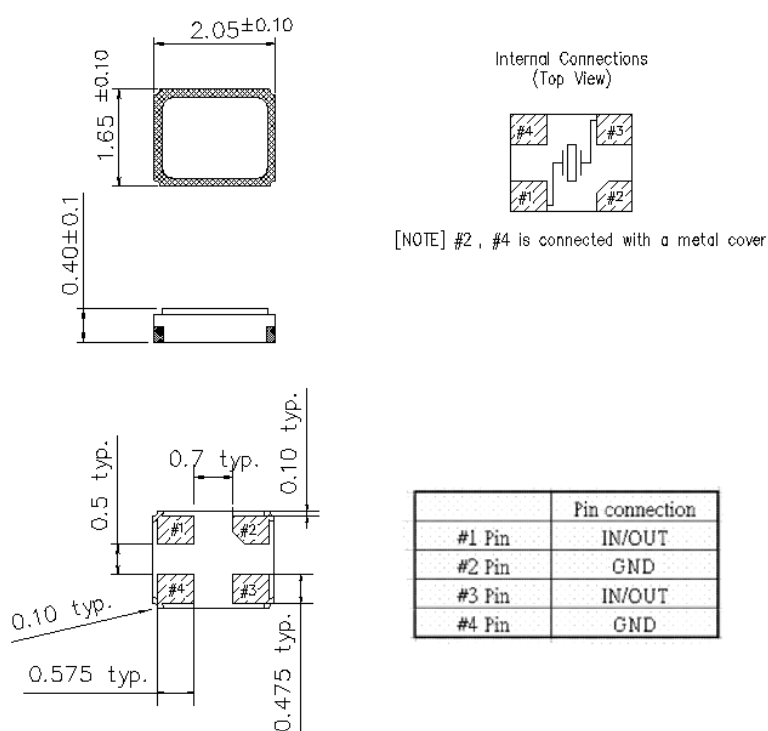
Electrical Specifications:

XTL2004	Specification			
	Min	Nom	Max	Unit
Characteristic				
Nominal Frequency		96.000000		MHz
Mode of Oscillation		Fundamental		°C
Storage Temperature Range	-40		105	°C
Operating Temperature Range	-40		105	°C
Initial frequency tolerance(25°C ± 3°C)(offset -30ppm)	-12		12	ppm
Frequency drift after reflow(After two reflows)	-2		2	ppm
Tolerance over temperature(-40°C to 105°C)	-16		16	ppm
Frequency perturbation(-40°C to 105°C)				ppm
Aging(Five years)				ppm
Equivalent Series Resistance (ESR)		8	20	Ω
Spurious mode series resistance	1100			Ω
Motional inductance	0.5	1.0	1.2	mH
Motional capacitance	2	2.7	4.2	fF
Shunt capacitance	0.5	1.0	1.2	pF
Load Capacitance (CL) (Measure by Saunders(S&A) Network Analyzer 250B)		9.9		pF
Nominal Drive Level	0.01	100	400	uW

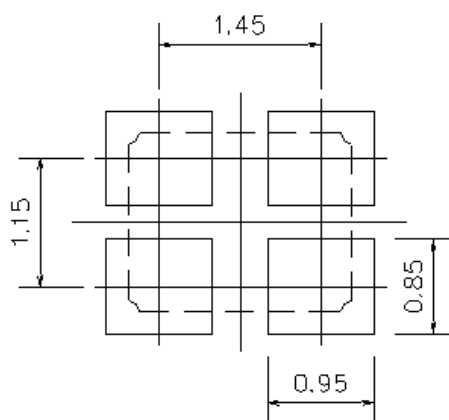
Insulation Resistance(DC 100V)	500			MR
Package size		2.0x1.6		mm ²
Package height			0.50	mm

Mechanical Dimensions (mm):

Base



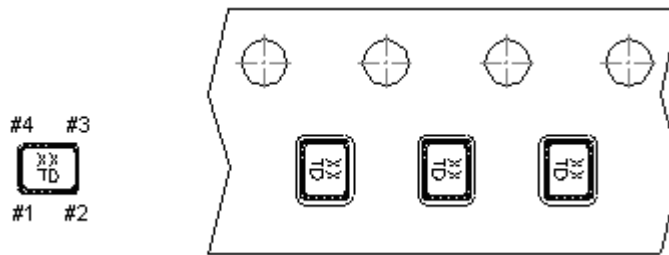
Recommended Land Pattern: (unit: mm)



Marking:

Line 1: XX; Frequency (96)

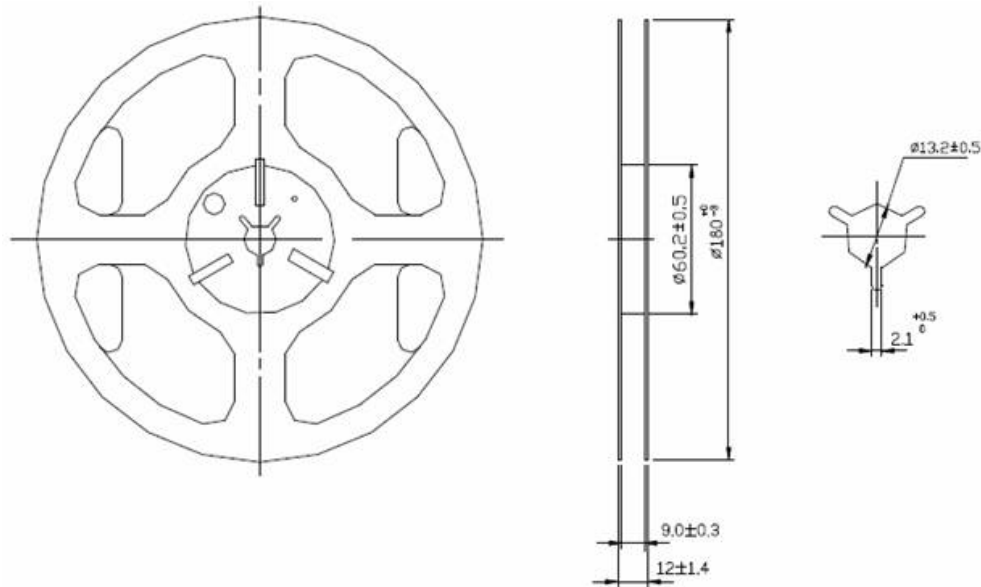
Line 2: T; Traceable Code + D; date Code of Year/Month



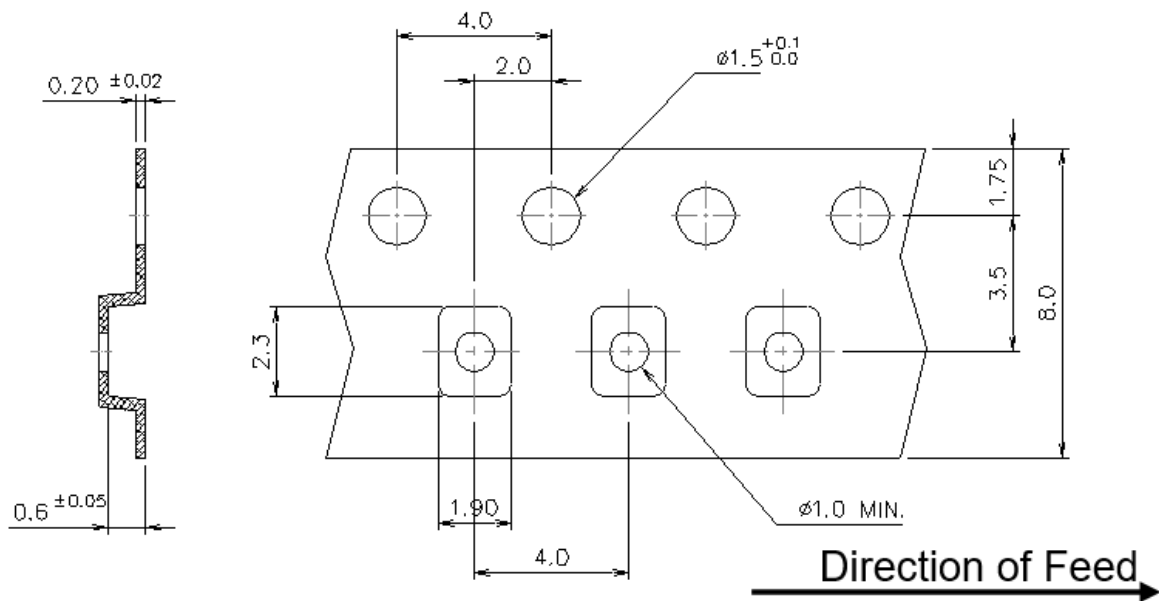
Date Code Table: Year/Month

Year/Month	1	2	3	4	5	6	7	8	9	10	11	12
2009	n	p	q	r	s	t	u	v	w	x	y	z
2010	A	B	C	D	E	F	G	H	J	K	L	M
2011	N	P	Q	R	S	T	U	V	W	X	Y	Z
2012	a	b	c	d	e	f	g	h	i	j	k	m
2013	n	p	q	r	s	t	u	v	w	x	y	z
2014	A	B	C	D	E	F	G	H	J	K	L	M
2015	N	P	Q	R	S	T	U	V	W	X	Y	Z
2016	a	b	c	d	e	f	g	h	i	j	k	m
2017	n	p	q	r	s	t	u	v	w	x	y	z
2018	A	B	C	D	E	F	G	H	J	K	L	M
2019	N	P	Q	R	S	T	U	V	W	X	Y	Z
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

Reel Dimensions (mm):



Tape Dimensions (mm):

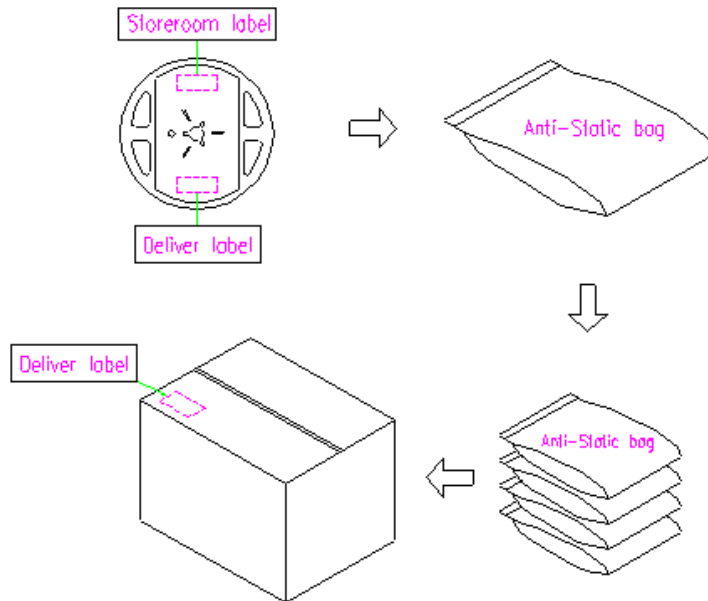


[NOTE]:

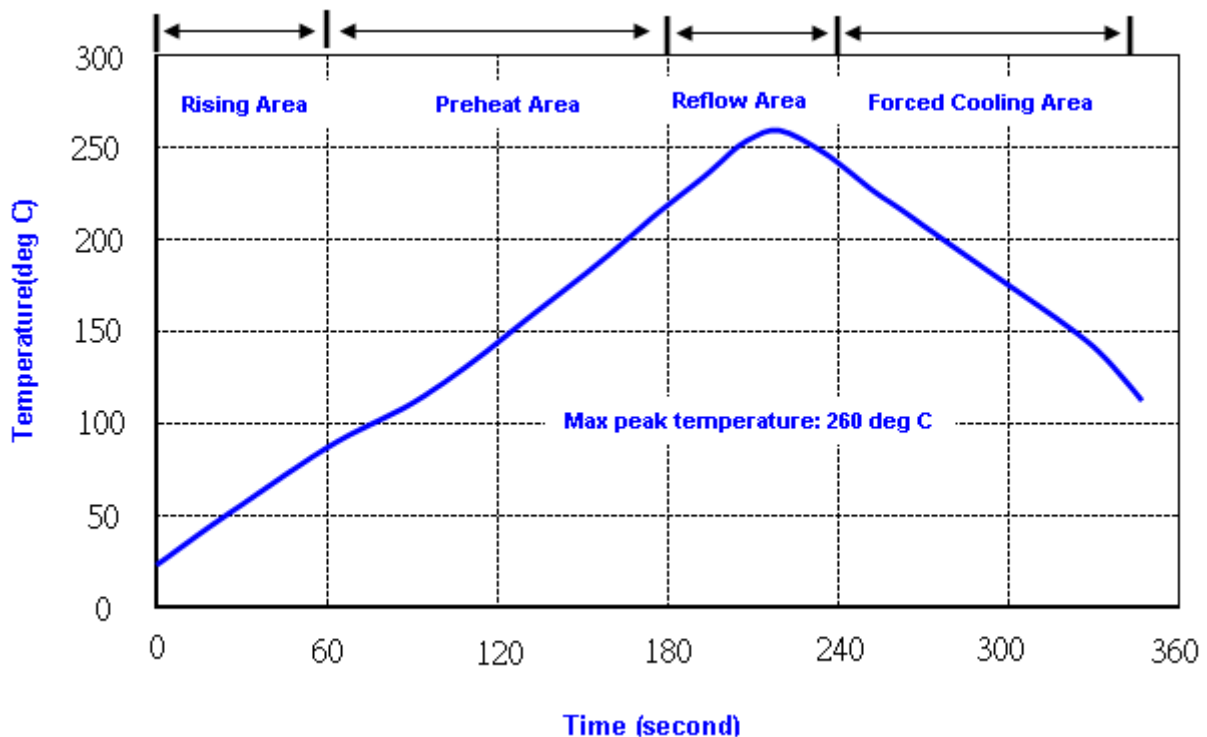
1. Unless otherwise specified tolerance on dimension ± 0.1 mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance ± 0.2 mm.

Packing Quantity/Packing:

3K pcs maximum per reel



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 : 265°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 2000 Hz Sweep period : 20 minute Vibration directions : 3 mutually perpendicular Duration : 2 hr / direc.	MIL-STD 202G method 204
Mechanical Shock	directions : 3 impacts per axis Acceleration : 3000g's, +20/-0 % Duration : 0.3 ms (total 18 shocks) Waveform : Half-sine	MIL-STD 202G method 213
Solderability	Solder Temperature:265±5°C Duration time: 5±0.5 seconds.	J-STD-002
Environmental characteristics		
Thermal Shock	Heat cycle conditions -40 °C (30min) ↔ 85 °C (30min) * cycle time : 10 times	MIL-STD 883G method 1010.8
Humidity test	Temperature : 85 ± 2 °C Relative humidity : 85% Duration : 96 hours	MIL-STD 202G method 103
Dry heat (Aging test)	Temperature : 125 ± 2 °C Duration : 168 hours	MIL-STD 202G method 108A
Cold resistance (Low Temp Storage)	Temperature : -40 ± 2 °C Duration : 96 hours	IEC 60068-2-1