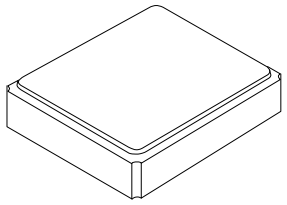
RFMi
BRAND OF AKOUSTIS

RoHS compliant

XTL1047P

20.000000 MHz Crystal Unit



SM3225-4

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:

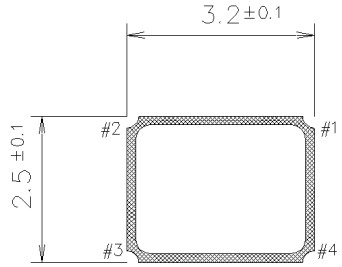
Surface mount 3.2mmx2.5mm crystal unit for customer for use in wireless communications devices, especially for a need of ultra miniature package for mobility.

Electrical Specifications:

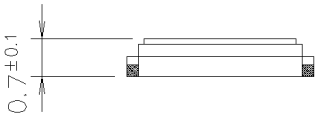
XTL1047P	**Specification**
Nominal Frequency	20.000000 MHz
Mode of Oscillation	Fundamental
Storage Temperature Range	-40°C to +90°C
Operating Temperature Range	-40°C to +85°C
Frequency Stability over Operating Temperature	+/- 25 ppm (referred to the value at 25°C)
Frequency Make Tolerance (FL)	+/- 10 ppm @ 25°C +/- 3°C
Equivalent Series Resistance (ESR)	40 Ω max.
Nominal Drive Level	10uW typical and 200uW max
Shunt Capacitance (Co)	3.0 pF max
Load Capacitance (CL)	8 pF
Motional Inductance(Lm)	25 mH typical
Motional Capacitance(Cm)	2.5 fF typical
Aging	+/-2ppm/year
Insulation Resistance	500 MΩ min./DC 100V
Marking	Laser Marking
Unit Weight	0.017+/-0.005 g

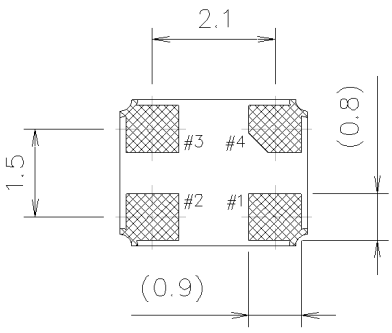
Mechanical Dimensions (mm):

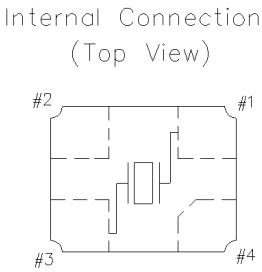
Base



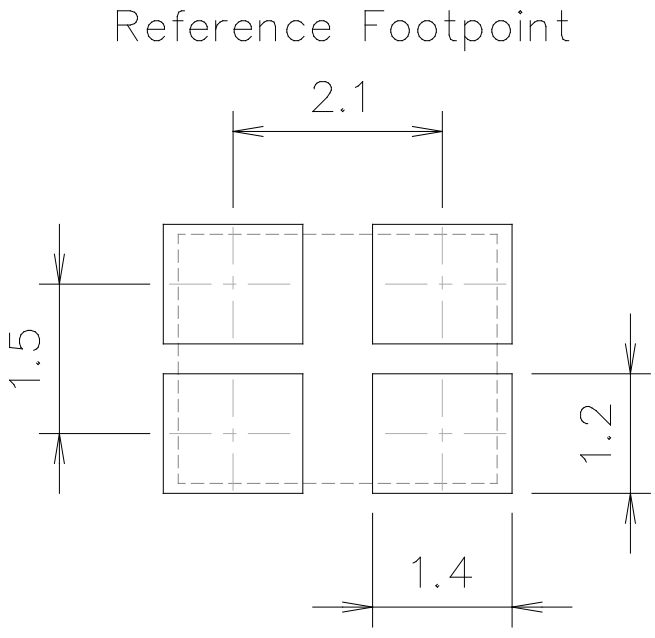
	Pin Connection
#1 pin	IN/OUT
#2 pin	GND
#3 pin	IN/OUT
#4 pin	GND







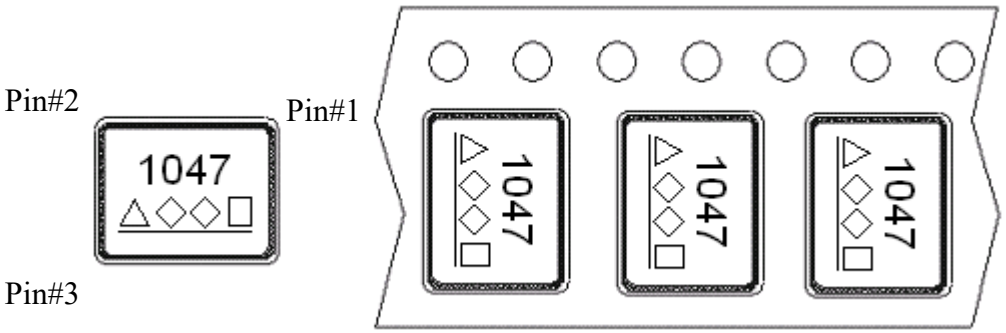
Recommended Land Pattern: (unit: mm)



Marking:

Line 1: 1047

Line 2: Year Code (△)+ Week code (◇◇) + (□) (Shift code)



The inner vision of Pin#1, Pin#4 side is XTAL blank mounting pad.

Year Code (△)

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Code	0	1	2	3	4	5	6	7	8	9

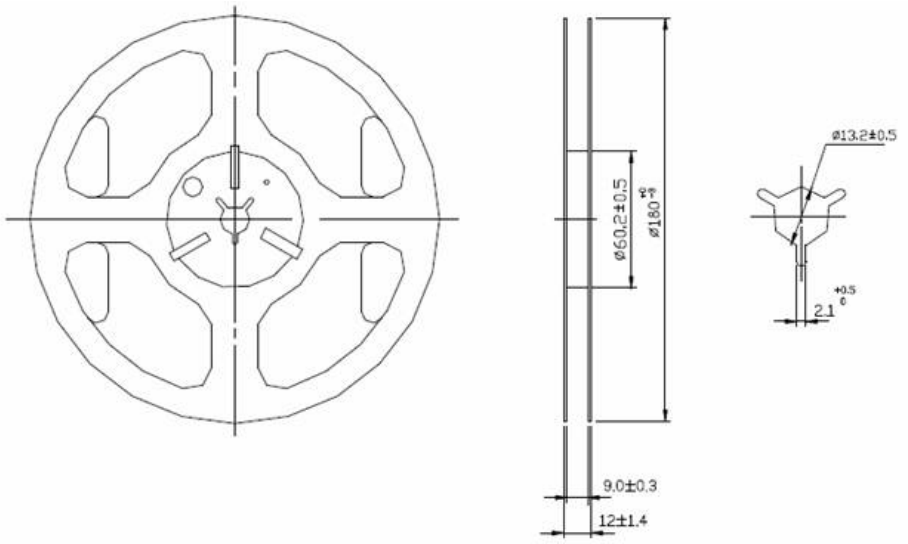
Week code (◇◇)

Week	01	02	03	04	05	06	07	08	09	10	11	12	13
Code	01	02	03	04	05	06	07	08	09	10	11	12	13
Week	14	15	16	17	18	19	20	21	22	23	24	25	26
Code	14	15	16	17	18	19	20	21	22	23	24	25	26
Week	27	28	29	30	31	32	33	34	35	36	37	38	39
Code	27	28	29	30	31	32	33	34	35	36	37	38	39
Week	40	41	42	43	44	45	46	47	48	49	50	51	52
Code	40	41	42	43	44	45	46	47	48	49	50	51	52

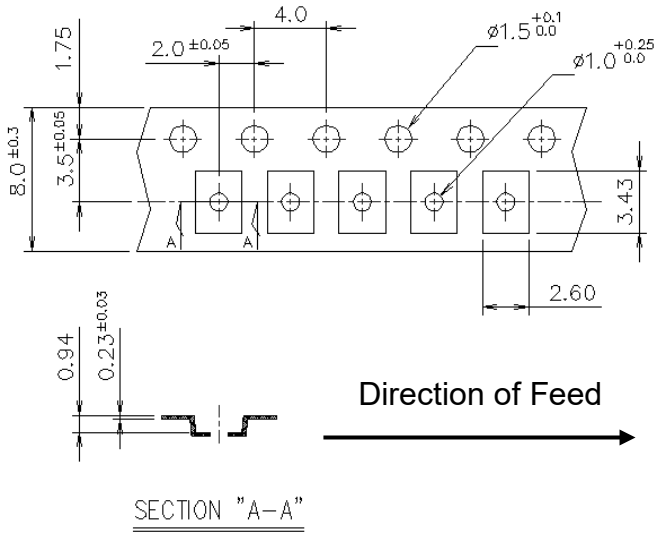
(□)

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
A Shift	A	D	G	K	N	S	V
B Shift	B	E	H	L	P	T	W
C Shift	C	F	J	M	R	U	X

Reel Dimensions (mm):



Tape Dimensions (mm):



[NOTE]

1 UNIT : mm.

2 UNLESS OTHERWISE SPECIFIED TOLERANCEON DIM. +/-0.1mm.

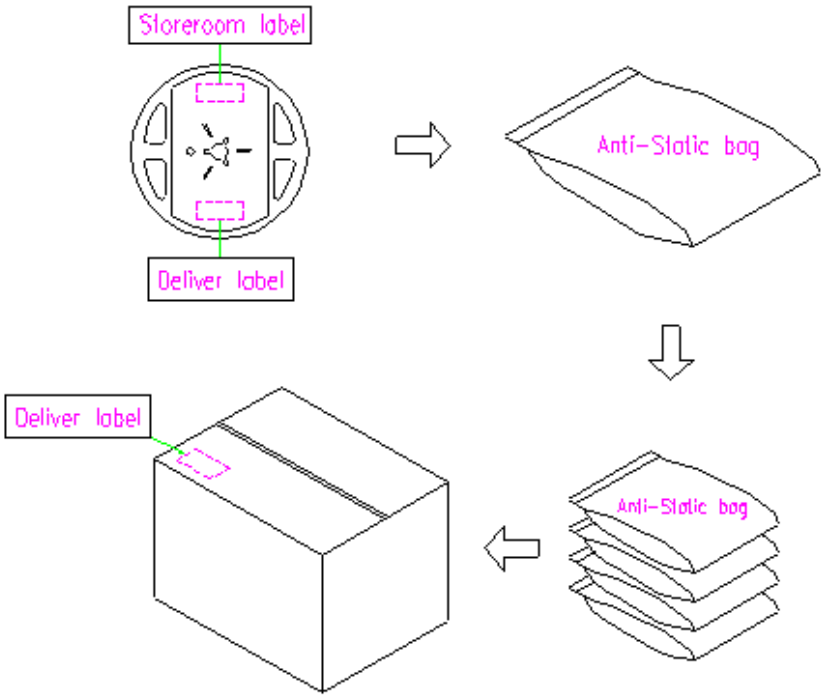
3 MATERIAL : CONDUCTIVE POLYSTYRENE.

4 COLOR : BLACK.

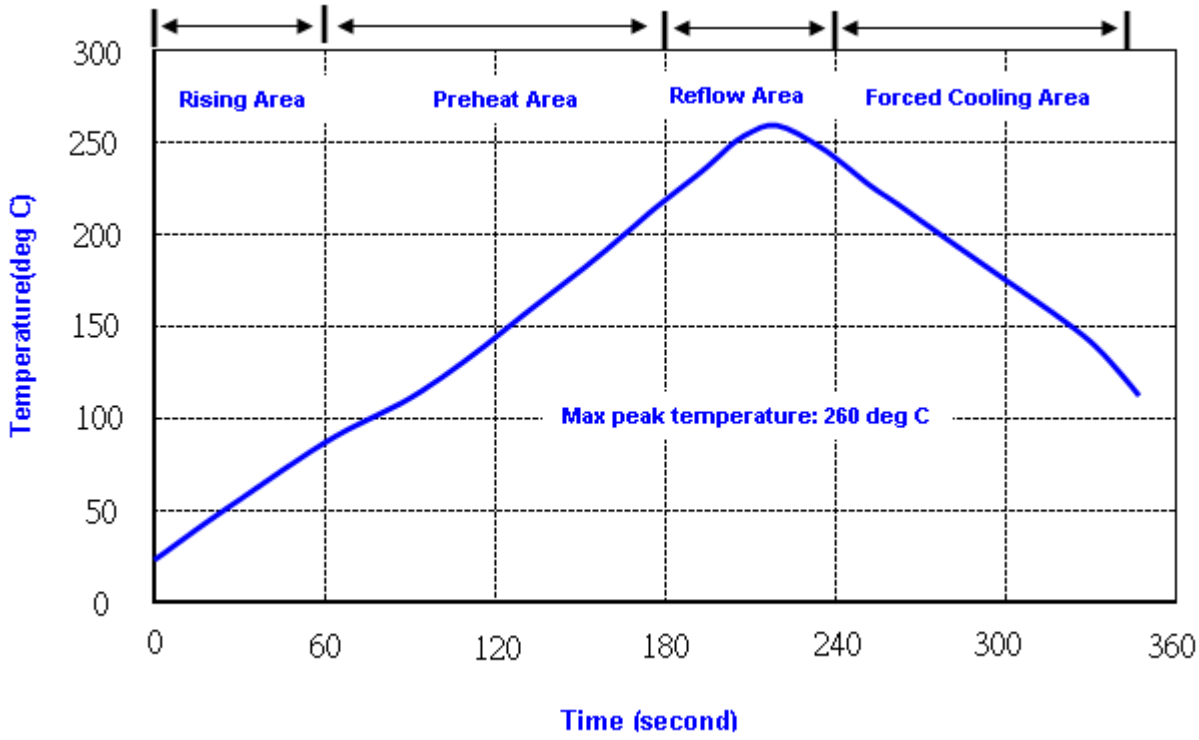
5 10 PITCHES CUMULATIVETOLERANCE +/-0.2mm.

Packing Quantity/Packing:

3K pcs maximum per reel



Reflow Profile:



Note: 1.Max peak temperature: 260+/-5 deg C; Time: 10+/-2 sec

2. Temperature: 217+/-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 ℃ (30min) ⟷ 85 ℃ (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

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

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.