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[Http://www.100y.com.tw](http://www.100y.com.tw)

ELECTRICAL SPECIFICATIONS

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

- Ambient temperature : 25+/-5°C
- Relative humidity : 40%~70%

If there is any doubt about the results, measurement shall be made within the following limits:

- Ambient temperature : 25+/-1°C
- Relative humidity : 40%~70%

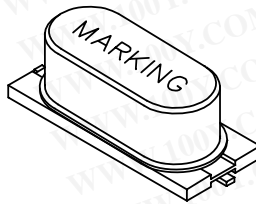
Measure equipment

SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

Crystal cutting type

The crystal is using AT CUT (thickness shear mode).

Unit Weight : 0.58 g +/- 0.05g



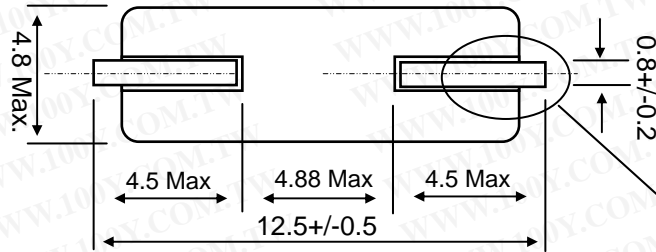
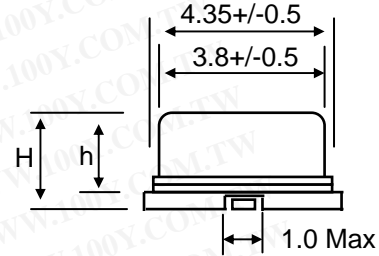
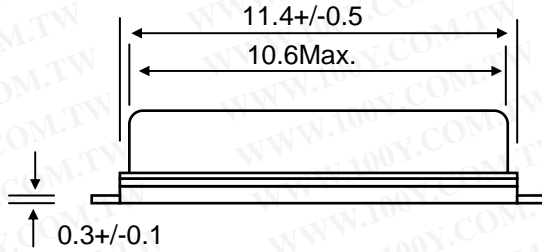
please refer to marking code page

	Parameters	SYM	Electrical				Notes
			MIN.	TYP.	MAX.	UNITS	
1	Nominal Frequency	FL	11.059200 MHz			MHz	
2	Oscillation Mode		Fundamental				
3	Load Capacitance	CL		20.0		pF	
4	Frequency Tolerance	FT	-30		+30	ppm	at 25 °C ± 3 °C
5	Frequency Tolerance	ST	-30		+30	ppm	Over Operating Temp.Range
6	Operating Temperature	OT	-20		+70	°C	
7	Aging		-5		+5	ppm	1st year
8	Drive level	DL		100	500	uW	
9	Effective Resistance Rr	Rr			40	ohm	
10	Shunt Capacitance	C0			7	pF	
11	Motional Capacitance	C1				fF	
12	Insulation Resistance		500			Mohm	at DC 100V
13	Storage Temperature Range		-40		+85	°C	
14	SPDB(+/-5000ppm)				-3.0	dB	

■ FACTORY LOCATION : CHINA

DIMENSIONS

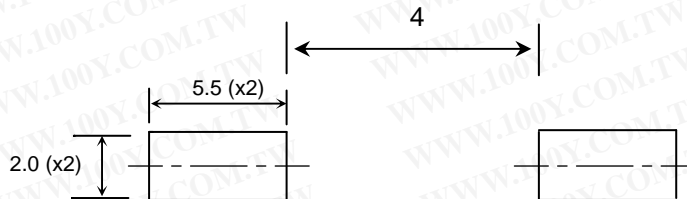
UNIT:mm



CHOOSE	TYPE	H(SMDHIGH)	h(BODY HIGH)
■	S3	3.8+/-0.3	3.3+/-0.3
□	S2	3.0+/-0.3	2.3+/-0.3

Suggested Layout

Solder Coating
(Sn-Ag-Cu Pb Free Coating)

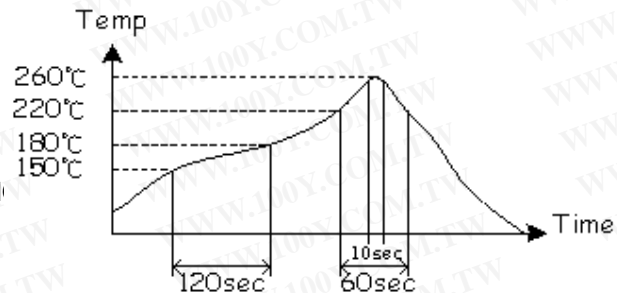


■ SUGGESTED REFLOW PROFILE

Solder melting point :220±10 °C, 60 sec. Min.
Peak Temperature: 260 ± 5 °C, 10 sec. Max.

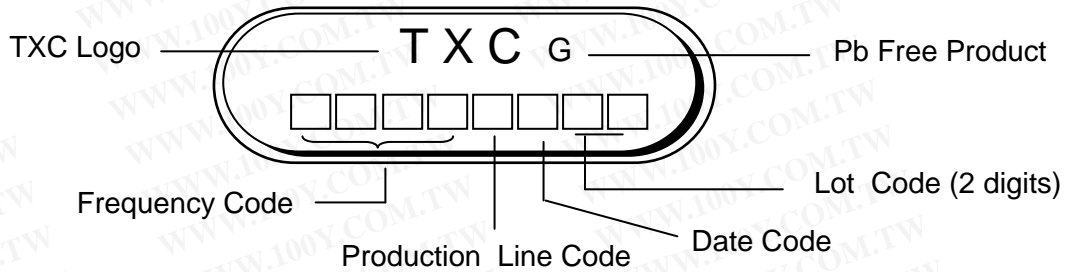
■ SUGGESTED MANUAL SOLDER CONDITI

Temperature: 350 ± 10 °C
Time: 3 sec.
Re-solder times: twice



MARKING

Marking For Pb Free Parts :

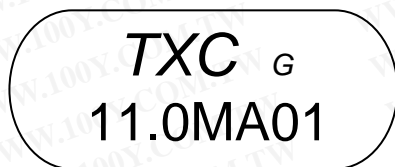


Date Code:

YEAR					MONTH												
2009	2010	2011	2012	2013	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
a	b	c	d	e	f	g	h	j	k	l	m	n	p	q	r	s	t
2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034

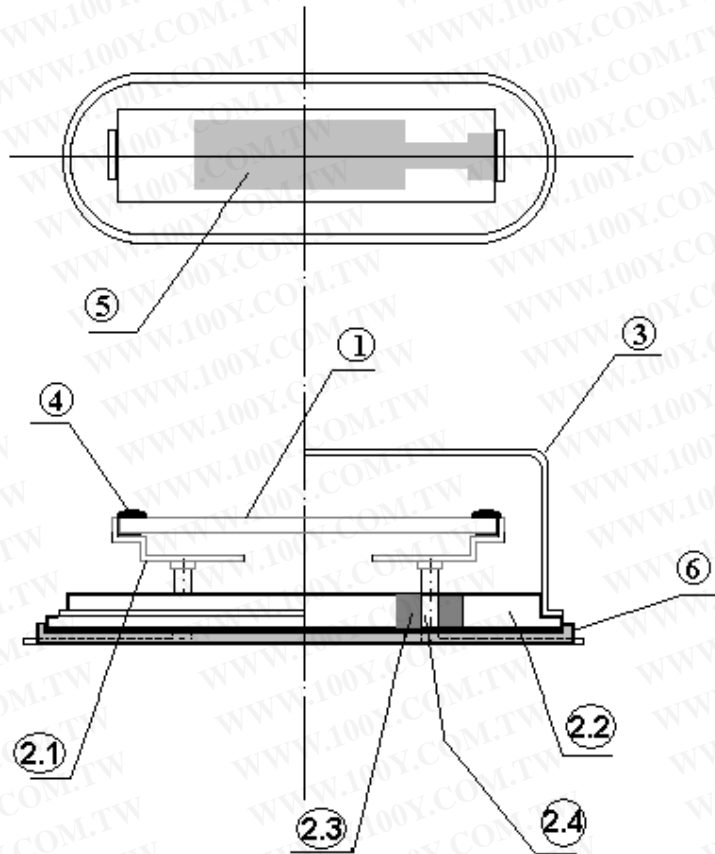
*This date code will be cycled every four years.

For example : Marking



Introduction : Pb Free Product
49S 11.0592 MHz
Made in NGB 2009/JAN 01Lot

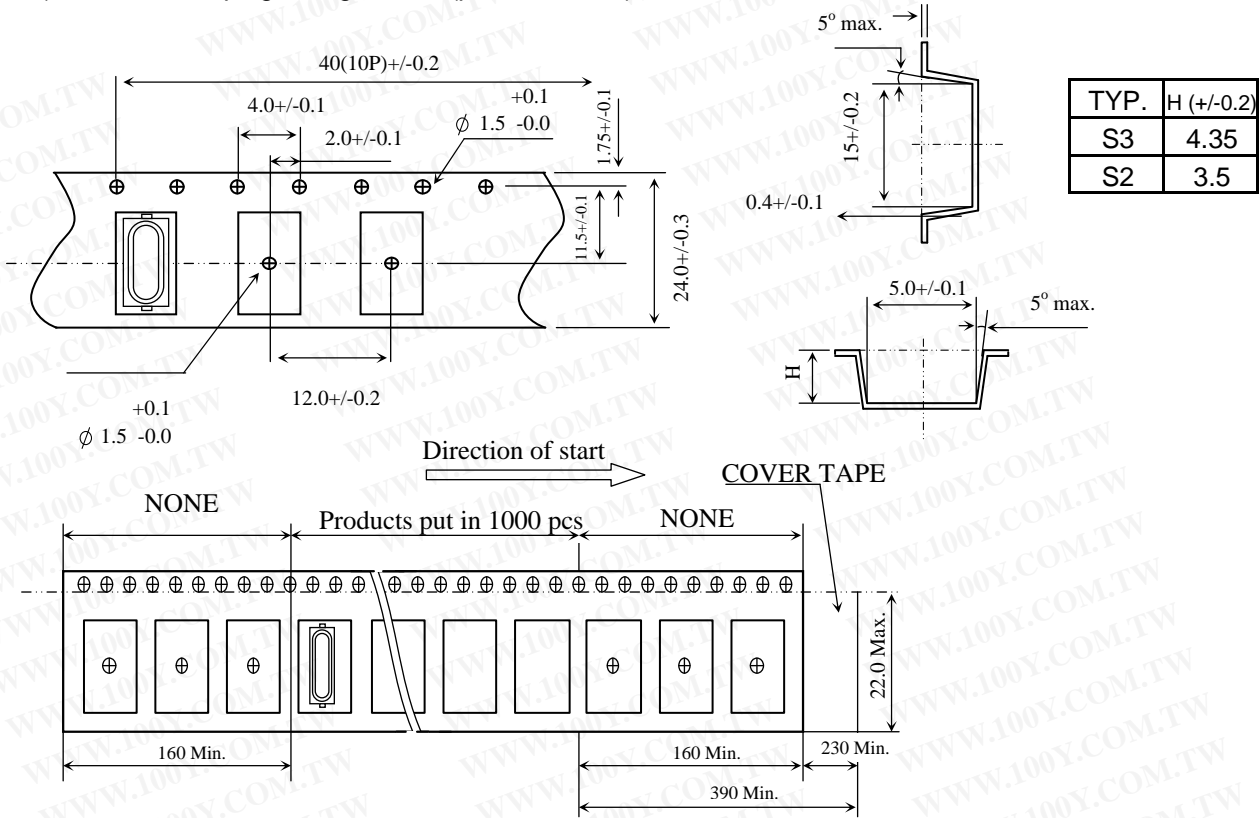
STRUCTURE ILLUSTRATION :



NO	COMPONENTS		MATERIALS	QTY	FINISH/SPECIFICATIONS
1	CRYSTAL BLANK		QUARTZ (SiO ₂)	1	/
2	2.1	SUPPORTER	NICKEL SILVER	2	/
	2.2	HOLDER	SPCC	1	Ni PLATED
	2.3	GLASS	GLASS	2	/
	2.4	LEAD	KOVAR	2	Ni PLATED+SOLDER DIPPED (Coating : Sn/Ag/Cu)
3	CRYSTAL COVER		NICKEL SILVER	1	Ni PLATED
4	CONDUCTIVE ADHESIVE		Ag + RESIN	4	/
5	ELECTRODE		Ag	2	/
6	INSULATION PAD		PPS	1	/

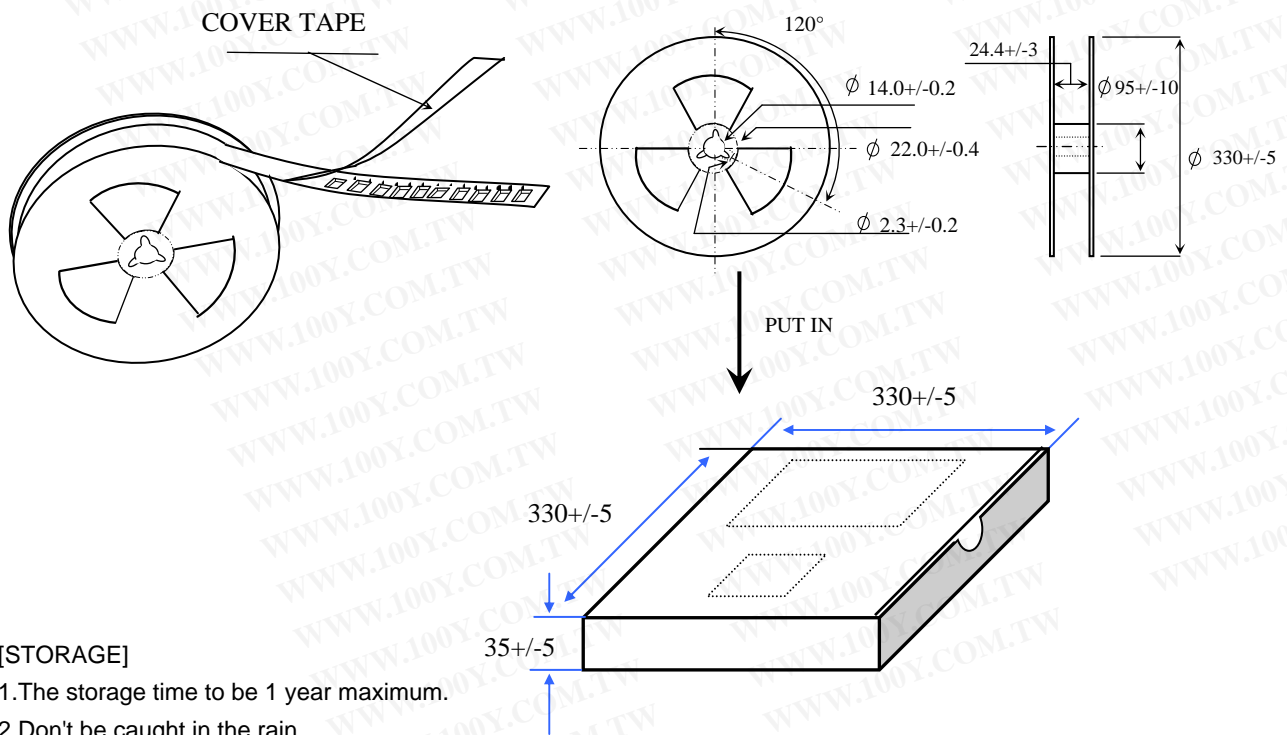
(A) Tape and reel configuration:(Unit : mm)

(a) Emboss taping configuration. (per EIA-481-2)



(b) Reel configuration.

(B) Packing & Label :(Unit : mm)



[STORAGE]

- 1.The storage time to be 1 year maximum.
- 2.Don't be caught in the rain.
- 3.The storage environment shall be 5°C ~40°C temperature and 30% ~ 75%RH humidity and free from the sun shine.
- 4.If customers have special requirements, we can paste labels according to it.

RELIABILITY SPECIFICATIONS

1. Mechanical Endurance

No.	Test Item	Test Methods	Test Criteria
1.1	Drop test	50 cm Height, Fall freely onto firm wood for 3 times.	B C
1.2	Mechanical Shock	1000 G , 0.5 m Sec. , 3 times for all 3 directions.	B C
1.3	Vibration	Frequency range 10 ~ 2000 Hz Acceleration 5G Sweep time 20 minute Pencil axes each test time 4 hours (Total test time 12 hours)	B C
1.4	Terminal Strength	17.7N force for 60sec +/-1sec.	F

2. Environmental Endurance

No.	Test Item	Test Methods	SPEC
2.1	Solderability	Pb free :Temperature 235±5°C,Immersion time:5±1sec	E
		Pb :Temperature 215±5°C,Immersion time:5±1sec	
2.2	Resistance To Soldering Heat	Test temperature 260 +/- 5 °C Test time 10 +/- 1 sec. Emersion Rate 25 ± 6 mm/s Immersed of specimen 1.5mm	ACD
2.3	High Temp. Storage	+ 85°C ± 3 °C for 500 ± 12 Hrs	ACD
2.4	Low Temp. Storage	- 40 °C ± 3 °C for 500 ± 12 Hrs	ACD
2.5	Temperature cycle	-40°C ~85°C,for 300 cycles. 	ACD
2.6	High Temp & Humidity	85°C ± 3°C , RH 85% , 500 Hrs	ACD

HANDING CAUTIONS

Prohibit the use of ultrasonic welding in Assembling

**RELIABILITY SPECIFICATIONS**

Specifications	
A	Frequency change: Within ± 20 ppm or in customer's specification.
B	Frequency change: Within ± 10 ppm or in customer's specification.
C	Equivalent series resistance(E.S.R) change: Within $\pm 15\%$ or 10Ω (larger value).
D	After conditioning , quartz crystal units shall be subjected to standard atmospheric conditions for 24 hour, and measured.
E	Minimum 95% of immersed terminal shall be covered with new uniform solder.
F	No damage on specimen

Measurement condition

Measurements are carried out with Network-analyzer(S&A 250B or equivalent).