



# SPECIFICATION FOR APPROVAL

CUSTOMER

PRODUCT TYPE	HC-49/S SMD
NOMINAL FREQ.	18.000000 MHz
TXC P/N	9C18000014
CUSTOMER P/N	
ISSUE DATE	03/05/2009

CUSTOMER'S APPROVAL

(Please return one copy with approval)

APPROVED	QA
	

**TXC** TXC CORPORATION

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TXC PN: 9C12000181

VER A

FMT NO:

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# SMD QUARTZ CRYSTAL UNIT

## (9C SERIES) HC-49/S SMD PACKAGE

PREPARED

APPROVED

QA

SHU-CHEN KO

SIMON

TON KSIEH

### CONTENT

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### ATTACHMENT(S) (optional)

#### TESTING DATA

- ELECTRICAL CHARACTERISTICS TEST A  YES  NO
- TEMPERATURE CHARACTERISTICS TEST B  YES  NO

**SMD QUARTZ CRYSTAL UNIT****(9C SERIES) HC-49/S SMD PACKAGE**

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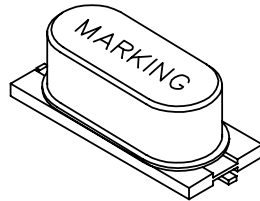
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\*The detail marking spec.  
please refer to marking code page

**ELECTRICAL SPECIFICATIONS**

1.	Nominal Frequency	18.000000 MHz
2.	Oscillation Mode	Fundamental
3.	Load Capacitance	20.0 pF
4.	Frequency Tolerance (25 °C)	+/- 30 ppm
5.	Effective Series Resistance	50 Ohms Max.
6.	Shunt Capacitance (C0)	7.0 pF Max.
7.	Motional Capacitance (C1)	N/A
8.	Drive Level	10 uW
9.	Operation Temperature Range	-10 °C ~ +60 °C
10.	Stability Over Temperature Range	+/- 30 ppm (related to 25 °C)
11.	Insulation Resistance	500 MOhms Min. at DC 100V
12.	Attenuation of Spurious Frequency Amplitude	N/A
13.	Ratio of Holder to Motional (C0/1)	N/A
14.	Storage Temperature	-40 °C ~ +85 °C
15.	Aging	+/- 5.0 ppm/year

\* Measured by SAUNDERS 250A/250B CRYSTAL IMPEDANCE METER.

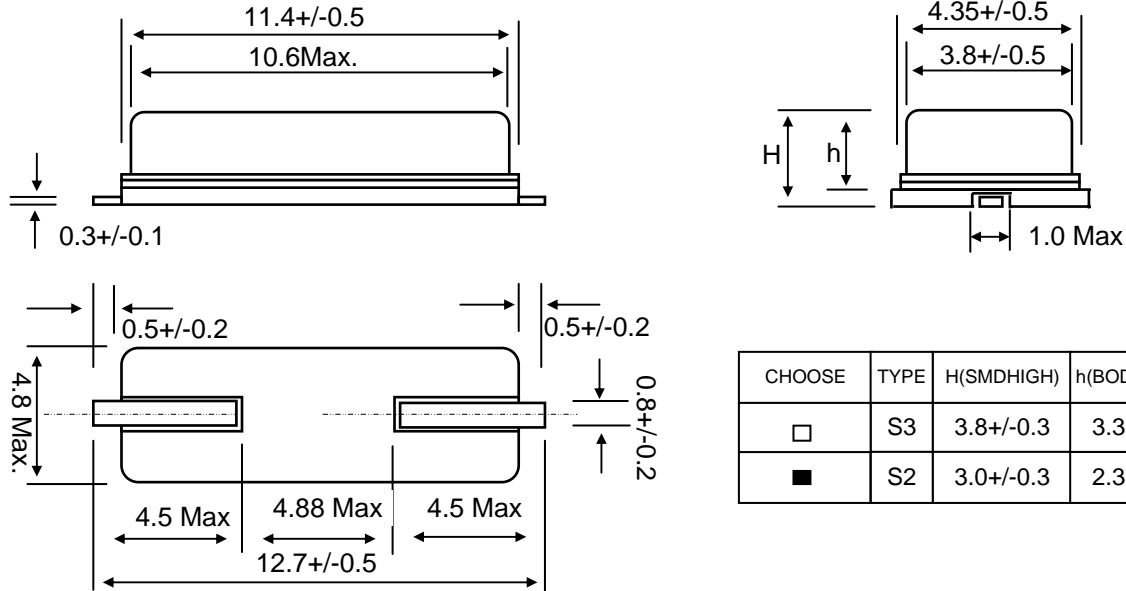
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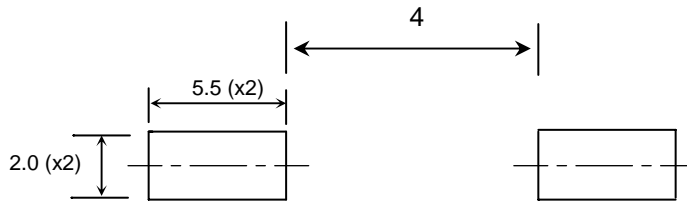
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### DIMENSIONS

UNIT:mm

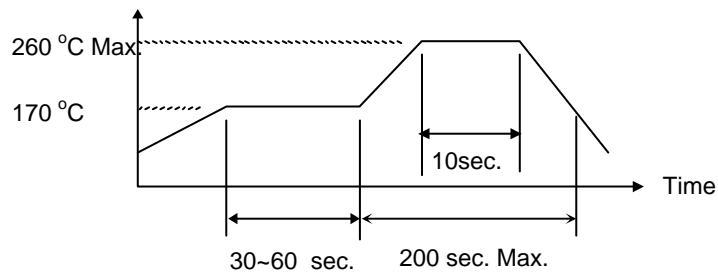


### Suggested Layout



### SUGGESTED REFLOW PROFILE

Total time : 200 sec. Max.  
 Solder melting point : 220 °C





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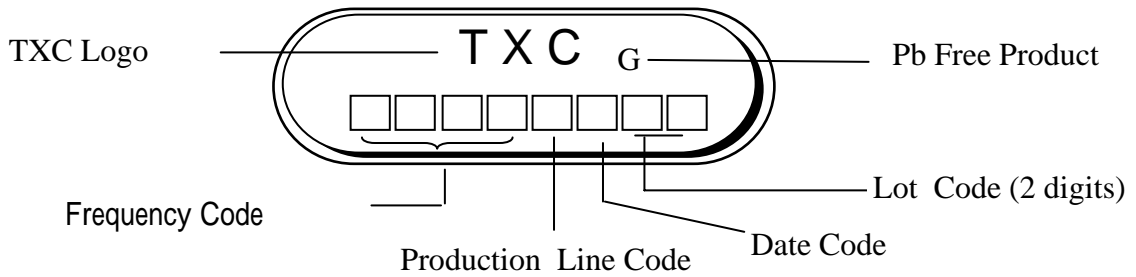
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### MARKING

#### MARKING For Pb Free Parts :

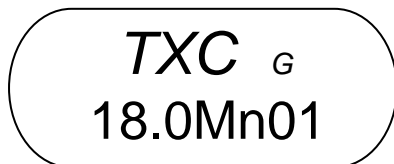


#### Date Code:

YEAR					MONTH												
2001	2005	2009	2013	2017	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
U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	j	k	l	m
n	p	q	r	s	t	u	v	w	x	y	z						

\*This date code will be cycled every four years.

#### For example : Marking



→ Introduction : Pb Free Product  
49S 18.000 MHz  
Fundamental  
Made in NGB 2004/1 01Lot

**SMD QUARTZ CRYSTAL UNIT****(9C SERIES) HC-49/S SMD PACKAGE**

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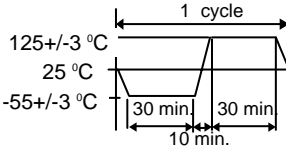
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**RELIABILITY SPECIFICATIONS**

No.	TEST ITEM	TEST METHODS	TEST CRITERIA	REF. DOC
1	Drop Test	50 cm Height, Fall freely onto firm wood for 3 Times.	dF/F<+/-5ppm dRs<+/-10%	JIS C6701
2	Fine Leak	Helium Bombing 5Kgf / cm <sup>2</sup> for 2 Hours .	Leak Rate Less Than 2x10 <sup>-8</sup> atm.cc/sec	MIL-STD-883E Method 1014.10
3	Gross Leak	125°C FC#40 ,120 Seconds.	No Continuous Bubble .	MIL-STD-883E Method 1014.10
4	Mechanical Shock	Device are shocked to half sine wave ( 1000 G ) three mutually perpendicular axes each 3 times.	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 2002.4
5	Vibration	Frequency range 10 ~ 55 Hz Amplitude 10G Sweep Time 1 minute Test Time X,Y,Z Plan,each 2 hrs.	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 2007.3
6	Solderability	Temperature 260 °C +/- 5 °C Material H63A ( Silver 2~3 % ) Immersing depth 0.5 mm minimum Immersion time 5 +/- 0.5 seconds Flux Rosin resin methyl alcohol solvent ( 1 : 4 )	Check by Microscope At Least 95% Coated	MIL-STD-883E Method 2003.7
7	Resistance To Soldering Heat	Test Temperature 260 +/- 5 °C Test Time 10 +/- 1 sec.	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-202F Method 210D
8	Terminal Strength	2.5mm From terminal , bend 90°,3 times.	Lead without crack or broken.	MIL-STD-202F Method 208F
9	Thermal Shock	Total 5 cycles of the following temperature cycle 	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 1011.8

Measure in room temperature after each tests.

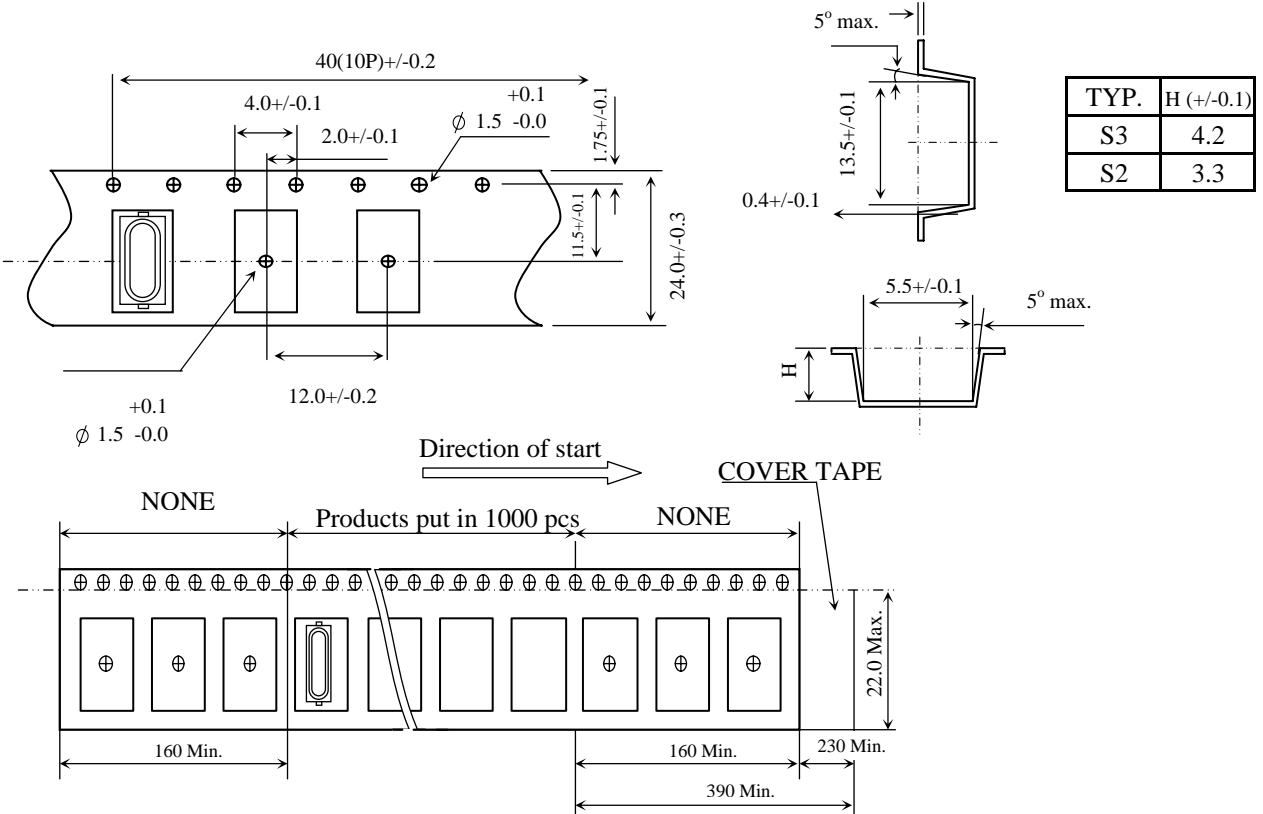
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### (A) Tape and reel configuration:(Unit : mm)

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



(b) Reel configuration.

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

