CERAMIC SMD TYPE

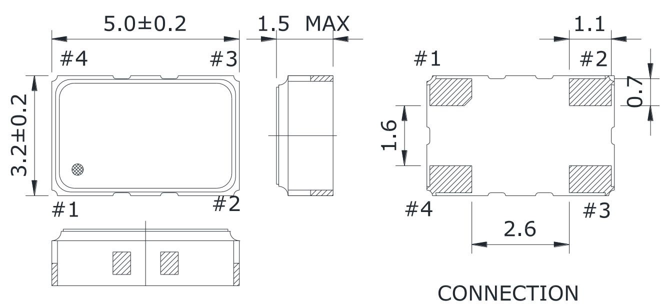
STH

- Temperature Compensated Crystal Oscillator
- External Dimensions : 5.0×3.2 mm
- Fundamental AT-cut Crystal used
- Clipped Sinewave Output / CMOS Output
- Application for Cellular phone(WIMAX, CDMA, WCDMA)
- Application for GPS Available on Tape and Reel

■ ELECTRICAL SPECIFICATIONS

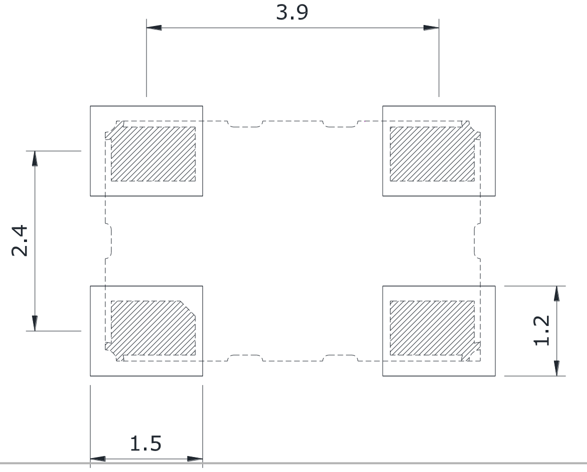
ITEM	Value	
Output Logic Type	Clipped Sinewave	CMOS
Frequency Range	10.000 MHz to 38.4 MHz	10.000 MHz to 38.4 MHz
Supply Voltage(V_{DD})	3.3 V_{DC} ± 5 %, 5.0 V_{DC} ± 5 %	3.3 V_{DC} ± 5 %, 5.0 V_{DC} ± 5 %
Operating Temperature Range	-40 to +85 ℃	-40 to +85 ℃
Storage Temperature Range	-40 to +85 ℃	-40 to +85 ℃
Frequency Stability Vs. Temperature Vs. Supply voltage (±5 %) Vs. Load (±10 %) Vs. Aging	 ±0.5 ppm to ±5.0 ppm Max. ±0.3 ppm Max. ±0.3 ppm Max. ±1.0 ppm Max. / year	 ±0.5 ppm to ±5.0 ppm Max. ±0.3 ppm Max. ±0.3 ppm Max. ±1.0 ppm Max. / year
Frequency Tolerance	±1.0 ppm Max.	±1.0 ppm Max.
Input Current	2 mA Max.	6 mA Max.
Frequency Deviation	±5.0 ppm, ±10 ppm Min.	±5.0 ppm, ±10 ppm Min.
Control Voltage(Vc)	1.65 V ± 1.5 V (V_{DD} : 3.3 V) 2.5 V ± 2.0 V (V_{DD} : 5.0 V)	1.65 V ± 1.5 V (V_{DD} : 3.3 V) 2.5 V ± 2.0 V (V_{DD} : 5.0 V)
Output Level	0.8 V_{P-P} Min. (V_{DD} : 3.3 V) 1.0 V_{P-P} Min. (V_{DD} : 5.0 V)	90 % of V_{DD} Min. 10 % of V_{DD} Max.
Output Load Condition	10 kΩ//10 pF	15 pF
Phase Noise at 1kHz offset	-130 dBc/Hz	-130 dBc/Hz

■ MECHANICAL DIMENSIONS (mm)



CONNECTION
1 : V.C or GND
2 : GND
3 : OUTPUT
4: VDD

■ LAND PATTERN (mm)



PART NUMBERING GUIDE

STH 33 20 H S 5 – 10.000M

SUPPLY VOLTAGE(V_{DD})
50 : 5.0 V
33 : 3.3 V

FREQUENCY STABILITY
TABLE 1

OPERATING TEMPERATURE RANGE
TABLE 1

OUTPUT
M : HCMOS
S : CLIPPED SINEWAVE

FREQUENCY DEVIATION
BLANK : TCXO
5 : ± 5 ppm min.
10 : ± 10 ppm min.

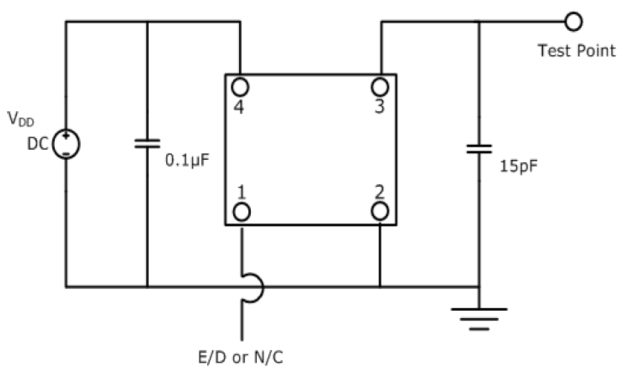
FREQUENCY
M : MHz

TABLE 1

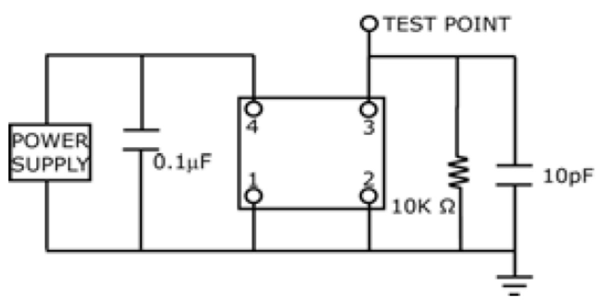
FREQUENCY STABILITY VS. TEMPERATURE RANGE

Temp \ Stability		±0.5	±1.0	±1.5	±2.0	±3.0	±5.0
		05	10	15	20	30	50
0~50℃	A	*	*	*	*	*	*
-10~60℃	B	*	*	*	*	*	*
-10~70℃	C	*	*	*	*	*	*
-20~70℃	D	*	*	*	*	*	*
-30~60℃	E	*	*	*	*	*	*
-30~70℃	F	*	*	*	*	*	*
-30~75℃	G	*	*	*	*	*	*
-40~80℃	H		*	*	*	*	*
-40~85℃	I		*	*	*	*	*

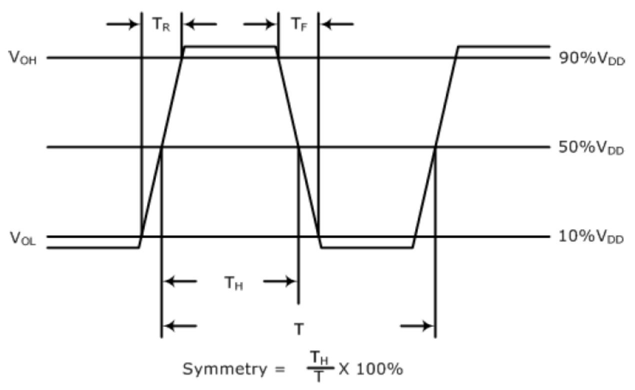
TEST CIRCUIT (CMOS)



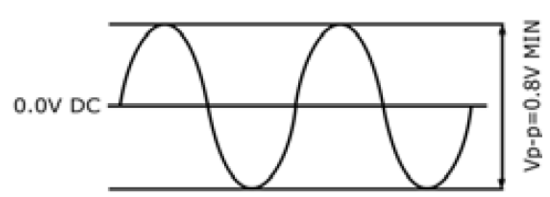
TEST CIRCUIT (Clipped Sinewave)



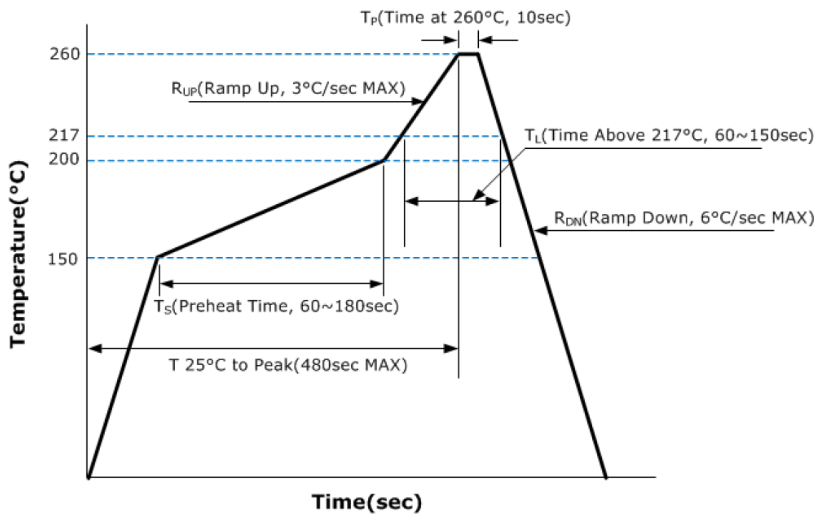
WAVEFORM (CMOS)



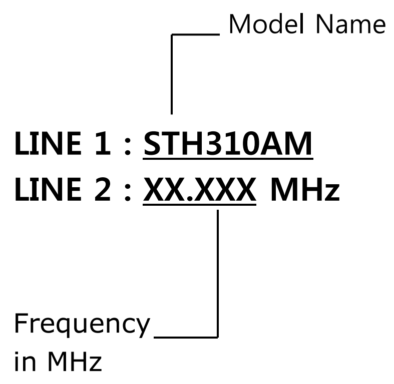
WAVEFORM(Clipped Sinewave)



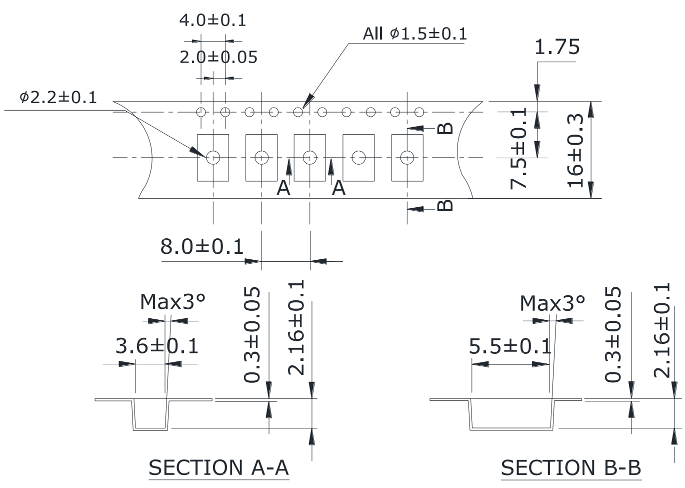
■ REFLOW PROFILE

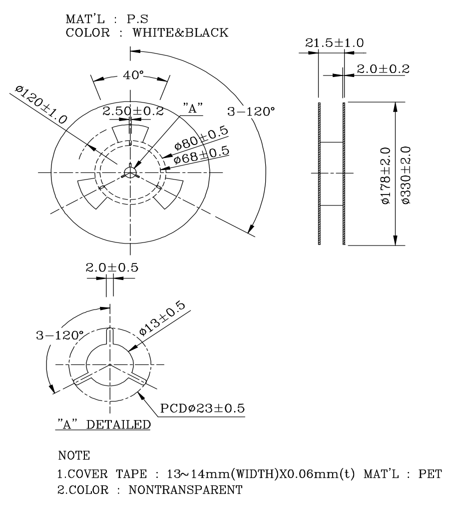


■ MARKING GUIDE



■ TAPE AND REEL DIMENSIONS





■ ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Solderability	MIL-STD-883, Method 2003