



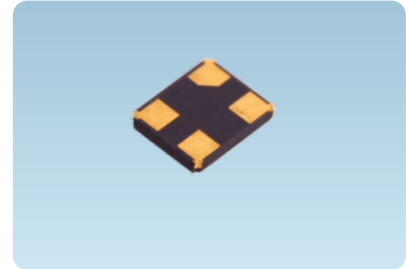
## 2.5 x 2.0 mm SMD Crystal

### FEATURE

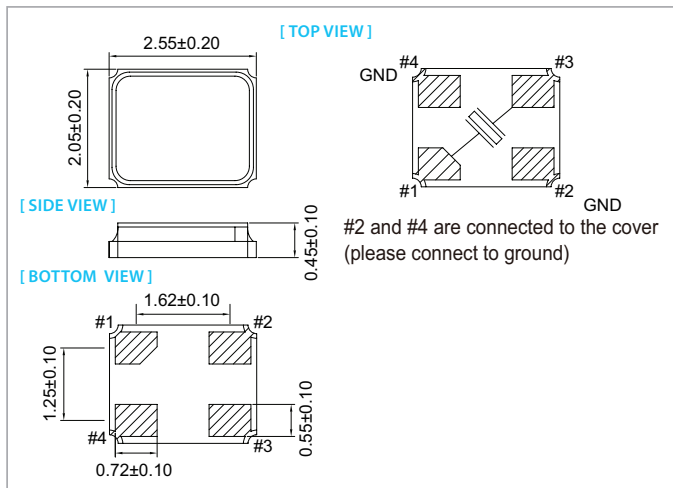
- Typical 2.5 x 2.0 x 0.45 mm ultra thin ceramic package.
- 8 mm width Tape & Reel package for automatic assembly.
- Tight tolerance 10 ppm available.

### TYPICAL APPLICATION

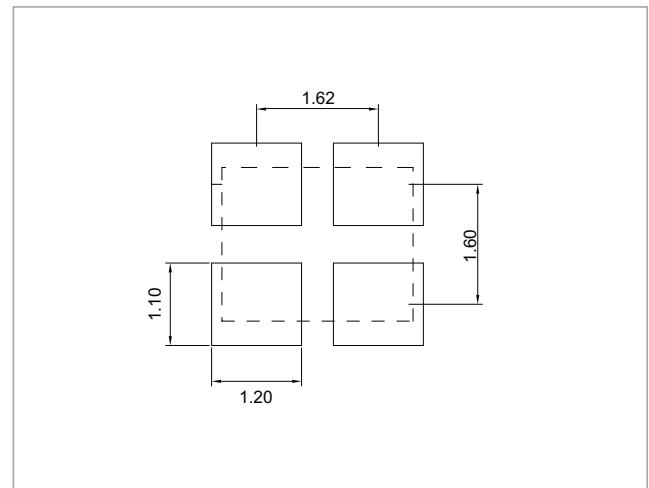
- Bluetooth , Mobile phone, Wireless LAN.
- Office Automation
- Audio & Video



### DIMENSION (mm)



### SOLDER PAD LAYOUT (mm)



### ELECTRICAL SPECIFICATION

Parameter	Min.	Typical	Max.	Unit
Storage Temp. Range	-40	-	125	°C
Standard Frequency	16, 24, 26, 40			MHz
Level of Drive	-	10	200	μw
Shunt Capacitance (Co)	-	-	3.0	pF
Insulation Resistance	500 MΩ@ DC100V	-	-	
Aging	±1.0 to ±3.0			ppm / year

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

### EQUIVALENT SERIES RESISTANCE (E. S. R.)

Frequency Range	MODE	E. S. R
12 MHz ≤ Fo < 20 MHz	A1	<150Ω
20 MHz ≤ Fo ≤ 30 MHz	A1	<80Ω
30 MHz < Fo ≤ 54 MHz	A1	<60Ω

### FREQ. STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm		
	±5	±10	±15
-10 ~ +60	△	○	○
-20 ~ +70	×	△	○
-40 ~ +85	×	×	△

\* ○ : Available △:Conditional X: Not available

### FREQ. STABILITY vs. WIDE TEMP. RANGE

Temp. (°C)	ppm			
	±15	±20	±30	±50
-40 ~ +105	△	○	○	○
-40 ~ +125	×	×	△	○

\* ○ : Available △:Conditional X: Not available



# Model Numbering Guide – Crystal Units

## Available options

①	②	③	④		⑤						
Type	package (mm)	Frequency range	Load Capacitance (pF)	Freq. Tol. @25°C (ppm)	Freq. Stability (ppm)	Temp. Range(°C)	Special Requirement	Oscillator Mode	Appearance	Lead Free	Dash
1612	1.6x1.2	3.00~100.00MHZ	6	± 5	± 5	A:~20~+70 B:~40~+85 J:~40~+105	For Automotive Spurious DLD No Special Pullability Several	AT Fundamental AT 3 <sup>rd</sup> Overtone	Normal	RoHs Compliant	-
2016	2.0x1.6		7	± 10	± 10						
2520	2.5x2.0		8	± 15	± 15						
3225	3.2x2.5		9	± 20	± 20						
5032	5.0x3.2 (4Pads)		10	± 25	± 25						
6035	6.0x3.5		12	± 30	± 30						
3225	3.2x2.5		15	± 40	± 40						
5032	5.0x3.2 (2Pads)		16	± 50	± 50						
8045	8.0x4.5		18	± 100	± 100						
49S	11.1x4.68		20	± 150	± 150						
49MD	13.0x4.85		22								
			25								
		30									
		32									

example



① package ② Frequency range ③ Load Capacitance ④ Freq. Tol. @25°C X10<sup>-n</sup>, +25°C ⑤ Temp. Range(°C)

2520-12.00-20-20-A

① ② ③ ④ ⑤