

XX Type

3.2 x 2.5 mm SMD Crystal

FEATURE

- Typical 3.2 x 2.5 x 0.7 mm ultra thin ceramic package.
- 8mm width Tape & Reel package for automatic assembly.
- Tight tolerance 10 ppm available.

TYPICAL APPLICATION

- Bluetooth, Mobile Phone, GPS
- Wireless LAN, 4G/LTE
- Hard Disk



RoHS Compliant

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

Parameter	Min.	Typical	Max.	Unit
Storage Temp. Range	-55	-	125	°C
Standard Frequency		16, 24, 26, 27, 32, 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 ≤ 13 MHz	A1	<150Ω
13 MHz < Fo ≤ 19.5 MHz	A1	<80Ω
19.5 MHz < Fo ≤ 27 MHz	A1	<60Ω
27 MHz < Fo ≤ 60 MHz	A1	<50Ω

FREQ. STABILITY vs. TEMP. RANGE

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

* ○: Available △:Conditional X: Not available

FREQ. STABILITY vs. WIDE TEMP. RANGE

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

* ○: Available △:Conditional X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.

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Model Numbering Guide – Crystal Units

Available options

Type	package (mm)	Load Capacitance (pF)	Freq. Tol. @25°C (ppm)	Freq. Stability (ppm)	Temp. Range(°C)	Special Requirement	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
X: X'tal (MHz series)	3: 1.6x1.2 Z: 2.0x1.6 Y: 2.5x2.0 X: 3.2x2.5 V: 5.0x3.2 (4Pads) R: 6.0x3.5 2: 3.2x2.5 S: 5.0x3.2 (2Pads) Q: 8.0x4.5 I: 11.1x4.68 (U4) J: 13.0x4.85 (U4B)	L: 6 O: 7 A: 8 B: 9 C: 10 D: 12 E: 15 F: 16 G: 18 H: 20 P: 22 Q: 25 I: 30 J: 32 K: 50 N: No Standard S: Series	A: ±5 B: ±10 P: ±15 C: ±20 D: ±25 E: ±30 F: ±40 G: ±50 H: ±100 I: ±150	A: ±5 B: ±10 P: ±15 C: ±20 D: ±25 E: ±30 F: ±40 G: ±50 H: ±100 I: ±150 Z: ±150 above	A: +10~+40 B: +0~-55 E: +0~+85 I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85 M: -40~+95 J: -40~+105 H: -40~+125 G: -40~+150 F: -55~+125	A: For Automotive B: Spurious D: DLD N: No Special P: Pullability S: Several	A: AT Fundamental T: AT 3 rd Overtone	N: Normal	F: RoHS Compliant	-	XX.XXXXX
X: X'tal (32.768 kHz series)	A: 3.0x8.0 (Dip) B: 1.0x4.0 (Dip) /2.0x6.0 (Dip) D: 2.0x1.2 (2Pads) 3.2x1.5 (2Pads) /4.1x1.5 (2Pads) N: 6.9x1.4 (4Pads) /8.0x3.8 (4Pads)	L: 6 O: 7 B: 9 M: 12.5	C: ±20	H: ±100 I: ±150 Z: ±150 above	C: -20~+70 L: -40~+85	N: No Special	D: Tuning Fork	N: Normal (XA 3.0x8.0 size XB 2.0x6.0 size) J: XB 1.0x4.0 size C: XD 4.1x1.5 size D: XD 3.2x1.5 size M: XD 2.0x1.2 size E: XN 8.0x3.8 size H: XN 6.9x1.4 size	D: RoHS Compliant B: Non-RoHS Compliant	-	0.032768

X Y C D D L N A N F – 40.000000

*Not all combinations of options are available.

Example: XYCDDLNANF-40.000000

Type	X'tal
Package	2.5 x 2.0 mm
Load Capacitance	10 pF
Freq. Tol.	±25ppm
Freq. Stability	±25ppm
Temp Range	-40~+85 °C
Special Requirement	No Special
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	40.000000 MHz