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)	4: 1.2x1.0 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 3rd Overtone	O:Laser Seal N :Normal Y: Channel ID	F: RoHs Compliant Y:Channel ID	–	XX.XXXXXX
X: X'tal (32.768 kHz series)	A: 3.0x8.0 (Dip) B: 1.0x4.0 (Dip) /2.0x6.0 (Dip) D: 1.2x1.0 (4Pads) 1.6x1.0 (2Pads) 2.0x1.2 (2Pads) 3.2x1.5 (2Pads) N: 6.9x1.4 (4Pads) /8.0x3.8 (4Pads)	L: 6 O: 7 B: 9 M: 12.5	C: ±20	Z: ±150 above	C:-20~+70 L:-40~+85 J:-40~+105 H:-40~+125	N: No Special	D: Tuning Fork	N: Normal (XA 3.0x8.0 size XB 2.0x6.0 size) J : XB 1.0x4.0 size Q: XD 1.2x1.0 size P:XD 1.6x1.0 size M:XD 2.0x1.2 size D: XD 3.2x1.5 size H: XN 6.9x1.4 size E: XN 8.0x3.8 size Y: Channel ID	D: RoHS Compliant B: Non-RoHS Compliant Y:Channel ID	–	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

Model Numbering Guide – High Precision Crystal Units

Available options

Type	package (mm)	Load Capacitance (pF)	Frequency Tolerance vs. LTP, UTP (ppm)	Aging(after 30 days) (ppb)	Temp. Range(°C)	Special Requirement	Oscillator Mode	Appearance	Marking	Dash	Freq. (MHz)
X: X'tal	5: HC-45U 6: HC-35U (TO-5) 7: HC-37U (TO-8) 8: HC-43U H: UM1	C:10 D:12 G:18 H:20 I :30 P:22 Q:25 M:12.5 S:Series	A:±0.5 B:±1.0 C:±2.0 D:±2.5 E:±3.0 F:±4.0 G:±5.0 H:±10 P:±1.5	A:±0.5 B:±1.0 C:±2.0 D:±2.5 E:±3.0 F:±4.0 G:±5.0 H:±10 P:±1.5	C:+70~+80 D:+80~+90 E:+90~+100 F:+20~+30 G:+75~+85 H:+80~+92 I:+80~100 J:+85~100 K:+90~103	N:No Special Requirement Q:Q Value Requested O:For OCXO (SMD Crystal)	G:SC Fundamental H: SC 3rd Overtone I:SC 5th Overtone J:SC 7th Overtone	G:HC-37U LP N:None (Normal) V:3-Pads SMD Y: Channel ID	D:Lead-Free, Laser and Not TTE Standard Marking G:Lead-Free, Ink and TTE Standard Marking F:Lead-Free, Laser and TTE Standard Marking O:Lead-Free, No Marking Y:Channel ID	–	XX.XXXXXX
K: X'tal	L: HC-40U E: SMD8X8										

X	5	H	G	G	J	N	I	N	F	–	100.000000

*Not all combinations of options are available.

Example: X5HGGJNINF-100M

Type	X'tal
Package	HC-45U
Load Capacitance	20 pF
Freq. Tol.	±5.0ppm
Aging(after 30 days)	±5.0ppb
Temp Range	+85 ~100 °C
Special Requirement	No Specia Requirement
Oscillator Mode	SC 5th Overtone
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	100.000000 MHz

Model Numbering Guide – Crystal Oscillator

Available options

Type	package (mm)	Supply Voltage(V)	Tri-State Function	Freq. Stability (ppm)	Temp. Range(°C)	Output Logic and Symmetry	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
O: Oscillator	3: 1.6 x 1.2 Z:2.0 x 1.6 Y:2.5 x 2.0 X:3.2 x 2.5 V:5.0 x 3.2 C:7.0 x 5.0	E: 2.8/3.0/3.3 J :2.5 K:1.8 P:1.5 L:1.2/1.25 M:0.9 Q:1.0 X:Un programmed	B:High Precision I: Low Power or Low Current T:Fixed-Freq with Tri-State M:Multiplier Freq with Tri-State(only for V/C package) U:Ultra Low Noise design D:Ultra Low Current	A: ±5 B: ±10 P: ±15 C: ±20 D: ±25 E: ±30 F: ±40 G: ±50 H: ±100 K: ±3 L: ±12	E: 0~+85 I: -10~+60 C: -20~+70 D: -30~+85 L: -40~+85 J: -40~+105 H: -40~+125 F: -55~+125	J: CMOS 15pF / 50±5% K: CMOS 15pF / 50±10%	A: AT Fundamental T: AT 3rd Overtone Not Selectable by Customer	N: Normal Y: Channel ID K: Plastic molding	F: RoHS Compliant O: No Marking Y:Channel ID	–	XX.XXXXXX
P: Programmable Oscillator	4:1.2 x 1.0 Z:2.05 x 1.65 Y:2.5 x 2.0 X:3.2 x 2.5 V: 5.0 x 3.2 C:7.0 x 5.0	E:2.8/3.0/3.3 J:2.5 K:1.8 X:Un-programmed	P: Un-programmed U: Low Noise	C: ±20 D: ±25 G: ±50 H: ±100 Z: over 150ppm	I:-10~+60 C:-20~+70 D:-30~+85 L:-40~+85 J: -40~+105 H: -40~+125 E:0~+85	J: CMOS 15pF / 50±5%					
S:Spread Spectrum Oscillator	Y: 2.5 x2.0 X:3.2 x 2.5	E:3.3 J:2.5 K:1.8	A:Down, -2.0% B:Down, -1.5% C:Down, -1.0% D:Down, -0.8% E:Center, ±1.0% F:Center, ±0.75% G:Center, ±0.5% H:Center, ±0.4%	D: ±25 G: ±50 H: ±100							
O: Oscillator (Differential Output)	A :3.2 x 2.5 W:5.0x3.2 T:7.0x5.0 B:2.5x2.0 O:2.0x1.6		Normal: R: Pin1 Tri-state (std) T: Pin2 Tri-state (case by case) Ultra Low Jitter: W: Pin1 Tri-state (std) U: Pin2 Tri-state (case by case)			L: LVPECL / 50±5% V: LVDS / 50±5% H: HCSL / 50±5%					
O: Oscillator (Fast Delivery series)	B:2.5x2.0 N:2.5x2.0 M:3.2x2.5 A :3.2 x 2.5 J:5.0x3.2 W:5.0x3.2 D:7.0x5.0 T:7.0x5.0	E:3.3 J:2.5 K:1.8 X:Un-programmed	M: Multiplier Freq with pin 2 Tri-State N: Multiplier Freq. with PIN 1 Tri-State P: With Tri-State Frequency Selection Function C: Multiplier Freq with pin 2 Tri-State (Low Enable)	D: ±25 G: ±50 H: ±100 Z: over 150ppm E: ±30		H: HCSL / 50±5% J: CMOS 15pF / 50±5% L: LVPECL / 50±5% M: CML V: LVDS / 50±5%					

O Y E T C C J A N F – 13.000000

*Not all combinations of options are available.

Example: OYETCCJANF-13.000000

Type	Oscillator
Package	2.5 x 2.0 mm
Supply Voltage(V)	3.3 V
Tri-State .	Fixed-Freq.
Freq. Stability	±20ppm
Temp Range	-20~+70 °C
Output	CMOS 15pF / Symmetry 50±5%
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	13.000000 MHz

Specifications subject to change without notice.

Model Numbering Guide – VCXO

Available options

Type	package (mm)	Supply Voltage(V)	Tri-State Function	Freq.Stability/ APR (ppm)	Temp. Range(°C)	Output Logic and Symmetry	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
V: VCXO	A:3.2x2.5 N: 2.5x2.0 M: 3.2x2.5 W: 5.0x3.2 (6 Pads) J: 5.0 x 3.2 T: 7.0x5.0 (6 Pads) D:7.0x5.0 (8 Pads) K: 14.2x9.3 (6 Pads) L: 14.0x9.0 (4 Pads)	C: 5 (Only for L Package) E: 3.3 J:2.5 K: 1.8 (Only for CMOS and Frequency < 60MHz)	U: Relative Pulling (Refer to Center Voltage) with Tri-State to pin 2 M: Multiplier Frequency with Tri-State to pin 2 S: Enable Low R: Input to pin 5 F: Without Tri-State	M: ±25/±50 (VC=10%Vdd ~90%Vdd) P: ±50/±50 (VC=10%Vdd ~90%Vdd) A: ±50/±50 (VC=0V~Vdd) B: ±25/±50 (VC=0V~Vdd) V: ±30/±30 W:±25/±30	I: -10~+60 C: -20~+70 L: -40~+85 J:-40~+105	J: CMOS 15pF / 50±5% F: CMOS 50pF / 50±5% L: LVPECL / 50±5% V: LVDS / 50±5% W: Sine Wave M: CML	A: AT Fundamental T:AT 3rd Overtone Not selectable by Customer	N: Normal F: Option A G: Option B J:Option C Y: Channel ID	F: RoHs Compliant Y:Channel ID	–	XX.XXXXXX

V	T	E	S	P	C	L	A	N	F	–	10.000000

*Not all combinations of options are available.

Example: VTESPCLANF-10.000000

Type	VCXO
Package	7.0 x 5.0 mm
Supply Voltage(V)	3.3 V
Tri-State	Enable Low
Freq. Stability / APR	±50ppm / ±50ppm
Temp Range	-20~+70 °C
Output	LVPECL/Symmetry 50±5%
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	10.000000 MHz

Model Numbering Guide – VCTCXO / TCXO

Available options

Type	package (mm)	Supply Voltage (V)	Pulling Range (ppm)	Freq. Stability (ppm)	Temp. Range(°C)	Output Logic And Symmetry	Oscillator Mode	Appearance	Lead Free	Dash	Freq. (MHz)
T: TCXO	4: 1.2x1.0 Z: 2.0x1.6 Y: 2.5x2.0 X: 3.2x2.5 V: 5.0x3.2 S: 7.0x5.0 (10Pads) A: 7.0x5.0 (4Pads) K: 14.3x9.6 F: 20.4x12.8 (Dip)	E: 2.8/3.0/3.3 J: 2.5 K:1.8 (TX / TY) L:1.2V/1.25V	A: ± 5 B: ± 8 C: ±10 T: TCXO Vcon range: 0.5V to 2.5V	A: ±0.5 B: ±1.0 P: ±1.5 C: ±2.0 D: ±2.5 G: ±5	B: 0~+55 I : -10~+60 J: -10~+70 C: -20~+70 H: -30~+75 D: -30~+85 L : -40~+85 M: -40~+95 K: -40~+105	A: TTL 15pF / 50±5% J: CMOS 15pF / 50±5% K:CMOS 15pF / 50±10% S: Clipped sine wave 10KΩ//10pF L:PECL V:LVDS H: HCSL M: CML	D: Tuning Fork A:AT Fundamental Not selectable by customer T:AT 3rd Overtone	D=Discrete Design(Only for TCXO) F: Option A G: Option B L: Low G Sensitivity N: Normal P: Program-mable TCXO T : Normal with Tri-State Y: Channel ID J: Option C	F: RoHs Compliant Y:Channel ID	–	XX.XXXXXX
T: TCXO (High Precision /Stratum 3)	W: 5.0x3.2 L: 5.0x3.2 (10Pads) S: 7.0x5.0 (10Pads) T: 7.0x5.0 (4Pads) U: 13x14 P:3.2x2.5	E: 3.3 J: 2.5		Q: ±0.05 M: ±0.1 J : ±0.14 R: ±0.2 K: ±0.28 L : ±0.37 T : ±4.6 (Including 20 Years Aging)							

T	X	E	C	D	D	S	A	N	F	–	26.000000

*Not all combinations of options are available.

Example: TXECDDSANF-26.000000

Type	VCTCXO
Package	3.2 x 2.5 mm
Supply Voltage(V)	3.0 V
Pulling Range	±10 ppm
Freq. Stability	±2.5 ppm
Temp Range	-30~+85 °C
Output	Clipped sine wave
Oscillator Mode	AT Fundamental
Appearance	Normal Appearance
Lead Free	RoHs Compliant
Frequency	26.000000 MHz

Model Numbering Guide – OCXO

Available options

Type	Package (mm)	Supply Voltage (V)	Pulling Range (ppm)	Freq. Stability (ppb)	Temp. Range(°C)	Output Logic and Symmetry	Oscillator Mode	Pin out	Lead Free	Dash	Freq. (MHz)
N: OCXO	N: 9.7x7.5 K:14x9.6 (SMD) F: 20.3x12.7 P: 20.6x20.6 J: 25.4x22.1 (SMD) A: 25.4x25.4 I: 36.3x27.2	E: 3.3 T: 5 A: 12	K: ±0.2 H: ±0.4 C:±0.5 D: ±1 G: ±3 E: ±5 N: No Voltage Control Function	R: ±2 A: ±5 B: ±10 C: ±20 E: ±30 G: ±50	B: 0~+50 E: 0~+70 C: -20~+70 D: -30~+70 L: -40~+85	W: Sine wave J: CMOS15pF / 50±5% S: Clipped Sine Wave	N: IT Fundamental H:SC 3rd overtone	N : Normal (Please refer to “outline drawing”) Y: Channel ID	F: RoHs Compliant Y:Channel	–	XX.XXXXXX

N A T H C E W H N F – 10.000000

*Not all combinations of options are available.

Example: NATHCEWHNF-10.000000

Type	OCXO
Package	25.4 x 25.4 mm
Supply Voltage(V)	5 V
Pulling Range	±0.4 ppm
Freq. Stability	±20 ppb
Temp Range	0~+70 °C
Output	Sine wave
Pin Out	Normal
Lead Free	RoHs Compliant
Frequency	10.000000 MHz