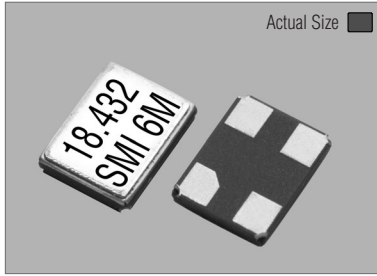


Quartz Crystal Units

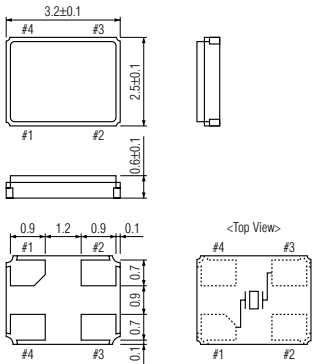
32SMX(A)

CUSTOM-DESIGNED HIGH SPEC SMD CRYSTALS

32SMX(A)

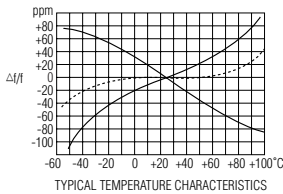


32SMX(A)

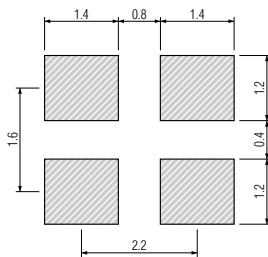


(#2 & #4 : Grounded to metal lid)

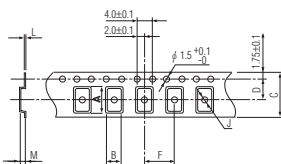
AT-CUT



SOLDERING PATTERN



TAPE SPECIFICATIONS



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
3.5	2.8	8.0	3.5	4.0	1.1	0.25	1.0	180	3000pcs (1000pcs)

SPECIFICATIONS

- Package type 32SMX(A)
- Frequency range 12.000 MHz to 55.000 MHz
- Frequency tolerance 0 : ±10 ppm at +25°C ±3°C
Q : ±15 ppm at +25°C ±3°C
R : ±20 ppm at +25°C ±3°C
- Temperature stability (referred to +25°C) See table below

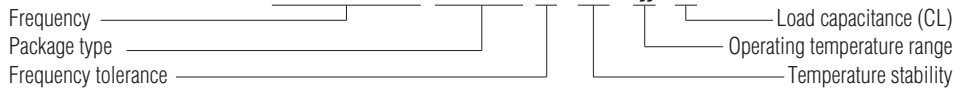
Ope. Temp. Range	Temperature Stability	PPM												
		±3.0 (FF)	±5.0 (JJ)	±7.5 (LL)	±10 (OO)	±15 (QQ)	±20 (RR)	±30 (TT)	±50 (XX)	±100 (CC)	±150 (GG)			
0 ~ +45°C (edd)		○	○	○	○	○	○	○	○	○	○	○	○	○
0 ~ +50°C (eee)		○	○	○	○	○	○	○	○	○	○	○	○	○
0 ~ +60°C (egg)		○	○	○	○	○	○	○	○	○	○	○	○	○
0 ~ +70°C (eii)			○	○	○	○	○	○	○	○	○	○	○	○
-10 ~ +50°C (gee)			○	○	○	○	○	○	○	○	○	○	○	○
-10 ~ +60°C (ggg)			○	○	○	○	○	○	○	○	○	○	○	○
-10 ~ +70°C (gii)			○	○	○	○	○	○	○	○	○	○	○	○
-10 ~ +75°C (gjj)				○	○	○	○	○	○	○	○	○	○	○
-20 ~ +70°C (iii)				○	○	○	○	○	○	○	○	○	○	○
-20 ~ +75°C (ijj)				○	○	○	○	○	○	○	○	○	○	○
-30 ~ +75°C (kii)					○	○	○	○	○	○	○	○	○	○
-30 ~ +80°C (kkk)					○	○	○	○	○	○	○	○	○	○
-30 ~ +85°C (kll)					○	○	○	○	○	○	○	○	○	○
-35 ~ +80°C (lkk)						○	○	○	○	○	○	○	○	○
-40 ~ +85°C (mll)						○	○	○	○	○	○	○	○	○
-40 ~ +90°C (mmm)							○	○	○	○	○	○	○	○
-40 ~ +105°C (mpp)								○	○	○	○	○	○	○
-40 ~ +125°C (mitt)									○	○	○	○	○	○

○ : Available (The extremes depend on actual frequencies.)

- Equivalent series resistance (ESR) 120 Ω max. (12.00000 MHz & 13.000 MHz)
100 Ω max. (14.31818 MHz to 16.000 MHz)
80 Ω max. (16.00000 MHz to 20.000 MHz)
70 Ω max. (20.00000 MHz to 30.000 MHz)
50 Ω max. (30.00000 MHz to 60.000 MHz)
- Shunt capacitance (Co) 5 pF max.
- Drive level (P) 100 μW max. (10 μW for testing)
- Aging ±2 ppm max. at +25°C ±3°C for first year
- Cut/Oscillation mode AT-Cut/Fundamental
- Reflow condition 10 seconds max. at +250°C ±10°C

PART NUMBERING GUIDE

24.5760MHz 32SMX R / TT / ijj / 8



EXAMPLE

SMI PART NO.	Frequency	Package	Frequency tolerance
24.5760 MHz 32SMX R/TT/ijj/8	24.5760MHz	32SMX	R = ±20 ppm
27.000 MHz 32SMX Q/RR/iii/9	27.000 MHz	32SMX	Q = ±15 ppm

Temperature stability	Operating temperature range	Load capacitance
TT = ±30 ppm	ijj = -20°C to +75°C	CL = 8 pF
RR = ±20 ppm	iii = -20°C to +70°C	CL = 9 pF

PACKAGE DATA

Item	Package	32SMX
Lid		Metal
Base		Ceramic
Sealing		Seam/EB
Terminal		Tungsten (metalized)
Terminal plating		Gold / Nickel (surface) / (under)
RoHS		Compliant (Pb-free)