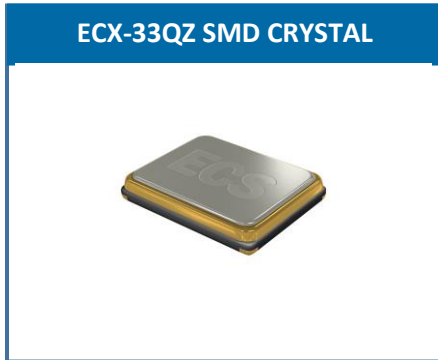


The ultra-miniature ruggedized ECX-33QZ compact SMD Crystal. The 3.2 x 2.5 x 0.8 mm ceramic package with additional internal bonding points is ideal for harsh high shock/vibration environments such as Automotive or TPMS applications.

[Request a Sample](#)

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- 3.2 x 2.5 mm Footprint
- Extended Temp. Range
- AEC-Q200 Qualified
- Ruggedized Automotive/TPMS Applications

### DIMENSIONS (mm)

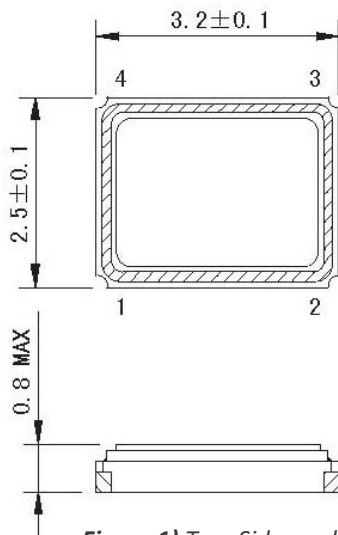
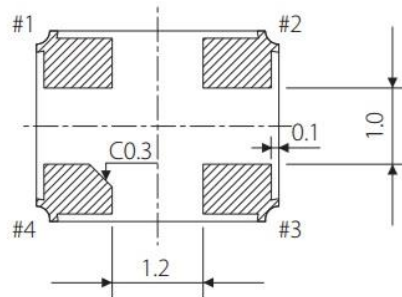


Figure 1) Top, Side, and Bottom views

PARAMETERS	CONDITIONS	ECX-33QZ			UNITS
		MIN	TYP	MAX	
Frequency		12.000		32.000	MHz
Frequency Tolerance	@ +25°C (A Option)			± 25	ppm
Frequency Stability	-40 ~ +125°C (DS Option)			± 100	ppm
Equivalent Series Resistance (ESR)	12 ~ 19.999 MHz			120	Ω
	20 ~ 32.000 MHz			80	Ω
Shunt Capacitance	Co			5	pF
Load Capacitance	Specify in P/N		10		pF
Drive Level	DL		10	100	μW
Vibration Resistance, 10~2000 Hz p-p 1.5 mm: 20g's					
Shock Resistance: 5000g's. 0.3 msec					
Operating Temperature	Topr	-40		+125	°C
Storage Temperature	Tstg	-40		+125	°C
Aging (First Year)	@ +25°C ±3°C			±3	ppm



PAD CONNECTIONS	
1	In/Out
2	Gnd
3	Out/In
4	Gnd

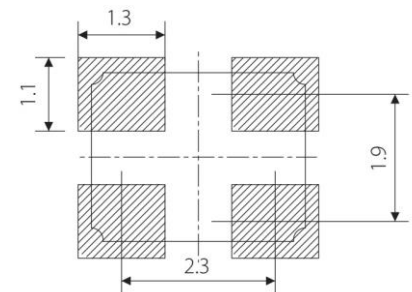


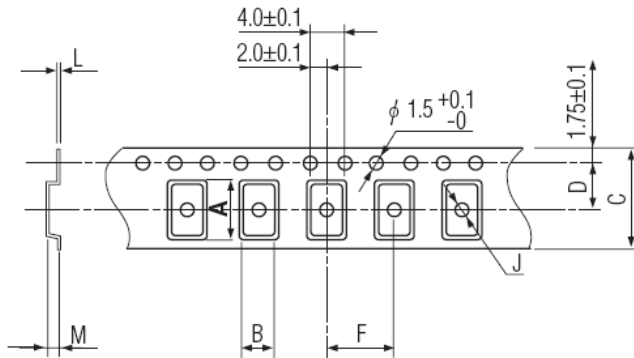
Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-250-12-33QZ-ADS-TR

ECS - FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	CUSTOM OPTIONS			PACKAGING
			Tolerance	Stability	Temp Range	
ECS	260 = 26.000 MHz *See Developed Frequencies Pg. 2	33QZ = ECX-33QZ	Blank = ±15 ppm A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm	Blank = ±50 ppm D = ± 100 ppm E = ± 50 ppm	Blank = -40 ~ +125°C N = -40 ~ +85°C P = -40 ~ +105°C S = -40 ~ +125°C	TR = Tape & Reel 1K/Reel

\*Contact ECS for availability of non-developed frequencies.

**POCKET TAPE DIMENSIONS (mm)**



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	1000

SOLDER PROFILE
Peak solder Temp +260°C Max 10 sec Max.
2 Cycles Max.
MSL 1, Lead Finish Au

DEVELOPED FREQUENCIES	
Abbreviation	Frequency (MHZ)
120	12.000
135.6	13.560
160	16.000
180.8	18.080
196.875	19.6875
240	24.000
250	25.000
260	26.000

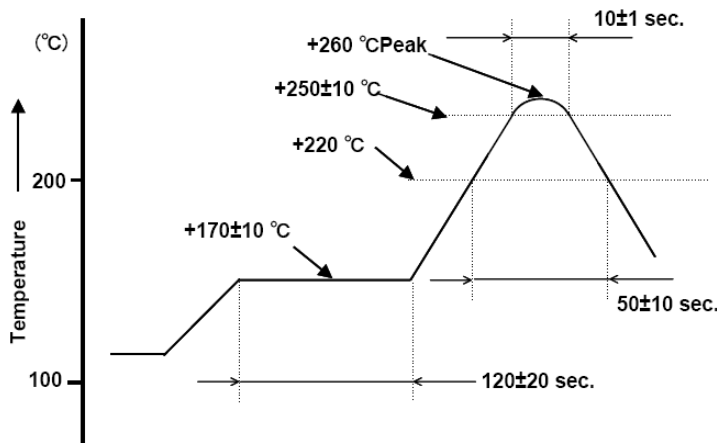


Figure 1) Suggested Reflow Profile

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