

The ultra-miniature rugged ECX-33QZ compact SMD Crystal. The 3.2 x 2.5 x 0.8 mm ceramic package is ideal for harsh environments such as TPMS applications.

Request a Sample

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



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

PARAMETERS	CONDITIONS	ECX-33QZ			UNITS
		MIN	TYP	MAX	
Frequency		13.000		26.000	MHz
Frequency Tolerance	@ +25°C (Standard)			± 15	ppm
Frequency Stability	-40 ~ +125°C (Standard)			± 50	ppm
Equivalent Series Resistance (ESR)	13 ~ 19.999 MHz			120	Ω
	20 ~ 26.000 MHz			80	Ω
Shunt Capacitance	Co			5	pF
Load Capacitance	Specify in P/N		10		pF
Drive Level	DL		10	100	μW
Operating Temperature	Topr	-40		+125	°C
Storage Temperature	Tstg	-40		+125	°C
Aging (First Year)	@ +25°C ±3°C			±3	ppm

## DIMENSIONS (mm)

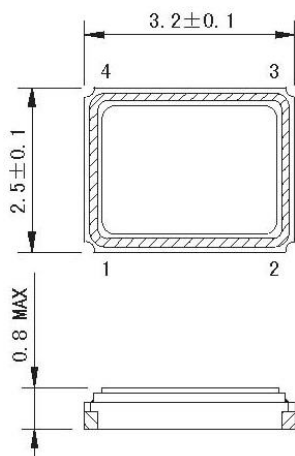


Figure 1) Top, Side, and Bottom views

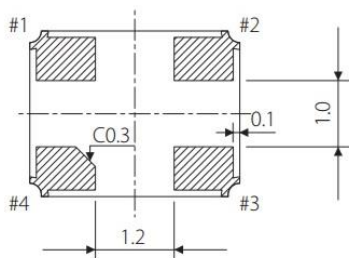


Figure 2) Suggested Land Pattern

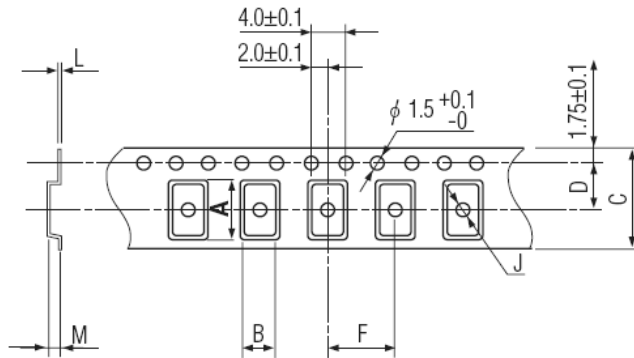
PAD CONNECTIONS	
1	In/Out
2	Gnd
3	Out/In
4	Gnd

## PART NUMBERING GUIDE: Example ECS-260-10-33QZ-TR

ECS - FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	Tolerance Range	CUSTOM OPTIONS Stability	Temp	PACKAGING
ECS	260 = 26.000 MHz *See Developed Frequencies Pg. 2	33QZ = ECX-33QZ	Blank=Standard A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm	Blank=Standard D = ± 100 ppm E = ± 50 ppm G = ± 30 ppm	Blank=Standard 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)
135.6	13.560
180.8	18.080
196.875	19.6875
260	260.000

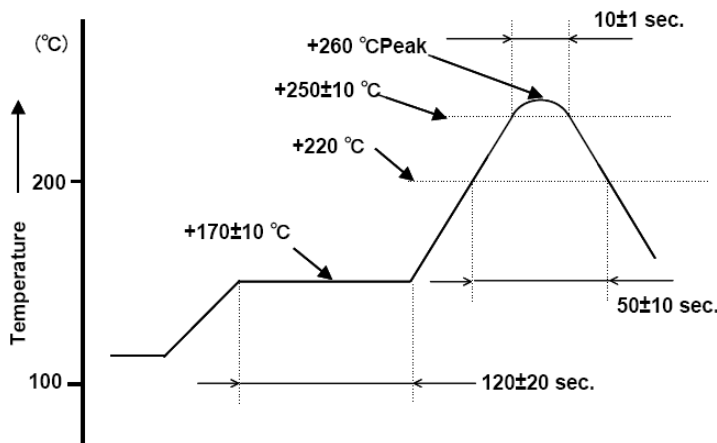


Figure 1) Suggested Reflow Profile