



- ▶ Low Profile
- ▶ 3.2 x 2.5 mm Footprint
- ▶ Extended Temp. Range Option
- ▶ RoHS Compliant

ECX-32 SMD CRYSTAL

The sub miniature ECX-32 is a compact SMD Crystal. The 3.2 x 2.5 x 0.7 mm ceramic package is ideal for today's SMD manufacturing environment.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX-32			UNITS
		MIN	TYP	MAX	
Frequency	Fundamental Mode	12.000		60.000	MHz
Frequency Tolerance	@ +25°C			± 50 *	ppm
Frequency Stability (ref @ 25°C)	-20 ~ +70°C			± 50 *	ppm
Shunt Capacitance				5.0	pF
Load Capacitance	Specify in P/N		20		pF
Equivalent Series Resistance	12.000 ~ 29.999 MHz			100	Ω
Equivalent Series Resistance	30.000 ~ 60.000 MHz			50	Ω
Drive Level				100	μW
Operating Temperature	T _{opr}	-20		+70	°C
Storage Temperature	T _{stg}	-40		+85	°C
Aging Characteristics (Per Year)	@ +25°C ± 3°C			± 5	ppm

PACKAGE DIMENSIONS (mm)

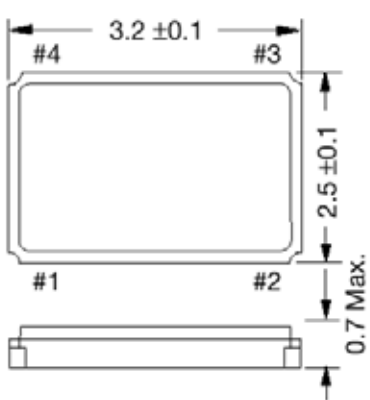


Figure 1) Top, Side and End Views

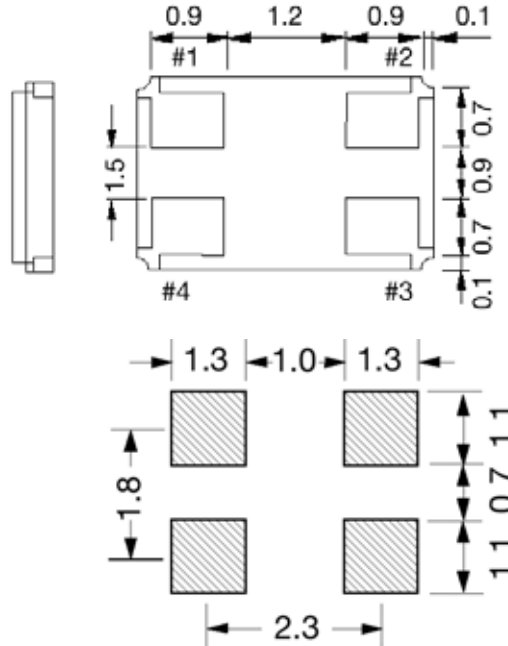
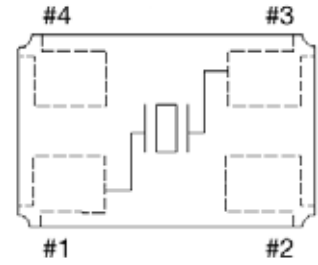


Figure 2) Bottom View and Suggested Land



Pad Connections	
1	In/Out
2	Gnd
3	In/Out
4	Gnd

Figure 3) Internal Connections (Top View)

PART NUMBERING GUIDE: Example ECS-160-20-33-TR

ECS - Frequency Abbreviation - Load - Package Type - Tolerance - Stability - Temp Range - Packaging

160 = 16.000 MHz
See P/N Guide for Std Frequencies

20 = 20 pF
S = Series

-33 =
ECX-32

A = ± 25 ppm
C = ± 10 ppm

D = ± 100 ppm
E = ± 50 ppm
G = ± 30 ppm
H = ± 25 ppm
K = ± 10 ppm

L = -10 ~ +70°C
M = -20 ~ +70°C
N = -40 ~ +85°C
P = -40 ~ +105°C

-TR =
Tape & Reel
1K/Reel

* Tighter Tolerance/Stability Options Available (see custom options)
Not all stabilities are available at all temp ranges, consult ECS.



Developed Frequencies

FREQUENCY MHz	CODE
16.000	160
18.432	184
19.6608	196
20.000	200
24.000	240
25.000	250
27.000	270
30.000	300
32.000	320
36.000	360
40.000	400
48.000	480

Sample P/N: ECS-200-20-33
 ECS = Mfg Code
 200 = Frequency Code 20.000 MHz
 -20 = Load Capacitance 20 pF
 -33 = Package, ECX-32

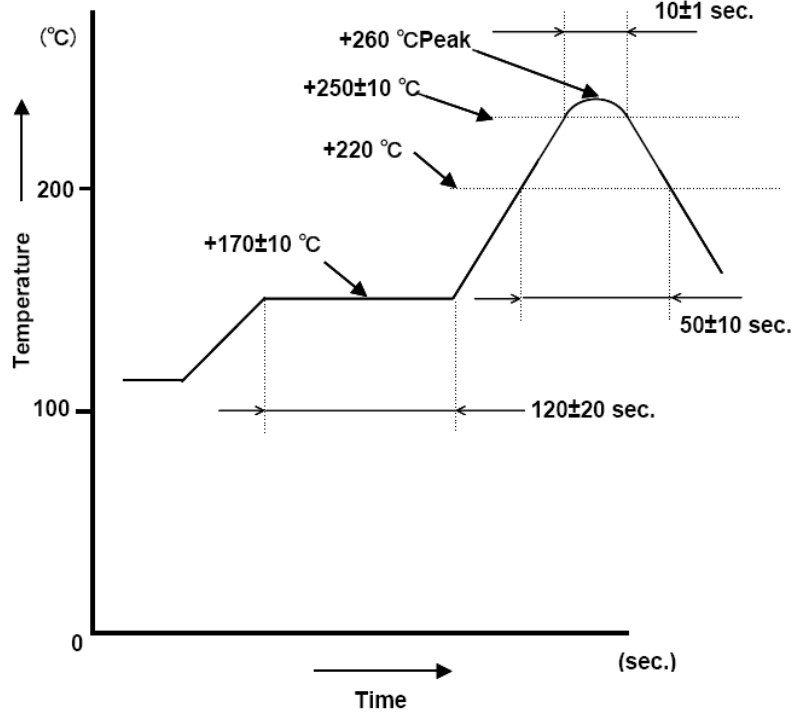
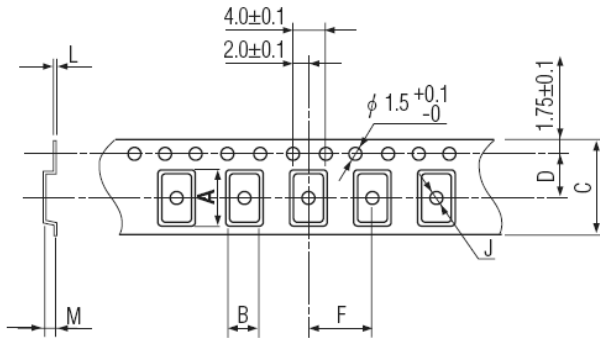


Figure 1) Suggested Reflow Profile

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

Package Data	
Item	Description
Lid	Metal
Base	Ceramic
Sealing	Seam/EB
Terminal	Tungsten (metalized)
Plating	Gold/Nickel Surface/Under
RoHS	Compliant (Pb Free)

Figure 2) Pocket Tape Dimensions