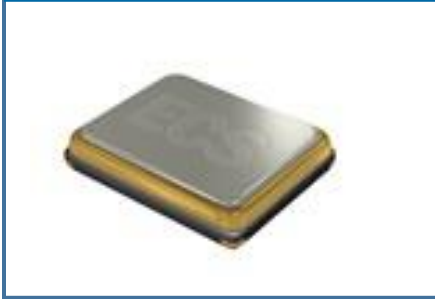


The sub miniature ECX-32 is a compact SMD Crystal. The 3.2 x 2.5 x 0.8 mm ceramic package is ideal for LoRa WAN, wireless, and high density applications.

# ECX-32 SMD CRYSTAL

[Request a Sample](#)

## ECX-32 SMD CRYSTAL



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

## DIMENSIONS (mm)

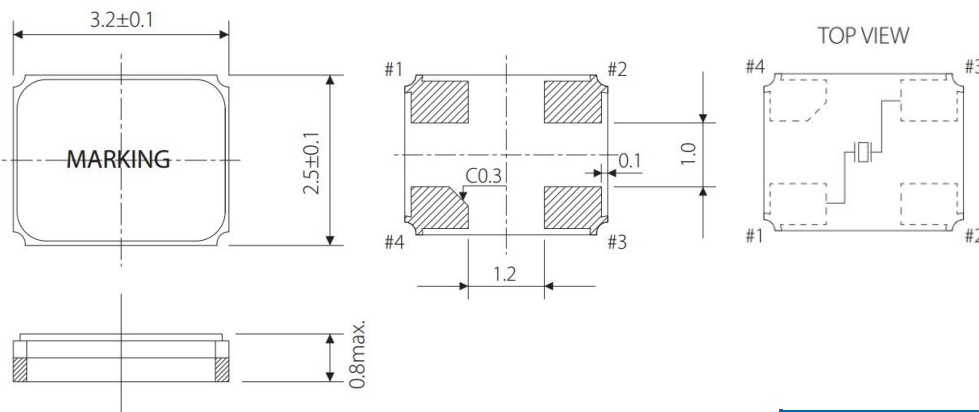


Figure 1) Top, Side, and Bottom

Crystal is symmetrical, pad 1 & 3 are interchangeable. Chamfer on the bottom can be on pad 4 or pad 1 and has no electrical significance.

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

## Equivalent Series Resistance

| Frequency (MHz) | ESR $\Omega$ Max. |
|-----------------|-------------------|
| 8.000 ~ 9.999   | 400               |
| 10.000 ~ 15.999 | 100               |
| 16.000 ~ 19.999 | 80                |
| 20.000 ~ 23.999 | 60                |
| 24.000 ~ 54.000 | 40                |

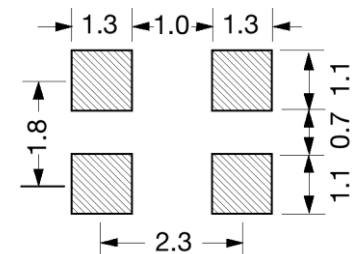


Figure 2) Suggested land

## PART NUMBERING GUIDE: Example ECS-200-20-33-TR

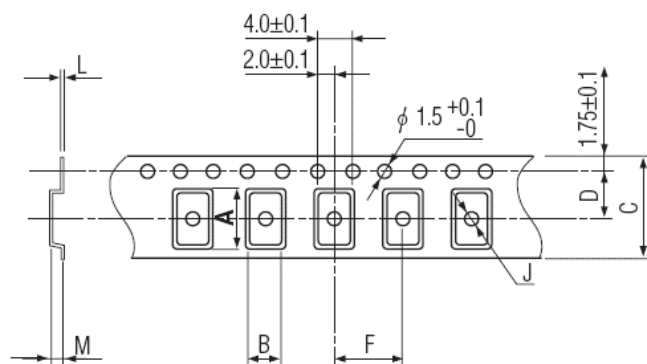
| ECS - FREQUENCY ABBREVIATION                             |                                   | LOAD CAPACITANCE         | PACKAGE        | AVAILABLE OPTIONS                                                           |                                                                                                                                |                                                                                                                                                    | PACKAGING                    |
|----------------------------------------------------------|-----------------------------------|--------------------------|----------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                          |                                   |                          |                | Tolerance                                                                   | Stability                                                                                                                      | Temp Range                                                                                                                                         |                              |
| ECS                                                      | 200 = 20.000 MHz<br>See P/N Guide | 20 = 20 pF<br>S = Series | 33 =<br>ECX-32 | Blank = Std<br>A = ± 25 ppm<br>J = ± 20 ppm<br>R = ± 15 ppm<br>C = ± 10 ppm | Blank= Std<br>D= ±100 ppm<br>E = ± 50 ppm<br>G = ± 30 ppm<br>H = ± 25 ppm<br>T = ± 20 ppm +<br>W = ±15 ppm +<br>K = ± 10 ppm + | Blank= Std<br>L = -10 ~ +70°C<br>M = -20 ~ +70°C<br>Y = -30 ~ +85°C<br>N = -40 ~ +85°C<br>P = -40 ~ +105°C<br>S = -40 ~ +125°C<br>U = -55 ~ +125°C | TR =1K<br>TR3=3K<br>Qty/Reel |
| * Specify available options in P/N.                      |                                   |                          |                |                                                                             |                                                                                                                                |                                                                                                                                                    |                              |
| † Contact ECS for availability over extended temp range. |                                   |                          |                |                                                                             |                                                                                                                                |                                                                                                                                                    |                              |
|                                                          |                                   |                          |                | Rev.2021                                                                    |                                                                                                                                |                                                                                                                                                    |                              |

\* Specify available options in P/N.

$\dagger$  Contact ECS for availability over extended temp range.

Rev.2021

## POCKET TAPE DIMENSIONS (mm)



| A   | B   | C   | D   | F   | J   | L    | M   | Reel Dia. |
|-----|-----|-----|-----|-----|-----|------|-----|-----------|
| 3.5 | 2.8 | 8.0 | 3.5 | 4.0 | 1.1 | 0.25 | 1.0 | 180       |

### SOLDER PROFILE

Peak solder Temp +260°C Max 10 sec Max.

2 Cycles Max.

MSL 1, Lead Finish Au

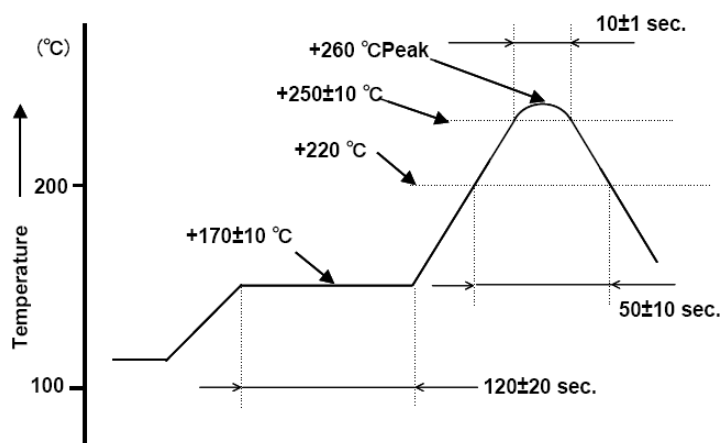


Figure 1) Suggested Reflow Profile

### DEVELOPED FREQUENCIES

| Abbreviation | Frequency (MHZ) |
|--------------|-----------------|
| 80           | 8.000           |
| 100          | 10.000          |
| 120          | 12.000          |
| 122.8        | 12.288          |
| 143          | 14.31818        |
| 147.4        | 14.7456         |
| 160          | 16.000          |
| 184          | 18.432          |
| 192          | 19.200          |
| 196          | 19.6608         |
| 200          | 20.000          |
| 240          | 24.000          |
| 245.7        | 24.576          |
| 250          | 25.000          |
| 260          | 26.000          |
| 270          | 27.000          |
| 300          | 30.000          |
| 320          | 32.000          |
| 360          | 36.000          |
| 400          | 40.000          |
| 480          | 48.000          |