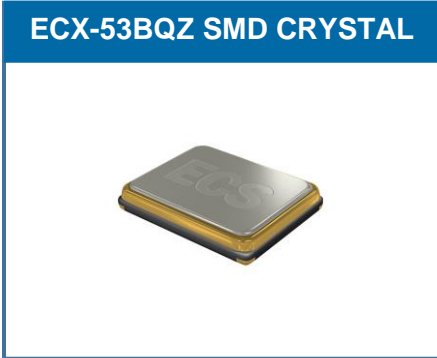


The ultra-miniature rugged ECX-53BQZ compact SMD Crystal. The 5.0 x 3.2 x 0.9 mm ceramic package is ideal for harsh environments such as TPMS applications.

[Request a Sample](#)

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



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

### DIMENSIONS (mm)

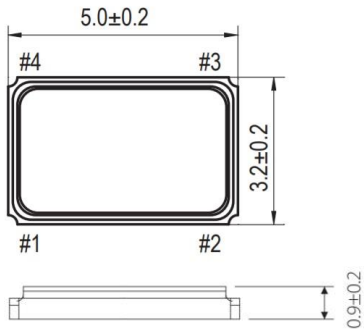


Figure 1) Top, Side, and Bottom

Crystal is symmetrical, pad 1 & 3 are interchangeable.  
Chamfer on the bottom pad has no electrical significance.

| PARAMETERS                         | CONDITIONS                 | ECX-53BQZ |     |        | UNITS |
|------------------------------------|----------------------------|-----------|-----|--------|-------|
|                                    |                            | MIN       | TYP | MAX    |       |
| Frequency                          |                            | 13.000    |     | 26.000 | MHz   |
| Frequency Tolerance                | @ +25°C<br>(Standard)      |           |     | ± 15   | ppm   |
| Frequency Stability                | -40 ~ +125°C<br>(Standard) |           |     | ± 50   | ppm   |
| Equivalent Series Resistance (ESR) | 13 ~ 19.999 MHz            |           |     | 100    | Ω     |
|                                    | 20 ~ 26.000 MHz            |           |     | 90     | 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<br>±3°C            |           |     | ±3     | ppm   |

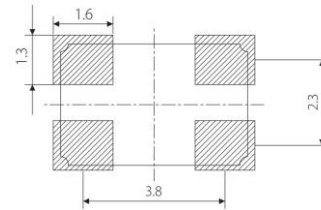
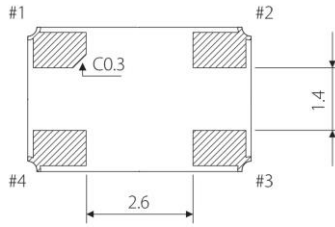


Figure 2) Suggested Land Pattern

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

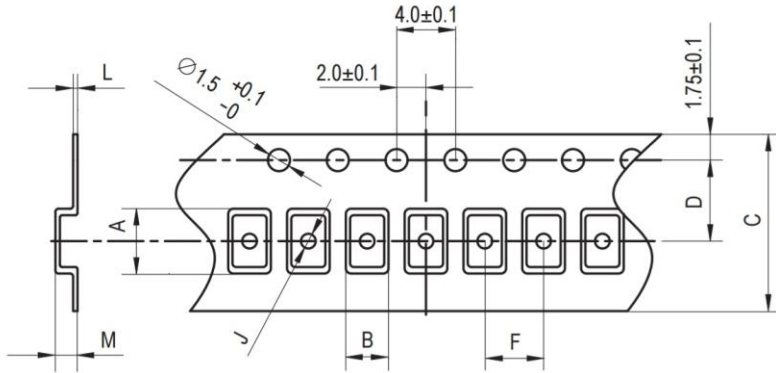
## PART NUMBERING GUIDE: Example ECS-260-10-30BQZ-TR

| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE                                     | PACKAGE                                | Tolerance Range      | AVAILABLE OPTIONS Stability  | Temp  | PACKAGING   |                                |
|------------------------------|--|--|----------------------|--|---|---|--------------------------------|
| ECS                          | 260 = 26.000 MHz<br>*See Developed Frequencies Pg. 2 | 10 = 10 pF<br>12 = 12 pF<br>16 = 16 pF | 30BQZ =<br>ECX-53BQZ | Blank=Standard<br>A = ± 25 ppm<br>J = ± 20 ppm<br>R = ± 15 ppm<br>C = ± 10 ppm | Blank=Standard<br>D = ± 100 ppm<br>E = ± 50 ppm<br>G = ± 30 ppm | Blank=Standard<br>N = -40 ~ +85°C<br>P = -40 ~ +105°C<br>S = -40 ~ +125°C | TR =<br>Tape & Reel<br>1K/Reel |

\*Contact ECS for availability of non-developed or available options.

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**POCKET TAPE DIMENSIONS (mm)**



| A   | B   | C    | D   | F   | J   | L    | M   | Reel Dia. | Qty/Reel |
|-----|-----|------|-----|-----|-----|------|-----|-----------|----------|
| 5.4 | 3.5 | 12.0 | 5.5 | 8.0 | 1.6 | 0.25 | 1.0 | 180       | 1000pcs  |

| 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         |

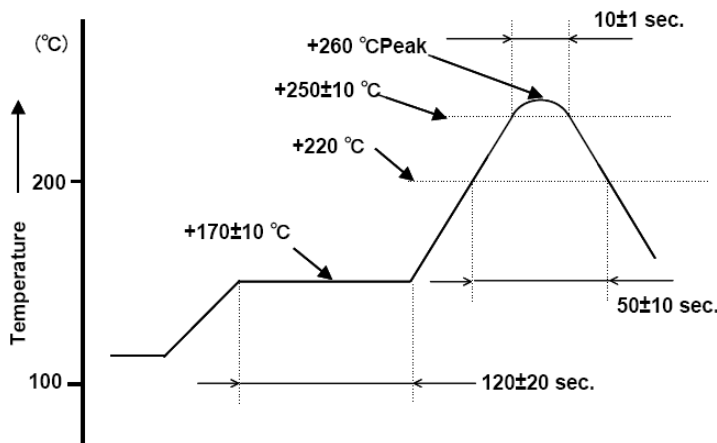


Figure 1) Suggested Reflow Profile