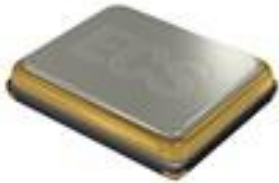


The miniature ECS-33B is a compact SMD Crystal. The industry standard 3.2 x 2.5 x 0.8 mm ceramic package is ideal for today's wireless applications.

[Request a Sample](#)

ECS-33B SMD CRYSTAL



- IOT/Wearable applications
- SmartHome Sensors
- BTLE, Wi-Fi wireless
- Low Aging

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | ECS-33B | | | UNITS |
|---------------------------|------------------|---------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency | | 10.000 | | 54.000 | MHz |
| Mode of Oscillation | Fundamental | | | | |
| Frequency Tolerance* (C) | @ +25°C | | | ± 10 | ppm |
| Frequency Stability* (WN) | -40 ~ +85°C | | | ± 15 | ppm |
| Shunt Capacitance | Co | | | 3 | pF |
| Load Capacitance | Specify in P/N | | 8 | | pF |
| Drive Level | DL | | | 200 | μW |
| Operating Temperature* | T _{opr} | -40 | | +85 | °C |
| Storage Temperature | T _{stg} | -40 | | +125 | °C |
| Aging (First Year) | @ +25°C ±3°C | | | ±1 | ppm |

DIMENSIONS (mm)

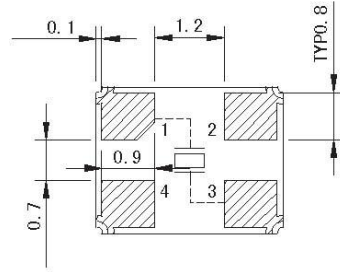
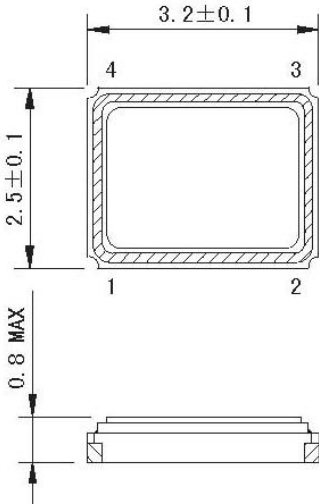
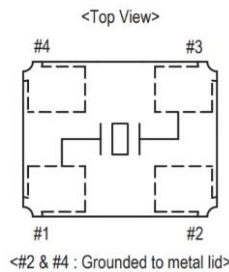


Figure 1) Top, Side, and Bottom

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



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

| Frequency (MHz) | ESR Ω Max. |
|-----------------|------------|
| 10.000 ~ 15.999 | 100 |
| 16.000 ~ 18.999 | 60 |
| 21.000 ~ 54.000 | 40 |

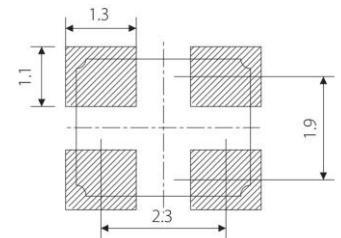


Figure 2) Suggested land

PART NUMBERING GUIDE: Example ECS-160-9-33B-CZM-TR

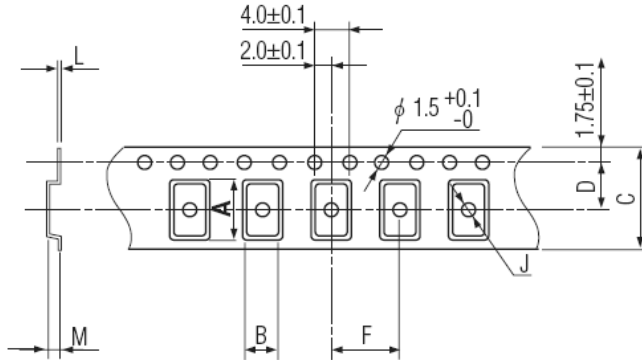
| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE | PACKAGE | AVAILABLE OPTIONS | | PACKAGING | |
|------------------------------|-----------------------------------|-------------------|---|--|---|-----------------------------------|
| | | | Tolerance | Temp Range | | |
| ECS | 160 = 16.000 MHz See P/N Guide | -33B = ECS-33B | Blank = Std A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm | Blank = Std G = ± 30 ppm H = ± 25 ppm T = ± 20 ppm † W = ± 15 ppm † K = ± 10 ppm † Z = ± 9 ppm † | Blank = Std L = -10 ~ +70°C M = -20 ~ +70°C Y = -30 ~ +85°C N = -40 ~ +85°C P = -40 ~ +105°C S = -40 ~ +125°C | TR = Tape & Reel 1K/Reel |

* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

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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 |
| 160 | 16.000 |
| 192 | 19.200 |
| 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 |



Figure 1) Suggested Reflow Profile