



**THE DATASHEET OF
ECS-120-10-33B-CKM-TR**



The miniature ECS-33B is a compact SMD Crystal that offers low aging of ± 1 ppm first year. The industry standard 3.2 x 2.5 x 0.8 mm ceramic package is ideal for today's wireless applications.

[Request a Sample](#)

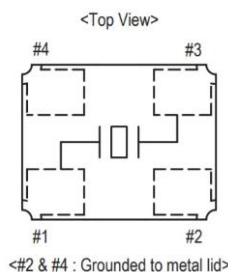
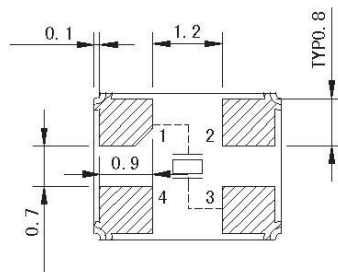
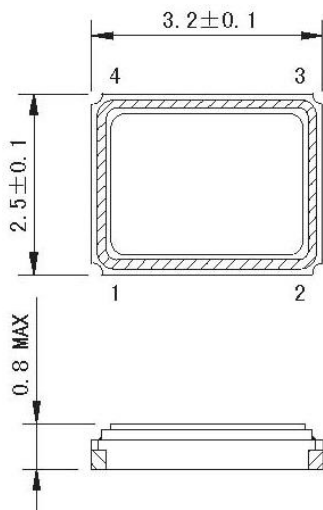


- IOT/Wearable applications
- SmartHome Sensors
- BTLE, Wi-Fi wireless
- Low Aging

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 | μ W |
| 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)



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

| Frequency (MHz) | ESR Ω Max. |
|-----------------|-------------------|
| 10.000 ~ 15.999 | 100 |
| 16.000 ~ 20.999 | 60 |
| 21.000 ~ 54.000 | 40 |

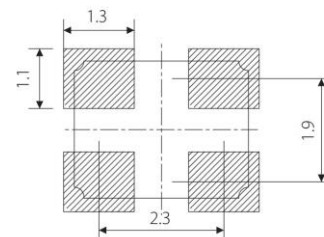


Figure 1) Top, Side, and Bottom

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

Figure 2) Suggested land

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

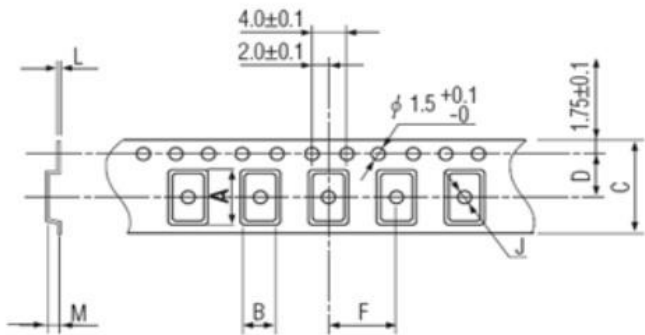
| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE | PACKAGE | AVAILABLE OPTIONS | | PACKAGING | |
|------------------------------|-----------------------------------|-------------------|---|---|--|---------------------------------|
| | | | Tolerance | Stability | | |
| ECS | 160 = 16.000 MHz See P/N Guide | -33B = ECS-33B | A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm 7 = ± 7 ppm | D = ± 100 ppm E = ± 50 ppm G = ± 30 ppm H = ± 25 ppm T = ± 20 ppm † W = ± 15 ppm † K = ± 10 ppm † | 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 = 1K TR3 = 3K Qty/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. |
|-----|-----|-----|-----|-----|-----|------|-----|-----------|
| 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 | |

| DEVELOPED FREQUENCIES | |
|-----------------------|-----------------|
| Abbreviation | Frequency (MHZ) |
| 120 | 12.000 |
| 135.6 | 13.560 |
| 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 |
| 271.2 | 27.120 |
| 300 | 30.000 |
| 320 | 32.000 |
| 360 | 36.000 |
| 384 | 38.400 |
| 400 | 40.000 |
| 480 | 48.000 |
| 500 | 50.000 |
| 520 | 52.000 |
| 540 | 54.000 |

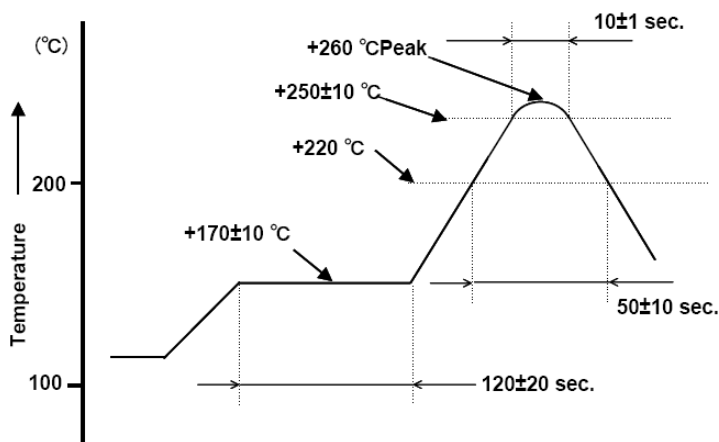




Figure 1) Suggested Reflow Profile

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-  [View ECS-120-10-33B-CKM-TR on WIN SOURCE](#)
-  [ECS Inc. Information](#)

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