

The CSM-4AX is an excellent choice for a low cost SMD crystal. The CSM-4AX (28AX) has a case height of 5.0 mm Max. in a resistance weld metal package. Lower profile package height of 4.0 mm Max. is available with the (28ALX) package.

[Request a Sample](#)

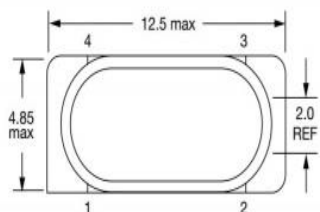


- Cost Effective
- Low Profile
- Industry Standard Footprint
- Pb Free/RoHS Compliant

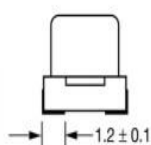
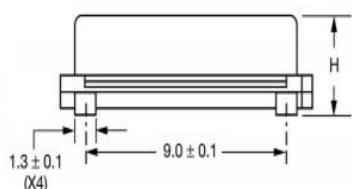
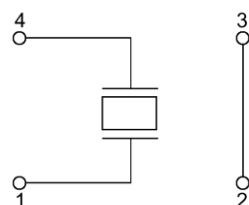
OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | CSM-4AX | | | UNITS |
|------------------------|------------------|---------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency | | 3.57 | | 30.000 | MHz |
| Mode of Oscillation | Fundamental | | | | |
| Frequency Tolerance* | @ +25°C | | | ± 30 | ppm |
| Frequency Stability* | -10 ~ +70°C | | | ± 50 | ppm |
| Shunt Capacitance | Co | | | 7 | pF |
| Load Capacitance | Specify in P/N | 10 | 20 | Series | pF |
| Drive Level | DL | | | 500 | μW |
| Operating Temperature* | T _{opr} | -10 | | +70 | °C |
| Storage Temperature | T _{stg} | -55 | | +125 | °C |
| Aging (First Year) | @ +25°C ±3°C | | | ±5 | ppm |

DIMENSIONS (mm)



| Height "H" MAX | |
|----------------|---------|
| -28AX | -5.0 mm |
| -28ALX | -4.0 mm |



| Frequency (MHz) | ESR Ω Max. |
|-----------------|------------|
| 3.57 ~ 4.999 | 200 |
| 5.000 ~ 5.999 | 150 |
| 6.000 ~ 6.999 | 100 |
| 7.000 ~ 8.999 | 80 |
| 9.000 ~ 12.999 | 60 |
| 13.000 ~ 19.999 | 40 |
| 20.000 ~ 30.000 | 30 |

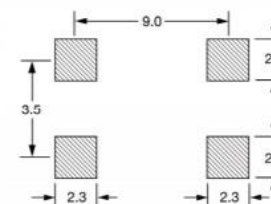


Figure 1) Top, Side, and End

Figure 2) Suggested land

PART NUMBERING GUIDE: Example ECS-200-20-28AX-TR

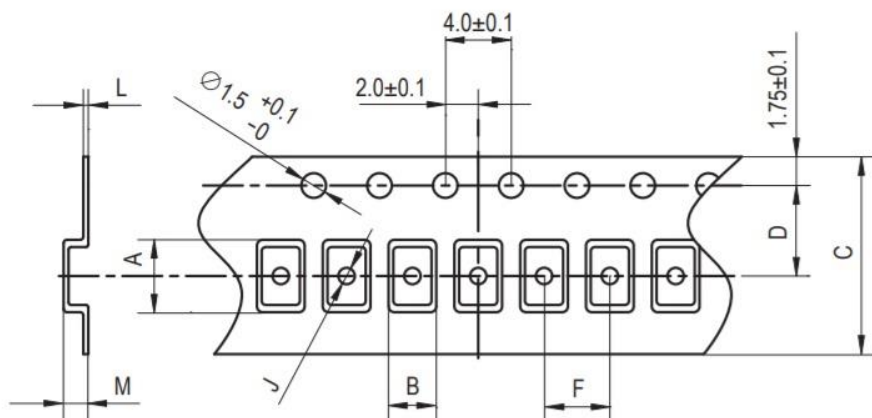
| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE | PACKAGE | AVAILABLE OPTIONS | | | PACKAGING | |
|------------------------------|-----------------------------------|--------------------------|---------------------------------|---|--|---|-----------------------------------|
| | | | Tolerance | Stability | Temp Range | | |
| ECS | 200 = 20.000 MHz See P/N Guide | 20 = 20 pF S = Series | 28AX = 5.0 mm 28ALX = 4.0 mm | Blank = Std A = ± 25 ppm J = ± 20 ppm R = ± 15 ppm C = ± 10 ppm | Blank = Std D = ± 100 ppm E = ± 50 ppm G = ± 30 ppm H = ± 25 ppm T = ± 20 ppm † W = ± 15 ppm † K = ± 10 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 U = -55 ~ +125°C | TR = Tape & Reel 1K/Reel |

* Specify available options in P/N.

† Contact ECS for availability over extended temp range.

Rev.2017

POCKET TAPE DIMENSIONS (mm)



| | | | | | | | | | |
|------|-----|------|------|------|-----|-----|-----|-----------|----------|
| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
| 13.1 | 5.3 | 24.0 | 11.5 | 12.0 | 2.2 | 0.4 | 5.4 | 300 | 1000pcs |

| SOLDER PROFILE |
|---|
| Peak solder Temp +260°C Max 10 sec Max. |
| 2 Cycles Max. |
| MSL 1, Lead Finish Ag |

| DEVELOPED FREQUENCIES | |
|-----------------------|-----------------|
| Abbreviation | Frequency (MHZ) |
| 036 | 3.6864 |
| 040 | 4.000 |
| 060 | 6.000 |
| 073 | 7.3728 |
| 080 | 8.000 |
| 100 | 10.000 |
| 110.5 | 11.0592 |
| 120 | 12.000 |
| 122.8 | 12.288 |
| 143 | 14.31818 |
| 147.4 | 14.7456 |
| 160 | 16.000 |
| 184 | 18.432 |
| 200 | 20.000 |
| 240 | 24.000 |
| 250 | 25.000 |

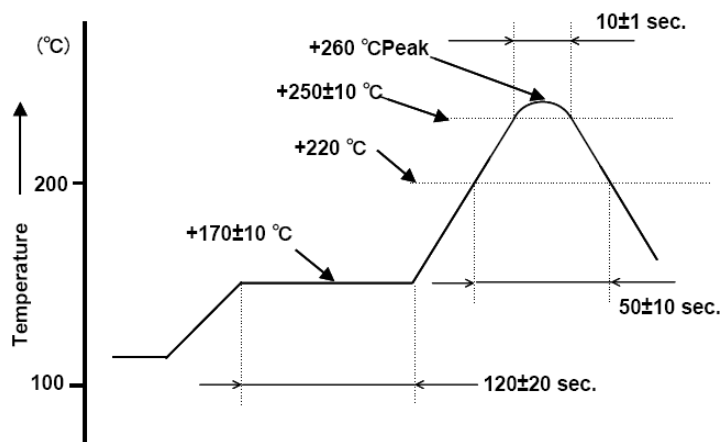


Figure 1) Suggested Reflow Profile

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