

The CSM-7X is an excellent choice for a low cost SMD Crystal. The CSM-7X (5PX) has a case height of 4.3 mm Max. in a resistance weld metal package. Lower profile package height of 3.2 mm is available with the (5PLX) package.

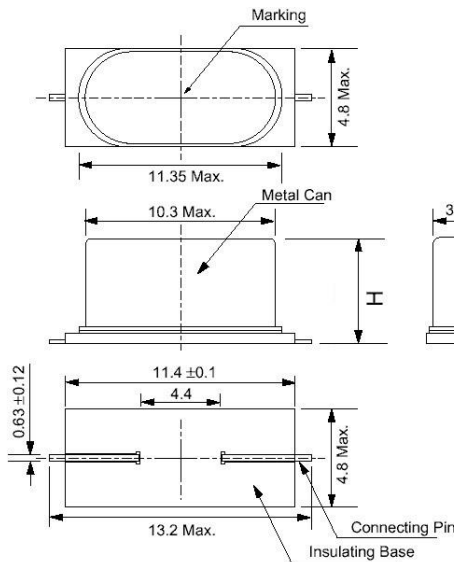
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CSM-7X SMD CRYSTAL



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

DIMENSIONS (mm)



Height "H" Max.

| | |
|------|--------|
| -5PX | 4.3 mm |
| 5PLX | 3.2 mm |

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | CSM-7X | | | UNITS |
|------------------------|-------------------------|--------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency | | 3.57 | | 70.000 | MHz |
| Frequency Tolerance* | @ +25°C | | | ± 30 | ppm |
| Frequency Stability* | Standard -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 |

EQUIVALENT SERIES RESISTANCE/MODE OF OSCILLATION

| Frequency (MHz) | ESR Ω Max. | Mode of Osc. |
|-----------------|------------|--------------------------|
| 3.57 ~ 4.999 | 150 | Fundamental |
| 5.000 ~ 5.999 | 80 | Fundamental |
| 6.000 ~ 6.999 | 70 | Fundamental |
| 7.000 ~ 8.999 | 60 | Fundamental |
| 9.000 ~ 12.999 | 50 | Fundamental |
| 13.000 ~ 19.999 | 40 | Fundamental |
| 20.000 ~ 40.000 | 30 | Fundamental |
| 40.000 ~ 70.000 | 80 | 3 rd Overtone |

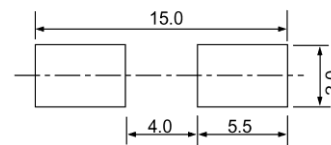


Figure 1) Top, Side, Bottom, and End

Crystal is symmetrical, pin 1 & 2 are interchangeable.

Figure 2) Suggested land

PART NUMBERING GUIDE: Example ECS-200-20-5PX-TR

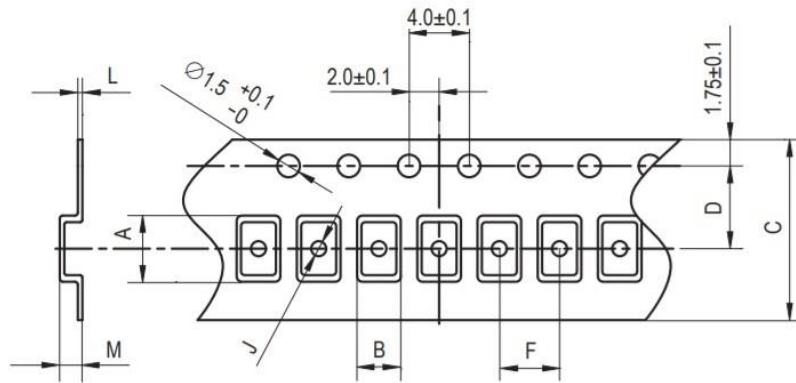
| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE | PACKAGE | AVAILABLE OPTIONS | | | PACKAGING |
|------------------------------|-----------------------------------|-------------------------------|---|--|---|-----------------------------------|
| | | | Tolerance | Stability | Temp Range | |
| ECS | 200 = 20.000 MHz See P/N Guide | 5PX = 4.3 mm 5PLX = 3.2 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.

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POCKET TAPE DIMENSIONS (mm)



| A | B | C | D | F | J | L | M | Reel Dia. | Qty/Reel |
|------|-----|------|------|------|-----|-----|-----|-----------|----------|
| 15.4 | 5.3 | 24.0 | 11.5 | 12.0 | 1.7 | 0.4 | 4.4 | 300 | 1000pcs |

SOLDER PROFILE

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

2 Cycles Max.

MSL 1, Lead Finish Sn/Cu Matte

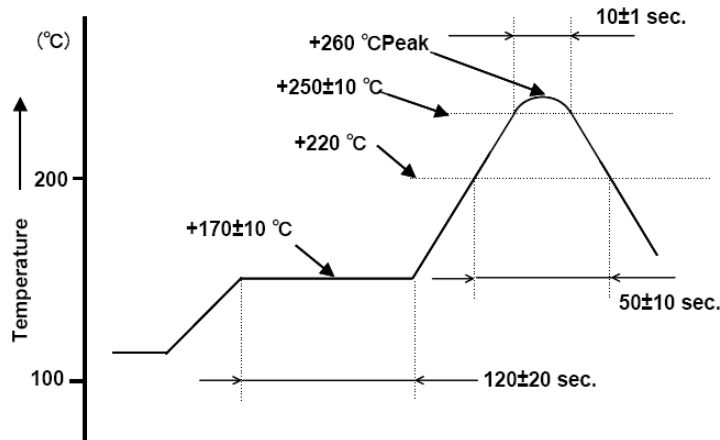


Figure 1) Suggested Reflow Profile