

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.

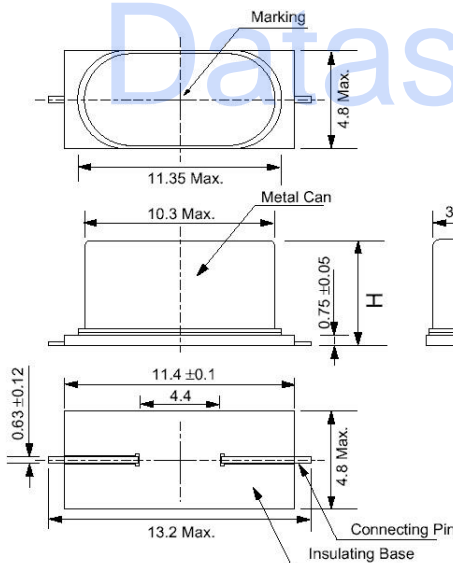
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## CSM-7X SMD CRYSTAL



- 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<br>-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 <sub>opr</sub>        | -10    |     | +70    | °C    |
| Storage Temperature    | T <sub>stg</sub>        | -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 <sup>rd</sup> Overtone |

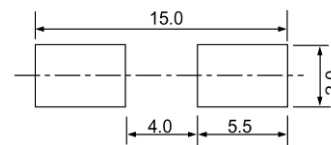


Figure 1) Top, Side, Bottom, and End

Crystal is symmetrical, pin 1 & 2 are interchangeable.

Figure 2) Suggested land

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

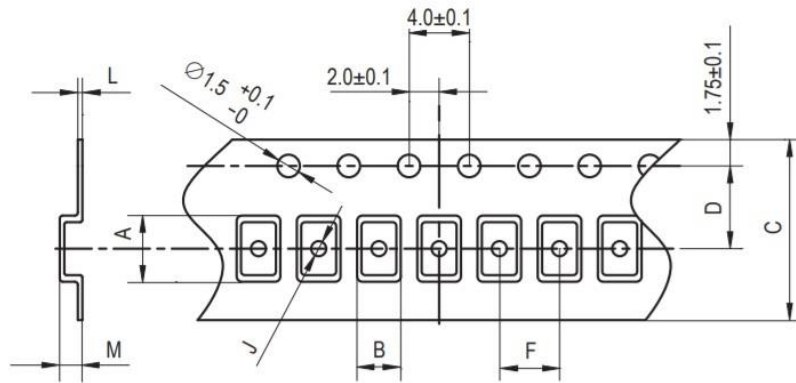
| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE                  | PACKAGE                                | AVAILABLE OPTIONS             |   |  | PACKAGING   |                                   |
|------------------------------|-----------------------------------|--|-------------------------------|---|--|---|-----------------------------------|
|                              |                                   |  | Tolerance                     | Stability   | Temp Range   |   |                                   |
| ECS                          | 200 = 20.000 MHz<br>See P/N Guide | 20 = 20 pF<br>10 = 10 pF<br>S = Series | 5PX = 4.3 mm<br>5PLX = 3.2 mm | Blank = Std<br>A = ± 25 ppm<br>J = ± 20 ppm<br>R = ± 15 ppm<br>C = ± 10 ppm | Blank = Std<br>D = ± 100 ppm<br>E = ± 50 ppm<br>G = ± 30 ppm<br>H = ± 25 ppm<br>T = ± 20 ppm †<br>W = ± 15 ppm †<br>K = ± 10 ppm † | Blank = Std<br>L = -10 ~ +70°C<br>M = -20 ~ +70°C<br>Y = -30 ~ +85°C<br>N = -40 ~ +85°C<br>P = -40 ~ +105°C<br>S = -40 ~ +125°C<br>U = -55 ~ +125°C | TR =<br>Tape<br>& Reel<br>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 |
|------|-----|------|------|------|-----|-----|-----|-----------|----------|
| 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

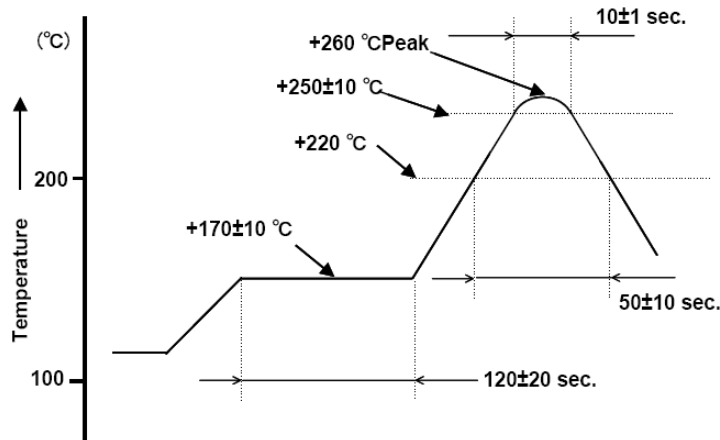


Figure 1) Suggested Reflow Profile

# Mouser Electronics

Authorized Distributor

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## ECS:

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