



**THE DATASHEET OF  
ECS-80-18-18-TR**



The CSM-12 is a low profile SMD Crystal with a 11.8 x 5.5 mm footprint. This cost effective package offers a height of 2.5 mm.

## CSM-12 SMD CRYSTAL

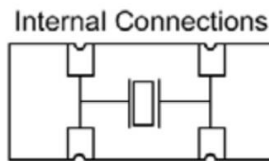
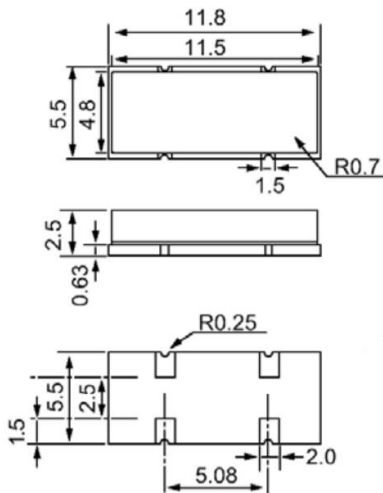


- Cost Effective
- Low Profile
- Industrial Temp. Range
- RoHS Compliant

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS             | CONDITIONS       | CSM-12 |     |        | UNITS |
|------------------------|------------------|--------|-----|--------|-------|
|                        |                  | MIN    | TYP | MAX    |       |
| Frequency              |                  | 3.579  |     | 30.000 | MHz   |
| Mode of Oscillation    | Fundamental      |        |     |        |       |
| Frequency Tolerance    | @ +25°C          |        |     | ± 30   | ppm   |
| Frequency Stability    | -10 ~ +70°C      |        |     | ± 50   | ppm   |
|                        | -40 ~ +85°C      |        |     | ±100   | ppm   |
| Shunt Capacitance      | Co               |        |     | 7      | pF    |
| Load Capacitance       | Specify in P/N   | 10     | 20  | Series | pF    |
| Drive Level            | DL               |        |     | 100    | μW    |
| Operating Temperature* | T <sub>opr</sub> | -40    |     | +85    | °C    |
| Storage Temperature    | T <sub>stg</sub> | -55    |     | +125   | °C    |
| Aging (First Year)     | @ +25°C ±3°C     |        |     | ±5     | ppm   |

## DIMENSIONS (mm)



| Frequency (MHz) | ESR Ω Max. |
|-----------------|------------|
| 3.579 ~ 3.999   | 200        |
| 4.000 ~ 5.999   | 150        |
| 6.000 ~ 9.999   | 100        |
| 10.000 ~ 13.999 | 80         |
| 14.000 ~ 24.999 | 50         |
| 25.000 ~ 30.000 | 40         |

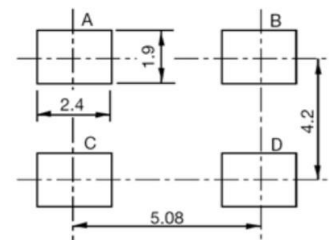


Figure 1) Top, Side, and Bottom

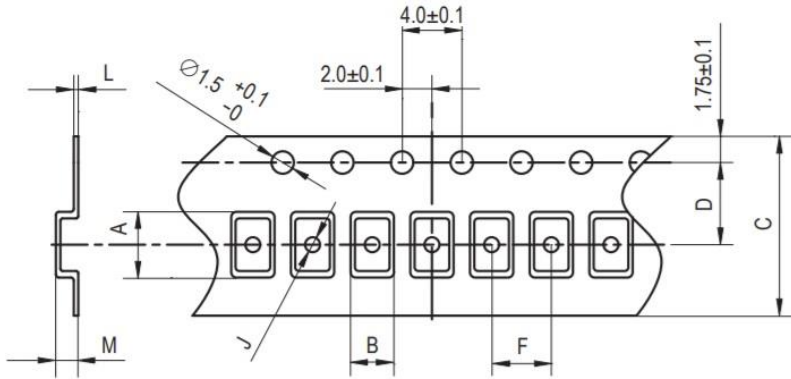
Figure 2) Suggested land

## PART NUMBERING GUIDE: Example ECS-200-20-18-TR

| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE                  | PACKAGE                  | PACKAGING                         |
|------------------------------|-----------------------------------|--------------------------|-----------------------------------|
| ECS                          | 200 = 20.000 MHz<br>See P/N Guide | 20 = 20 pF<br>S = Series | 18 =<br>CSM-12                    |
|                              |                                   |                          | TR =<br>Tape<br>& Reel<br>1K/Reel |

\* Specify available options in P/N.

**POCKET TAPE DIMENSIONS (mm)**



| A    | B   | C    | D    | F    | J   | L   | M   | Reel Dia. | Qty/Reel |
|------|-----|------|------|------|-----|-----|-----|-----------|----------|
| 12.2 | 5.8 | 24.0 | 11.5 | 12.0 | 2.1 | 0.3 | 2.0 | 330       | 1000pcs  |

**SOLDER PROFILE**

Peak solder Temp +260°C Max 10 sec Max.  
2 Cycles Max.  
MSL 1, Lead Finish Au

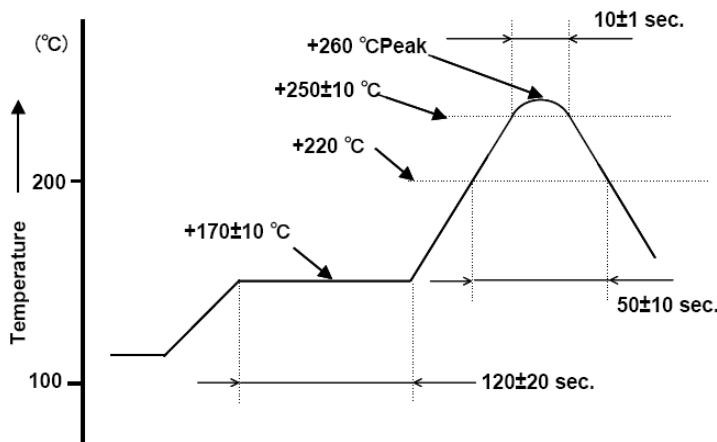


Figure 1) Suggested Reflow Profile

| DEVELOPED FREQUENCIES |                 |
|-----------------------|-----------------|
| Abbreviation          | Frequency (MHZ) |
| 035                   | 3.579545        |
| 036                   | 3.6864          |
| 040                   | 4.000           |
| 041                   | 4.096           |
| 049                   | 4.9152          |
| 050                   | 5.000           |
| 060                   | 6.000           |
| 061                   | 6.144           |
| 073                   | 7.3728          |
| 080                   | 8.000           |
| 098.3                 | 9.8304          |
| 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          |
| 196.6                 | 19.6608         |
| 200                   | 20.000          |
| 240                   | 24.000          |
| 245.7                 | 24.576          |
| 250                   | 25.000          |
| 270                   | 27.000          |

## Looking for pricing, stock, or lifecycle information?

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 [ECS Inc. Information](#)

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