



- ▶ Chip Type SMD package
- ▶ RoHS Compliant (Note 7 Exemption)
- ▶ Built-in load capacitor
- ▶ Tape & Reel Packaging

# ECS-CR2-B

## SMD CERAMIC RESONATOR

The ECS-CR2-B Chip Type SMD ceramic resonator includes built in capacitors for reduced component count. The SMD Ceramic resonator is an excellent low cost frequency control solution when absolute frequency accuracy is not important.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PART NUMBER *   | FREQUENCY RANGE (MHz) | FREQUENCY ACCURACY @ 25°C (%) | FREQUENCY STABILITY -20 ~ +80°C (%) | AGING FOR TEN YEARS (%) | ESR (Ω) MAX. | BUILT-IN CAPACITANCE (C1 & C2) | INSULATION RESISTANCE @ 10VDC |
|-----------------|-----------------------|-------------------------------|-------------------------------------|-------------------------|--------------|--------------------------------|-------------------------------|
| ECS-CR2-□□.□□-B | 8.00 ~ 13.00          | ± 0.5                         | ± 0.3                               | ± 0.3                   | 25           | 30 pF                          | 100 M Ω Min.                  |
| ECS-CR2-□□.□□-B | 13.10 ~ 40.00         | ± 0.5                         | ± 0.3                               | ± 0.3                   | 40           | 15 pF                          | 100 M Ω Min.                  |

Complete part number to include frequency i.e. ECS-CR2-20.00-B-TR

### PACKAGE DIMENSIONS (mm)

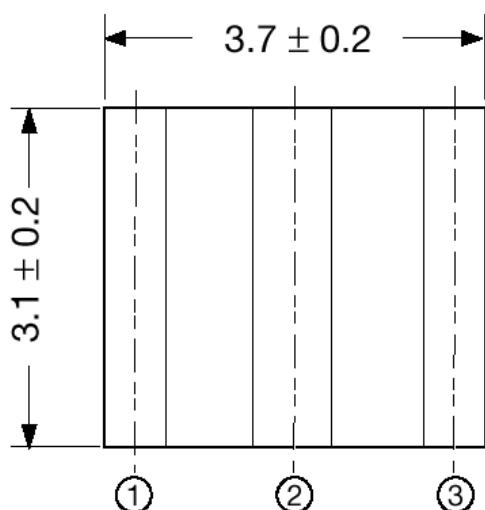


Figure 1) ECS-CR2-B Series - Top and Side Views

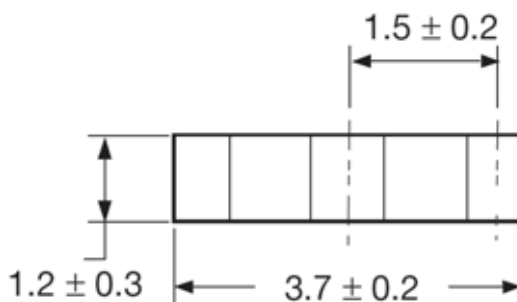


Figure 2) Test Circuit (74HCU04P)

| PIN CONNECTIONS |        |
|-----------------|--------|
| #1              | In/Out |
| #2              | Ground |
| #3              | Out/In |

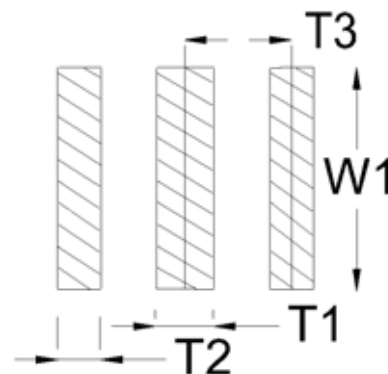


Figure 3) Land Pattern

| DIMENSIONS (mm) |           |           |           |
|-----------------|-----------|-----------|-----------|
| T1              | T2        | T3        | W1        |
| 0.7 ± 0.2       | 1.0 ± 0.2 | 1.5 ± 0.2 | 4.1 ± 0.2 |

### PART NUMBERING GUIDE: "Example" ECS-CR2-20.00-B-TR

ECS - Series - Frequency - Version - Packaging

CR2 = 8 ~ 13 MHz  
CR2 = 13.1 ~ 40 MHz

20.00 = 20.00 MHz

B = Built In Caps

TR = Tape & Reel



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## C E R A M I C   R E S O N A T O R / F I L T E R

### Application Information Request

**Attention:** All Customers

**From:** Mike Huennekens, Director of Marketing and OEM Sales

**Subject:** Ceramic Resonator Application Information Request

ECS is requesting that you complete the section below that will allow us to determine if the specific application is suitable for the ceramic resonator/filters that you have requested.

Ceramic Resonators/Filters, both surface mount and through-hole type, are a much different frequency control solution than that of a crystal based device. Not only are there "matching" issues to specific integrated circuits and processors with ceramic based piezoelectric components but for multiple reasons ceramics are not the most advantageous nor robust frequency control solution for certain applications.

In addition, ECS does not approve the use of its ceramic products in Automotive, Military, Avionics, Life Sustaining or Life Support systems or any other related medical application.

**If the customer chooses to use this product in one or more of the noted applications without the written consent of ECS, Inc., ECS, Inc. shall be held harmless, and given release of liability and indemnification from claims of any nature.**

*Please complete the following and submit this form as soon as possible.*

|                                                                                                         |                                                          |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| ECS Part Number                                                                                         |                                                          |
| Estimated Annual Usage                                                                                  |                                                          |
| Has this part already been approved for this application?                                               | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Has this part been ordered previously for this application?                                             | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| End Customer                                                                                            |                                                          |
| <b>Application Details</b><br><u>You Must Be Specific</u> or this may be returned for more information. |                                                          |

I certify that the above information is true and correct to the best of my knowledge and acknowledge that ECS will be held harmless if this item is used in the restricted applications noted above.

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Print Your Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\*\* If this item will be used by a 3<sup>rd</sup> party ECS may require a form be completed and signed by all parties.

**To be completed by ECS Inc., International**

Approved: ☐ Disallowed: ☐ Date: \_\_\_\_\_ Approved By: \_\_\_\_\_

Please direct any further inquires to Brad Slatten at [brads@ecsxtal.com](mailto:brads@ecsxtal.com) or Carla Williams at [carlaw@ecsxtal.com](mailto:carlaw@ecsxtal.com) . We thank you for your understanding and patience in this process.

# Mouser Electronics

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