

# CR27/U-Series Specifications



**0.757L x 0.352W x 0.775H (in)**

PDI MIL-PRF-3098 Qualified Product List (QPL) crystals are available in both standard or custom frequencies to provide precision timing in a resistance welded HC-48 package.

ex) **CR—27—/U—7M000000**

**COMPONENT**  
Crystal Unit

**NUMBER**  
Type of Crystal

**BASIC INDICATOR**  
General Utility

**XXXXXXXX**  
Specified Nominal Frequency

| Parameter                       |                             | Frequency Range           | Units |
|---------------------------------|-----------------------------|---------------------------|-------|
|                                 |                             | 2.250000 to 20.000000     | MHz   |
| Mode of Oscillation             |                             | Fundamental               |       |
| Equivalent Series Resistance    |                             | See Table 1               |       |
| Reference Temperature           | ±1                          | +75                       | °C    |
| Operating Temperature Range     | Controlled                  | +70 to +80                | °C    |
| Operable Temperature Range      |                             | -55 to +70 and +80 to +90 | °C    |
| Frequency Tolerance (Inclusive) | Operating Temperature Range | ±20                       | ppm   |
| Frequency Stability             |                             | ±5                        | ppm   |
| Drive Level                     | Max                         | 1.0                       | mW    |
| Load Capacitance (CL)           | ±0.5                        | 32.0                      | pF    |
| Seal Method                     | Resistance Weld             |                           |       |
| Shunt Capacitance (C0)          | Max                         | 7.0                       | pF    |

| Environmental Specifications         |                                        |     | Units |
|--------------------------------------|----------------------------------------|-----|-------|
| Shock (Specified Pulse)              | Frequency Change Permitted             | ±5  | ppm   |
|                                      | Equivalent Resistance Change Permitted | ±10 | %     |
| Vibration<br>MIL-STD-202, Method 201 | Frequency Change Permitted             | ±5  | ppm   |
|                                      | Equivalent Resistance Change Permitted | ±10 | %     |
| Temperature Run                      | Frequency Change Permitted             | ±5  | ppm   |
|                                      | Equivalent Resistance Change Permitted | ±10 | %     |
| Aging                                | Frequency Change Permitted             | ±5  | ppm   |

**(Table 1) Equivalent Series Resistance**

| Frequency Range (Inclusive) | Max Resistance | Units |
|-----------------------------|----------------|-------|
| 2.25 MHz                    | 240            | Ω     |
| >2.25 MHz – 2.60 MHz        | 190            |       |
| >2.60 MHz – 3.00 MHz        | 150            |       |
| >3.00 MHz – 3.40 MHz        | 110            |       |
| >3.40 MHz – 3.75 MHz        | 90             |       |
| >3.75 MHz – 4.00 MHz        | 75             |       |
| >4.00 MHz – 5.00 MHz        | 60             |       |
| >5.00 MHz – 7.00 MHz        | 35             |       |
| >7.00 MHz – 10.00 MHz       | 24             |       |
| >10.00 MHz – 15.00 MHz      | 22             |       |
| >15.00 MHz – 20.00 MHz      | 20             |       |

The product described in this spec. consist of this specification and MIL-PRF-3098.

Decimal XXX = ± .008, XX = ± .020 Metric [XXX = ± .20], [XX = ± .50]

## MIL-PRF-3098 w/Amendment 1

## Table VI, Group B Inspection for Product Level B Crystals

| Subgroup I 1/                                   | Requirement Paragraph | Method Paragraph |
|-------------------------------------------------|-----------------------|------------------|
| Solderability                                   | 3.7                   | 4.10.3           |
| Resistance to solvents (4 sample units)         | 3.8                   | 4.10.4           |
| Shock (Specified pulse)                         | 3.17                  | 4.10.13          |
| Vibration                                       | 3.19.1                | 4.10.15.1        |
| Thermal shock                                   | 3.23                  | 4.10.19.1        |
| Seal                                            | 3.24                  | 4.10.26          |
| Salt atmosphere (Corrosion)                     | 3.27                  | 4.10.21          |
| Moisture resistance                             | 3.28                  | 4.10.22          |
| Terminal strength 2/                            | 3.30                  | 4.10.23          |
| Visual and mechanical examination (Internal) 2/ | 3.5, 3.6, 3.35        | 4.10.2.2         |
| Bond strength (When specified) 2/               | 3.31                  | 4.10.24          |
| <b>Subgroup II 3/</b>                           |                       |                  |
| Insulation resistance                           | 3.14                  | 4.10.10          |
| Aging                                           | 3.29                  | 4.10.27.1        |

1/ If the contractor can demonstrate that any of these tests have been performed for three consecutive periods with zero failures, the frequency of this test, with the approval of the qualifying activity, can be performed every 36 months. If the design, material, construction, or processing of the crystal units change, or if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency.

2/ Only two units are required. These two samples units shall be subjected to terminal strength, visual and mechanical (Internal), and bond strength (When specified see 3.1).

3/ If the contractor can demonstrate that any of these tests have been performed for six consecutive periods with zero failures, the frequency of this test, with the approval of the qualifying activity, can be performed every 36 months. If the design, material, construction, or processing of the crystal units change, or if there are any quality problems or failures, the qualifying activity may require resumption of the original test frequency.

## PACKAGE DIMENSIONS

