

# ANTREX Electronics

Electronic Components Sourcing Information

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## Product Reference Information

**Part Number:** ERZ-C40CK681W  
**Manufacturer:** Panasonic Electronic Components  
**Package:** Disc 40mm, Formed Tabs  
**Availability:** Please confirm with sales

**Product Page:**

<https://antrexco.com/product/details/panasonic-electronic-components/erz-c40ck681w.html>

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## Contact Information

Email: [info@antrexco.com](mailto:info@antrexco.com)

WhatsApp: +86-186-8066-5326

Website: <https://antrexco.com>

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**Note:**

This PDF includes an ANTREX product reference cover page.

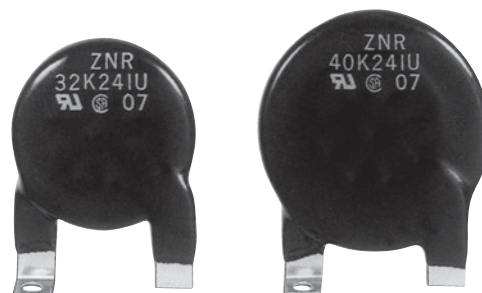
The original manufacturer datasheet follows from the next page.

## UL and CSA Recognized “ZNR” Transient/Surge Absorbers with Tabs

Type : **CK**

ZNR Transient/Surge Absorber with Tabs is a heavy duty type ZNR with very unique tab terminals which bring forth a higher reliability.

These tabs are used as electrical connecting terminals and also its mounting legs. This type of ZNR is meant for applications in power supplies or transient voltage surge suppressor units where large surge current or high surge energy absorption is required.



### Features

- UL and CSA recognized components
- High energy handling capability (210 to 750 joules)
- Large withstanding peak current (25 to 30 kA, 8/20  $\mu$ s, 1 time)
- Common terminals for electrical connection and mounting
- RoHS compliant

### Recommended Applications

- Power suppliers for OA, FA, telecommunication or industrial equipment
- Power strips
- Transient voltage surge suppressor units

Note : Ask our factory for Product Specification before use.

### ■ As for Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

### Related Standards

|              |                          |                                                                                                                                       |
|--------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Standard No. | UL1449                   | CSA C22.2 No.1 Class 2221 01                                                                                                          |
| Title        | Surge Protective Devices | Accessories and Parts for Electronic Products<br>(Varistor for Across-The-Line use as transient protection on 120V ac nominal system) |
| File No.     | E321499                  | LR-92226                                                                                                                              |

- Each type designation is not registered by Part Number.  
Please contact us for further questions regarding type designation.

### Explanation of Part Numbers

|              |          |          |          |              |   |          |           |                             |    |            |    |
|--------------|----------|----------|----------|--------------|---|----------|-----------|-----------------------------|----|------------|----|
| 1            | 2        | 3        | 4        | 5            | 6 | 7        | 8         | 9                           | 10 | 11         | 12 |
| <b>E</b>     | <b>R</b> | <b>Z</b> | <b>C</b> |              |   | <b>C</b> | <b>K</b>  |                             |    |            |    |
| Product Code |          |          | Series   | Element Size |   | Type     | Tolerance | Nominal<br>Varistor Voltage |    | Design No. |    |

# Panasonic “ZNR” Transient/Surge Absorbers (Type CK)

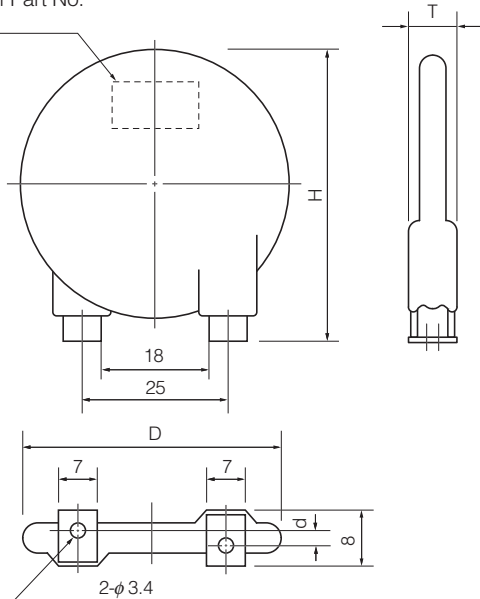
## Ratings and Characteristics

- Operating Temperature Range : -40 to 85 °C ● Storage Temperature Range : -40 to 125 °C

| Part No.<br>(UL/CSA Recognized) | Type Designation | Varistor<br>Voltage | Maximum<br>Allowable<br>Voltage |           | Maximum<br>Clamping<br>Voltage |                     | Energy<br>(2 ms,<br>1 time) | Maximum<br>Peak Current<br>(8/20 μs) |     |
|---------------------------------|------------------|---------------------|---------------------------------|-----------|--------------------------------|---------------------|-----------------------------|--------------------------------------|-----|
|                                 |                  |                     | V <sub>1 mA</sub> (V)           | ACrms (V) | DC (V)                         | V <sub>XA</sub> (V) |                             | I <sub>p</sub> (A)                   | (J) |
| ERZC32CK201W                    | 32K201U          | 200 (185 to 225)    | 130                             | 170       | 340                            | 200                 | 210                         | 25                                   | 20  |
| ERZC32CK241W                    | 32K241U          | 240 (216 to 264)    | 150                             | 200       | 395                            | 200                 | 240                         | 25                                   | 20  |
| ERZC32CK271W                    | 32K271U          | 270 (247 to 303)    | 175                             | 225       | 455                            | 200                 | 255                         | 25                                   | 20  |
| ERZC32CK361W                    | 32K361U          | 360 (324 to 396)    | 230                             | 300       | 595                            | 200                 | 325                         | 25                                   | 20  |
| ERZC32CK391W                    | 32K391U          | 390 (351 to 429)    | 250                             | 320       | 650                            | 200                 | 350                         | 25                                   | 20  |
| ERZC32CK431W                    | 32K431U          | 430 (387 to 473)    | 275                             | 350       | 710                            | 200                 | 400                         | 25                                   | 20  |
| ERZC32CK471W                    | 32K471U          | 470 (423 to 517)    | 300                             | 385       | 775                            | 200                 | 405                         | 25                                   | 20  |
| ERZC32CK511W                    | 32K511U          | 510 (459 to 561)    | 320                             | 415       | 845                            | 200                 | 405                         | 25                                   | 20  |
| ERZC32CK621W                    | 32K621U          | 620 (558 to 682)    | 385                             | 505       | 1025                           | 200                 | 415                         | 25                                   | 20  |
| ERZC32CK681W                    | 32K681U          | 680 (612 to 748)    | 420                             | 560       | 1120                           | 200                 | 450                         | 25                                   | 20  |
| ERZC32CK751W                    | 32K751U          | 750 (645 to 825)    | 460                             | 615       | 1240                           | 200                 | 500                         | 25                                   | 20  |
| ERZC32CK781W                    | 32K781U          | 780 (702 to 858)    | 485                             | 640       | 1290                           | 200                 | 520                         | 25                                   | 20  |
| ERZC32CK821W                    | 32K821U          | 820 (738 to 902)    | 510                             | 670       | 1355                           | 200                 | 545                         | 25                                   | 20  |
| ERZC32CK911W                    | 32K911U          | 910 (819 to 1001)   | 550                             | 745       | 1500                           | 200                 | 600                         | 25                                   | 20  |
| ERZC32CK951W                    | 32K951U          | 950 (855 to 1045)   | 575                             | 765       | 1570                           | 200                 | 600                         | 25                                   | 20  |
| ERZC40CK201W                    | 40K201U          | 200 (185 to 225)    | 130                             | 170       | 340                            | 250                 | 260                         | 30                                   | 25  |
| ERZC40CK241W                    | 40K241U          | 240 (216 to 264)    | 150                             | 200       | 395                            | 250                 | 300                         | 30                                   | 25  |
| ERZC40CK271W                    | 40K271U          | 270 (247 to 303)    | 175                             | 225       | 455                            | 250                 | 340                         | 30                                   | 25  |
| ERZC40CK361W                    | 40K361U          | 360 (324 to 396)    | 230                             | 300       | 595                            | 250                 | 405                         | 30                                   | 25  |
| ERZC40CK391W                    | 40K391U          | 390 (351 to 429)    | 250                             | 320       | 650                            | 250                 | 435                         | 30                                   | 25  |
| ERZC40CK431W                    | 40K431U          | 430 (387 to 473)    | 275                             | 350       | 710                            | 250                 | 500                         | 30                                   | 25  |
| ERZC40CK471W                    | 40K471U          | 470 (423 to 517)    | 300                             | 385       | 775                            | 250                 | 505                         | 30                                   | 25  |
| ERZC40CK511W                    | 40K511U          | 510 (459 to 561)    | 320                             | 415       | 845                            | 250                 | 505                         | 30                                   | 25  |
| ERZC40CK621W                    | 40K621U          | 620 (558 to 682)    | 385                             | 505       | 1025                           | 250                 | 515                         | 30                                   | 25  |
| ERZC40CK681W                    | 40K681U          | 680 (612 to 748)    | 420                             | 560       | 1120                           | 250                 | 560                         | 30                                   | 25  |
| ERZC40CK751W                    | 40K751U          | 750 (645 to 825)    | 460                             | 615       | 1240                           | 250                 | 625                         | 30                                   | 25  |
| ERZC40CK781W                    | 40K781U          | 780 (702 to 858)    | 485                             | 640       | 1290                           | 250                 | 650                         | 30                                   | 25  |
| ERZC40CK821W                    | 40K821U          | 820 (738 to 902)    | 510                             | 670       | 1355                           | 250                 | 680                         | 30                                   | 25  |
| ERZC40CK911W                    | 40K911U          | 910 (819 to 1001)   | 550                             | 745       | 1500                           | 250                 | 750                         | 30                                   | 25  |
| ERZC40CK951W                    | 40K951U          | 950 (855 to 1045)   | 575                             | 765       | 1570                           | 250                 | 750                         | 30                                   | 25  |

## Dimensions in mm (not to scale)

ZNR  
Abbreviation of Part No.  
Date code



| Part No.<br>(UL/CSA Recognized) | Type Designation | D max. | H max. | T max. | d       |
|---------------------------------|------------------|--------|--------|--------|---------|
| ERZC32CK201W                    | 32K201U          | 36     | 46     | 7.5    | 5.7±1.0 |
| ERZC32CK241W                    | 32K241U          |        |        | 7.5    | 5.4±1.0 |
| ERZC32CK271W                    | 32K271U          |        |        | 8.5    | 5.2±1.0 |
| ERZC32CK361W                    | 32K361U          |        |        | 9.0    | 4.6±1.0 |
| ERZC32CK391W                    | 32K391U          |        |        | 9.0    | 4.4±1.0 |
| ERZC32CK431W                    | 32K431U          |        |        | 9.0    | 4.1±1.0 |
| ERZC32CK471W                    | 32K471U          |        |        | 9.7    | 3.9±1.0 |
| ERZC32CK511W                    | 32K511U          |        |        | 9.7    | 4.5±1.0 |
| ERZC32CK621W                    | 32K621U          |        |        | 9.7    | 3.9±1.0 |
| ERZC32CK681W                    | 32K681U          |        |        | 9.7    | 3.6±1.0 |
| ERZC32CK751W                    | 32K751U          |        |        | 10.5   | 3.3±1.0 |
| ERZC32CK781W                    | 32K781U          |        |        | 10.5   | 3.1±1.0 |
| ERZC32CK821W                    | 32K821U          |        |        | 10.5   | 2.9±1.0 |
| ERZC32CK911W                    | 32K911U          |        |        | 11.5   | 2.5±1.0 |
| ERZC32CK951W                    | 32K951U          |        |        | 11.5   | 2.3±1.0 |
| ERZC40CK201W                    | 40K201U          | 44     | 55     | 7.5    | 5.7±1.0 |
| ERZC40CK241W                    | 40K241U          |        |        | 7.5    | 5.4±1.0 |
| ERZC40CK271W                    | 40K271U          |        |        | 8.5    | 5.2±1.0 |
| ERZC40CK361W                    | 40K361U          |        |        | 9.0    | 4.6±1.0 |
| ERZC40CK391W                    | 40K391U          |        |        | 9.0    | 4.4±1.0 |
| ERZC40CK431W                    | 40K431U          |        |        | 9.0    | 4.1±1.0 |
| ERZC40CK471W                    | 40K471U          |        |        | 9.7    | 3.9±1.0 |
| ERZC40CK511W                    | 40K511U          |        |        | 9.7    | 4.5±1.0 |
| ERZC40CK621W                    | 40K621U          |        |        | 9.7    | 3.9±1.0 |
| ERZC40CK681W                    | 40K681U          |        |        | 9.7    | 3.6±1.0 |
| ERZC40CK751W                    | 40K751U          |        |        | 10.5   | 3.3±1.0 |
| ERZC40CK781W                    | 40K781U          |        |        | 10.5   | 3.1±1.0 |
| ERZC40CK821W                    | 40K821U          |        |        | 10.5   | 2.9±1.0 |
| ERZC40CK911W                    | 40K911U          |        |        | 11.5   | 2.5±1.0 |
| ERZC40CK951W                    | 40K951U          |        |        | 11.5   | 2.3±1.0 |

## Typical Characteristics

### Voltage vs. Current (ERZC32CK201W to ERZC32CK951W)



### (ERZC40CK201W to ERZC40CK951W)



**UL, CSA Recognized Components and The A.C. Rated Voltage**

| Part No.<br>(UL/CSA Recognized) | Maximum Allowable Voltage |        | Rated Voltage (Vrms) |                     |
|---------------------------------|---------------------------|--------|----------------------|---------------------|
|                                 | ACrms (V)                 | DC (V) | UL1449               | CSA (Class 2221 01) |
| ERZC32CK201W                    | 130                       | 170    | 118                  | 118                 |
| ERZC32CK241W                    | 150                       | 200    | 136                  | 136                 |
| ERZC32CK271W                    | 175                       | 225    | 159                  | 159                 |
| ERZC32CK361W                    | 230                       | 300    | 209                  | 209                 |
| ERZC32CK391W                    | 250                       | 320    | 227                  | 227                 |
| ERZC32CK431W                    | 275                       | 350    | 250                  | 250                 |
| ERZC32CK471W                    | 300                       | 385    | 272                  | 272                 |
| ERZC32CK511W                    | 320                       | 415    | 291                  | 291                 |
| ERZC32CK621W                    | 385                       | 505    | 350                  | 350                 |
| ERZC32CK681W                    | 420                       | 560    | 381                  | 381                 |
| ERZC32CK751W                    | 460                       | 615    | 418                  | 418                 |
| ERZC32CK781W                    | 485                       | 640    | 440                  | 440                 |
| ERZC32CK821W                    | 510                       | 670    | 463                  | 463                 |
| ERZC32CK911W                    | 550                       | 745    | 500                  | 500                 |
| ERZC32CK951W                    | 575                       | 765    | 522                  | 522                 |
| ERZC40CK201W                    | 130                       | 170    | 118                  | 118                 |
| ERZC40CK241W                    | 150                       | 200    | 136                  | 136                 |
| ERZC40CK271W                    | 175                       | 225    | 159                  | 159                 |
| ERZC40CK361W                    | 230                       | 300    | 209                  | 209                 |
| ERZC40CK391W                    | 250                       | 320    | 227                  | 227                 |
| ERZC40CK431W                    | 275                       | 350    | 250                  | 250                 |
| ERZC40CK471W                    | 300                       | 385    | 272                  | 272                 |
| ERZC40CK511W                    | 320                       | 415    | 291                  | 291                 |
| ERZC40CK621W                    | 385                       | 505    | 350                  | 350                 |
| ERZC40CK681W                    | 420                       | 560    | 381                  | 381                 |
| ERZC40CK751W                    | 460                       | 615    | 418                  | 418                 |
| ERZC40CK781W                    | 485                       | 640    | 440                  | 440                 |
| ERZC40CK821W                    | 510                       | 670    | 463                  | 463                 |
| ERZC40CK911W                    | 550                       | 745    | 500                  | 500                 |
| ERZC40CK951W                    | 575                       | 765    | 522                  | 522                 |

## Performance Characteristics (Type CK)

| Characteristics                      |                                      |                                                                                                                                                                                                                                          | Test Methods/Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Specifications                                                                  |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|--------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------|------------------|---|-------|-------------------------------|---|------------|--------|---|------|-------------------------------|---|------------|--------|---------------------------------------------------------------------|
| Standard Test Condition              |                                      |                                                                                                                                                                                                                                          | Electrical characteristics shall be measured at following conditions (Temperature: 5 to 35 °C, Humidity: Max. 85 %).                                                                                                                                                                                                                                                                                                                                                                                                                                             | _____                                                                           |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| Electrical                           | Varistor Voltage                     |                                                                                                                                                                                                                                          | The voltage between two terminals with the specified measuring current 1mA DC applied is called V <sub>1</sub> or V <sub>1mA</sub> . The measurement shall be made as fast as possible to avoid heat affection.                                                                                                                                                                                                                                                                                                                                                  | To meet the specified value.                                                    |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Maximum Allowable Voltage            |                                                                                                                                                                                                                                          | The maximum sinusoidal wave voltage (rms) or the maximum DC voltage that can be applied continuously.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Clamping Voltage                     |                                                                                                                                                                                                                                          | The maximum voltage between two terminals with the specified standard impulse current (8/20 μs).                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Rated Power                          |                                                                                                                                                                                                                                          | The maximum power that can be applied within the specified ambient temperature.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Energy                               |                                                                                                                                                                                                                                          | The maximum energy within the varistor voltage change of ±10 % when one impulse of 2 ms is applied.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Maximum Peak Current                 | 2 times                                                                                                                                                                                                                                  | The maximum current within the varistor voltage change of ±10 % with the standard impulse current (8/20 μs) applied two times with an interval of 5 minutes.                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      |                                      | 1 time                                                                                                                                                                                                                                   | The maximum current within the varistor voltage change of ±10 % with the standard impulse current (8/20 μs) applied one time.                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| Mechanical                           | Robustness of Terminations (Tensile) |                                                                                                                                                                                                                                          | After gradually applying the force of 19.6 N (2 kgf) and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage.                                                                                                                                                                                                                                                                                                                                                                                                         | No remarkable damage                                                            |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Vibration                            |                                                                                                                                                                                                                                          | After repeatedly applying a single harmonic vibration (amplitude: 0.35 mm): double amplitude: 0.7mm with 1 minute vibration frequency cycles (10 Hz to 55 Hz to 10 Hz) to each of three perpendicular directions for 2 hours. Thereafter, the unit shall be visually examined.                                                                                                                                                                                                                                                                                   | No remarkable damage                                                            |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Solderability                        |                                                                                                                                                                                                                                          | After dipping the terminal to a depth of approximately 3 mm from the body in a soldering bath of 230±5 °C for 5.0±0.5 seconds, the terminal shall be visually examined.                                                                                                                                                                                                                                                                                                                                                                                          | Approximately 95 % of the terminals shall be covered with new solder uniformly. |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Resistance to Soldering Heat         |                                                                                                                                                                                                                                          | The terminal shall be dipped into a soldering bath having a temperature of 350±10 °C to a point 4.0±0.8 mm from the body of the unit and then be held there for 3.0±0.5 seconds. The change of V <sub>c</sub> and mechanical damage shall be examined.                                                                                                                                                                                                                                                                                                           | ΔV <sub>1mA</sub> /V <sub>1mA</sub> ≤ ± 5 %<br>No remarkable damage             |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| Environmental                        | Dry Heat/ High Temperature Storage   |                                                                                                                                                                                                                                          | The specimen shall be subjected to 125±2 °C for 500 hours in a thermostatic bath without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of V <sub>c</sub> shall be measured.                                                                                                                                                                                                                                                                                                                                 | ΔV <sub>1mA</sub> /V <sub>1mA</sub> ≤ ± 5 %                                     |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Damp Heat/ Humidity (Steady State)   |                                                                                                                                                                                                                                          | The specimen shall be subjected to 40±2 °C, 90 to 95 %RH for 1000 hours without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of V <sub>c</sub> shall be measured.                                                                                                                                                                                                                                                                                                                                          |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
|                                      | Temperature Cycle                    |                                                                                                                                                                                                                                          | <div>The temperature cycle shown below shall be repeated five times and then stored at room temperature and humidity for one to two hours. The change of V<sub>c</sub> and mechanical damage shall be examined.</div> <table><tr><th>Step</th><th>Temperature (°C)</th><th>Period (minutes)</th></tr><tr><td>1</td><td>-25±3</td><td>30<sup>+3</sup><sub>0</sub></td></tr><tr><td>2</td><td>Room Temp.</td><td>3 max.</td></tr><tr><td>3</td><td>85±2</td><td>30<sup>+3</sup><sub>0</sub></td></tr><tr><td>4</td><td>Room Temp.</td><td>3 max.</td></tr></table> | Step                                                                            | Temperature (°C) | Period (minutes) | 1 | -25±3 | 30 <sup>+3</sup> <sub>0</sub> | 2 | Room Temp. | 3 max. | 3 | 85±2 | 30 <sup>+3</sup> <sub>0</sub> | 4 | Room Temp. | 3 max. | ΔV <sub>1mA</sub> /V <sub>1mA</sub> ≤ ± 5 %<br>No remarkable damage |
|                                      | Step                                 | Temperature (°C)                                                                                                                                                                                                                         | Period (minutes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| 1                                    | -25±3                                | 30 <sup>+3</sup> <sub>0</sub>                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| 2                                    | Room Temp.                           | 3 max.                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| 3                                    | 85±2                                 | 30 <sup>+3</sup> <sub>0</sub>                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| 4                                    | Room Temp.                           | 3 max.                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |
| Dry Heat Load/ High Temperature Load |                                      | After being continuously applied the Maximum Allowable Voltage at 85±2 °C for 500 hours, the specimen shall be stored at room temperature and humidity for one to two hours. Thereafter, the change of V <sub>c</sub> shall be measured. | ΔV <sub>1mA</sub> /V <sub>1mA</sub> ≤ ± 10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                 |                  |                  |   |       |                               |   |            |        |   |      |                               |   |            |        |                                                                     |