



SPECIFICATIONS

PRODUCT : VARISTOR

TYPE : GNR05D□□□K

MODEL :

CITATION :

REVISION : B02

TOTAL PAGES : 5 PAGE : 1/5

RELEASED DATE : Dec. 27, 2001

REVISION HISTORY

| NO | REV. DATE | DCR NO. | DESCRIPTION OF CHANGE | REV. |
|----|---------------|---------|-------------------------|------|
| 1 | Oct. 13, 2001 | | NEW RELEASE | B01 |
| 2 | Dec. 27, 2001 | | D max.=7.5 ;H max.=10.0 | B02 |
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| Approved by | Checked by | Edited by |
|----------------|------------|-------------|
| Yu-Chang Huang | Cloud Chen | Andy Chiang |

| | | | | | | |
|-----------------|---------------------------------------|---|-------|------|---------------|------------|
| CERAMATE | TYPE | GNR05D <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> K | MODEL | | PAGE | 2/5 |
| CITATION | | | | DATE | Dec. 27, 2001 | |
| SUBJECT | QUALITY APPROVAL and STRUCTURE | | | REV. | B02 | |

1. QUALITY SYSTEM APPROVAL

ISO9001 Certificate of approval No.97-HOU-AQ-1382

2. SAFETY STANDARDS APPROVAL

| | | | | | |
|--------------|----------|----------|----------|----------|----------------|
| Standard No. | UL 1414 | UL 1449 | UL 497B | CUL | CSA C22.2 No.1 |
| File No. | E181368 | E166389 | E187844 | E166389 | LR105317 |
| 180K~680K | | | Approved | | |
| 820K~181K | | Approved | Approved | Approved | |
| 201K~471K | Approved | Approved | Approved | Approved | Approved |

3. STRUCTURE

| NO. | ITEM | DESCRIPTION | |
|----------|------------------|--|-------------|
| 3.1 | Main Material | Zinc Oxide | |
| 3.2 | Coating Material | Epoxy Resin | |
| 3.3 | Marking | GNR, Part number, UL and CSA(or CUL) recognized component mark | |
| 3.4 | Appearance | Without dirt and crack, marking should be clear | |
| 3.5 | Dimensions | | |
| | | D(max.) | 7.5 |
| | | H(max.) | 10.0 |
| | | T(max.) | *(1) |
| | | F | 5.0± 1.0 |
| | | φ d | 0.6± 0.1 |
| | | L(min.) | 25.0 |
| | | k(max.) | 3.0 |
| Unit: mm | | | |

***(1) See Page 3, Dimensions Table**

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SUBJECT

DIMENSIONS TABLE

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| Part No. | T_{max.} |
|-----------------|-------------------------|
| 05D180K | 3.4 |
| 05D220K | 3.6 |
| 05D270K | 3.9 |
| 05D330K | 3.2 |
| 05D390K | 3.4 |
| 05D470K | 3.6 |
| 05D560K | 3.8 |
| 05D680K | 3.6 |
| 05D820K | 3.2 |
| 05D101K | 3.4 |
| 05D121K | 3.6 |
| 05D151K | 3.9 |
| 05D181K | 3.3 |
| 05D201K | 3.4 |
| 05D221K | 3.5 |
| 05D241K | 3.6 |
| 05D271K | 3.7 |
| 05D301K | 3.9 |
| 05D331K | 4.0 |
| 05D361K | 4.2 |
| 05D391K | 4.3 |
| 05D431K | 4.5 |
| 05D471K | 4.7 |

Unit:mm

| | | | | | | |
|-----------------|-----------------------------------|----------------------------|-------|------|---------------|-----|
| CERAMATE | TYPE | GNR05D □□□ K | MODEL | | PAGE | 4/5 |
| CITATION | | | | DATE | Dec. 27, 2001 | |
| SUBJECT | ELECTRICAL CHARACTERISTICS | | | REV. | B02 | |

4. ELECTRICAL CHARACTERISTICS

| NO. | ITEM | PERFORMANCE | TEST METHODS |
|-----|--|---|---|
| 4.0 | Standard Conditions | | Unless otherwise specified, all tests are made under environmental conditions as given below: Temperature: 5~35°C Relative humidity: 45~85 % RH |
| 4.1 | Maximum Allowable Voltage | AC : * (2) Vrms DC : * (2) V | Maximum continuous sine wave(RMS) or DC voltage which may be applied. |
| 4.2 | Varistor Voltage | V _{0.1mA} : * (2) V | Voltage across the varistor measured at C _{mA} DC. |
| 4.3 | Varistor Voltage Temperature Coefficient | 0 ~ -0.05 %/°C | $\frac{V_{CmA \text{ at } 85^{\circ}\text{C}} - V_{CmA \text{ at } 25^{\circ}\text{C}}}{V_{CmA \text{ at } 25^{\circ}\text{C}}} \times \frac{1}{60} \times 100$ |
| 4.4 | Max. Clamping Voltage | * (2) V at * (2) A | Peak voltage across the varistor with a specified peak impulse current of 8× 20 μs waveform. |
| 4.5 | Rated Power | * (2) W | Maximum 50~60Hz power which may be loaded for 1,000 hrs at 85± 2°C with $\Delta V_{CmA} / V_{CmA} \leq \pm 10\%$. |
| 4.6 | Withstanding Surge Current | * (2) A | The max. current within the varistor voltage change of less than ± 10% when one impulse current (8× 20 μs) applied. |
| | | | The max. current with a varistor voltage change of less than ± 10% when two times impulse current (8× 20 μs) are applied at intervals of 5 minutes. |
| 4.7 | Energy | * (2) Joule | The max. energy absorbed with a varistor voltage change of less than ± 10% when one impulse(10× 1000 μs) is applied. |
| 4.8 | Surge Life | * (2) A | The max. current with a varistor voltage change of less than ± 10% when 10,000 times impulse current (8× 20 μs) are applied at intervals of 20 seconds at room temperature. |

* (2) See Page 5

| PART NUMBER | MAXIMUM ALLOWABLE VOLTAGE | | VARISTOR VOLTAGE | CLAMPING VOLTAGE (MAX.) | | RATED WATTAGE (MAX.) | SURGE CURRENT (8/20 μ s) | | MAXIMUM ENERGY (10/1000 μ s) | SURGE LIFE |
|----------------|---------------------------------|-------|---------------------|-------------------------------|-------|----------------------------|------------------------------------|---------|--|---------------|
| | AC _{rms} (V) | DC(V) | (V) | (V) | Ip(A) | (W) | I _{tm} (A) | | W _{tm} (joule) | (A) |
| | | | | | | | 1 TIME | 2 TIMES | | |
| 05D180K | 11 | 14 | 16~20 | 40 | 1 | 0.01 | 250 | 125 | 0.6 | 8 |
| 05D220K | 14 | 18 | 20~24 | 48 | | | | | 0.7 | |
| 05D270K | 17 | 22 | 24~30 | 60 | | | | | 0.9 | |
| 05D330K | 20 | 26 | 30~36 | 73 | | | | | 1.1 | |
| 05D390K | 25 | 31 | 35~43 | 86 | | | | | 1.2 | |
| 05D470K | 30 | 38 | 42~52 | 104 | | | | | 1.5 | |
| 05D560K | 35 | 45 | 50~62 | 123 | | | | | 1.8 | |
| 05D680K | 40 | 56 | 61~75 | 150 | | | | | 2.2 | |
| 05D820K | 50 | 65 | 74~90 | 145 | 5 | 0.1 | 800 | 600 | 3.5 | 40 |
| 05D101K | 60 | 85 | 90~110 | 175 | | | | | 4.0 | |
| 05D121K | 75 | 100 | 108~132 | 210 | | | | | 5.0 | |
| 05D151K | 95 | 125 | 135~165 | 260 | | | | | 6.5 | |
| 05D181K | 115 | 150 | 162~198 | 320 | | | | | 8.0 | |
| 05D201K | 130 | 170 | 185~225 | 355 | | | | | 8.5 | |
| 05D221K | 140 | 180 | 198~242 | 380 | | | | | 9.0 | |
| 05D241K | 150 | 200 | 216~264 | 415 | | | | | 10.5 | |
| 05D271K | 175 | 225 | 247~303 | 475 | | | | | 11.0 | |
| 05D301K | 190 | 250 | 270~330 | 525 | | | | | 12.0 | |
| 05D331K | 210 | 275 | 297~363 | 570 | | | | | 13.0 | |
| 05D361K | 230 | 300 | 324~396 | 620 | | | | | 16.0 | |
| 05D391K | 250 | 320 | 351~429 | 675 | 17.0 | | | | | |
| 05D431K | 275 | 350 | 387~473 | 745 | 20.0 | | | | | |
| 05D471K | 300 | 385 | 423~517 | 810 | 21.0 | | | | | |