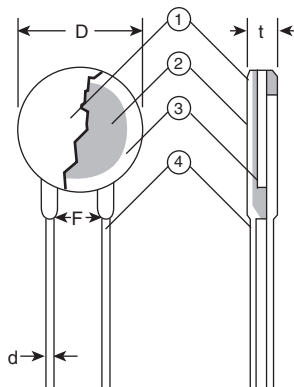




features

- Flame retardant coating (UL94V0)
- Excellent transient voltage suppression characteristics
- Higher surge current
- Wide varistor voltage
- V-I characteristics are the same in both polarity
- Marking: Green body color with black marking
- UL1449 (3rd Edition) (file no. E328032) NVD05, NVD07: 82~470V, NVD10: 82~1100V, NVD14: 82~910V, NVD20: 200~910V
- VDE (CECC42000, CECC42200, CECC42201, IEC61051: file no. 40015637) NVD05U, NDV07U: 22~470V, NVD10U: 22~1100V, NVD14U: 22~910V
- Products with lead-free terminations meet EU RoHS requirements

dimensions and construction



Contact KOA Speer for detailed dimensions.

| Type | Dimensions inches (mm) | | | |
|------|------------------------------|---------------|------------------------|---------------------------|
| | øD (max.)* | ød | F | t (max.)* |
| 05U | .276 - .295 (7.0 - 7.5) | .024 (0.6) | .197±.039 (5.0±1.0) | .169±.232 (4.3 - 5.9) |
| 07U | .276 - .374 (9.0 - 9.5) | | | |
| 10U | .472 - .531 (12.0 - 13.5) | .031 (0.8) | .295±.039 (7.5±1.0) | .169±.567 (4.3 - 14.4) |
| 10UB | .472 (12.0) | .024 (0.6) | .197±.039 (5.0±1.0) | .169±.209 (4.3 - 5.3) |
| 14U | .630 - .669 (16.0 - 17.0) | .031 (0.8) | .295±.039 (7.5±1.0) | .169±.567 (4.3 - 14.4) |
| 20U | .91 - .94 (23.0 - 24.0) | .039 (1.0) | .394±.039 (10±1.0) | .205±.354 (5.2 - 9.0) |

* D max. and t ma. vary according to the varistor voltage

ordering information

| | | | | | | | | | |
|------------|-----------|----------|----------------------------|--|----------------------|-------------------------------|--|-----------|-----------------------------------|
| New Part # | NV | D | 05 | U | C | D | MHT | A | 220 |
| Type | Disc | Style | Diameter | Series | Termination Material | Inner Connect Solder Material | Taping | Packaging | Varistor Voltage |
| | | | 05 07 10 14 20 | S: S series U: U series UB: U series 5mm pitch (D10 only) | C: Sn-Cu | D: SnAgCu Blank: SnPb | MT:5mm straight taping MHT:5mm inside kink taping 10UB:GHT: 7.5mm straight taping GJT: 7.5mm outside kink taping MJT:5mm outside kink taping 10UC: MJT: 7.5mm outside kink taping | A: Ammo | 22V 022 220V 220 1800V 1800 |

For further information on packaging, please refer to Appendix C.

circuit protection

applications and ratings

| Type | Varistor Voltage Vc Ic = 0.1mA (V) | Maximum Allowable Voltage | | NVD05UC | | | | NVD07UC | | | |
|------------|---------------------------------------|---------------------------|-------------|----------------------------------|---|------------------|-----|----------------------------------|---|------------------|------|
| | | a.c. r.m.s. (v) | d.c. (v) | Maximum (2ms) Energy E (J) | Max. Peak Current (2 pulses) Ip (A) | Clamping Voltage | | Maximum (2ms) Energy E (J) | Max. Peak Current (2 pulses) Ip (A) | Clamping Voltage | |
| | | | | | | V1A | V5A | | | V2.5A | V10A |
| NVD□SCD018 | 16 - 22 | 11 | 14 | 0.3 | 50 | 40 | — | — | — | — | — |
| NVD□UCD022 | 20 - 27 | 14 | 18 | 0.5 | 125 | 48 | — | 1.1 | 250 | 43 | — |
| NVD□UCD027 | 25 - 32 | 17 | 22 | 0.7 | | 60 | — | 1.3 | | 53 | — |
| NVD□UCD033 | 30 - 39 | 20 | 26 | 0.8 | | 73 | — | 1.6 | | 65 | — |
| NVD□UCD039 | 37 - 47 | 25 | 31 | 0.9 | | 86 | — | 1.9 | | 77 | — |
| NVD□UCD047 | 45 - 54 | 30 | 38 | 1.1 | | 104 | — | 2.3 | | 93 | — |
| NVD□UCD056 | 52 - 62 | 35 | 45 | 1.3 | | 123 | — | 2.7 | | 110 | — |
| NVD□UCD068 | 60 - 76 | 40 | 56 | 1.6 | | 150 | — | 3.3 | | 135 | — |
| NVD□SCD082 | 74 - 90 | 50 | 65 | 1.7 | | 200 | — | 145 | | 3.5 | 600 |
| NVD□UCD100 | 90 - 110 | 60 | 85 | 3.0 | 600 | — | 175 | 6.0 | 1250 | — | 165 |
| NVD□UCD120 | 108 - 132 | 75 | 100 | 3.5 | | — | 210 | 7.0 | | — | 200 |
| NVD□UCD150 | 135 - 165 | 95 | 125 | 4.5 | | — | 260 | 9.0 | | — | 250 |
| NVD□UCD200 | 185 - 225 | 130 | 170 | 6.0 | | — | 355 | 12.5 | | — | 340 |
| NVD□UCD220 | 198 - 242 | 140 | 180 | 6.5 | | — | 380 | 13.5 | | — | 360 |
| NVD□UCD240 | 216 - 264 | 150 | 200 | 7.5 | | — | 415 | 15.0 | | — | 395 |
| NVD□UCD270 | 247 - 303 | 175 | 225 | 8.0 | | — | 475 | 17.0 | | — | 455 |
| NVD□UCD330 | 297 - 363 | 210 | 270 | 9.5 | | — | 570 | 20.0 | | — | 545 |
| NVD□UCD360 | 342 - 396 | 230 | 300 | 11.0 | | — | 620 | 23.0 | | — | 595 |
| NVD□UCD390 | 367 - 429 | 250 | 320 | 12.0 | | — | 675 | 25.0 | | — | 650 |
| NVD□UCD430 | 407 - 473 | 275 | 350 | 13.5 | | — | 745 | 27.5 | | — | 710 |
| NVD□UCD470 | 437 - 517 | 300 | 385 | 15.0 | | — | 810 | 30.0 | | — | 775 |

□ Add disk diameter

| Type | Varistor Voltage Vc Ic = 0.1mA (V) | Maximum Allowable Voltage | | NVD10UC - NVD10UCB* | | | | NVD14UC** | | | | NVD20UC | | |
|------------|---------------------------------------|---------------------------|-------------|-------------------------------|--|------------------|------|-------------------------------|--|------------------|------|-------------------------------|--|------------------------------|
| | | a.c. r.m.s. (v) | d.c. (v) | Max. (2ms) Energy E (J) | Max. Peak Current (2 pulses) Ip (A) | Clamping Voltage | | Max. (2ms) Energy E (J) | Max. Peak Current (2 pulses) Ip (A) | Clamping Voltage | | Max. (2ms) Energy E (J) | Max. Peak Current (2 pulses) Ip (A) | Clamping Voltage V100A |
| | | | | | | V5A | V25A | | | V10A | V50A | | | |
| NVD□SCD018 | 16 - 22 | 11 | 14 | — | — | — | — | — | — | — | — | — | — | |
| NVD□UCD022 | 20 - 27 | 14 | 18 | 2.6 | 500 | 43 | — | 5.3 | 1000 | 43 | — | — | — | |
| NVD□UCD027 | 25 - 32 | 17 | 22 | 3.2 | | 53 | — | 6.5 | | 53 | — | — | — | — |
| NVD□UCD033 | 30 - 39 | 20 | 26 | 4.0 | | 65 | — | 7.9 | | 65 | — | — | — | — |
| NVD□UCD039 | 37 - 47 | 25 | 31 | 4.4 | | 77 | — | 9.4 | | 77 | — | — | — | — |
| NVD□UCD047 | 45 - 54 | 30 | 38 | 5.7 | | 93 | — | 11.0 | | 93 | — | — | — | — |
| NVD□UCD056 | 52 - 62 | 35 | 45 | 6.7 | | 110 | — | 13.0 | | 110 | — | — | — | — |
| NVD□UCD068 | 60 - 76 | 40 | 56 | 8.2 | | 135 | — | 16.0 | | 135 | — | — | — | — |
| NVD□SCD082 | 74 - 90 | 50 | 65 | 8.0 | | 1250 | — | 135 | | 14.0 | 2500 | — | 135 | — |
| NVD□UCD100 | 90 - 110 | 60 | 85 | 12.0 | — | 165 | 18.0 | — | 165 | — | | — | — | |
| NVD□UCD120 | 108 - 132 | 75 | 100 | 14.5 | 2500 | — | 200 | 30.0 | 5000 | — | 200 | — | — | |
| NVD□UCD150 | 135 - 165 | 95 | 125 | 18.0 | | — | 250 | 37.5 | | — | 250 | — | — | — |
| NVD□UCD200 | 185 - 225 | 130 | 170 | 25.0 | | — | 340 | 50.0 | | — | 340 | 100 | 7000 | 340 |
| NVD□UCD220 | 198 - 242 | 140 | 180 | 27.5 | | — | 360 | 55.0 | | — | 360 | 110 | | 360 |
| NVD□UCD240 | 216 - 264 | 150 | 200 | 30.0 | | — | 395 | 60.0 | | — | 395 | 120 | | 395 |
| NVD□UCD270 | 247 - 303 | 175 | 225 | 35.0 | | — | 455 | 70.0 | | — | 455 | 135 | 455 | |
| NVD□UCD330 | 297 - 363 | 210 | 270 | 42.0 | | 4500 | — | 545 | 80.0 | — | 545 | — | — | |
| NVD□UCD360 | 342 - 396 | 230 | 300 | 45.0 | | | — | 595 | 90.0 | — | 595 | 180 | 595 | |
| NVD□UCD390 | 367 - 429 | 250 | 320 | 50.0 | | | — | 650 | 100.0 | — | 650 | 195 | 650 | |
| NVD□UCD430 | 407 - 473 | 275 | 350 | 55.0 | | | — | 710 | 110.0 | — | 710 | 215 | 710 | |
| NVD□UCD470 | 437 - 517 | 300 | 385 | 60.0 | | | — | 775 | 125.0 | — | 775 | 250 | 775 | |

□ Add disk diameter

* Manufacturing range of NVD10UCB is varistor voltages 22 - 270

** NVD14C100 is applied

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

11/21/08

applications and ratings (continued)

| Type | Varistor Voltage Vc Ic = 0.1mA (V) | Maximum Allowable Voltage | | NVD10UC - NVD10UC* | | | NVD14UC** | | | | NVD20UC | | | | |
|-------------|---------------------------------------|---------------------------|-------------|----------------------|------------------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|------------------------------------|---------------------|--------|-------|------|
| | | a.c. r.m.s. (v) | d.c. (v) | Max. (2ms) Energy | Max. Peak Current (2 pulses) | Clamping Voltage | Max. (2ms) Energy | Max. Peak Current (2 pulses) | Clamping Voltage | Max. (2ms) Energy | Max. Peak Current (2 pulses) | Clamping Voltage | | | |
| | | | | E (J) | Ip (A) | V5A | V25A | E (J) | Ip (A) | V10A | V50A | E (J) | Ip (A) | V100A | |
| NVD□UCD510 | 474 - 561 | 320 | 410 | 67.0 | 2500 | — | 845 | 136.0 | 4500 | — | 845 | — | 6500 | — | |
| NVD□UCD620 | 577 - 682 | 380 | 505 | 67.0 | | — | 1025 | 136.0 | | — | 1025 | 273 | | — | 1025 |
| NVD□UCD680 | 637 - 748 | 420 | 560 | 67.0 | | — | 1120 | 136.0 | | — | 1120 | 273 | | — | 1120 |
| NVD□UCD750 | 697 - 825 | 460 | 615 | 70.0 | | — | 1240 | 150.0 | | — | 1240 | 300 | | — | 1240 |
| NVD□UCD780 | 737 - 858 | 485 | 640 | 70.0 | | — | 1290 | 150.0 | | — | 1290 | 300 | | — | 1290 |
| NVD□UCD820 | 767 - 902 | 510 | 670 | 80.0 | | — | 1355 | 165.0 | | — | 1355 | 325 | | — | 1355 |
| NVD□UCD910 | 857 - 1000 | 550 | 745 | 90.0 | | — | 1500 | 180.0 | | — | 1500 | 360 | | — | 1500 |
| NVD□UCD1100 | 1070 - 1210 | 680 | 895 | 110.0 | | — | 1815 | — | | — | — | — | | — | — |
| NVD□UCD1800 | 1700 - 1980 | 1000 | 1465 | 183.0 | | — | 2970 | 360.0 | | — | 2970 | — | | — | — |

□ Add disk diameter

* Manufacturing range of NVD10UCB is varistor voltages 22 - 270

** NVD14C100 is applied

environmental applications

Performance Characteristics

| Parameter | Requirement Δ V±% | Test Method | | | | | | |
|---|------------------------------|---|----|------|-------|----------|-----|---------------------|
| Varistor Voltage | Within specified tolerance | Voltage between terminals when the specified current is flowed <table border="1"> <tr> <th>Ic</th> <th>Type</th> </tr> <tr> <td>0.1mA</td> <td>NVD05UCD</td> </tr> <tr> <td>1mA</td> <td>NVD07UCD - NVD20UCD</td> </tr> </table> | Ic | Type | 0.1mA | NVD05UCD | 1mA | NVD07UCD - NVD20UCD |
| Ic | Type | | | | | | | |
| 0.1mA | NVD05UCD | | | | | | | |
| 1mA | NVD07UCD - NVD20UCD | | | | | | | |
| Solderability | 95% coverage minimum | 230°C ± 5°C, 5 seconds ± 0.5 second / 250°C ± 5°C, 5 seconds ± 0.5 second (Pb free) | | | | | | |
| Resistance to Solder Heat | No abnormality in appearance | 260°C ± 5°C, 10 seconds ± 1 second | | | | | | |
| Rapid Change of Temperature | No abnormality in appearance | -40°C (30 minutes)/ +125°C (30 minutes), 5 cycles, except NVD20UCD -40°C (30 minutes)/ +85°C (30 minutes), 5 cycles: NVD20UCD | | | | | | |
| Maximum Peak Current | ±10% | Rated impulse current of (T=8/20μs), positive/negative applied once each | | | | | | |
| Maximum Energy | ±10% | A single standard impulse of 2ms, once | | | | | | |
| High Temperature Life with d.c. Bias | ±10% | 85°C ± 5°C, Vc=(Vd.c.) 1000h Load: maximum allowable circuit voltage (d.c.) | | | | | | |
| High Temperature Life with a.c. Bias | ±10% | 85°C ± 5°C, Vc=(Va.c.r.m.s.) 1000h Load: maximum allowable circuit voltage (d.c.) | | | | | | |
| High Temperature & High Humidity Life with Bias | ±5% | 80°C ± 5°C, 95% RH, 1000h | | | | | | |
| High Temperature Storage Life | ±5% | 125°C ± 5°C, 1000h | | | | | | |
| Low Temperature Storage Life | ±5% | -40°C ± 5°C, 1000h | | | | | | |

For Typical Characteristics Graphs see Environmental Applications. Additional environmental applications can also be found at www.koaspeer.com

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

11/23/14



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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