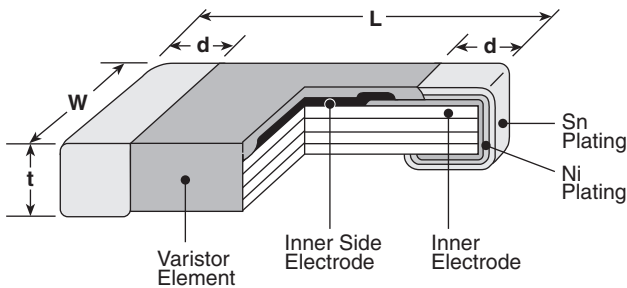


## features

- SMD type metal oxide varistors
- Ideal for countermeasures against ESD (Conforming to IEC61000-4-2)
- High maximum energy type
- Low leakage current
- High resistance to cyclic temperature stress
- Marking: Black body color
- Products with lead-free terminations meet EU RoHS requirements. Pb located in glass material, electrode and varistor element is exempt per Annex 1, exemption 5 of EU directive 2005/95/EC

## dimensions and construction



| Type<br>(Inch Size Code) | Dimensions inches (mm)  |                         |                          |                         |
|--------------------------|-------------------------|-------------------------|--------------------------|-------------------------|
|                          | L                       | W                       | t                        | d                       |
| <b>1J</b><br>(0603)      | .063±.006<br>(1.6±0.15) | .031±.006<br>(0.8±0.15) | .039 max.<br>(1.0 max.)  | .016±.006<br>(0.4±0.15) |
| <b>2A</b><br>(0805)      | .079±.010<br>(2.0±0.25) | .049±.008<br>(1.25±0.2) | .051 max.<br>(1.30 max.) | .020±.010<br>(0.5±0.25) |
| <b>2B</b><br>(1206)      | .126±.012<br>(3.2±0.3)  | .063±.012<br>(1.6±0.3)  | .057 max.<br>(1.45 max.) | .022±.012<br>(0.55±0.3) |

## ordering information

|            |             |             |  |                      |                      |                  |
|------------|-------------|-------------|--|----------------------|----------------------|------------------|
| New Part # | <b>NV73</b> | <b>DL</b>   | <b>2A</b>  | <b>T</b>             | <b>TE</b>            | <b>27</b>        |
|            | Type        | Energy Code | Size   | Termination Material | Packaging            | Varistor Voltage |
|            |             |             | 1J: 1.6 x 0.15<br>2A: 2.0 x 1.2<br>2B: 3.2 x 1.6 | T: Sn                | TE: Embossed plastic |                  |

## applications and ratings

| Part Designation | Varistor Voltage (V) | Maximum Allowable Voltage  |         | Maximum Clamping Voltage (V) |                 | Maximum Energy (J) | Maximum Peak Current 8/20µs (A) 1 time | Short-Time Applied Voltage (5 min) (V <sub>DC</sub> ) |
|------------------|----------------------|----------------------------|---------|------------------------------|-----------------|--------------------|--|---|
|                  | V <sub>1mA</sub>     | A.C.(V <sub>r.m.s.</sub> ) | D.C.(V) | V <sub>1A</sub>              | V <sub>2A</sub> |                    |  |   |
| NV73DL1JTTE12    | 10~14.4              | 6.1                        | 8.6     | 24                           | —               | 0.1                | 80                                     | 10  |
| NV73DL1JTTE22    | 22~27                | 14                         | 16      | 42                           | —               | 0.2                | 100                                    | 24.5  |
| NV73DL1JTTE27    | 24~32                | 17                         | 22      | 50                           | —               | 0.2                | 100                                    | 24.5  |
| NV73DL1JTTE33    | 33~39                | 20                         | 26      | 60                           | —               | 0.3                | 100                                    | 24.5  |
| NV73DL1JTTE47    | 40~54                | 30                         | 34      | 81                           | —               | 0.3                | 100                                    | 42  |

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

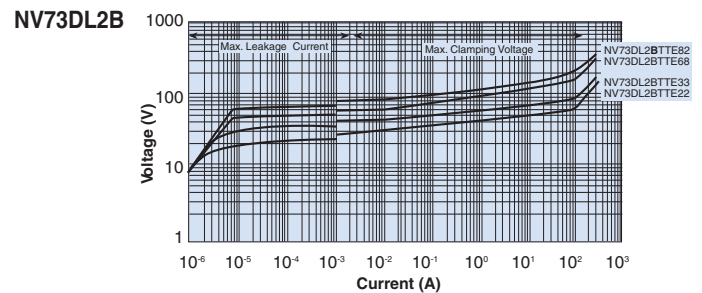
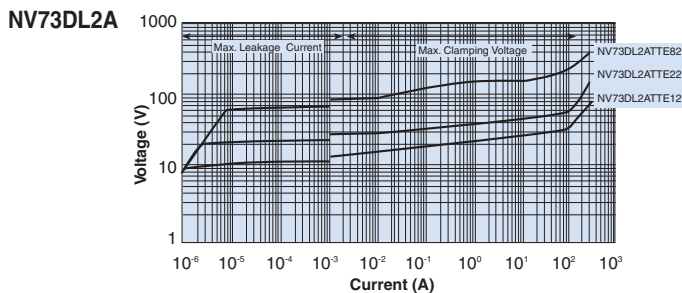
### applications and ratings (continued)

| Part Designation | Varistor Voltage (V) | Maximum Allowable Voltage  |         | Maximum Clamping Voltage (V) |                 | Maximum Energy (J) | Maximum Peak Current 8/20 $\mu$ s (A) 1 time | Short-Time Applied Voltage (5 min) (V <sub>DC</sub> ) |
|------------------|----------------------|----------------------------|---------|------------------------------|-----------------|--------------------|--|---|
|                  | V <sub>1mA</sub>     | A.C.(V <sub>r.m.s.</sub> ) | D.C.(V) | V <sub>1A</sub>              | V <sub>2A</sub> |                    |  |   |
| NV73DL2ATTE12    | 10~14.4              | 6.1                        | 8.6     | 24                           | —               | 0.1                | 120  | 10  |
| NV73DL2ATTE22    | 22~27                | 14                         | 16      | 42                           | —               | 0.3                | 160  | 24.5  |
| NV73DL2ATTE27    | 24~32                | 17                         | 22      | 50                           | —               | 0.3                | 160  | 24.5  |
| NV73DL2ATTE33    | 33~39                | 20                         | 26      | 60                           | —               | 0.3                | 160  | 24.5  |
| NV73DL2ATTE47    | 40~54                | 30                         | 34      | 81                           | —               | 0.3                | 160  | 42  |
| NV73DL2ATTE68    | 62~72                | 45                         | 56      | 108                          | —               | 0.3                | 160  | 64  |
| NV73DL2ATTE82    | 74~90                | 50                         | 65      | 135                          | —               | 0.3                | 160  | 75  |
| NV73DL2BTTE22    | 22~27                | 14                         | 16      | —                            | 42              | 1                  | 300  | 24.5  |
| NV73DL2BTTE27    | 24~32                | 17                         | 22      | —                            | 50              | 1                  | 300  | 24.5  |
| NV73DL2BTTE33    | 33~39                | 20                         | 26      | —                            | 60              | 1                  | 300  | 24.5  |
| NV73DL2BTTE68    | 62~72                | 45                         | 56      | —                            | 108             | 1.5                | 300  | 64  |
| NV73DL2BTTE82    | 74~90                | 50                         | 65      | —                            | 135             | 1.5                | 300  | 75  |

circuits protection

### environmental applications

#### Voltage Current Curves (Ta = +25°C)



### Performance Characteristics

| Parameter                                       | Requirement  | Test Method   |
|---|--|---|
| Varistor Voltage                                | Within specified tolerance                         | Voltage between terminals when 1mA and 10mA are flowed  |
| Solderability                                   | 95% coverage minimum (Ag-Pd: 75% coverage min.)    | 230°C ± 5°C, 5 seconds ± 0.5 second   |
| Resistance to Solder Heat                       | ±10%   | 260°C ± 5°C, 10 seconds ± 0.5 second  |
| Rapid Change of Temperature                     | ±10%   | -40°C (30 minutes)/ +125°C (30 minutes), 1000 cycles  |
| Short-Time Applied Voltage                      | ±10%   | Maximum value of D.C. voltage that can be applied for a short period of time (5 min.) (NV73D2A 12: 1 min.)                  |
| Maximum Peak Current                            | ±10%   | A single standard impulse current of 8/20 $\mu$ s seconds is applied  |
| Maximum Energy                                  | ±10%   | A single standard impulse of 2m second, once  |
| Electrostatic Discharge                         | ±10%   | 25kV (Non contact) (NV73D2A 12: 15kV (Non contact))   |
| Vibration Resistance                            | No visible damage. No remarkable mechanical damage | Vibration frequency: 10Hz~2000Hz; Full amplitude: 1.5mm, 10Hz~2000Hz~10Hz 20 min. XYZ direction 4 hrs for each total 12 hrs |
| High Temperature Life with d.c. Bias            | ±10%   | 125°C ± 2°C, 1000h, Applied voltage: Varistor voltage V <sub>1mA</sub> x 0.85   |
| High Temperature & High Humidity Life with Bias | ±10%   | 85°C ± 2°C, 85% RH, 1000h, Applied voltage: Varistor voltage V <sub>1mA</sub> x 0.85  |
| Thermal Shock                                   | ±10%   | -55°C (15 min.)/ +125°C (15 min.) 300 cycles  |
| Shock   | ±10%   | Half sine wave, Applied time: 1m second, Applied cycle: 500m/s <sup>2</sup> , 5 cycles                                      |
| High Temperature Storage                        | ±10%   | 150°C, 1000h  |
| Low Temperature Storage                         | ±10%   | -40°C, 1000h  |

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