# “ZNR” Transient/Surge Absorbers

## Products System

<table>
<thead>
<tr>
<th>Type D Series V</th>
<th>Standard type with radial leads for general surge protect applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type D Series E (Series E-S1)</td>
<td>Large surge current and energy handling capability for absorbing transient overvoltage</td>
</tr>
<tr>
<td>Type SMD Series HF</td>
<td>For Automotive (DC12 V) Meet for Load Damp Surge Compact size SMD High Reliability</td>
</tr>
<tr>
<td>Type SMD Series VF</td>
<td>Surface mount type with protective coating so as to high level reliability</td>
</tr>
<tr>
<td>Type SC</td>
<td>For incorporation in a surge protective device corresponding to the IEC61643-1</td>
</tr>
<tr>
<td>Type E Type CK</td>
<td>For an application in industrial electric or electronic equipment under heavy duty</td>
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<tr>
<td>Type P</td>
<td>Plug-in type with deterioration indicator. For application to industrial equipment</td>
</tr>
<tr>
<td>Type J</td>
<td>Stack-type for heavy surge energy application (High power induced load and so on)</td>
</tr>
<tr>
<td>Type G</td>
<td>For protection to switching surge of high voltage (3.3, 6.6 kV) equipment</td>
</tr>
<tr>
<td>Surge Absorber Units</td>
<td>Surge absorber with connected ZNRs and circuit breaker in box</td>
</tr>
<tr>
<td>Surge Absorbers for Thyristor</td>
<td>Thyristor protection against switching surge of transformer</td>
</tr>
</tbody>
</table>

### Specifications

- **Varistor Voltage**
  - Type D Series V: 18 to 1800 V
  - Type D Series E (Series E-S1): 200 to 1100 V
  - Type SMD Series HF: 20 to 23.2 V
  - Type SMD Series VF: 22 to 470 V
  - Type SC: 200 to 1100 V
  - Type E (Type CK): 200 to 950 V
  - Type P: 250 to 1000 V
  - Type J: 560 to 1250 V
  - Type G: 5 or 17 kV
  - Surge Absorber Units: 22 to 1000 V
  - Surge Absorbers for Thyristor: 510 to 2500 V

- **Maximum Peak Current**
  - Type D Series V: 125 to 7000 A (at 8/20 μs)
  - Type D Series E (Series E-S1): 600 to 7000 A (at 8/20 μs)
  - Type SMD Series HF: 27 V±20 %
  - Type SMD Series VF: 125 to 600 A (at 8/20 μs)
  - Type SC: In 20 kA Imax 40 kA (at 8/20 μs)
  - Type E (Type CK): 5 to 25 kA (at 8/20 μs)
  - Type P: 5000 A (at 8/20 μs)
  - Type J: 80 to 320 kA (at 4/10 μs)
  - Type G: 5 to 10 kA (at 8/20 μs)
  - Surge Absorber Units: 16 to 210 A
  - Surge Absorbers for Thyristor: 40 to 210 A (2 ms, 10⁶ times)

### Energy

- Type D Series V: 1300 to 2600 J
- Type D Series E (Series E-S1): 5000 to 40000 J
- Type SMD Series HF: 5000 to 40000 J
- Type SC: 5000 to 40000 J
- Type E (Type CK): 5000 to 40000 J
- Type P: 5000 to 40000 J
- Type J: 5000 to 40000 J
- Type G: 5000 to 40000 J
- Surge Absorber Units: 5000 to 40000 J
- Surge Absorbers for Thyristor: 5000 to 40000 J