

HP20KA-L Series

Axial Leaded – 20kA



Description

The HP20KA-L series of high power TVS diode is specially designed for meeting severe surge test environment of both AC and DC line protection applications. It features a very fast response and ultra low clamping characteristics over traditional metal oxide varistor (MOV) solutions. They can be connected in series and / or parallel to create a very high surge current protection solution.

Features

- Very low clamping voltage
- Ultra compact: less than one-tenth the size of traditional discrete solutions
- Sharp breakdown voltage
- Low slope resistance
- Bi-directional
- Symmetric in leads width for easier soldering during assembly.
- Halogen-free
- RoHS compliant
- Foldbak technology for superior clamping factor
- ESD protection of data lines in accordance with IEC61000-4-2, 30kV(Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC61000-4-4
- Glass passivated junction
- Pb-free E4 means 2nd level interconnect is Pb-free and the terminal finish material is Silver

Additional Information



Resources



Accessories



Samples

Maximum Ratings and Thermal Characteristics

($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--------------------------------------|-----------|------------|------------------|
| Operating Storage Temperature Range | T_{STG} | -55 to 125 | $^\circ\text{C}$ |
| Operating Junction Temperature Range | T_J | -55 to 150 | $^\circ\text{C}$ |
| Current Rating ¹ | I_{PP} | 20 | kA |

Notes:

1. Rated I_{PP} measured with 8/20 μs pulse

Functional Diagram



Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Part Number | Reverse Stand-Off Voltage | | Breakdown Voltage @ I_T | | Test Current | Maximum Clamping Voltage @ I_{PP} | Current Rating @8/20 μs | Reverse Leakage @ V_{DC} |
|-------------|---------------------------|-------------|---------------------------|-----------------|--------------|-------------------------------------|------------------------------------|----------------------------|
| | $V_{AC}(V)$ | $V_{DC}(V)$ | $V_{B Min.}(V)$ | $V_{B Max.}(V)$ | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ |
| HP20KA-12CL | 8.5 | 12 | 14.0 | 16.0 | 1 | 28 | 20000 | 5 |
| HP20KA-15CL | 11 | 15 | 17.0 | 19.0 | 1 | 30 | 20000 | 5 |
| HP20KA-20CL | 14 | 20 | 22.0 | 24.5 | 1 | 40 | 20000 | 5 |
| HP20KA-25CL | 17 | 25 | 28.0 | 31.0 | 1 | 50 | 20000 | 5 |
| HP20KA-30CL | 21 | 30 | 33.0 | 36.5 | 1 | 60 | 20000 | 5 |
| HP20KA-33CL | 23 | 33 | 35.0 | 39.0 | 1 | 66 | 20000 | 5 |
| HP20KA-38CL | 27 | 38 | 40.5 | 49.5 | 1 | 69 | 20000 | 5 |
| HP20KA-42CL | 30 | 42 | 47.0 | 52.0 | 1 | 77 | 20000 | 5 |

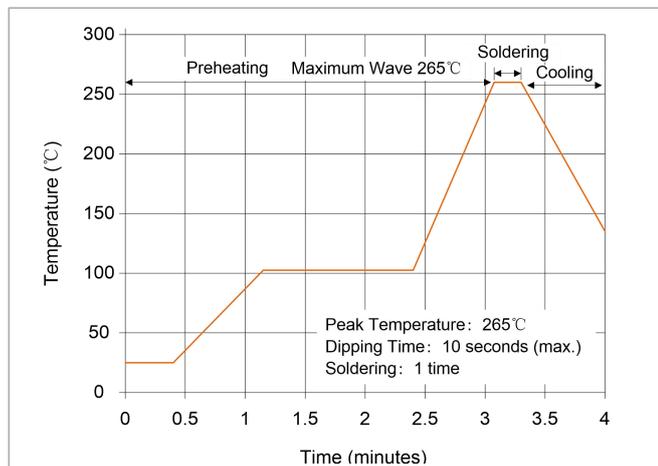
Notes: Using 8/20 μs wave shape as defined in IEC61000-4-5.

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Wave Solder Profile

Figure 1:
Wave Soldering Temperature Profile



Flow/Wave Soldering (Solder Dipping)

| | |
|---------------------------|-------------------|
| Peak Temperature : | 265°C |
| Dipping Time : | 10 seconds (max.) |
| Soldering : | 1 time |

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 2:
Power Derating Curve

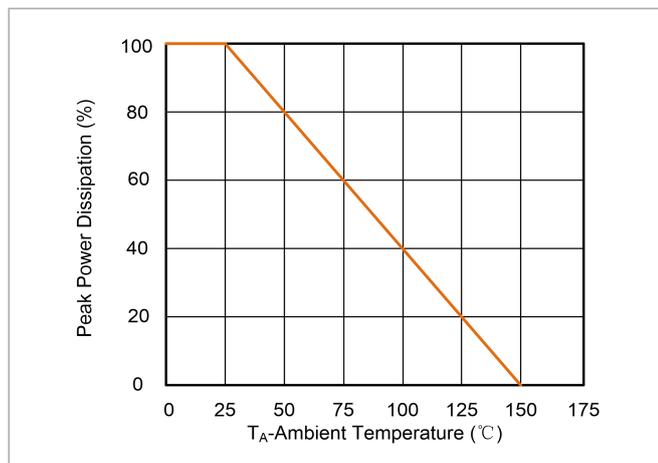
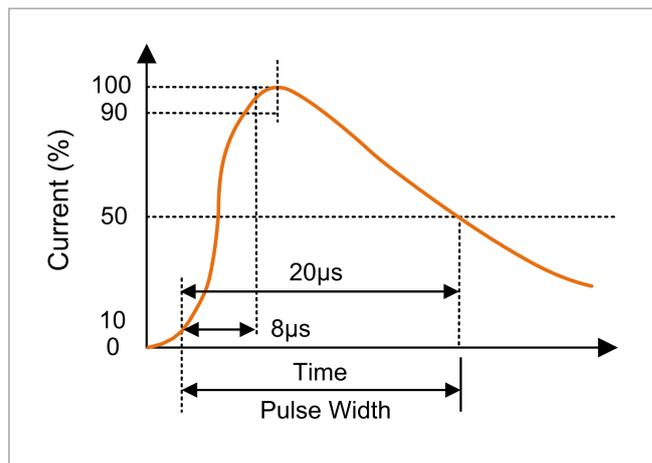


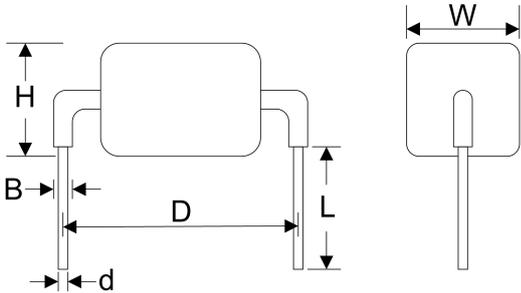
Figure 3:
Surge Pulse Waveform (8/20 μs)



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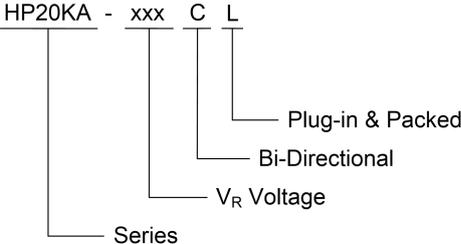
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Dimensions

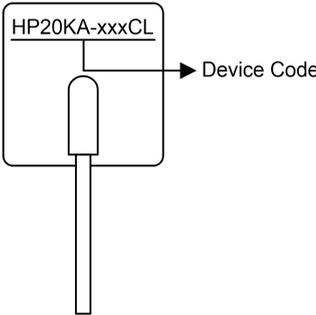


| Symbol | Millimeters | Inches |
|----------|-------------|-------------|
| D | 24.15±1.0 | 0.951±0.039 |
| B | 1.35min | 0.053min |
| H | 16.0max | 0.630max |
| L | 6.0±1.20 | 0.236±0.047 |
| d | 1.28±0.10 | 0.050±0.004 |
| W | 16.0max | 0.630max |

Part Numbering System



Part Marking System



Packaging

| Part number | Quantity | Packaging Option |
|--------------|-----------|------------------|
| HP20KA-xxxCL | 80pcs/Box | Tray Pack |

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