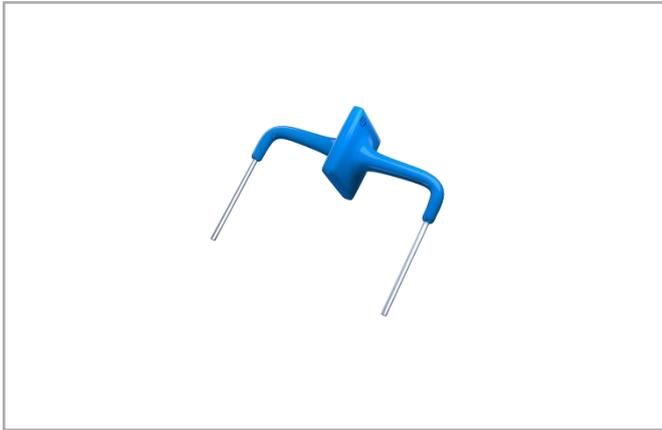


# HP3KA-L-S Series

## Axial Leaded – 3kA



### Description

The HP3KA-L-S 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
- ESD protection of data lines in accordance with IEC 61000-4-2, 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

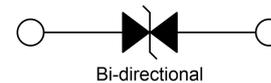
( $T_A=25^\circ\text{C}$  unless otherwise noted)

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 <sup>1</sup>	$I_{PP}$	3	kA

#### Notes:

1. Rated  $I_{PP}$  measured with 8/20 $\mu\text{s}$  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 $I_T(\text{mA})$	Maximum Clamping Voltage @ $I_{PP}$ $V_C(\text{V})$	Current Rating @ 8/20 $\mu\text{s}$ $I_{PP}(\text{A})$	Reverse Leakage @ $V_{DC}$ $I_R(\mu\text{A})$
	$V_{AC}(\text{V})$	$V_{DC}(\text{V})$	$V_{B \text{ Min.}}(\text{V})$	$V_{B \text{ Max.}}(\text{V})$				
HP3KA-12CLS	8.5	12	14.0	16.0	1	28	3000	5
HP3KA-15CLS	11	15	17.0	19.0	1	30	3000	5
HP3KA-20CLS	14	20	22.0	24.5	1	40	3000	5
HP3KA-25CLS	17	25	28.0	31.0	1	50	3000	5
HP3KA-30CLS	21	30	33.0	36.5	1	60	3000	5
HP3KA-33CLS	23	33	35.0	39.0	1	66	3000	5
HP3KA-38CLS	27	38	40.5	49.5	1	69	3000	5
HP3KA-42CLS	30	42	47.0	52.0	1	77	3000	5
HP3KA-58CLS	40	58	64.0	72.0	1	110	3000	5
HP3KA-66CLS	45	66	70.0	77.5	1	125	3000	5
HP3KA-76CLS	54	76	85.0	94.0	1	140	3000	5
HP3KA-100CLS	72	100	110.0	121.5	1	165	3000	5
HP3KA-133CLS	100	133	147.0	162.5	1	220	3000	5
HP3KA-150CLS	105	150	165.0	182.5	1	240	3000	5
HP3KA-170CLS	130	170	180.0	199.0	1	260	3000	5
HP3KA-190CLS	145	190	200.0	221.0	1	290	3000	5
HP3KA-200CLS	150	200	222.0	245.5	1	330	3000	5
HP3KA-240CLS	180	240	250.0	276.5	1	340	3000	5

# HP3KA-L-S Series

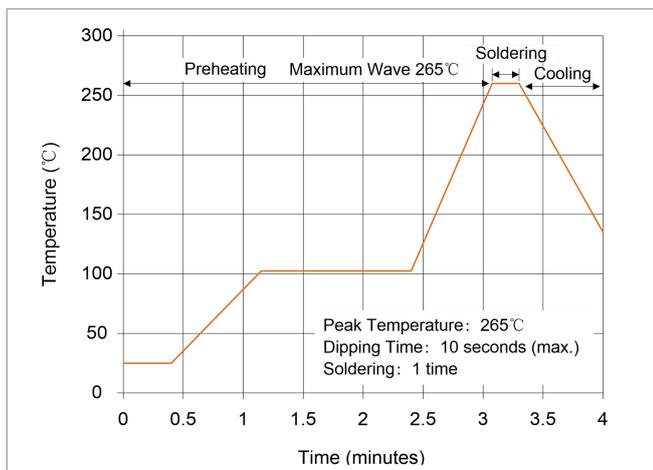
## Axial Leaded – 3kA

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage @ $I_r$		Test Current	Maximum Clamping Voltage @ $I_{PP}$	Current Rating @8/20 $\mu$ s	Reverse Leakage @ $V_{DC}$
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B Min.}(V)$	$V_{B Max.}(V)$	$I_r(mA)$	$V_c(V)$	$I_{PP}(A)$	$I_R(\mu A)$
HP3KA-275CLS	210	275	300.0	331.5	1	435	3000	5
HP3KA-300CLS	230	300	330.0	365.0	1	470	3000	5
HP3KA-380CLS	275	380	401.0	443.5	1	520	3000	5
HP3KA-430CLS	310	430	440.0	486.5	1	625	3000	5

Notes: Using 8/20 $\mu$ s wave shape as defined in IEC61000-4-5.

## Wave Solder Profile

**Figure 1:**  
Wave Soldering Temperature Profile

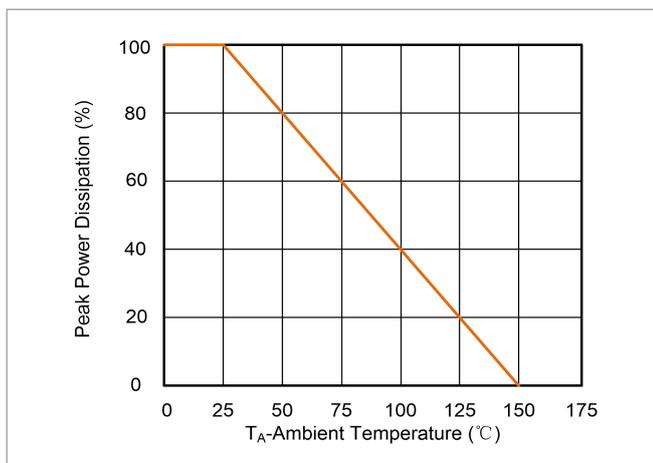


## Flow/Wave Soldering (Solder Dipping)

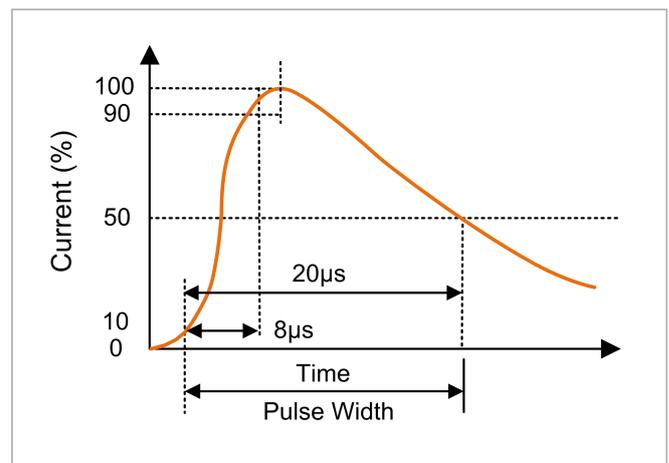
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds (max.)
<b>Soldering :</b>	1 time

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

**Figure 2:**  
Power Derating Curve



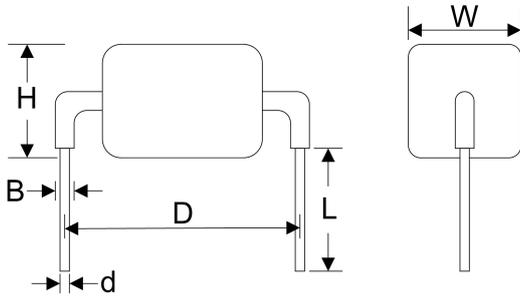
**Figure 3:**  
Surge Pulse Waveform (8/20 $\mu$ s)



# HP3KA-L-S Series

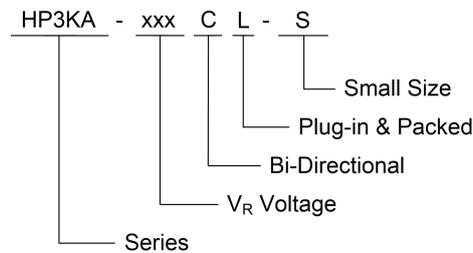
## Axial Leaded – 3kA

### Dimensions

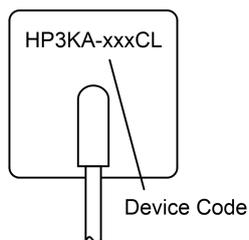


Symbol	Millimeters	Inches
<b>D</b>	24.15±1.0	0.951±0.039
<b>B</b>	1.35min	0.053min
<b>H</b>	11.0max	0.433max
<b>L</b>	6.0±1.20	0.236±0.047
<b>d</b>	1.28±0.10	0.050±0.004
<b>W</b>	11.0max	0.433max

### Part Numbering System

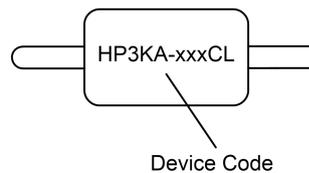


### Part Marking System



Apply to P/N listed below:

HP3KA-12CL-S  
 HP3KA-15CL-S  
 HP3KA-20CL-S  
 HP3KA-25CL-S  
 HP3KA-30CL-S  
 HP3KA-33CL-S  
 HP3KA-38CL-S  
 HP3KA-42CL-S  
 HP3KA-58CL-S  
 HP3KA-66CL-S  
 HP3KA-76CL-S



Apply to P/N listed below:

HP3KA-100CL-S  
 HP3KA-133CL-S  
 HP3KA-150CL-S  
 HP3KA-170CL-S  
 HP3KA-190CL-S  
 HP3KA-200CL-S  
 HP3KA-240CL-S  
 HP3KA-275CL-S  
 HP3KA-300CL-S  
 HP3KA-380CL-S  
 HP3KA-430CL-S

### Packaging

Part number	Quantity	Packaging Option
HP3KA-xxxCL-S	80pcs/Box	Tray Pack