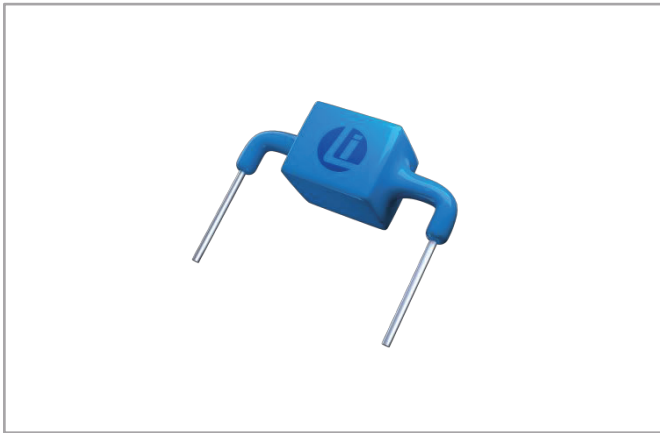


# HP10KA-L Series

## Axial Leaded – 10kA



### Description

The HP10KA-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

( $T_A=25\text{ }^\circ\text{C}$  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>	$I_{PP}$	10	kA

#### Notes:

1. Rated  $I_{PP}$  measured with 8/20 $\mu\text{s}$  pulse

### Functional Diagram



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

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage @ $I_T$		Test Current	Maximum Clamping Voltage @ $I_{PP}$	Current Rating @8/20 $\mu\text{s}$	Reverse Leakage @ $V_{DC}$
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B\text{ Min.}}(V)$	$V_{B\text{ Max.}}(V)$	$I_T(\text{mA})$	$V_c(V)$	$I_{PP}(A)$	$I_R(\mu A)$
HP10KA-12CL	8.5	12	14.0	16.0	1	28	10000	5
HP10KA-15CL	11	15	17.0	19.0	1	30	10000	5
HP10KA-20CL	14	20	22.0	24.5	1	40	10000	5
HP10KA-25CL	17	25	28.0	31.0	1	50	10000	5
HP10KA-30CL	21	30	33.0	36.5	1	60	10000	5
HP10KA-33CL	23	33	35.0	39.0	1	66	10000	5
HP10KA-38CL	27	38	40.5	49.5	1	69	10000	5
HP10KA-42CL	30	42	47.0	52.0	1	77	10000	5
HP10KA-58CL	40	58	64.0	72.0	1	110	10000	5
HP10KA-66CL	45	66	70.0	77.5	1	125	10000	5
HP10KA-76CL	54	76	85.0	94.0	1	140	10000	5
HP10KA-100CL	72	100	110.0	121.5	1	165	10000	5
HP10KA-105CL	75	105	115.0	130.0	1	175	10000	5
HP10KA-133CL	100	133	147.0	162.5	1	220	10000	5
HP10KA-150CL	105	150	165.0	182.5	1	240	10000	5
HP10KA-170CL	130	170	180.0	199.0	1	260	10000	5
HP10KA-190CL	145	190	200.0	221.0	1	290	10000	5
HP10KA-200CL	150	200	222.0	245.5	1	330	10000	5

# HP10KA-L Series

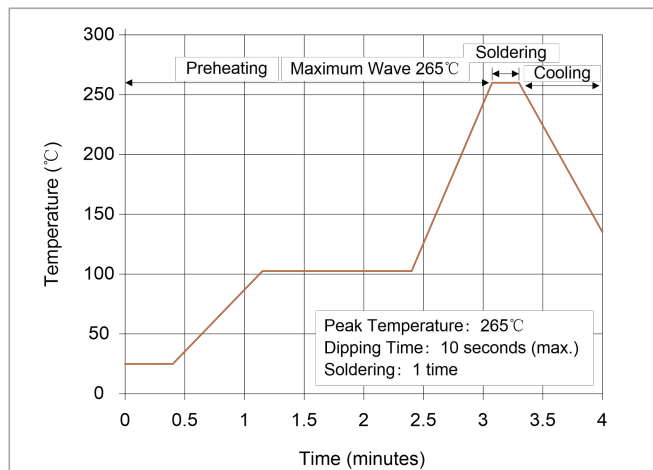
## Axial Leaded – 10kA

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage @ $I_T$		Test Current	Maximum Clamping Voltage @ $I_{PP}$	Current Rating @ $8/20\mu s$	Reverse Leakage @ $V_{DC}$
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B Min.}(V)$	$V_{B Max.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
HP10KA-240CL	180	240	250.0	276.5	1	340	10000	5
HP10KA-275CL	210	275	300.0	331.5	1	435	10000	5
HP10KA-300CL	230	300	330.0	365.0	1	470	10000	5
HP10KA-380CL	275	380	401.0	443.5	1	520	10000	5
HP10KA-430CL	310	430	440.0	486.5	1	625	10000	5
HP10KA-460CL	330	460	500.0	552.5	1	770	10000	5
HP10KA-500CL	385	500	558.0	617.0	1	868	10000	5
HP10KA-650CL	460	650	680.0	751.5	1	900	10000	5

Notes: Using 8/20 $\mu s$  wave shape as defined in IEC 61000-4-5.

### Wave Solder Profile

**Figure 1:**  
Wave Soldering Temperature Profile

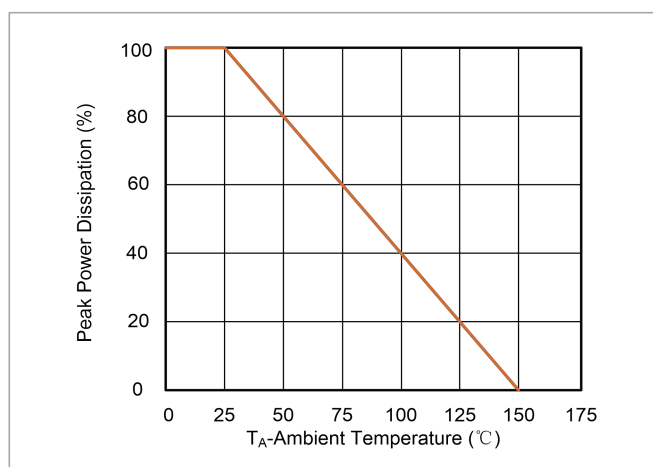


### Flow/Wave Soldering (Solder Dipping)

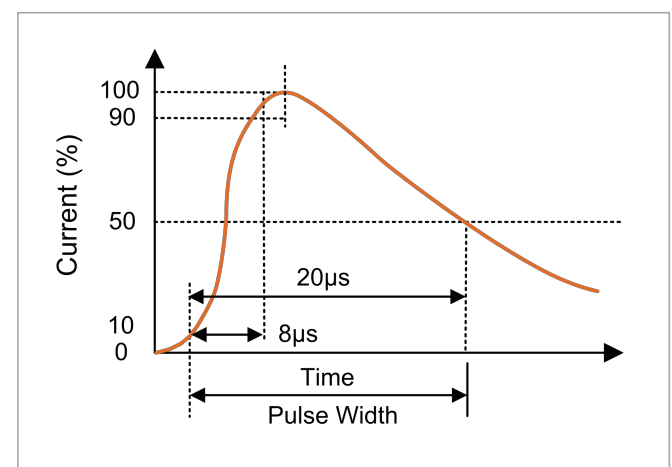
<b>Peak Temperature :</b>	265°C
<b>Dipping Time :</b>	10 seconds (max.)
<b>Soldering :</b>	1 time

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

**Figure 2:**  
Peak Pulse Power Rating Curve



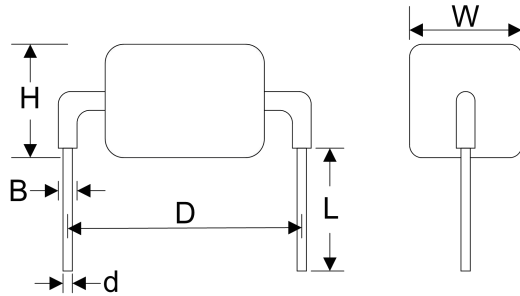
**Figure 3:**  
Pulse Derating Curve



# HP10KA-L Series

## Axial Leaded – 10kA

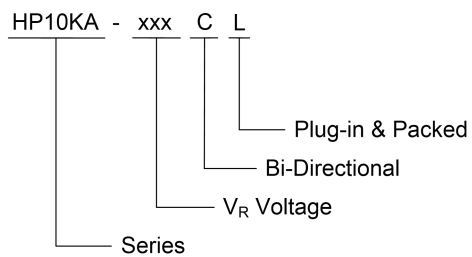
### Dimensions



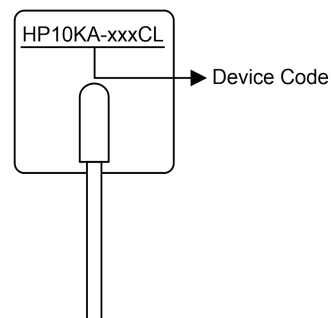
Symbol	12CL~200CL	
	Millimeters	Inches
<b>D</b>	24.15±1.0	0.951±0.039
<b>B</b>	1.35min	0.053min
<b>H</b>	14.3max	0.563max
<b>L</b>	6.0±1.20	0.236±0.047
<b>d</b>	1.28±0.10	0.050±0.004
<b>W</b>	14.1max	0.555max

Symbol	240CL~650CL	
	Millimeters	Inches
<b>D</b>	24.15±1.0	0.951±0.039
<b>B</b>	1.35min	0.053min
<b>H</b>	15.3max	0.602max
<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>	14.1max	0.555max

### Part Numbering System



### Part Marking System



### Packaging

Part number	Quantity	Packaging Option
HP10KA-xxxCL	80pcs/Box	Tray Pack

**Disclaimer Notice** - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Liown products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at <http://www.liownsemi.com>