

HP16KA-L Series

Axial Leaded – 16kA



Description

The HP16KA-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

($T_A=25\text{ °C}$ 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 Rating1	I_{PP}	16	kA

Notes:

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

Functional Diagram



Electrical Characteristics ($T_A=25\text{ °C}$ 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}
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B\text{ Min.}}(V)$	$V_{B\text{ Max.}}(V)$	$I_T(\text{mA})$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
HP16KA-12CL	8.5	12	14.0	16.0	1	28	16000	5
HP16KA-15CL	11	15	17.0	19.0	1	30	16000	5
HP16KA-20CL	14	20	22.0	24.5	1	40	16000	5
HP16KA-25CL	17	25	28.0	31.0	1	50	16000	5
HP16KA-30CL	21	30	33.0	36.5	1	60	16000	5
HP16KA-33CL	23	33	35.0	39.0	1	66	16000	5
HP16KA-38CL	27	38	40.5	49.5	1	69	16000	5
HP16KA-42CL	30	42	47.0	52.0	1	77	16000	5
HP16KA-58CL	40	58	64.0	72.0	1	110	16000	5
HP16KA-66CL	45	66	70.0	77.5	1	125	16000	5
HP16KA-76CL	54	76	85.0	94.0	1	140	16000	5
HP16KA-100CL	72	100	110.0	121.5	1	165	16000	5
HP16KA-133CL	100	133	147.0	162.5	1	220	16000	5
HP16KA-150CL	105	150	165.0	182.5	1	240	16000	5
HP16KA-170CL	130	170	180.0	199.0	1	260	16000	5
HP16KA-190CL	145	190	200.0	221.0	1	290	16000	5
HP16KA-200CL	150	200	222.0	245.5	1	330	16000	5
HP16KA-240CL	180	240	250.0	276.5	1	340	16000	5

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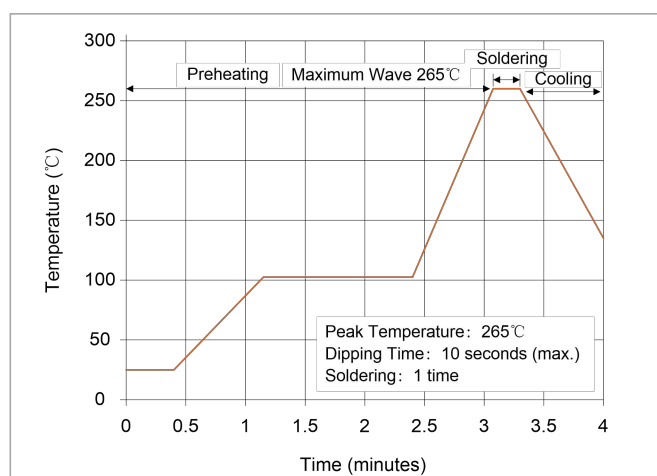
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Part Number	Reverse Stand-Off Voltage		Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}	Current Rating @ $8/20\mu s$	Reverse Leakage @ V_{DC}
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B Min.}(V)$	$V_{B Max.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
HP16KA-275CL	210	275	300.0	331.5	1	435	16000	5
HP16KA-300CL	230	300	330.0	365.0	1	470	16000	5
HP16KA-380CL	275	380	401.0	443.5	1	520	16000	5
HP16KA-430CL	310	430	440.0	486.5	1	625	16000	5
HP16KA-460CL	330	460	500.0	552.5	1	770	16000	5

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

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

Figure 2:
Peak Pulse Power Rating Curve

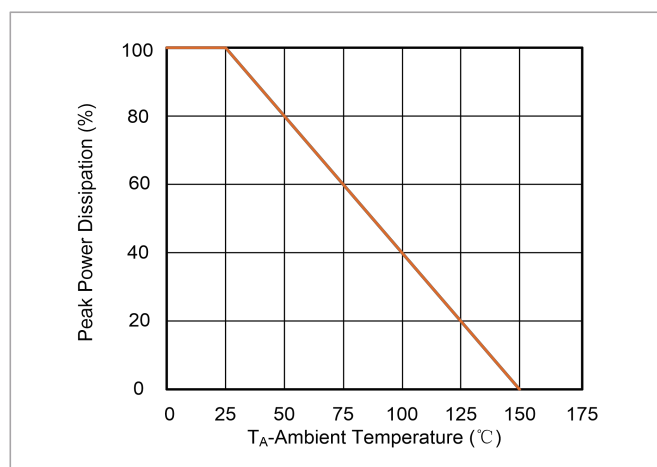
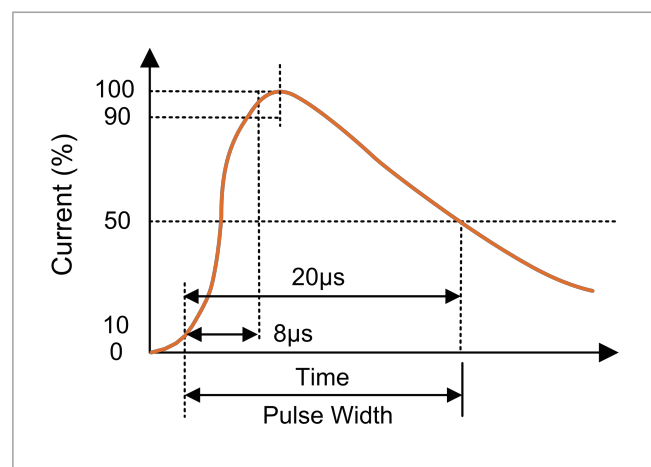


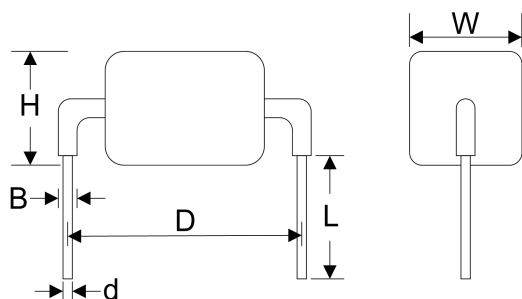
Figure 3:
Pulse Derating Curve



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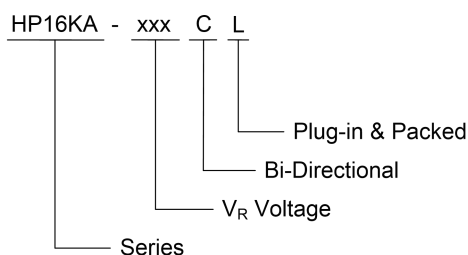
Dimensions



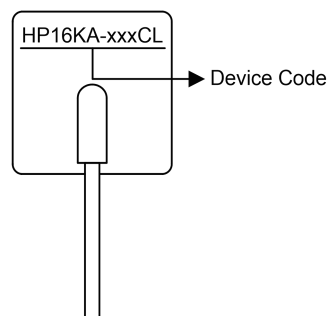
Symbol	12CL~38CL	
	Millimeters	Inches
D	24.15±1.0	0.951±0.039
B	1.35min	0.053min
H	14.3max	0.563max
L	6.0±1.20	0.236±0.047
d	1.28±0.10	0.050±0.004
W	14.1max	0.555max

Symbol	42CL~460CL	
	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
HP16KA-xxxCL	80pcs/Box	Tray Pack

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