

Description

The K10KA 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

Maximum Ratings and Thermal Characteristics

(T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating Storage Temperature Range	T _{STG}	-55 to 125	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C
Current Rating ¹	I _{PP}	10	kA

Notes:

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

Functional Diagram



Electrical Characteristics (T_A=25°C unless otherwise noted)

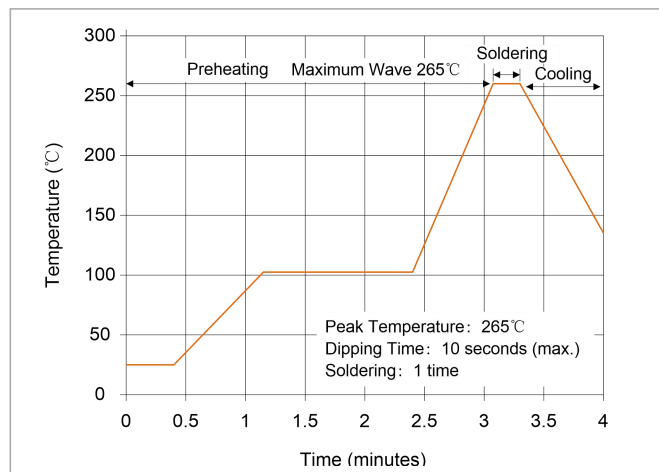
Part Number	Reverse Stand-Off Voltage		Breakdown Voltage @I _T		Test Current	Maximum Clamping Voltage @I _{PP}	Current Rating @8/20µs	Reverse Leakage @V _{DC}
	V _{AC} (V)	V _{DC} (V)	V _{B Min.} (V)	V _{B Max.} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (µA)
K10KA-12CL	8.5	12	14.0	16.0	1	28	10000	5
K10KA-15CL	11	15	17.0	19.0	1	30	10000	5
K10KA-20CL	14	20	22.0	24.5	1	40	10000	5
K10KA-25CL	17	25	28.0	31.0	1	50	10000	5
K10KA-30CL	21	30	33.0	36.5	1	60	10000	5
K10KA-33CL	23	33	35.0	39.0	1	66	10000	5
K10KA-38CL	27	38	40.5	49.5	1	69	10000	5
K10KA-42CL	30	42	47.0	52.0	1	77	10000	5
K10KA-58CL	40	58	64.0	72.0	1	110	10000	5
K10KA-66CL	45	66	70.0	77.5	1	125	10000	5
K10KA-76CL	54	76	85.0	94.0	1	140	10000	5
K10KA-100CL	72	100	110.0	121.5	1	165	10000	5
K10KA-105CL	75	105	115.0	130.0	1	175	10000	5
K10KA-133CL	100	133	147.0	162.5	1	220	10000	5
K10KA-150CL	105	150	165.0	182.5	1	240	10000	5
K10KA-170CL	130	170	180.0	199.0	1	260	10000	5
K10KA-190CL	145	190	200.0	221.0	1	290	10000	5
K10KA-200CL	150	200	222.0	245.5	1	330	10000	5

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}
	$V_{AC}(V)$	$V_{DC}(V)$	$V_{B Min.}(V)$	$V_{B Max.}(V)$	$I_T(mA)$	$V_c(V)$	$I_{PP}(A)$	$I_R(\mu A)$
K10KA-240CL	180	240	250.0	276.5	1	340	10000	5
K10KA-275CL	210	275	300.0	331.5	1	435	10000	5
K10KA-300CL	230	300	330.0	365.0	1	470	10000	5
K10KA-380CL	275	380	401.0	443.5	1	520	10000	5
K10KA-430CL	310	430	440.0	486.5	1	625	10000	5
K10KA-460CL	330	460	500.0	552.5	1	770	10000	5
K10KA-500CL	385	500	558.0	617.0	1	868	10000	5
K10KA-650CL	460	650	680.0	751.5	1	900	10000	5

Notes: Using 8/20 μs wave shape as defined in IEC 61000-4-5.

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

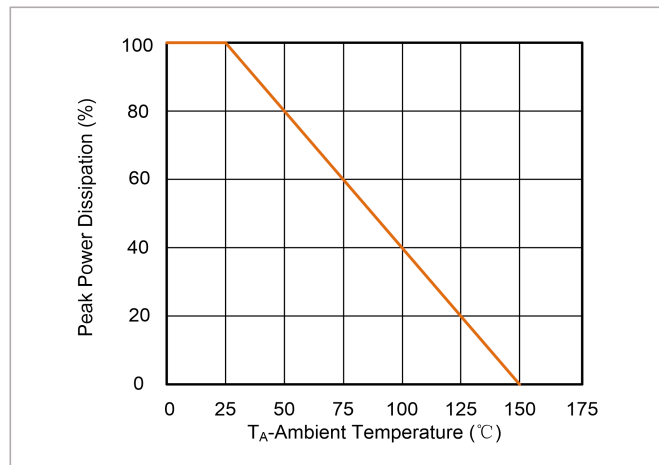
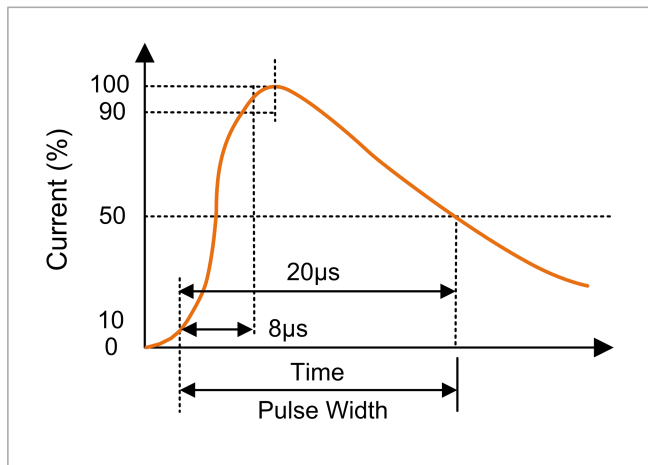
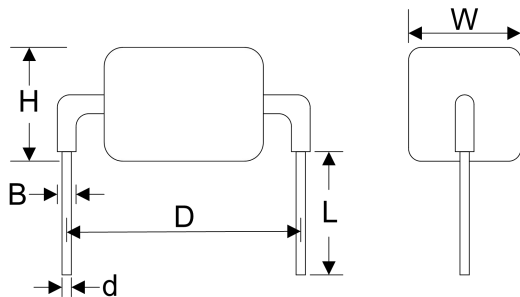


Figure 3:
Pulse Derating Curve



Dimensions



Symbol	12CL~200CL	
	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	240CL~650CL	
	Millimeters	Inches
D	24.15±1.0	0.951±0.039
B	1.35min	0.053min
H	15.3max	0.602max
L	6.0±1.20	0.236±0.047
d	1.28±0.10	0.050±0.004
W	14.1max	0.555max

Packaging

Part number	Quantity	Packaging Option
K10KA-xxxCL	80pcs/Box	Tray Pack