# LTKAK2-L Series Modified SMT0-218 - 2 kA





### **Maximum Ratings & Thermal Characteristics**

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

Parameter	Symbol	Value	Unit
Operating Junction and Storage Temperature Range	$T_{J_{I}}T_{STG}$	-40 to 125	°C
Current Rating <sup>1</sup>	I <sub>PP</sub>	2	kA

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

#### **Functional Diagram**



### **Description**

The LTKAK2-L series offers a clamping voltage lower than alternative technologies such as MOVs and GDTs. Rated to 2KA (8/20us) surge current, LTKAK2-L series offers a high level of protection for mission critical and high reliability applications. It aids compliance to surge requirements such as IEC 61000-4-5 (Level 4).

The compact surface mount SMTO218 package is compatible with automated PCBA processes and enables high power density designs

#### **Features & Benefits**

- High Power TVS in a compact, surface mount, package
- Patent pending package design
- Ideal for automated PCB assembly process, reducing manufacturing costs and improving soldering quality, as compared to axial leaded packages
- Bi-directional devices
- Low clamping resistance enabling a low clamping voltage

- Meet MSL level 1, per J-STD-020, LF maximun peak of 245 °C
- Halogen free and RoHS compliant
- Pb-free E3 means 2<sup>nd</sup> level interconnect is Pb-free and the terminal finish material is tin (Sn) (IPC/JEDEC J-STD-609A.01)
- UL Recognized epoxy meeting flammability rating V-0

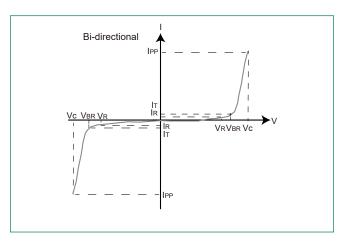
### **Electrical Characteristics** (T<sub>A</sub> = 25 °C unless otherwise noted)

Part Number (Uni)	Standoff Voltage (VSO) (V)	Max. Reverse Leakage (Ι <sub>R</sub> ) @V <sub>so</sub> μΑ	Reverse Breakdown Voltage (V <sub>BR</sub> ) @ I <sub>T</sub>		Test Current I <sub>T</sub>	Max. Clamping Voltage V <sub>CL</sub> @ I <sub>pp</sub> Peak Pulse Current (I <sub>pp</sub> ) (Note 1)		Max. Temp Coefficient of V <sub>BR</sub>	Max. Capacitance 0 Bias 10 kHz
			Min Volts	Max Volts	(mA)	V <sub>CL</sub> Volts	I <sub>PP</sub> Amps	(%/°C)	(nF)
LTKAK2-150C-L	150	10	167.0	185.0	5	243	2,000	0.1	7.0
LTKAK2-160C-L	160	10	178.0	197.0	5	259	2,000	0.1	6.5
LTKAK2-170C-L	170	10	189.9	208.9	5	275	2,000	0.1	6.5

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



### **I-V Curve Characteristics**



 $\mathbf{P}_{\mathbf{PPM}}$  **Peak Pulse Power Dissipation** — Max power dissipation

V<sub>B</sub> Stand-off Voltage — Maximum voltage that can be applied to the TVS without operation

V<sub>BB</sub> Breakdown Voltage -- Maximum voltage that flows though the TVS at a specified test current (I<sub>r</sub>)

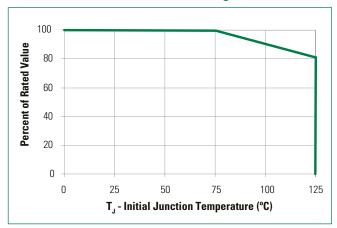
V<sub>c</sub> Clamping Voltage — Peak voltage measured across the TVS at a specified lppm (peak impulse current)

Reverse Leakage Current -- Current measured at V<sub>R</sub>

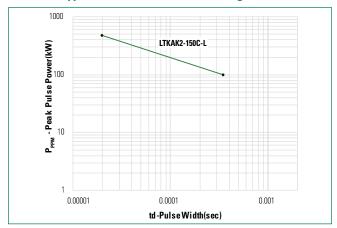
V. Forward Voltage Drop for Uni-directional

### **Ratings and Characteristic Curves** ( $T_A = 25$ °C unless otherwise noted)

### **Peak Power Derating**



### **Typical Peak Pulse Power Rating Curve**

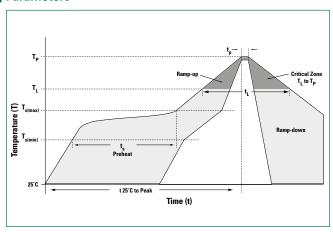




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### **Soldering Parameters**

Reflow Cond	Lead-free assembly	
Pre Heat	-Temperature Min (T <sub>s(min)</sub> )	150 °C
	-Temperature Max (T <sub>s(max)</sub> )	200 °C
	-Time (min to max) (t <sub>s</sub> )	60 – 120 secs
Average ram	3 °C/second max	
T <sub>S(max)</sub> to T <sub>A</sub> -	3 °C/second max	
Reflow	-Temperature (T <sub>L</sub> ) (Liquidus)	217 °C
	-Time (min to max) (T <sub>s</sub> )	60 – 150 seconds
Peak Temper	245 <sup>+0/-5</sup> °C	
Time within	30 seconds	
Ramp-down	6 °C/second max	
Time 25 °C t	8 minutes Max.	
Do not excee	245 °C	



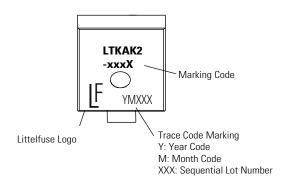
### **Physical Specifications**

Weight	Contact manufacturer
Case	Epoxy encapsulated
Terminal	Tin plated lead, solderable per MIL-STD-202 Method 208

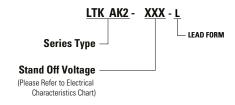
### **Environmental Specifications**

High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
MSL	J-STD-020, Level 1
H3TRB	JESD22-A101
RSH	JESD22-B106

### **Part Marking System**



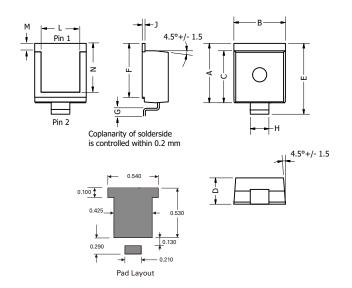
### **Part Marking System**





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### **Dimensions**



Dimensions	Inches		Millimeters		
Dimensions	Min	Max	Min	Max	
Α	0.621	0.655	15.78	16.63	
В	0.529	0.594	13.43	15.09	
С	0.544	0.561	13.83	14.24	
D	0.273	0.285	6.94	7.24	
E	0.768	0.843	19.52	21.42	
F	0.567	0.587	14.40	14.90	
G	0.087	0.126	2.20	3.20	
Н	0.193	0.222	4.89	5.65	
J	0.028	0.033	0.72	0.85	
L	0.400	0.440	10.17	11.17	
М	0.073	0.112	1.85	2.85	
Ν	0.510	0.533	12.95	13.55	

### **Packaging**

Part number	Weight	Packing Mode	Base Quantity
LTKAK2-xxxC-L	4.34g	Tube pack	100 (25/Tube)

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