

High Energy Power Line Surge Protection



Improve System Reliability and Lower Maintenance Costs

Littelfuse high-power, high-energy TVS Diode Series (AK, LTKAK, SMTOAK2, SMTAK3 and DFNAK) offer superior clamping performance over standard Silicon Avalanche Diode (SAD) technologies, as well as a broad range portfolio from 1 kA to 20 kA surge protection capability for a more robust solution than conventional overvoltage protection methods.

Among all these high surge rating TVS diodes, the Littelfuse surface mount LTKAK, SMTOAK2 and DFNAK series achieve a compact mechanical design and are compatible with automated PCB assembly, providing robust circuit protection.















Applications

- Designed to protect sensitive electronics from overvoltage surge transients, inductive load switching voltage transients, as well as AC/DC power line protection in systems, including:
- ICT, Medical, Industrial DC power supplies
- High power DC bus protection
- DC power supplies used in exposed and harsh environments
- Power over Ethernet (PoE) ports
- Small Cell, Micro Cell, Remote Radio Units (RRU), Baseband Units (BBU)
- High power density SiC and GAN-based DC/DC converters/power supplies
- Avionic power supplies

Features & Benefits

- Precise clamping voltage
- No wear-out mechanism
- Lower leakage
- Faster response
- Foldback Technology for superior clamping factor
- Compact design (LTKAK/SMTOAK2/DFNAK series)
- True SMD package compatible with automated PCB assembly process (LTKAK/SMTOAK2/DFNAK series)
- Improved lead inductance enabling lower clamping voltages
- Improved heat sink capability
- High power density

Parts List Table

Series Name	Package Type	Package	Polarity	Reverse Standoff Voltage (V_R)	Peak Pulse Current (I_{PP} 8x20 μ s)	Halogen Free	RoHS Compliant	Photo
				(V)	(kA)			
AK1-Y*	Axial Leaded	AK	Bidirectional	76 - 490	1	Yes	Yes	
AK3-Y	Axial Leaded	AK	Bidirectional	15 - 430	3	Yes	Yes	
AK6-Y	Axial Leaded	AK	Bidirectional	30 - 430	6	Yes	Yes	
AK10-Y	Axial Leaded	AK	Bidirectional	15 - 530	10	Yes	Yes	
AK15-Y	Axial Leaded	AK	Bidirectional	58 - 190	15	Yes	Yes	
AK20-Y	Axial Leaded	AK	Bidirectional	16 - 76	20	Yes	Yes	
LTKAK2-L*	SMD	Modified SMTO-218	Bidirectional	150 - 170	2	Yes	Yes	
LTKAK3	SMD	SMTO-218	Bidirectional	66	3	Yes	Yes	
LTKAK6	SMD	SMTO-218	Bidirectional	58 - 76	6	Yes	Yes	
LTKAK10	SMD	SMTO-218	Bidirectional	58 - 86	10	Yes	Yes	
SMTAK3	SMD	SMTAK	Bidirectional	15 - 76	3	Yes	Yes	
SMTOK2	SMD	SMTO-263	Bidirectional	36 - 76	2	Yes	Yes	
DFNAK3	SMD	DFN10*8*3	Bidirectional	58 - 80	3	Yes	Yes	
DFNAK1	SMD	DO-214AB	Bidirectional	58	1	Yes	Yes	

Note: There is no Foldback Technology built-in for these series with "*".

Low Vclamp Performance (SMD LTKAK vs. Axial Leaded AK)

