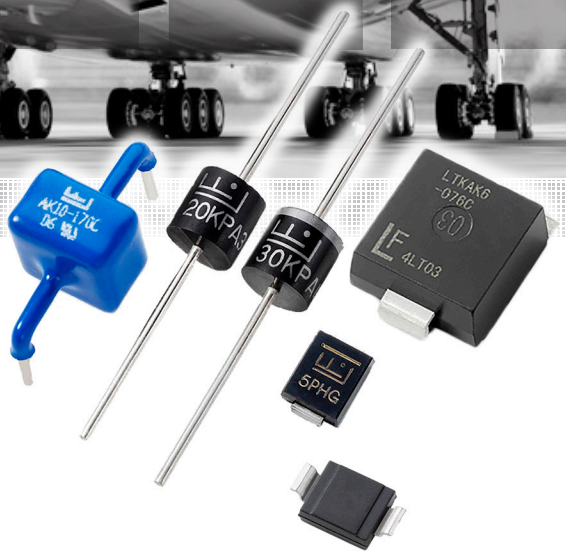
Littelfuse
Expertise Applied | Answers Delivered

High Reliability TVS Diodes
Upscreening & Sorting Solutions

Customized

To Your Unique Performance Needs



Upscreening, Sorting, Customized Solution and Ready-to-order Hi-REL TVS Diodes

Littelfuse, global leader in circuit protection products, offers a wide portfolio of discrete TVS Diode devices ranging from 200 watt to 30kW including ultra high power AK families up to 15kA.

Our dedicated design team with AS9100 certified facility provides specialized upscreening services based upon Specification MIL-PRF-19500 for robust Hi-Rel TVS Diodes that are suitable selection for applications require higher reliability performance under hash conditions.

Customized Manufacturing Sorting Steps Available

- Visual Monitor in Process
- Single Wafer Lot Source
- High Temperature Storage Life
- X-Ray Inspection
- Reflow (2X)
- Temperature Cycle Test
- 3 Sigma & Dynamic Test
- Customized Vbr/Ir
- Additional Sorting
- HTRB
- H3TRB
- Labeling

High Reliability TVS Diodes
Upscreening & Sorting Solutions

Littelfuse
Expertise Applied | Answers Delivered

Upscreening, Sorting, Customized Hi-Rel TVS Diode Solution

Features

- Military screening proceses flow
- Flexible selection on high reliablity sortings flow and it can be customized by requests
- Standard voltage range and power rating is offered energy absorption capability
- Long history of use in the aerospace industry

Benefits

- Ensures high-reliability performance to meet the requirements of aerospace, military, industrial, and medical and applications
- Provides the flexibility to address a variety of applications
- Allows for easy design-in in compliance with the RTCA/DO-160 Standard (Environmental Conditions and Test Procedures for Airborne Equipment)
- Ensures market-proven results

Customized
To Your Unique Performance Needs

AS9100
ISO09001
TS16949
AEC-Q101

Upscreened Hi-Rel TVS Series

Series		100% Screen Test Sorting	Group B Test Sorting	Peakpulse Power Rating	Reverse Stand Off Voltage (V_R)	Minimum Breakdown Voltage (V_{BR})	SMD/ AXIAL	Package	Compliance and Protection	
									DO-160/ DC Protection	MIL-STD-704
	SMBJ-HR	YES	YES	600W	5.0V-170V	6.4V-189V	SMD	DO-214AA	YES	-
	SMBJ-HRA	YES		600W	5.0V-170V	6.4V-189V	SMD	DO-214AA	YES	-
	SMCG-HR	YES	YES	1500W	5.0V-120V	6.4V-133V	SMD	DO-215AB	YES	-
	SMCG-HRA	YES		1500W	5.0V-120V	6.4V-133V	SMD	DO-215AB	YES	-
	SMCJ-HR	YES	YES	1500W	5.0V-170V	6.4V-189V	SMD	DO-214AB	YES	-
	SMCJ-HRA	YES		1500W	5.0V-170V	6.4V-189V	SMD	DO-214AB	YES	-
	SMDJ-HR	YES	YES	3000W	5.0V-130V	6.8V-151.5V	SMD	DO-214AB	YES	-
	SMDJ-HRA	YES		3000W	5.0V-170V	6.4V-189V	SMD	DO-214AB	YES	-
	5KP-HR	YES	YES	5000W	5.0V-220V	6.4V-244V	AXIAL	P600	YES	-
	5KP-HRA	YES		5000W	5.0V-220V	6.4V-244V	AXIAL	P600	YES	-
	15KPA-HR	YES	YES	15000W	17.0V-280V	18.99V-312.8V	AXIAL	P600	YES	-
	15KPA-HRA	YES		15000W	17.0V-280V	18.99V-312.8V	AXIAL	P600	YES	-
	30KPA-HR	YES	YES	30000W	28.0V-300V	31.28V-334V	AXIAL	P600	YES	-
	30KPA-HRA	YES		30000W	28.0V-300V	31.28V-334V	AXIAL	P600	YES	-
	TLP	YES	YES	5000W	10.0V-40.0V	11.8V-44.4V	AXIAL	P600	YES	YES
	TLPA	YES		5000W	10.0V-40.0V	11.8V-44.4V	AXIAL	P600	YES	YES

100% Screen Process

100% Vision Inspection	MIL-STD-750: Method 2074
100% High Temperature Storage Life (168hrs,175°C)	MIL-STD-750: Method 1031
100% X-RAY inspection	MIL-STD-750: Method 2076
100% Temperature Cycle Test (-55 to150°C, 20 cycles, dwell time 15 min)	MIL-STD-750: Method 1051
100% Reflow (2X)	JEDEC J-STD-020
100% Surge Test (2x)	MIL-STD-750: Method 4066
100% HTRB 150°C Bias = VR (80% breakdown voltage, 96hrs, and eachdirection at 96 hrs for Bi-directional products)	MIL-STD-750: Method 1038
Final Electrical Test(100% 3 sigma limit, 100% dynamic test and PAT limit)	MIL-STD-750: Method 4016.4021.4011

Group B Test

Screen	Method	Condition	Requirement
Surge Test	10/1000µS Peak Pulse Waveform	Maximum Clamping Voltage (V_C) @Peak Pulse Current (I_{PP})	Sample Size 45, Perform 10x Accept 0 Failures
Burn-In (HTRB)	MIL-STD-750: Method 1038.5	Applied Voltage 100% V_R@150°C	Sample Size 45, 340 Hours (680 hours for bi-directional products, each direction 340 hours). Accept 0 Failures
Electrical Tests		I_R@V_R $V_{(BR)}$@ I_T	Sample Size 45, Accept 0 Failures