600V Low Loss Rectifiers

600V low loss rectification for power electronics systems. The current ranges are from 15A to 45A in Bridge configurations and 10 to 30A with ThinDPAK and D2PAK-D packages. The low V_F reduces conduction loss to increase efficiency and power density. TSC provides SPICE, thermal and 3D mechanical models on our website to simplify designs. Target applications range from AC/DC converters in bridge, totem pole or bridgeless topologies for mains connected power electronics such as Server power, Telecom power and Charging systems.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

FEATURES

- PLANAR TECHNOLOGY
- LOW POWER LOSS HIGH EFFICIENCY
- AUTOMOTIVE QUALIFIED **AEC-Q101**
- LOW LEAKAGE CURRENT
- T_J max, up to **175°C**

APPLICATIONS

- AC/DC CONVERTER
- INDUSTRIAL POWER SYSTEMS
- EV & CHARGING STATION
- ON-BOARD CHARGER

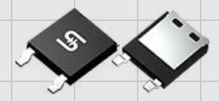
SPECIFICATION

T_J Max. (°C) =175

Part number	Package	V_{RRM}(V)	I_F (A)	V_F(V) Max.	Rated I_0 (A)	I_{fsm} (A)	Automotive
PLAD10JH	ThinDPAK	600	10	1.0	10	260	YES
PLDS20JH	D²PAK-D		20	1.0	20	390	YES
PLDS30JH			30	1.0	30	450	YES
PLAD10J	ThinDPAK		10	1.0	10	260	NO
PLDS20J	D²PAK-D		20	1.0	20	390	NO
PLDS30J			30	1.5	30	450	NO
GBUL15J	GBU		15	0.9	7.5	280	NO
GBUL25J			25	0.92	12.5	390	NO
GBJL15J	TS-6P		15	0.9	7.5	280	NO
GBJL25J			25	0.92	12.5	390	NO
GBJL45J			45	0.95	22.5	620	NO

PACKAGE

D²PACK-D



ThinDPAK

GBU

TS-6P

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

1200V Low Loss Diodes

Taiwan Semiconductor's 1200V low-loss diodes, rated from 15A to 60A, are offered in ThinDPAK, D2PAK-D, and TO-247BD packages. Featuring low forward voltage (VF) for reduced conduction losses, they support efficient power conversion in high-performance systems.

Designed for high-temperature operation up to T_J = 175°C, these devices deliver superior thermal stability and reliability, minimizing heatsink requirements. SPICE models, thermal data, and 3D CAD files are available for simulation support.

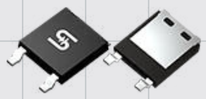
Applications: Three-phase AC/DC converters, totem-pole bridgeless topologies, EV chargers, server and telecom power supplies, and other high-efficiency power systems.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE

D²PACK-D



ThinDPAK

TO-247BD

FEATURES

- PLANAR TECHNOLOGY
- LOW LEAKAGE CURRENT
- LOW POWER LOSS HIGH EFFICIENCY
- T_J max, up to 175°C

APPLICATIONS

- AC/DC CONVERTER
- INDUSTRIAL POWER SYSTEMS
- ON-BOARD CHARGER
- EV & CHARGING STATION
- POWER INVERTER

SPECIFICATION

T_J Max. (°C) =175

Part number	Package	V_{RRM}(V)	I_F (A)	V_F(V) Max.	I_{FSM}(A)	Automotive
PLAD15QH	ThinDPAK	1200	15	1.3	250	YES
PLDS30QH	D²PAK-D		30		400	YES
PLAD15Q	ThinDPAK		15		250	NO
PLDS30Q	D²PAK-D		30		400	NO
PLAH30Q(H)	TO-247BD		30		400	YES
PLAH60Q(H)			60		600	YES

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

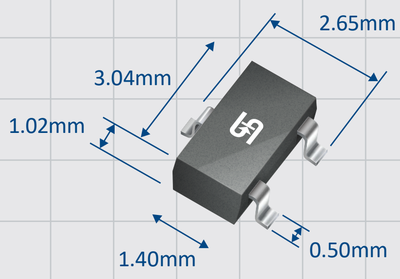
Automotive Bi-directional ESD Protection Diode

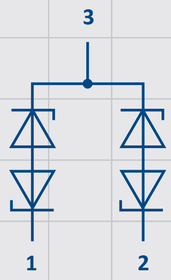
The TESDA24VB6P02CX used for CANBUS FD (CAN with Flexible Data-Rate) are designed to safeguard differential communication lines from electrostatic discharge, surge pulses, electromagnetic interference, and fast transient disturbances commonly encountered in automotive and industrial environments. Because CAN-FD supports significantly higher data rates—typically from 5 Mbps to 8 Mbps —the protection device must feature extremely low parasitic capacitance so it does not load the bus, distort the differential eye diagram, or slow the signal edges.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE





SOT-23

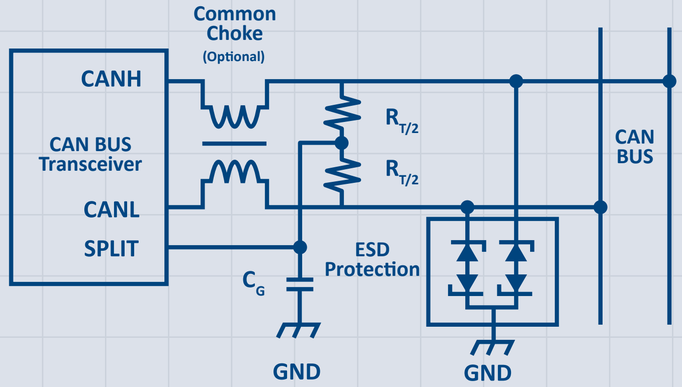
FEATURES

- AUTOMOTIVE QUALIFIED **AEC-Q101**
- ESD PROTECT FOR 2 LINE WITH BIDIRECTIONAL
- 24V AND BELOW OPERATING VOLTAGE
- PROTECT I/O LINE OR POWER LINE

APPLICATIONS

- IN-VEHICLE NETWORK LINES
- INDUSTRIAL CONTROL SYSTEMS
- CAN BUS
- HVAC SYSTEMS

Typical application:
ESD protection of two automotive CAN bus lines



SPECIFICATION

Part number	V_{WM}	C_J max	ESD robustness (IEC61000-4-2)	IPPM (at tp= 8/20μs)
TESDA24VB6P02CX	24V	6pF	20KV	2.6A

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Automotive Uni & Bi-directional ESD Protection Diode

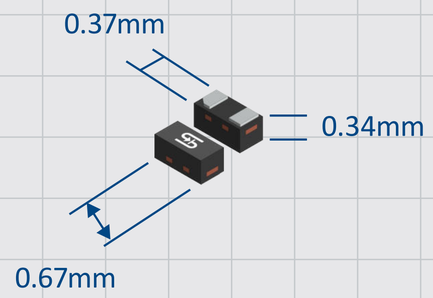
The ultra-small ESD diodes are ideal for safeguarding sensitive electronics in high-density applications like portable medical devices, smart phones, and POS.

Being AEC-Q101 qualified, the TESDAx Series delivers robust protection to IEC 61000-4-2 (ESD ±30kV air/contact), IEC 61000-4-4 (EFT 40A), and IEC 61000-4-5 (Lightning 5A). Their ultra-small packages are crucial for saving board space, ensuring reliability and superior protection for compact and high-density designs.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE



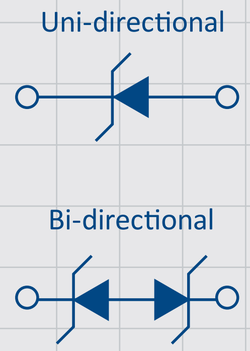


Figure 1: Package and circuit diagram

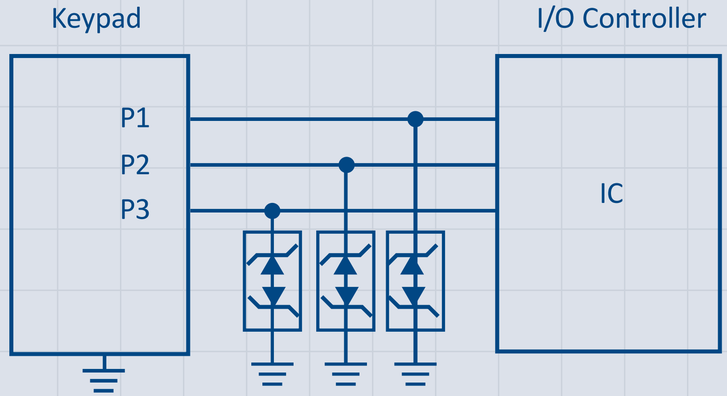


Figure 2: TESDAx series for typical application

FEATURES

AUTOMOTIVE QUALIFIED
AEC-Q101

ULTRA SAMLL PACKAGES SAVE BOARD SPACE

ESD PROTECTION TO
IEC 61000-4-2 / 4-4 / 4-5

APPLICATIONS

PROTABLE MEDICAL DEVICES

MOBILE POS

SMART PHONES

AUTOMOTIVE

SPECIFICATION

Part number	Configuration	V_{wm} (V)	C_J (pF) Max.	ESD Robustness (IEC61000-4-2) (kV)	IPPM at tp =8/20μs (A)
TESDA5V0U40P1Q0	Uni-directional	5	40	30	5A
TESDA5V0B20P1Q0	Bi-directional		20		
TESDA6V0U40P1Q0	Uni-directional	6	40		
TESDA6V0B20P1Q0	Bi-directional		20		

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Single-Line Uni-directional ESD Protection Diode

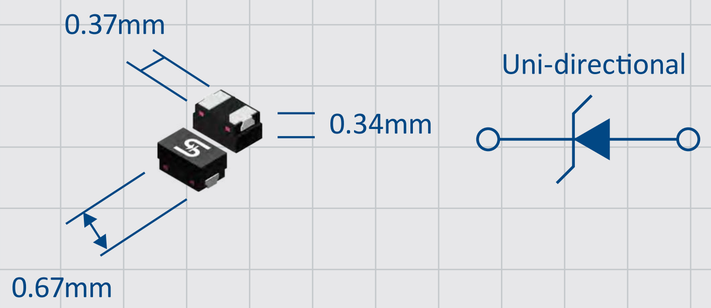
The TESDA28VU18P1Q1 is an uni-directional ESD protection diode designed to protect power interfaces, or control lines, or low-speed data lines in an electronic system. It has been specifically designed to protect sensitive electronic components connected to power and control lines from over-voltage damage by Electrostatic Discharge (ESD and lightning.

This is an ESD protection device in an ultra small DFN1006-2LW Surface-Mounted Device (SMD) package designed to protect a single automotive in-vehicle network bus line from the damage caused by Electrostatic discharge (ESD) and other transients.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE



DFN1006-2LW

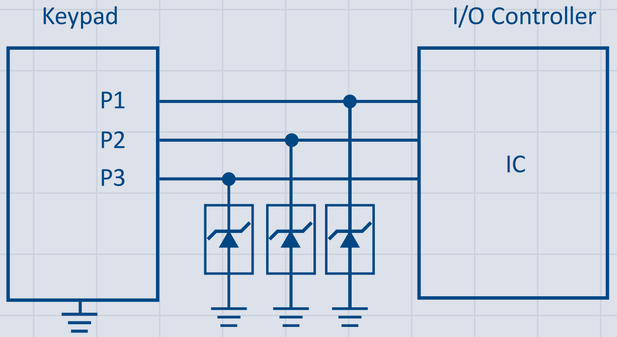


Figure 2: TESDA28VU18P1Q1 for typical application

APPLICATIONS

- IN-VEHICLE NETWORK LINES
- PORTABLE INSTRUMENTATION
- GENERAL PURPOSE I/O
- MOBILE & HANDHELDS

FEATURES

- ESD PROTECTION TO IEC 61000-4-2 / 4-4 / 4-5
- AUTOMOTIVE QUALIFIED AEC-Q101
- WETTABLE FLANK

SPECIFICATION

Part number	Package	V_{wm} (V)	C_J (pF) Max.	ESD Robustness (IEC61000-4-2) (kV)	IPPM at tp =8/20μs (A)
TESDA28VU18P1Q1	DFN1006-2LW	28	18.6	15	1.7A

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Automotive AEC-Q101 Qualified Small-Signal Product

Taiwan Semiconductor are releasing the AEC-Q101 qualified small-signal product, Including Schottky diodes, Switching diodes, Zener diodes, and Bipolar transistors. Small signal diodes are widely used in automotive electronics for their fast switching, and compact size. They provide reverse polarity protection, enable efficient signal switching, and help with voltage regulation in sensitive systems like ADAS and infotainment. Their low forward voltage drop and suitability for high-performance automotive applications.

Official Website | X | LinkedIn

For more information: marketing@ts.com.tw

Schottky Diodes

V_R (V)	30~40
I_F (mA)	100~350
V_F Max. (V)	0.45~1


SOT-23


SOT-323


SOD-123


SOD-323

Switching Diodes

V_{RRM} (V)	100~-250
I_F (mA)	150~225


SOT-23


SOT-323


SOD-123


SOD-323


SOD-523F

FEATURES

- HIGH-SPEED SWITCHING
- LOW LEAKAGE CURRENT
- MANUFACUTURED IN IATF 16949 CERTIFIED FACILITIES
- AUTOMOTIVE QUALIFIED AEC-Q101

APPLICATIONS

- AUTOMOTIVE
- IN VEHICLE INFOTAINMENT
- ADAS SYSTEM
- SWITCHING CIRCUITS

Scan QR code for specification

Bipolar Transistors

NPN	V_{CBO} (V)	50~80
	I_C (mA)	100~600
PNP	V_{CBO} (V)	-40~-80
	I_C (mA)	-100~-600


SOT-23


SOT-323


SOT-363

Zener Diodes

Tolerance	2% & 5%
P_D (mW)	200~550


SOT-23


SOD-123


SOD-323


SOD-323F


SOD-523F

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Automotive TJ 175°C Planar Schottky Diode

Taiwan Semiconductor introduces its next-generation automotive-grade planar Schottky diodes, engineered for demanding automotive environments and supporting a maximum junction temperature (TJ) up to 175°C. This product family features low leakage current and a forward current range of 1A to 10A in various package options and is AEC-Q101 qualified.

PACKAGE

Units: L × W × H (mm)

Micro SMA

2.50 × 1.25 × 0.68

SOD-123W

3.70 × 1.80 × 0.96

DO-214AC (SMA)

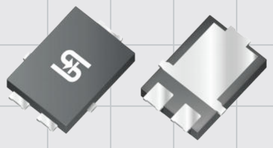
5.14 × 2.56 × 2.24

DO-214AA (SMB)

5.35 × 3.63 × 2.30

DO-214AB (SMC)

7.94 × 5.91 × 2.31



TO-277A (SMPC4.6U)

4.60 × 6.50 × 1.10

APPLICATIONS

- DC/DC CONVERTER
- REVERSE BATTERY PROTECTION
- FREEWHEELING DIODES
- AUTOMOTIVE
- LIGHTING

SPECIFICATION

Scan or click QR code to specification

FEATURES

- AUTOMOTIVE QUALIFIED **AEC-Q101**
- HIGH SURGE CURRENT CAPABILITY
- T_J max, up to **175°C**
- LOW POWER LOSS HIGH EFFICIENCY

Official Website X LinkedIn

For more information: marketing@ts.com.tw

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

TJ 175 Automotive-Grade Trench Schottky

Introducing our new automotive-grade Trench Schottky product portfolio, available in SOD-123W, SOD-128, Thin SMA, and Micro SMA packages. Designed to meet the rigorous quality/reliability demands of automotive applications, this product family supports junction temperatures up to 175°C and delivers extremely low leakage performance. The portfolio covers breakdown voltages from 45 V to 120 V and forward current ratings from 1 A to 5 A across various package options, all fully AEC-Q101 qualified.

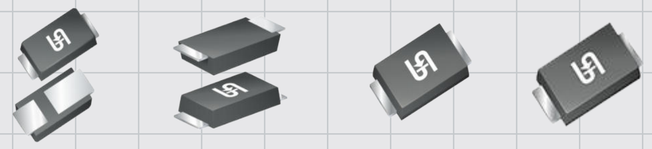
Official Website X LinkedIn

For more information: marketing@ts.com.tw

SPECIFICATION

Part number	Package	I_F (A)	VR min (V)	V_F Typ. (V)	V_F Max. (V)	I_R @T_A=25°C max.(μA)	I_R @T_A=125°C max.(mA)	I_{FSM} @8.3ms (A)
TSSW1M45H	SOD-123W	1	45	0.50	0.55	10	2	50
TSSW2M45H	SOD-123W	2		0.56	0.61	10	2	50
TSSW3M45H	SOD-123W	3		0.51	0.58	100	15	70
TSAL3M45H	Thin SMA	3		0.50	0.58	100	15	120
TSAL5M45H	Thin SMA	5		0.53	0.61	30	10	150
TSFS3M45H	SOD-128	3		0.50	0.58	100	15	120
TSFS5M45H	SOD-128	5		0.53	0.88	30	10	150
TSSW1M60H	SOD-123W	1	60	0.54	0.61	10	2	50
TSSW2M60H	SOD-123W	2		0.63	0.70	10	2	50
TSSW3M60H	SOD-123W	3		0.58	0.64	30	15	70
TSAL3M60H	Thin SMA	3		0.56	0.62	30	15	150
TSAL5M60H	Thin SMA	5		0.58	0.66	30	10	120
TSFS3M60H	SOD-128	3		0.56	0.62	30	15	150
TSFS5M60H	SOD-128	5		0.58	0.66	30	10	200
TSSW1H100H	SOD-123W	1	100	0.67	0.73	1	0.5	35
TSSW2H100H	SOD-123W	2		0.76	0.83	1	0.5	35
TSSW3H100H	SOD-123W	3		0.7	0.77	5	2	60
TSAL3H100H	Thin SMA	3		0.68	0.75	5	2	95
TSAL5H100H	Thin SMA	5		0.69	0.76	10	2	125
TSFS3H100H	SOD-128	3		0.68	0.75	5	2	95
TSFS5H100H	SOD-128	5		0.69	0.76	10	2	125
TSU1H100H	Micro SMA	1		0.67	0.74	2	1	40
TSU2H100H	Micro SMA	2		0.76	0.83	2	1	40
TSSW1H120H	SOD-123W	1	120	0.73	0.79	1	0.5	35
TSSW2H120H	SOD-123W	2		0.8	0.86	1	0.5	35
TSSW3H120H	SOD-123W	3		0.75	0.82	5	2	60
TSAL3H120H	Thin SMA	3		0.73	0.82	5	2	95
TSAL5H120H	Thin SMA	5		0.73	0.81	10	2	125
TSFS3H120H	SOD-128	3		0.73	0.82	5	2	95
TSFS5H120H	SOD-128	5		0.73	0.81	10	2	125
TSU1H120H	Micro SMA	1		0.72	0.79	2	1	40
TSU2H120H	Micro SMA	2		0.79	0.87	2	1	40

PACKAGE



Micro SMA SOD-123W SOD-128 Thin SMA

APPLICATIONS

- DC/DC CONVERTER
- TELECOM
- REVERSE BATTERY PROTECTION
- ADAS SYSTEM

FEATURES

- AUTOMOTIVE QUALIFIED **AEC-Q101**
- T_j max, up to **175°C**
- TRENCH SCHOTTKY TECHNOLOGY
- LOW POWER LOSS HIGH EFFICIENCY

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Automotive, AEC-Q101: 5000W, 10V-100V Uni- and Bi-directional TVS

To ensure maximum safety and reliability against the harshest electrical events, Taiwan Semiconductor introduces a series of 5000W SMC Transient Voltage Suppressors for automotive applications. The new 5KSMCXX Series offers high energy absorption capabilities to effectively guard against surges caused by lightning strikes and switching power supplies. The SMC package not only facilitates surface mount assembly but also provides excellent thermal dissipation in high-power applications.

Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE

DO-214AB (SMC)

Uni-directional (A type)

Bi-directional (CA type)

APPLICATIONS

AUTOMOTIVE QUALIFIED
AEC-Q101

UNIDIRECTIONAL & BIDIRECTIONAL TYPES

MEETS SURGE SPECIFICATION
(Varied by test conditions)
ISO7637-2 (Pulse 1/2a/2b/3a/3b)

FEATURES

AUTOMOTIVE

MOTOR FOR BLDC

BATTERY MANAGEMENT SYSTEM

LIGHTING

SWITCHING MODE POWER SUPPLY (SMPS)

SPECIFICATION

Part number	P_{PPM} (W)	V_{WM} (W)	V_{BR} (V)
5KSMC10AH – 5KSMC100AH	5000	10 - 100	12 - 117
5KSMC10CAH – 5KSMC100CAH	5000	10 - 100	12 - 117

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

Automotive Bi-directional ESD Protection Diode

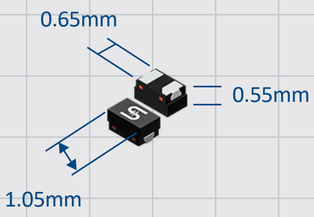
TESDA24VB17P1Q1/TESDA24VB17P1M3 is designed to protect one line against system ESD Lightning pulses by clamping it to an acceptable reference. It provides bidirectional protection.

The usage of the TESDA24VB17P1Q1 is in protected line, such as data line, control line, or power line. To minimize parasitic inductance in the board traces, all path lengths connected to the pins of TESDA24VB17P1Q1/TESDA24VB17P1M3 should be kept as short as possible.

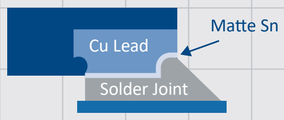
Official Website X LinkedIn

For more information: marketing@ts.com.tw

PACKAGE



DFN1006-2LW



Wettable flank leads improve solder joint reliability and AOI's accuracy during assembly process.

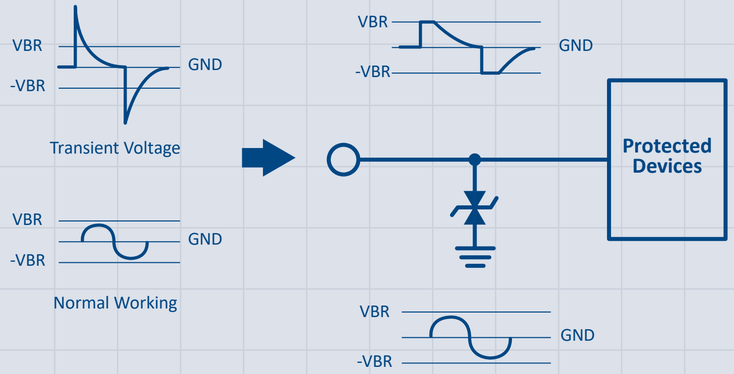
FEATURES

- AUTOMOTIVE QUALIFIED **AEC-Q101**
- ESD PROTECT FOR 1 LINE WITH BIDIRECTIONAL
- 24V AND BELOW OPERATING VOLTAGE
- PROTECT I/O LINE OR POWER LINE

APPLICATIONS

- IN-VEHICLE NETWORK LINES
- INDUSTRIAL CONTROL SYSTEMS
- CAN BUS
- HVAC SYSTEMS

Typical application:
ESD protection by TESDA24VB17P1Q1



SPECIFICATION

Part number	V_{WM}	C_J max	ESD robustness (IEC61000-4-2)	IPPM (at tp= 8/20μs)	Package
TESDA24VB17P1Q1	24V	17pF	30KV	5A	DFN1006-2LW
TESDA24VB17P1M3	24V	17pF	30KV	5A	SOD-323

TAIWAN SEMICONDUCTOR

www.taiwansemi.com

SUPER CLAMP™

Low Clamp 24V Surface Mount TVS

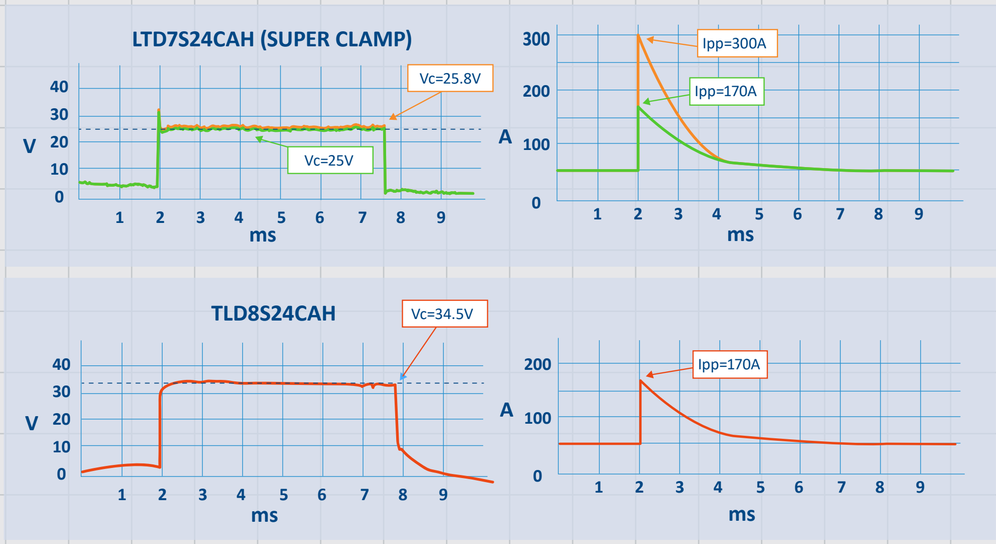
SUPER CLAMP series of TVS (transient voltage suppressor) diodes with snapback characteristics features a low clamping ratio between the breakdown voltage and clamping voltage. This low clamping ratio provides a lower clamping voltage at a higher peak pulse current than conventional TVS, allowing designers to use capacitors with lower working voltages, in addition to switching devices including polarity protection diodes, load switch, and regulator ICs Additionally, SUPER CLAMP TVS have a very stable breakdown voltage and high peak pulse current at a wide operating range of - 55 °C through + 175 °C. Stable operating characteristic of SUPER CLAMP TVS makes the circuit meet automotive standard test ISO7637.

Official Website | X | LinkedIn

For more information: marketing@ts.com.tw

FEATURES

- **CLAMPING RATIO (VC/STAND-OFF VOLTAGE) BETWEEN 1.0~1.05**
- **HIGHER PEAK PULSE CURRENT**
  75% vs standard TVS in SMB package
- **SPACE SAVINGS**
- **AUTOMOTIVE QUALIFIED**
  AEC-Q101



SUPER CLAMP series of TVS delivers significantly lower clamping voltage compared to conventional TVS under the same pulse current conditions, as shown in the top figure.

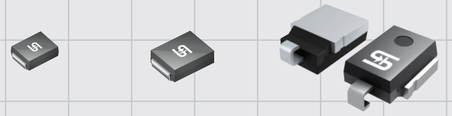
Additionally, SUPER CLAMP series can handle much higher pulse currents within the same package size, such as DO-218AB: 300A v.s. 170A, making it an ideal choice for high-performance applications.

APPLICATIONS

- AUTOMOTIVE
- MOTOR
- REVERSE BATTERY PROTECTION
- CAR LIGHTING
- ROBOTIC ARM

SPECIFICATION

Part number	Package	V_{WM} (V)	V_{BR} (V) Min	V_{BR} (V) Max	Max I_{PPM}@T_p= 10/1000(μs)	$VC_{Clamping}$
LTD7S24CAH	DO-218AB	24	26.7	29.5	300	24
LSMC24CAH	SMC		29.5	32.5	170	
LSMB24CAH	SMB		31	35	45	



DO-214AA (SMB) | DO-214AB (SMC) | DO-218AB

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