Automotive-Grade Bidirectional Load Dump TVS

Excellent Clamping Capability for Surge Protection

A load dump surge transient occurs when a discharged battery is disconnected while the alternator is still charging. This high-energy impulse can damage electronic components in automotive modules and potentially cause short circuits if proper protection is not in place.

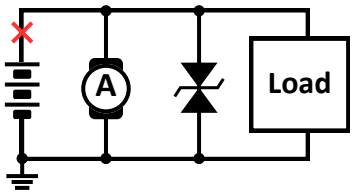
PANJIT introduces a series of automotive-grade, bidirectional load dump transient voltage suppressors (TVS) in DO-218AB packages. These devices can dissipate up to 6600 watts of surge energy per 10/1000 microsecond pulse. With reverse stand-off voltages ranging from 22 volts to 36 volts, they are ideal for both 12-volt and 24-volt automotive power systems.

Key Features

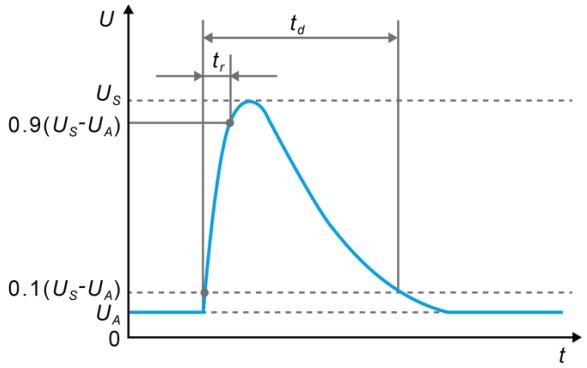
- High current capability
- Low clamping voltage
- Comply with ISO16750-2 (pulse A) surge specification
- Comply with the automotive standard ISO7637-2 (pulse 1, 2a, 2b, 3)
- High surge capability
- AEC-Q101 qualified

Target Applications

- LED Lighting
- Infotainment
- ECU Subsystems
- Automotive Air-conditioner



Load Dump Circuit and ISO 16750-2 Test A:



Parameter	Type of System		Mini. Test Requirement
	U_N=12V	U_N=24V	
U_S (V)	$79 \le U_S \le 101$	$151 \le U_S \le 202$	10 pulses at intervals of 1 min.
R_i (Ω)	$0.5 \le R_i \le 4$	$1 \le R_i \le 8$	
t_d (ms)	$40 \le t_d \le 400$	$100 \le t_d \le 350$	
t_r (ms)	10 (+0/-5)	10 (+0/-5)	

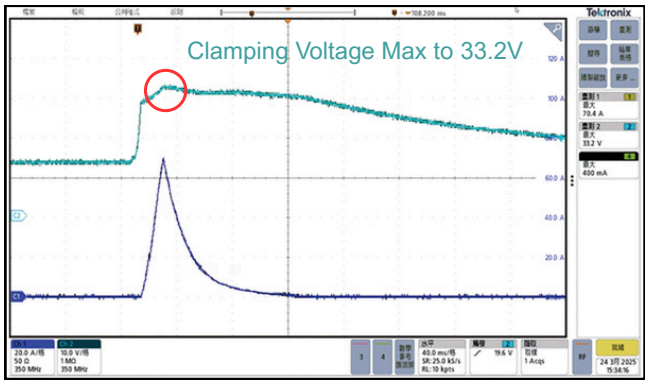
Clamping Voltage Performance

SM8H24CAS-AU

Test Rule: ISO 16750-2 Pulse A
Testing Condition:

- Us=101 V
- Va=14 V
- Ri=0.5 Ω
- td=400 ms

System: 12 V Nominal Voltage

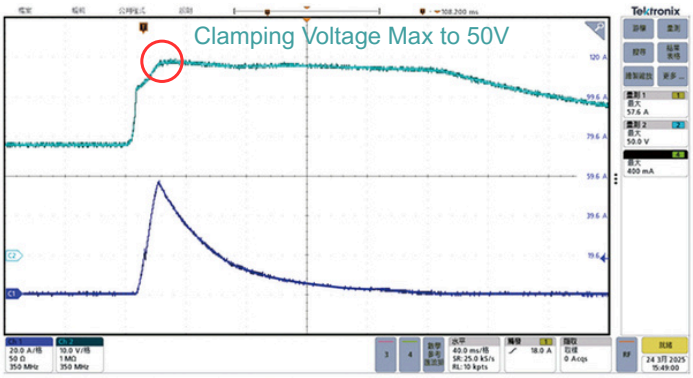


SM8H36CAS-AU

Test Rule: ISO 16750-2 Pulse A
Testing Condition:

- Us=203 V
- Va=28 V
- Ri=2 Ω
- td=350 ms

System: 24 V Nominal Voltage



Products

12 V Power System

Part Number	Direction	P_{PP}	V_{RWM}	V_{BR}(V)		I_T	V_C@I_{PPM} Max.	I_{PPM}	I_R@V_{RWM}
		W	V	Min.	Max.	mA	V	A	uA
SM8H22CAS-AU	UNI	6600	22	24.4	26.9	5	35.5	186	0.5
SM8H24CAS-AU	UNI	6600	24	26.7	29.5	5	38.9	170	0.5
SM8H26CAS-AU	UNI	6600	26	28.9	31.9	5	42.1	157	0.5
SM8H28CAS-AU	UNI	6600	28	31.1	34.4	5	45.4	145	0.5

24 V Power System

Part Number	Direction	P_{PP}	V_{RWM}	V_{BR}(V)		I_T	V_C@I_{PPM} Max.	I_{PPM}	I_R@V_{RWM}
		W	V	Min.	Max.	mA	V	A	uA
SM8H30CAS-AU	BI	6600	30	33.3	36.8	5	48.4	136	0.5
SM8H33CAS-AU	BI	6600	33	36.7	40.6	5	53.3	124	0.5
SM8H36CAS-AU	BI	6600	36	40	44.2	5	58.1	114	0.5

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