

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.

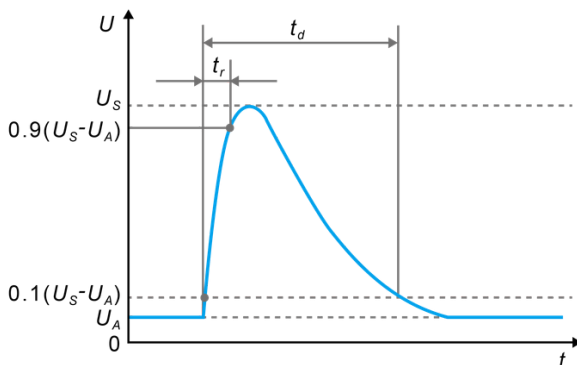
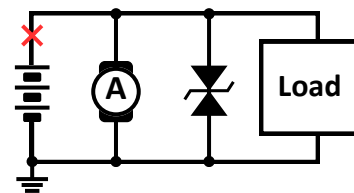
► Key Features

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



➤ Clamping Voltage Performance

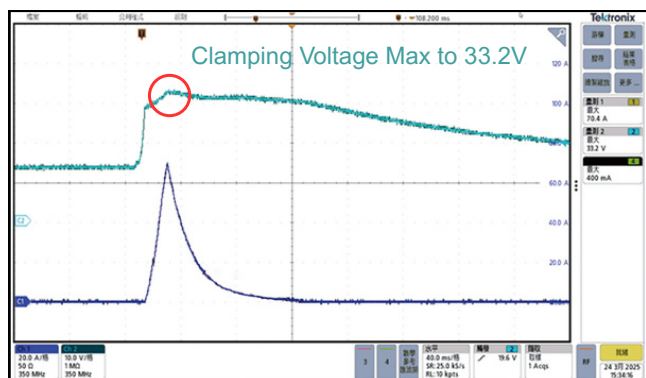
SM8H24CAS-AU

Test Rule: ISO 16750-2 Pulse A

Testing Condition:

- $U_s=101\text{ V}$
- $V_a=14\text{ V}$
- $R_i=0.5\ \Omega$
- $t_d=400\text{ ms}$

System: 12 V Nominal Voltage



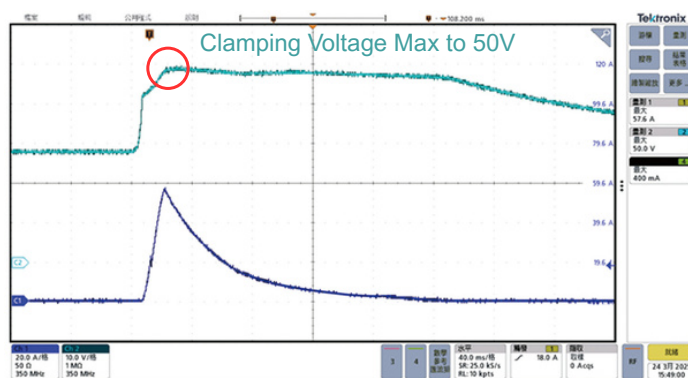
SM8H36CAS-AU

Test Rule: ISO 16750-2 Pulse A

Testing Condition:

- $U_s=203\text{ V}$
- $V_a=28\text{ V}$
- $R_i=2\ \Omega$
- $t_d=350\text{ ms}$

System: 24 V Nominal Voltage



➤ Products

• 12 V Power System

Part Number	Direction	P_{PP}	V_{RWM}	$V_{BR}(V)$		I_T	$V_C@I_{PPM}\text{ Max.}$	I_{PPM}	$I_R@V_{RWM}$
		W	V	Min.	Max.	mA	V	A	μA
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	$V_C@I_{PPM}\text{ Max.}$	I_{PPM}	$I_R@V_{RWM}$
		W	V	Min.	Max.	mA	V	A	μA
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