



New Product Announcement

DM5WxxAQ
DM6WxxAQ
DM8WxxAQ

Automotive-Grade DO-218 Load Dump TVS Series

Diodes Incorporated introduces a series of new high-temperature automotive-compliant load-dump transient voltage suppressors (TVS) packaged in DO-218. The devices are designed to protect sensitive semiconductors in electronic modules from load-dump surge transients, as defined in ISO16750-2, that generate if the battery is disconnected from the vehicle while the alternator charges.

Featuring a choice of reverse stand-off voltage from 10V to 36V (or 43V for the DM8WxxAQ series), these new automotive-compliant TVS devices are offered as unidirectional devices and are able to dissipate up to 3600W (DM5WxxAQ), 4600W (DM6WxxAQ), and 6600W (DM8WxxAQ) per 10/1000µs pulse transient.

All devices are rated to +175°C, and comply with the automotive standard ISO7637-2 (pulses 1, 2a, 2b, 3) and load dump ISO 16750-2 (pulse A and B).

The case material is composed of halogen-free “green” molding compound for protection of the environment.



The Diodes Advantage

- **AEC-Q101 Qualified and PPAP Supported**

These devices are qualified to high reliability qualification standards in accordance with AEC-Q101 and supported by a production part approval procedure (PPAP).

- **ISO 16750-2 Compliance**

These parts are suitable to protect sensitive automotive circuits against load-dump surge defined in ISO16750-2 (Pulse A and B).

- **ISO 7637-2 Compliance**

These parts are suitable to protect sensitive automotive circuits against surges defined in ISO7637-2 (pulses 1,2a, 2b and 3).

- **High Forward Surge Current Capability and Excellent Clamping Capability**

The high forward surge overload rating ensures more rugged applications and improves device reliability. These parts have excellent clamping capability and fast response time.

Applications

- Load-Dump Protection for ECU Subsystems

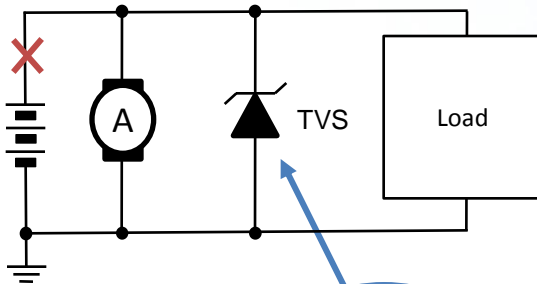


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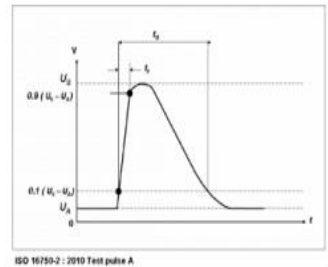
Circuit Function

A load dump occurs when the load from a generator that is delivering current is abruptly disconnected. In automotive electronics, this applies to disconnecting a battery while an alternator is charging it. Load dump TVS devices clamp the surge voltage to protect sensitive electronic circuits. These devices comply with ISO 16750-2 (Pulse A and Pulse B) and ISO 7637-2 standards.



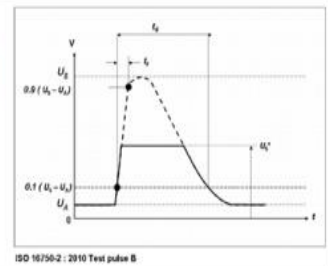
Pulse A

Parameter	Type of system		Minimum test requirements
	$U_A=12\text{ V}$	$U_A=24\text{ V}$	
U_s (V)	79 to 101	151 to 202	10 pulses at intervals of 1 min.
R_f (Ohm)	0.5 to 4	1 to 8	
t_c (ms)	40 to 400	100 to 350	
t_f (ms)	10 / +0 / -5	10 / +0 / -5	



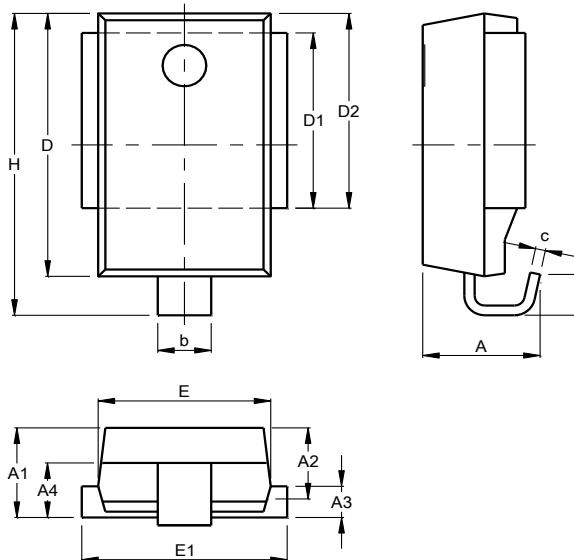
Pulse B

Parameter	Type of system		Minimum test requirements
	$U_A=12\text{ V}$	$U_A=24\text{ V}$	
U_s (V)	79 to 101	151 to 202	5 pulses at intervals of 1 min.
U_s^* (V)	35	65	
R_f (Ohm)	0.5 to 4	1 to 8	
t_c (ms)	40 to 400	100 to 350	
t_f (ms)	10 / +0 / -5	10 / +0 / -5	



Package Outline Dimensions

DO-218 (Type E)			
Dim	Min	Max	Typ
A	4.70	5.70	--
A1	4.70	5.25	5.00
A2	3.45	4.25	3.95
A3	1.70	2.50	2.00
A4	2.65	3.55	3.10
b	2.30	3.00	--
c	0.45	0.90	--
D	13.20	13.80	13.50
D1	8.70	9.30	9.00
D2	9.70	10.30	10.00
E	8.20	8.80	8.50
E1	9.50	10.00	--
H	15.00	16.00	15.50
L	1.50	2.50	2.00
All Dimensions in mm			





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Product Portfolio

Part Number	Reverse Standoff Voltage VRWM	Breakdown Voltage VBR @ I _T = 5mA		Max. Reverse Leakage @ VRWM	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current I _{PP}	Max. Leakage @ VRWM T _J = +175°C	Competitor Near Equivalents
	(V)	Min (V)	Max (V)	I _R (μA)	V _C (V)	(A)	I _D (μA)	
DM5W10AQ	10	11.1	12.3	15	17.0	211	250	SM5S10AHE3_A/I, ALS5W10A, SM5S10A, SM5Z10A
DM5W16AQ	16	17.8	19.7	10	26.0	138	150	SM5S16AHE3_A/I, ALS5W16A, SM5S16A, SM5Z16A
DM5W18AQ	18	20.0	22.1	10	29.2	123	150	SM5S18AHE3_A/I, ALS5W18A, SM5S18A, SM5Z18A
DM5W20AQ	20	22.2	24.5	10	32.4	111	150	SM5S20AHE3_A/I, ALS5W20A, 3.6KSMJX20A-AU, SM5S20A, SM5Z20A
DM5W22AQ	22	24.4	26.9	10	35.5	101	150	SM5S22AHE3_A/I, ALS5W22A, 3.6KSMJX22A-AU, SM5S22A, SM5Z22A
DM5W24AQ	24	26.7	29.5	10	38.9	93	150	SM5S24AHE3_A/I, ALS5W24A, 3.6KSMJX24A-AU, SM5S24A, SM5Z24A
DM5W26AQ	26	28.9	31.9	10	42.1	86	150	SM5S26AHE3_A/I, ALS5W26A, SM5S26A, SM5Z26A
DM5W28AQ	28	31.1	34.4	10	45.4	79	150	SM5S28AHE3_A/I, ALS5W28A, SM5S28A, SM5Z28A
DM5W30AQ	30	33.3	36.8	10	48.4	74	150	SM5S30AHE3_A/I, ALS5W30A, SM5S30A, SM5Z30A
DM5W33AQ	33	36.7	40.6	10	53.3	68	150	SM5S33AHE3_A/I, ALS5W33A, SM8SF33A-Q, 3.6KSMJX33A-AU, SM5S33A, SM5Z33A
DM5W36AQ	36	40.0	44.2	10	58.1	61	150	SM5S36AHE3_A/I, ALS5W36A, SM8SF36A-Q, 3.6KSMJX36A-AU, SM5S36A, SM5Z36A
DM6W10AQ	10	11.1	12.3	15	17.0	271	250	SM6S10AHE3_A/I, ALS6W10A, SM6S10A, SM6Z10A
DM6W16AQ	16	17.8	19.7	10	26.0	177	150	SM6S16AHE3_A/I, ALS6W16A, SM6S16A, SM6Z16A
DM6W18AQ	18	20.0	22.1	10	29.2	158	150	SM6S18AHE3_A/I, ALS6W18A, SM6S18A, SM6Z18A
DM6W20AQ	20	22.2	24.5	10	32.4	142	150	SM6S20AHE3_A/I, ALS6W20A, 4.6SMJX20A-AU, SM6S20A, SM6Z20A
DM6W22AQ	22	24.4	26.9	10	35.5	130	150	SM6S22AHE3_A/I, ALS6W22A, 4.6KSMJX22A-AU, SM6S22A, SM6Z22A
DM6W24AQ	24	26.7	29.5	10	38.9	118	150	SM6S24AHE3_A/I, ALS6W24A, 4.6SMJX24A-AU, SM6S24A, SM6Z24A
DM6W26AQ	26	28.9	31.9	10	42.1	109	150	SM6S26AHE3_A/I, ALS6W26A, SM6S26A, SM6Z26A
DM6W28AQ	28	31.1	34.4	10	45.4	101	150	SM6S28AHE3_A/I, ALS6W28A, SM6S28A, SM6Z28A
DM6W30AQ	30	33.3	36.8	10	48.4	95	150	SM6S30AHE3_A/I, ALS6W30A, SM6S30A, SM6Z30A
DM6W36AQ	36	40.0	44.2	10	58.1	79	150	SM6S36AHE3_A/I, ALS6W36A, 4.6KSMJX36A-AU, SM6S36A, SM6Z36A



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	(V)	Min (V)	Max (V)	I _R (μA)	V _C (V)	(A)	I _D (μA)	
DM8W10AQ	10	11.1	12.3	15	17.0	388	250	SM8S10AHE3_A/I, ALS8W10A, SM8S10A, SLD8S10A, SM8Z10A, ATV66SM810A-G
DM8W18AQ	18	20.0	22.1	10	29.2	226	150	SM8S18AHE3_A/I, ALS8W18A, SM8S18A, SLD8S18A, SM8Z18A, ATV66SM818A-G
DM8W22AQ	22	24.4	26.9	10	35.5	186	150	SM8S22AHE3_A/I, ALS8W22A, SM8S22A, SLD8S22A, SM8Z22A, 6.6KSMJX22A-AU, ATV66SM822A-G
DM8W24AQ	24	26.7	29.5	10	38.9	170	150	SM8S24AHE3_A/I, ALS8W24A, SM8S24A, SLD8S24A, SM8Z24A, 6.6KSMJX24A-AU, ATV66SM824A-G
DM8W26AQ	26	28.9	31.9	10	42.1	157	150	SM8S26AHE3_A/I, ALS8W26A, SM8S26A, SLD8S26A, SM8Z26A, ATV66SM826A-G
DM8W28AQ	28	31.1	34.4	10	45.4	145	150	SM8S28AHE3_A/I, ALS8W28A, SM8S28A, SLD8S28A, SM8Z28A, ATV66SM828A-G
DM8W30AQ	30	33.3	36.8	10	48.4	136	150	SM8S30AHE3_A/I, ALS8W30A, SM8S30A, SLD8S30A, SM8Z30A, ATV66SM830A-G
DM8W33AQ	33	36.7	40.6	10	53.3	124	150	SM8S33AHE3_A/I, ALS8W33A, SM8S33A, SLD8S33A, SM8Z33A, 6.6KSMJX33A-AU, ATV66SM833A-G
DM8W43AQ	43	47.8	52.8	10	69.4	95.1	150	SM8S43AHE3_A/I, ALS8W43A, SM8S43A, SLD8S43A, SM8Z43A, 6.6KSMJX43A-AU, ATV66SM843A-G

Note: Additional voltages may be added after the publication of this announcement or may be offered upon customer request. Contact the Diodes Incorporated sales department for assistance or check the latest revision datasheet on www.diodes.com.