DM8W10AQ-DM8W43AQ

6600W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Product Summary (@T_A = +25°C)

P_{PK}	I_{FSM} (A)	V_{RWM} (V)	$PM_{(AV)}$
6600W	700	10 to 43	8W

Features and Benefits

- 6600W Peak Pulse Power Dissipation
- T_J = +175°C Capability Suitable for High Reliability and Automotive Requirement
- High Current Capability
- Glass Passivated Die Construction
- Excellent High-Temperature Stability
- Meets ISO7637-2 Surge Capability
- Meets ISO16750-2 Surge Specification
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Description and Applications

Suitable to protect sensitive automotive circuits against surges defined in ISO7637-2 and against load dump surge according to ISO16750-2.

Compliance with following standards:

- ISO 10605, Pulse A and Pulse B
- ISO 7637-2 (Note 6)
  Pulse 1, Pulse 2a, Pulse 3a, Pulse 3b

Mechanical Data

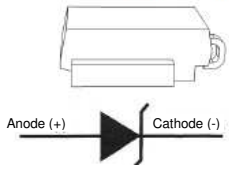
- Case: DO-218
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead-Free Plating (Matte Tin Finish).
  Solderable per MIL-STD-202, Method 208 e3
- Polarity Indicator: Heatsink Is Anode
- Weight: 2.74 grams (Approximate)

DO-218 (Type E)



Top View

Polarity: Heatsink is anode



Pin Information

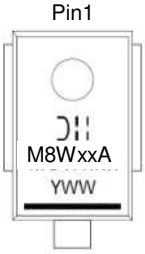
Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
DM8WxxAQ-13	Automotive	DO-218 (Type E)	750/Tape & Reel

*x = Device Voltage, e.g., DM8W18AQ-13

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.
6. Not applicable to parts with stand-off voltage lower than the average battery voltage (13.5V).

Marking Information



M8WxxA = Product Type Marking Code (i.e. M8W18A for DM8W18AQ-13)
YWW = Date Code Marking
Y = Last Digit of Year (ex: 9 for 2019)
WW = Week Code (01 to 53)
Bar Denotes Cathode Pin, Circle Denotes Anode

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated above T_A = +25°C) (Note 7)	10/1000µs Waveform	P_{PK}	6600	W
	10/10000µs Waveform		5200	
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Note 8)		I_{FSM}	700	A
Steady State Power Dissipation @ T_C = +25°C		$PM_{(AV)}$	8.0	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case	$R_{\Theta JC}$	0.9	°C/W
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

Notes: 7. Valid provided that terminals are kept at ambient temperature.
8. Measured on 8.3ms single half sine-wave or equivalent square wave. Duty cycle = 4 pulses per minute maximum.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 9)		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 11)	Max. Clamping Voltage @ I_{pp}	Max. Peak Pulse Current I_{pp} at 10/1000µs (Note 10)	Maximum Leakage at V_{WM} T_J = +175°C
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	(A)	I_D (µA)
DM8W10AQ	10	11.1	12.3	5	15	17.0	388	250
DM8W18AQ	18	20.0	22.1	5	10	29.2	226	150
DM8W22AQ	22	24.4	26.9	5	10	35.5	186	150
DM8W24AQ	24	26.7	29.5	5	10	38.9	170	150
DM8W26AQ	26	28.9	31.9	5	10	42.1	157	150
DM8W28AQ	28	31.1	34.4	5	10	45.4	145	150
DM8W30AQ	30	33.3	36.8	5	10	48.4	136	150
DM8W33AQ	33	36.7	40.6	5	10	53.3	124	150
DM8W43AQ	43	47.8	52.8	5	10	69.4	95.1	150

Notes: 9. V_{BR} measured with I_T current pulse = 10ms to 15ms.
10. Per 10 × 1000µs waveform. See Figure 3.
11. Short duration pulse test used so as to minimize the self-heating effect.

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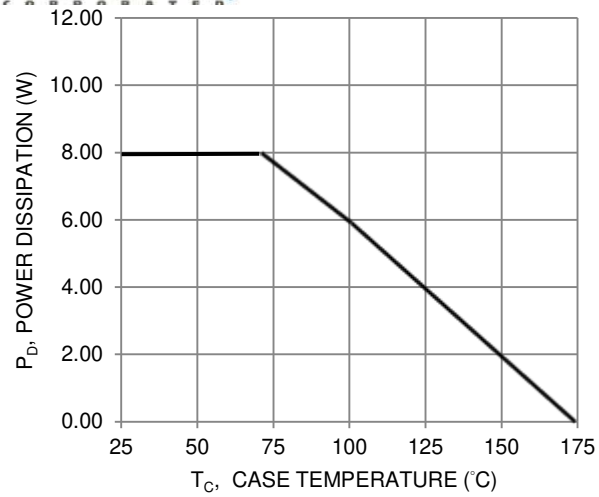


Fig. 1 Power Derating Curve

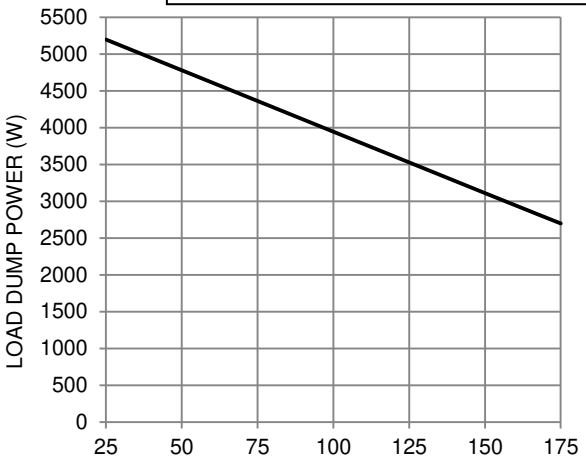


Fig. 2 Load Dump Power Characteristics
(10ms Exponential Waveform)

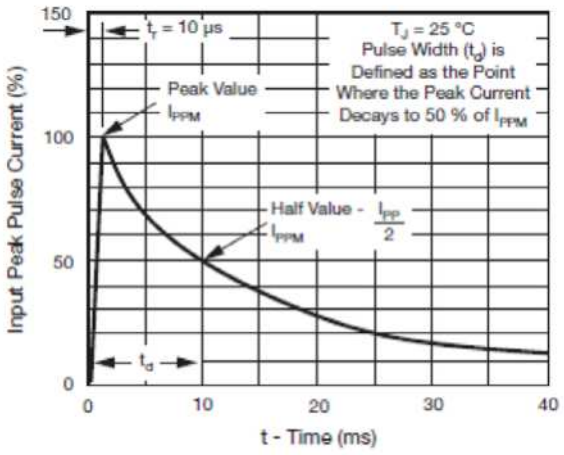


Fig. 3 - Pulse Waveform

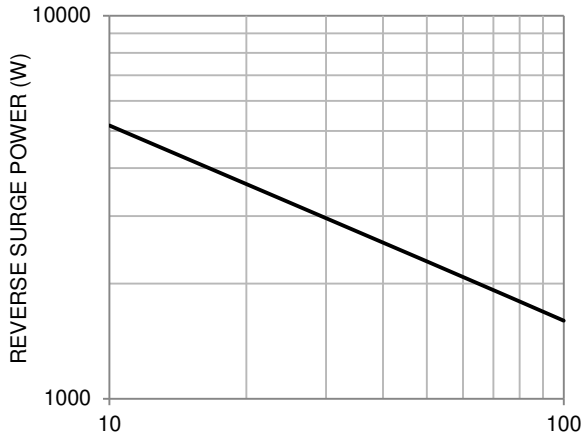


Fig. 4 Reverse Power Capability

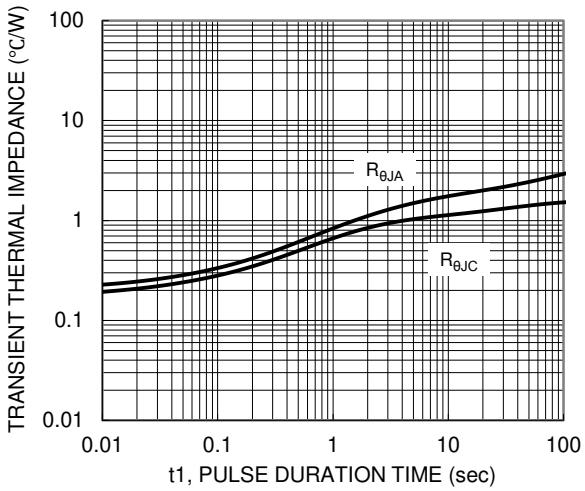


Fig. 5 Typical Transient Thermal Impedance

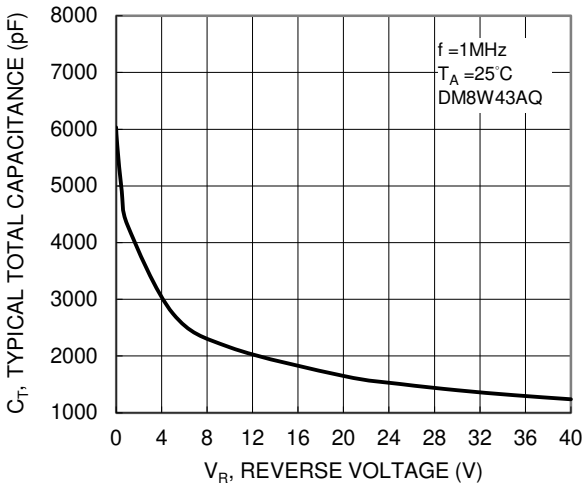


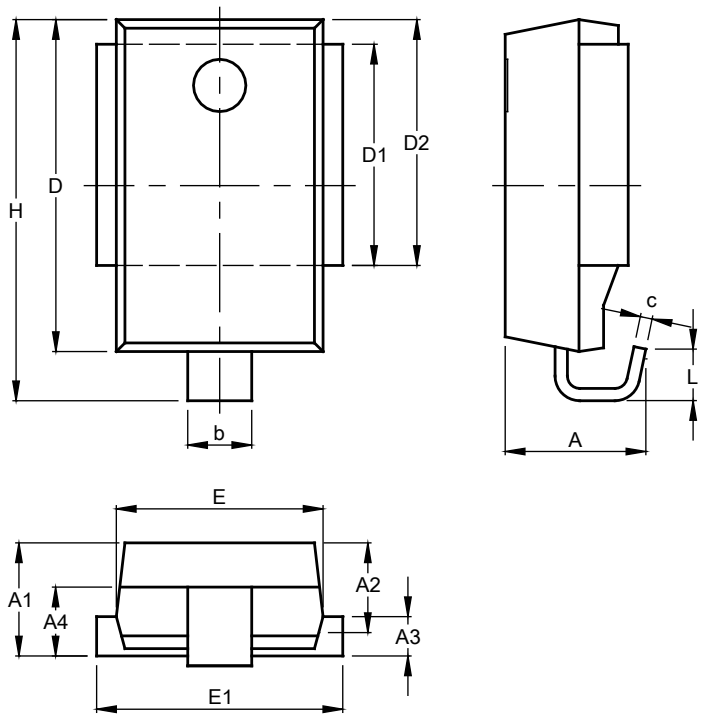
Fig. 6 Typical Total Capacitance
(DM8W43AQ Only)

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Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

DO-218 (Type E)

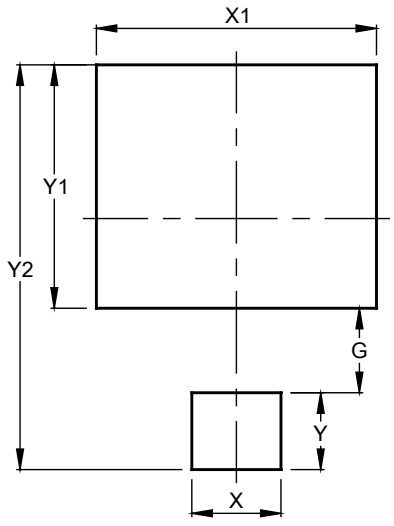


DO-218 (Type E)			
Dim	**Min**	**Max**	**Typ**
A	4.70	5.70	--
A1	4.70	5.25	5.00
A2	3.45	4.25	3.95
A3	1.70	2.50	2.00
A4	2.65	3.55	3.10
b	2.30	3.00	--
c	0.45	0.90	--
D	13.20	13.80	13.50
D1	8.70	9.30	9.00
D2	9.70	10.30	10.00
E	8.20	8.80	8.50
E1	9.50	10.00	--
H	15.00	16.00	15.50
L	1.50	2.50	2.00
All Dimensions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

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

DO-218 (Type E)



Dimensions	Value (in mm)
G	3.30
X	3.50
X1	11.00
Y	3.00
Y1	9.50
Y2	15.80

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