

### Product Summary (@T<sub>A</sub> = +25°C)

P <sub>PK</sub>	I <sub>FSM</sub> (A)	V <sub>RWM</sub> (V)	PM <sub>(AV)</sub>
6600W	700	10 to 43	8W

### 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 16750-2, Pulse A and Pulse B
- ISO 7637-2 (Note 5)  
Pulse 1, Pulse 2a, Pulse 3a, Pulse 3b

### Features and Benefits

- 6600W Peak Pulse Power Dissipation
- T<sub>J</sub> = +175°C Capability Suitable for High Reliability and Automotive Requirement
- Available in Unidirectional Polarity Only
- 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)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at**

<https://www.diodes.com/products/automotive/automotive-products/>.

- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability.  
<https://www.diodes.com/quality/product-definitions/>
- An Automotive-Compliant Part is Available Under Separate Datasheet ([DM8W10AQ-DM8W43AQ](#))

### 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 (B3)
- 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 4)

Part Number	Qualification	Case	Packaging
DM8WxxA-13	AEC-Q101	DO-218 (Type E)	750/Tape & Reel

\*x = Device Voltage, e.g., DM8W10A-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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
  5. 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. M8W10A for DM8W10A-13)  
 ⌋⌋⌋ = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 0 for 2020)  
 WW = Week Code (01 to 53)  
 Bar Denotes Cathode Pin, Circle Denotes Anode

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated above T <sub>A</sub> = +25°C) (Note 6)	P <sub>PK</sub>	10/1000µs Waveform	6600
		10/10000µs Waveform	5200
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 6 & 7)	I <sub>FSM</sub>	700	A
Steady State Power Dissipation @ T <sub>C</sub> = +25°C	P <sub>M(AV)</sub>	8.0	W

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case	R <sub>θJC</sub>	0.9	°C/W
Operating Temperature Range	T <sub>J</sub>	-55 to +175	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +175	°C

Notes: 6. Valid provided that terminals are kept at ambient temperature.  
 7. Measured on 8.3ms single half sine-wave or equivalent square wave. Duty cycle = 4 pulses per minute maximum.

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 8)		Test Current	Max. Reverse Leakage @ V <sub>RWM</sub>	Max. Clamping Voltage @ I <sub>pp</sub>	Max. Peak Pulse Current I <sub>pp</sub> at 10/1000µs (Note 9)	Maximum Leakage at V <sub>WM</sub> T <sub>J</sub> = +175°C
	V <sub>RWM</sub> (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (µA)	V <sub>C</sub> (V)	(A)	I <sub>D</sub> (µA)
DM8W10A	10	11.1	12.3	5	15	17.0	388	250
DM8W11A	11	12.2	13.5	5	10	18.2	363	150
DM8W12A	12	13.3	14.7	5	10	19.9	332	150
DM8W13A	13	14.4	15.9	5	10	21.5	307	150
DM8W14A	14	15.6	17.2	5	10	23.2	284	150
DM8W15A	15	16.7	18.5	5	10	24.4	270	150
DM8W16A	16	17.8	19.7	5	10	26.0	254	150
DM8W17A	17	18.9	20.9	5	10	27.6	239	150
DM8W18A	18	20.0	22.1	5	10	29.2	226	150
DM8W20A	20	22.2	24.5	5	10	32.4	204	150
DM8W22A	22	24.4	26.9	5	10	35.5	186	150
DM8W24A	24	26.7	29.5	5	10	38.9	170	150
DM8W26A	26	28.9	31.9	5	10	42.1	157	150
DM8W28A	28	31.1	34.4	5	10	45.4	145	150
DM8W30A	30	33.3	36.8	5	10	48.4	136	150
DM8W33A	33	36.7	40.6	5	10	53.3	124	150
DM8W36A	36	40.0	44.2	5	10	58.1	114	150
DM8W40A	40	44.4	49.1	5	10	64.5	102	150
DM8W43A	43	47.8	52.8	5	10	69.4	95.1	150

Notes: 8. V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10ms to 15ms.  
 9. Refer to figure 3 for the waveform.

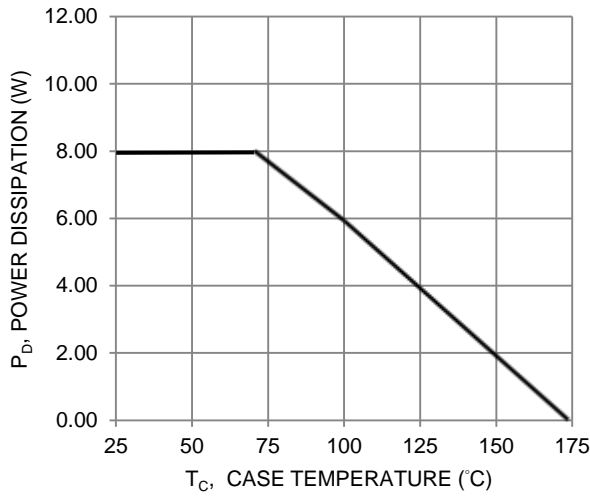


Fig. 1 Power Derating Curve

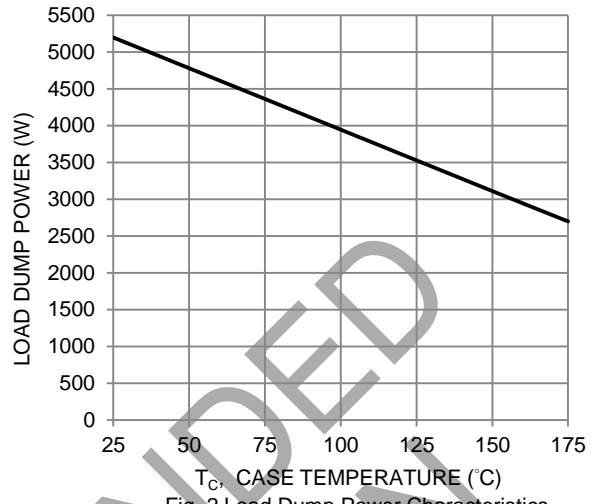


Fig. 2 Load Dump Power Characteristics (10ms Exponential Waveform)

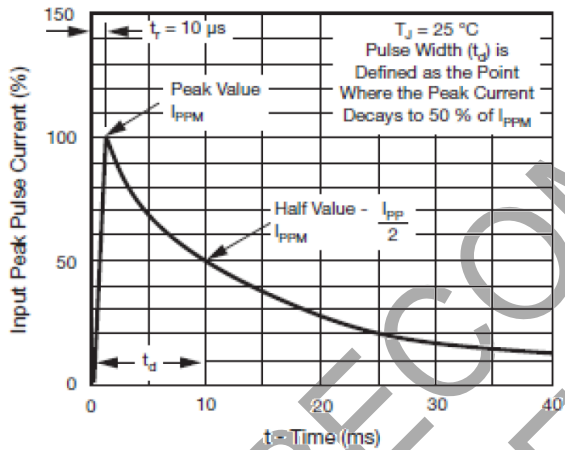


Fig. 3 - Pulse Waveform

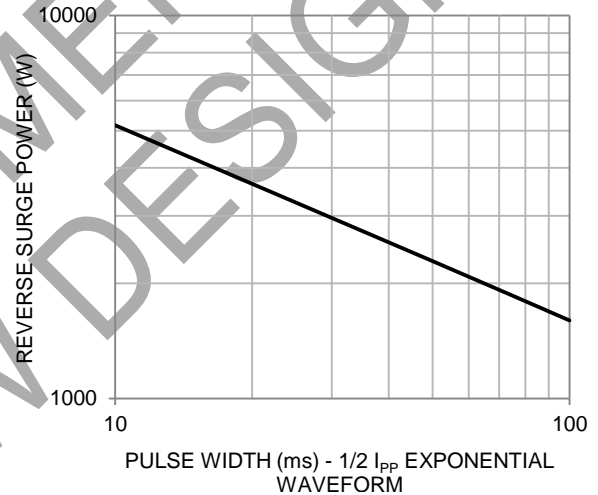


Fig. 4 Reverse Power Capability

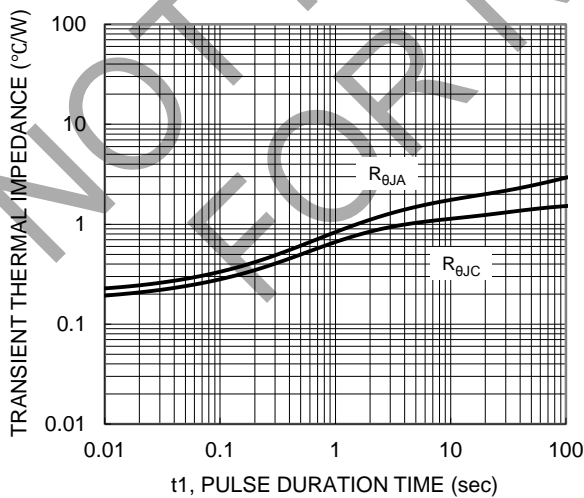


Fig. 5 Typical Transient Thermal Impedance

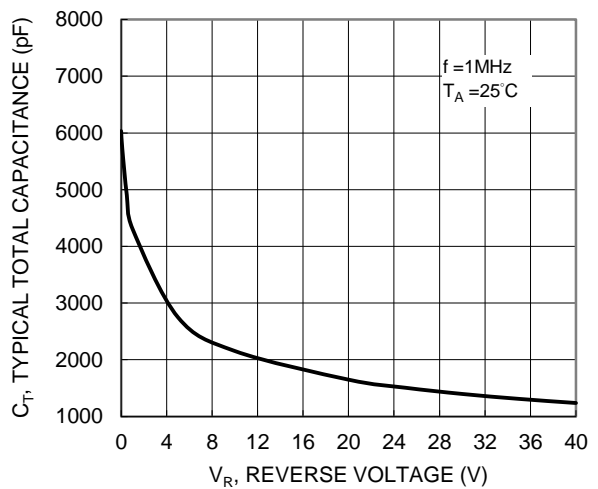
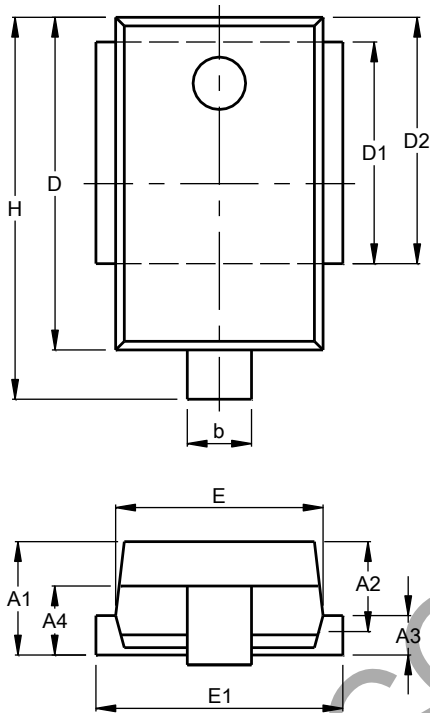


Fig. 6 Typical Total Capacitance

**Package Outline Dimensions**

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

**DO-218 (Type E)**

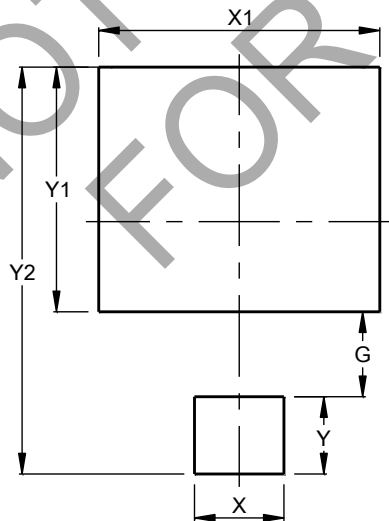


DO-218 (Type E)			
Dim	Min	Max	Typ
A	4.70	5.70	--
A1	4.70	5.25	5.00
A2	3.45	4.25	3.95
A3	1.70	2.50	2.00
A4	2.65	3.55	3.10
b	2.30	3.00	--
c	0.45	0.90	--
D	13.20	13.80	13.50
D1	8.70	9.30	9.00
D2	9.70	10.30	10.00
E	8.20	8.80	8.50
E1	9.50	10.00	--
H	15.00	16.00	15.50
L	1.50	2.50	2.00
All Dimensions in mm			

**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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