

Product Summary (@T_A = +25°C)

P _{PK}	I _{FSM} (A)	V _{RWM} (V)	PM _(AV)
4600W	600	10 to 36	6W

Features and Benefits

- 4600W Peak Pulse Power Dissipation
- High Current Capability
- Glass Passivated Die Construction
- Low Reverse Current
- Low Thermal Resistance
- Low Power Loss and High Efficiency
- Excellent High Temperature Stability
- Meets ISO7637-2 Surge Capability
- **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:

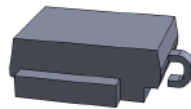
- ISO 10605, Pulse A and Pulse B
- ISO 7637-2 (Note 6)
Pulse 1, Pulse 2a, Pulse 3a, Pulse 3b

Mechanical Data

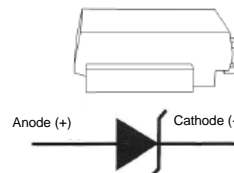
- Case: DO-218
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead-Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 @3
- Polarity Indicator: Heatsink Is Anode
- Weight: 2.74 grams (Approximate)

DO-218 (Type E)

Polarity: Heatsink is anode



Top View



Pin Information

Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
DM6WxxAQ-13	Automotive	DO-218 (Type E)	750/Tape & Reel

*x = Device Voltage, e.g., DM6W10AQ-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

Pin1



- M6WxxA = Product Type Marking Code (i.e. M6W10A for DM6W10AQ-13)
- ⌋⌋⌋ = Manufacturers' Code Marking
- 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

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non Repetitive Current Pulse Derated above $T_A = +25^\circ\text{C}$) (Note 7)	P _{PK}	10/1000 μs Waveform	4600
		10/10000 μs Waveform	3600
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Note 8)	I _{FSM}	600	A
Steady State Power Dissipation @ $T_C = +25^\circ\text{C}$	PM _(AV)	6.0	W

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case	R _{θJC}	1.0	$^\circ\text{C}/\text{W}$
Operating Temperature Range	T _J	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	T _{STG}	-55 to +175	$^\circ\text{C}$

- 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 (@ $T_A = +25^\circ\text{C}$, 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 10/1000 μs (Note 10)	Maximum Leakage at V _{WM} T _J = +175 $^\circ\text{C}$
	V _{RWM} (V)	Min (V)	Max (V)	I _T (mA)	I _R (μA)	V _C (V)	(A)	I _D (μA)
DM6W10AQ	10	11.1	12.3	5	15	17.0	271	250
DM6W16AQ	16	17.8	19.7	5	10	26.0	177	150
DM6W18AQ	18	20.0	22.1	5	10	29.2	158	150
DM6W20AQ	20	22.2	24.5	5	10	32.4	142	150
DM6W22AQ	22	24.4	26.9	5	10	35.5	130	150
DM6W24AQ	24	26.7	29.5	5	10	38.9	118	150
DM6W26AQ	26	28.9	31.9	5	10	42.1	109	150
DM6W28AQ	28	31.1	34.4	5	10	45.4	101	150
DM6W30AQ	30	33.3	36.8	5	10	48.4	95	150
DM6W36AQ	36	40.0	44.2	5	10	58.1	79	150

- Notes: 9. V_{BR} measured with I_T current pulse = 10ms to 15ms.
10. Refer to figure 3 for the waveform.
11. A short duration pulse test is used to minimize the self-heating effect.

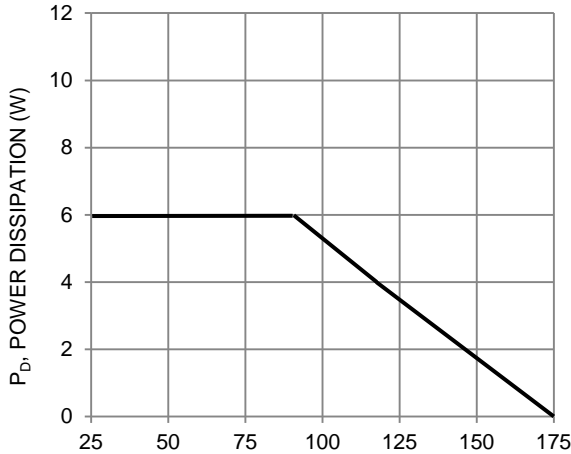


Fig. 1 Power Derating Curve

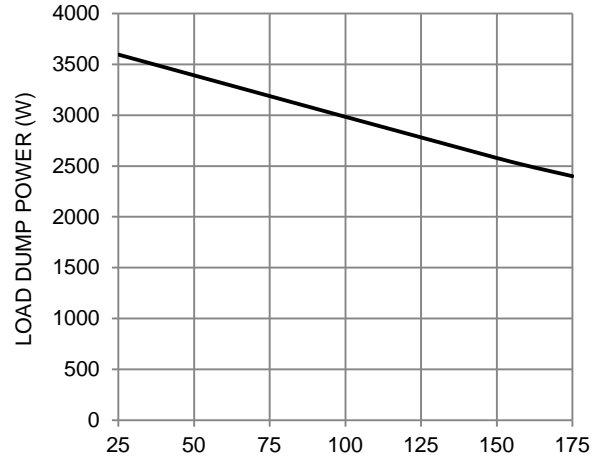


Fig. 2 Load Dump Power Characteristics (10ms Exponential Waveform)

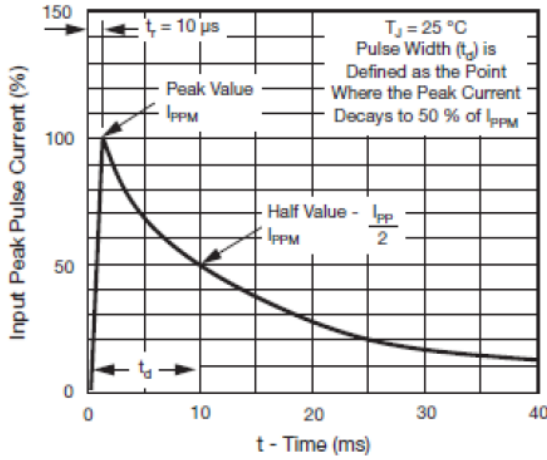


Fig. 3 - Pulse Waveform

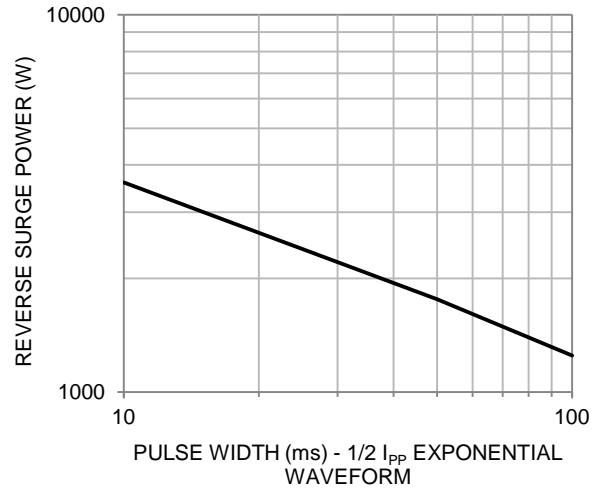


Fig. 4 Reverse Power Capability

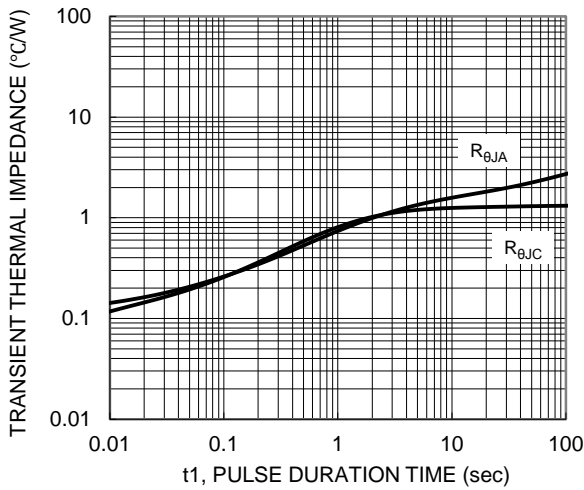


Fig. 5 Typical Transient Thermal Impedance

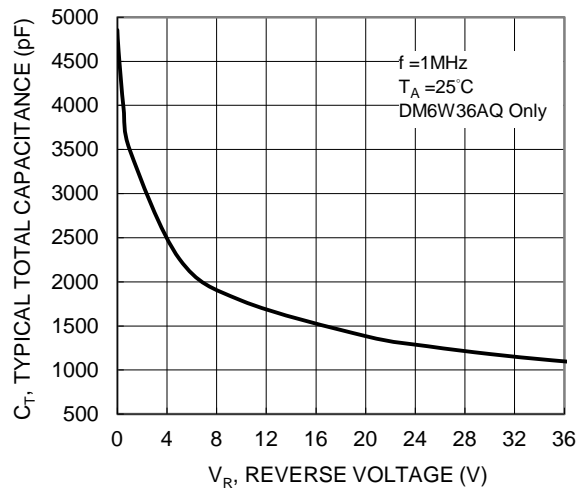
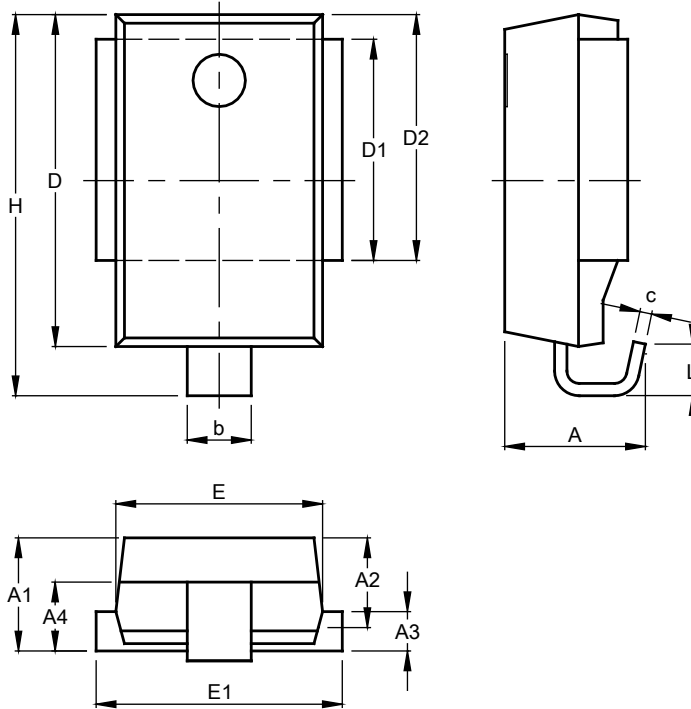


Fig. 6 Typical Total Capacitance

Package Outline Dimensions

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

DO-218 (Type E)

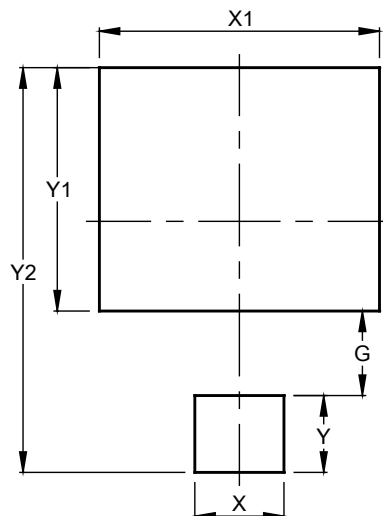


DO-218 (Type E)			
Dim	Min	Max	Typ
A	4.70	5.70	--
A1	4.70	5.25	5.00
A2	3.45	4.25	3.95
A3	1.70	2.50	2.00
A4	2.65	3.55	3.10
b	2.30	3.00	--
c	0.45	0.90	--
D	13.20	13.80	13.50
D1	8.70	9.30	9.00
D2	9.70	10.30	10.00
E	8.20	8.80	8.50
E1	9.50	10.00	--
H	15.00	16.00	15.50
L	1.50	2.50	2.00
All Dimensions in mm			

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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