

**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>
3600W	500	10 to 36	5W

**Features and Benefits**

- 3600W 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
- 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.

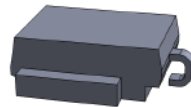
Compliance with following standards:

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

**Mechanical Data**

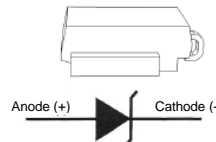
- Case: DO-218
- Case Material: Molded Plastic.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead-Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (e3)
- Polarity Indicator: Heatsink Is Anode
- Weight: 2.74 grams (Approximate)

DO-218 (Type E)



Top View

Polarity: Heatsink is anode



Pin Information

**Ordering Information** (Note 5)

Part Number	Qualification	Case	Packaging
DM5WxxAQ-13	Automotive	DO-218 (Type E)	750/Tape & Reel

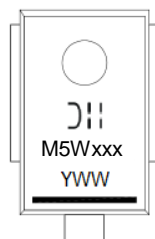
\*x = Device Voltage, e.g., DM5W10AQ-13

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



M5Wxx(A) = Product Type Marking Code (i.e. M5W10A for DM5W10AQ-13)  
 J|| = 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<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 7)	10/1000µs Waveform	P <sub>PK</sub>	3600	W
	10/10000µs Waveform		2800	
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Note 8)		I <sub>FSM</sub>	500	A
Steady State Power Dissipation @ T <sub>C</sub> = +25°C		PM <sub>(AV)</sub>	5.0	W

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Case	R <sub>θJC</sub>	1.1	°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: 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<sub>A</sub> = +25°C, unless otherwise specified.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage V <sub>BR</sub> @ I <sub>T</sub> (Note 9)		Test Current	Max. Reverse Leakage @ V <sub>RWM</sub> (Note 11)	Max. Clamping Voltage @ I <sub>pp</sub>	Max. Peak Pulse Current I <sub>pp</sub> at 10/1000µs (Note 10)	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)
DM5W10AQ	10	11.1	12.3	5	15	17.0	211	250
DM5W16AQ	16	17.8	19.7	5	10	26.0	138	150
DM5W18AQ	18	20.0	22.1	5	10	29.2	123	150
DM5W20AQ	20	22.2	24.5	5	10	32.4	111	150
DM5W22AQ	22	24.4	26.9	5	10	35.5	101	150
DM5W24AQ	24	26.7	29.5	5	10	38.9	93	150
DM5W26AQ	26	28.9	31.9	5	10	42.1	86	150
DM5W28AQ	28	31.1	34.4	5	10	45.4	79	150
DM5W30AQ	30	33.3	36.8	5	10	48.4	74	150
DM5W33AQ	33	36.7	40.6	5	10	53.3	68	150
DM5W36AQ	36	40.0	44.2	5	10	58.1	61	150

Notes: 9. V<sub>BR</sub> measured with I<sub>T</sub> current pulse = 10ms to 15ms.  
10. Refer to figure 3 for the waveform.  
11. Short duration pulse test used to minimize the self-heating effect.

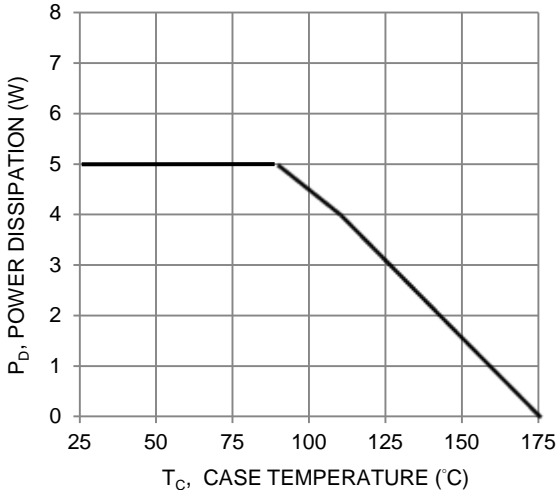


Fig. 1 Power Derating Curve

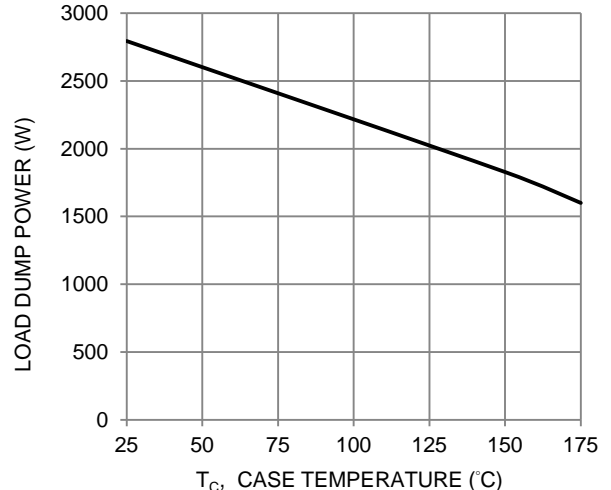


Fig. 2 Load Dump Power Characteristics (10ms Exponential Waveform)

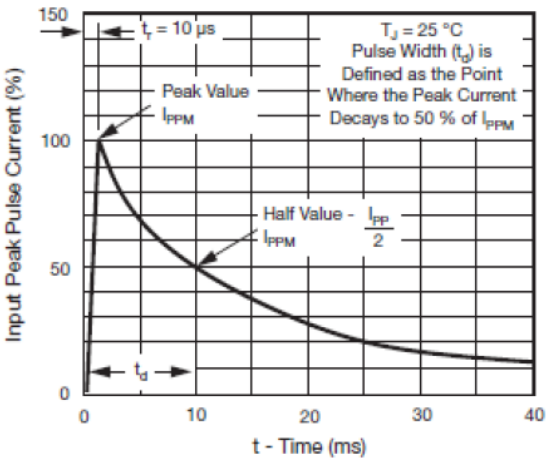


Fig. 3 - Pulse Waveform



Fig. 4 Reverse Power Capability

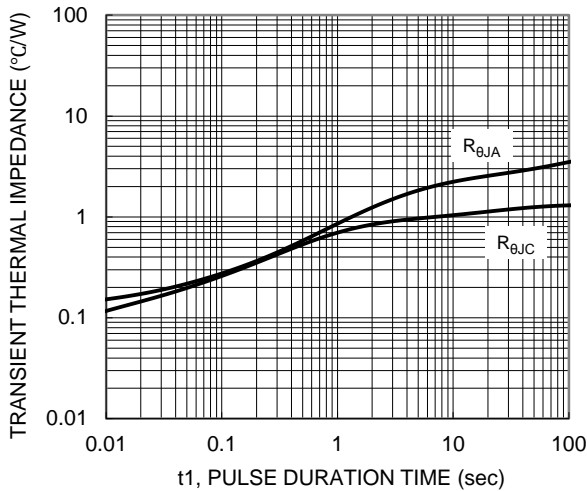


Fig. 5 Typical Transient Thermal Impedance

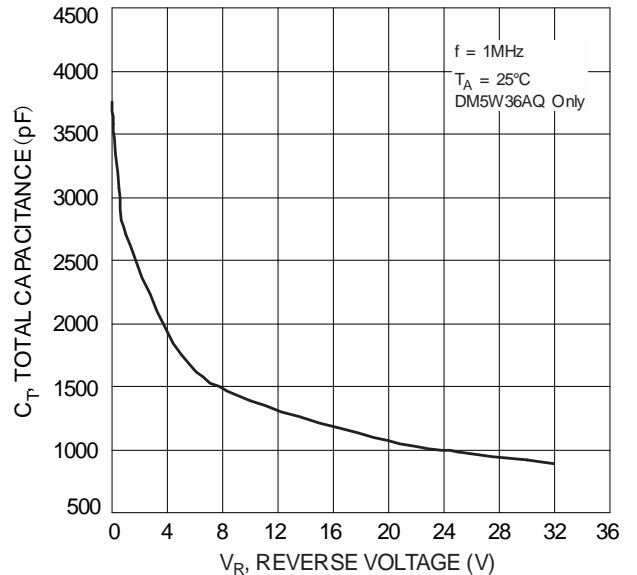
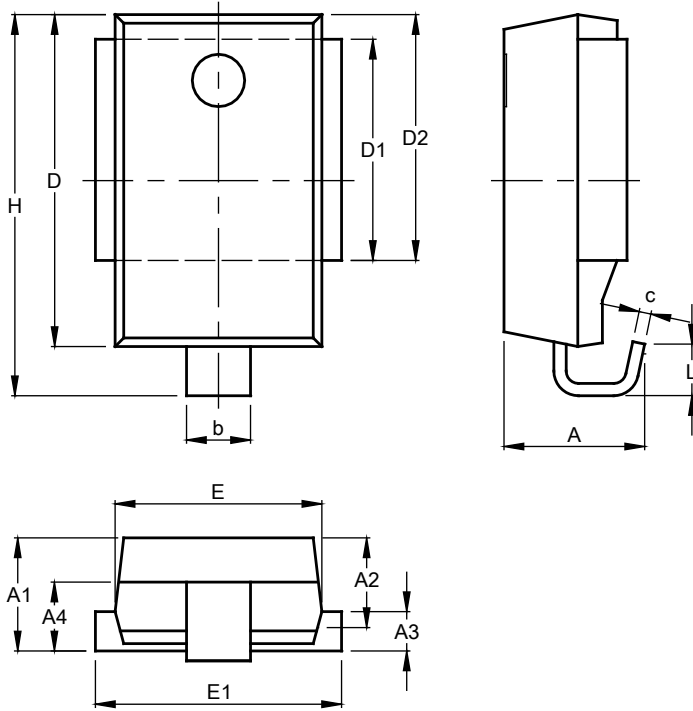


Fig. 6 Typical Total Capacitance

**Package Outline Dimensions**

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

DO-218 (Type E)

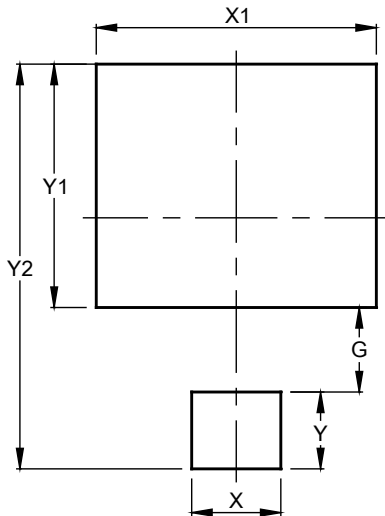


DO-218 (Type E)			
Dim	Min	Max	Typ
A	4.70	5.70	--
A1	4.70	5.25	5.00
A2	3.45	4.25	3.95
A3	1.70	2.50	2.00
A4	2.65	3.55	3.10
b	2.30	3.00	--
c	0.45	0.90	--
D	13.20	13.80	13.50
D1	8.70	9.30	9.00
D2	9.70	10.30	10.00
E	8.20	8.80	8.50
E1	9.50	10.00	--
H	15.00	16.00	15.50
L	1.50	2.50	2.00
All Dimensions in mm			

**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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