5000W SURFACE-MOUNT TRANSIENT VOLTAGE SUPPRESSOR

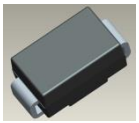
Features

- 5000W Peak Pulse Power Dissipation
- 10V to 18V Standoff Voltages
- ONO Passivated Die Construction
- Uni-directional and Bi-directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under a separate datasheet (5.0SMCJ10(C)AQ–5.0SMCJ18(C)AQ)**

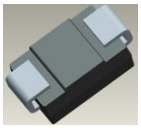
Mechanical Data

- Package: SMC
- Package 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: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.21 grams (Approximate)

SMC



Top View



Bottom View

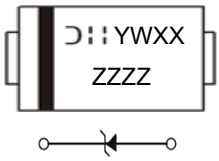
Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
5.0SMCJXX(C)A-13-F	SMC	3,000	Tape & Reel

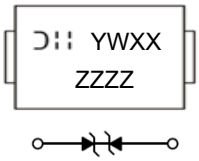
XX = Device Voltage, e.g., 5.0SMCJ10A-13-F

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/.

Marking Information



Uni-Directional



Bi-Directional

YWXX = Date Code Marking
Y = Year (ex: 5 = 2025)
W = Week Code
XX = Journal Lot Code (ex: 0 to 9 and A to Z, (Skip O, I))
ZZZZ = Product Type Marking Code

Date Code Key

Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Code	5	6	7	8	9	0	1	2	3	4	5	6

Week	1-26	27-52	53
Code	A-Z	a-z	z

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation (Note 5)	P_{PP}	5000	W	T_J = +25°C, tp = 1ms (See Figure 3)
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (Notes 6 & 7)	I_{FSM}	300	A	8.3ms single half sine wave @T_J = +25°C (Note 5)
Steady-State Power Dissipation with PCB	$PM_{(AV)}$	2.0	W	See Figure 4
ESD Protection – Contact Discharge	$V_{ESD\_CONTACT}$	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V_{ESD_AIR}	±30	kV	Standard IEC 61000-4-2

Notes: 5. Non-repetitive current pulse per Figure 2 and derated above T_A = +25°C per Figure 1.
6. Mounted on 8.00mm^2 (0.013mm thick) land areas.
7. Measured with 8.3ms single half sine wave. Duty cycle = 4 pulses per minute maximum. For uni-directional devices only.

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

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

Type Number Add C for Bi-directional (Note 8)	Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T (Note 9)		Test Current	Max Reverse Leakage @ V_{RWM} (Note 10)	Max Clamping Voltage @ I_{PP} (Note 11)	Max Peak Pulse Current	Marking Code	
	V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	I_{PP} (A)	BI-	UNI-
5.0SMCJ10(C)A	10	11.1	12.3	1	20	17.0	294.0	ABDA	AUDA
5.0SMCJ11(C)A	11	12.2	13.5	1	10	18.2	275.0	ABDB	AUDB
5.0SMCJ12(C)A	12	13.3	14.7	1	10	19.9	251.3	ABDC	AUDC
5.0SMCJ13(C)A	13	14.4	15.9	1	10	21.5	232.6	ABDD	AUDD
5.0SMCJ14(C)A	14	15.6	17.2	1	10	23.2	216.0	ABDE	AUDE
5.0SMCJ15(C)A	15	16.7	18.5	1	10	24.4	205.0	ABDF	AUDF
5.0SMCJ16(C)A	16	17.8	19.7	1	2	26.0	192.3	ABDG	AUDG
5.0SMCJ17(C)A	17	18.9	20.9	1	2	27.6	181.2	ABDH	AUDH
5.0SMCJ18(C)A	18	20.0	22.1	1	2	29.2	171.2	ABDI	AUDI

Notes: 8. Suffix C denotes bi-directional devices.
9. V_{BR} measured with I_T current pulse = 10ms to 15ms.
10. For bi-directional devices having V_{RWM} of 10V and under, the I_R is doubled.
11. Per 10 × 1000µs waveform. See Figure 2.

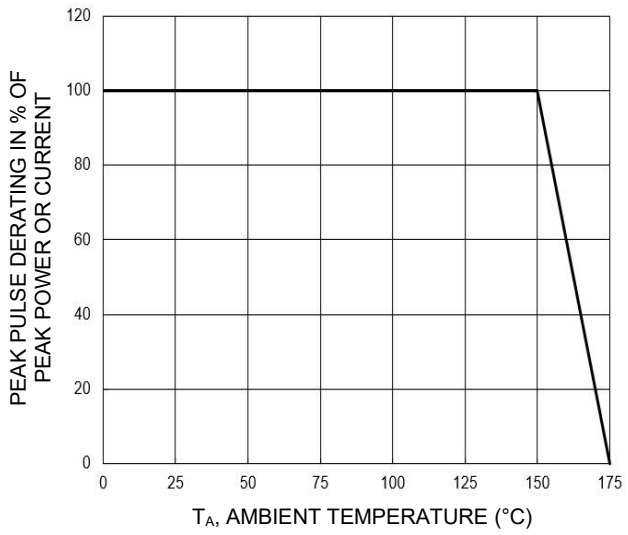


Figure 1. Pulse Deration Curve

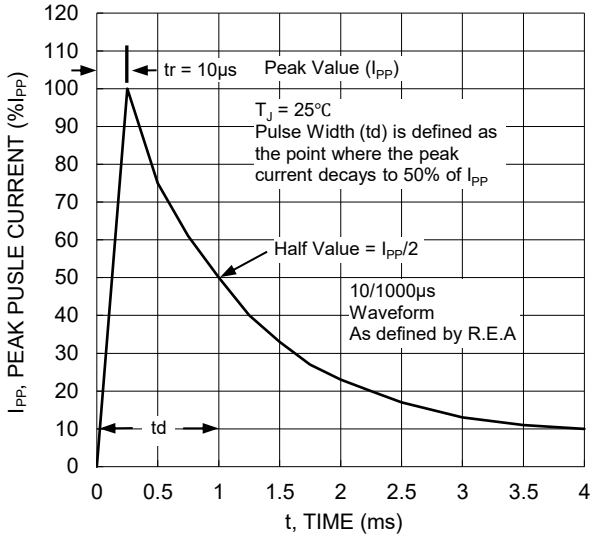


Figure 2. Pulse Waveform

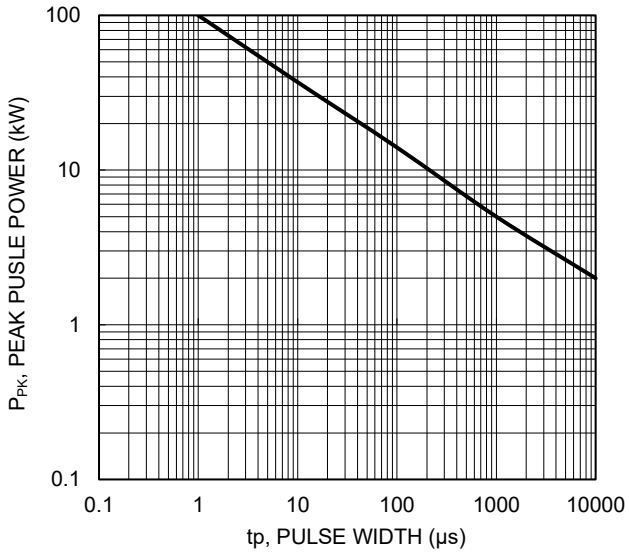


Figure 3. Pulse Rating Curve

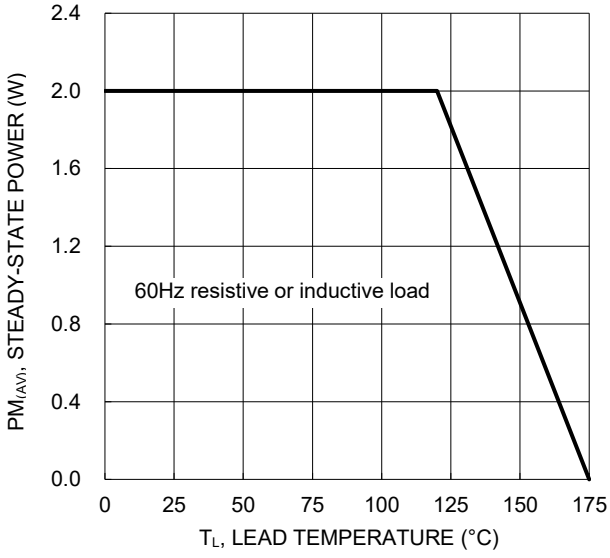


Figure 4. Steady-State Power Deration Curve

Package Outline Dimensions

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

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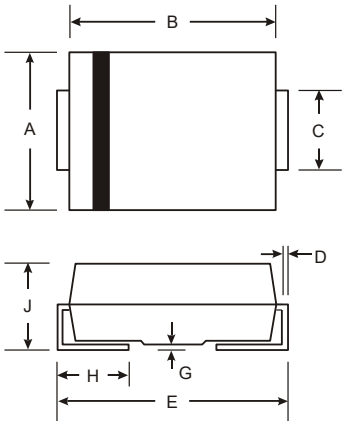
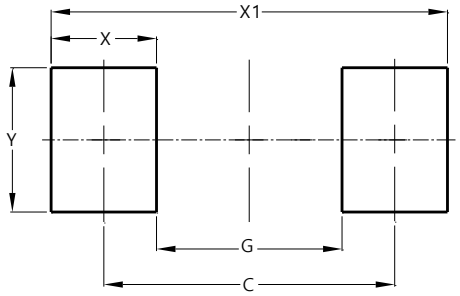


SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout

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

SMC



Dimensions	Value (in mm)
C	6.90
G	4.40
X	2.50
X1	9.40
Y	3.30

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