

#### 1,500W SURFACE MOUNT AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

#### Product Summary (@TA = +25°C)

P <sub>PK</sub>	I <sub>FSM</sub> (A)	V <sub>RWM</sub> (V)	PM <sub>(AV)</sub>
1500W	200	14-36	5W

### **Features and Benefits**

- 1500W Peak Pulse Power Dissipation
- 14V 36V Standoff Voltages
- Glass Passivated Die Construction
- Unidirectional and Bidirectional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Notes 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 electrostatic discharges according to ISO10605.

Compliance with following standards:

- ISO10605, C = 150pF, R = 330Ω: 30kV (Air Discharge)
   30kV (Contact Discharge)
- ISO7637-2

Pulse 1: Vs = -100 V Pulse 2a: Vs = +50 V Pulse 3a: VS= -150 V Pulse 3b: VS= +100 V

#### **Mechanical Data**

- Case: SMC
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Terminals: Lead-Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208@3
- Polarity Indicator: Cathode Band (Note: Bidirectional devices have no polarity indicator.)
- Weight: 0.21 grams (Approximate)

SMC







### Ordering Information (Note 5)

	Part Number	Qualification	Case	Packaging
SM	//CJXX(C)AQ-13-F*	Automotive	SMC	3000/Tape & Reel

\*x = Device Voltage, e.g., SMCJ14A-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. 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 http://www.diodes.com/products/packages.html.

## **Marking Information**



xxx = Product Type Marking Code (See Page 3)

| WW = Date Code Marking
| YWW = Date Code Marking
| Y = Last Digit of Year (ex: 9 for 2019)

| WW = Week Code (01 to 53)



# **Maximum Ratings** (@ $T_A = +25$ °C unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation	C	1500	W
(Non-Repetitive Current Pulse Derated Above $T_A = +25$ °C) (Note 6)	P <sub>PK</sub>	1300	VV
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Notes 6, 7, & 8)	I <sub>FSM</sub>	200	Α
Steady State Power Dissipation @ T <sub>L</sub> = +75°C	PM <sub>(AV)</sub>	5.0	W
Instantaneous Forward Voltage @ I <sub>PP</sub> = 100A (Notes 6 & 8)	$V_{F}$	3.5	V

# **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Operating Temperature Range	TJ	-55 to +150	°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 with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.8. Unidirectional units only.



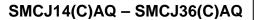
# Electrical Characteristics (@T<sub>A</sub> = +25°C unless otherwise specified.)

Part Number Add C For Bidirectional	Reverse Standoff Voltage	Vol	kdown tage (Note 10)	Test Current	Max. Reverse Leakage @ V <sub>RWM</sub>	Max. Clamping Voltage @ I <sub>pp</sub> (Note 11)	Max. Peak Pulse Current I <sub>pp</sub>	Markin	ıg Code
(Note 9)	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)	ВІ	UNI
SMCJ14(C)AQ	14.0	15.60	17.2	1.0	5.0	23.2	64.7	BEK	GEK
SMCJ15(C)AQ	15.0	16.70	18.5	1.0	5.0	24.4	61.5	BEM	GEM
SMCJ16(C)AQ	16.0	17.80	19.7	1.0	5.0	26.0	57.7	BEP	GEP
SMCJ17(C)AQ	17.0	18.90	20.9	1.0	5.0	27.6	53.3	BER	GER
SMCJ18(C)AQ	18.0	20.00	22.1	1.0	5.0	29.2	51.4	BET	GET
SMCJ20(C)AQ	20.0	22.20	24.5	1.0	5.0	32.4	46.3	BEV	GEV
SMCJ22(C)AQ	22.0	24.40	27.0	1.0	5.0	35.5	42.2	BEX	GEX
SMCJ24(C)AQ	24.0	26.70	29.5	1.0	5.0	38.9	38.6	BEZ	GEZ
SMCJ26(C)AQ	26.0	28.90	31.9	1.0	5.0	42.1	35.6	BFE	GFE
SMCJ28(C)AQ	28.0	31.10	34.4	1.0	5.0	45.4	33.0	BFG	GFG
SMCJ30(C)AQ	30.0	33.30	36.8	1.0	5.0	48.4	31.0	BFK	GFK
SMCJ33(C)AQ	33.0	36.70	40.6	1.0	5.0	53.3	28.1	BFM	GFM
SMCJ36(C)AQ	36.0	40.00	44.2	1.0	5.0	58.1	25.8	BFP	GFP

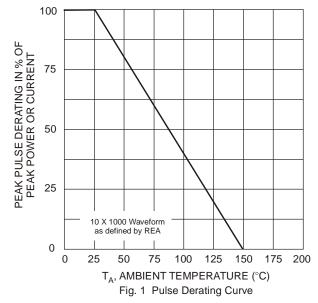
Notes:

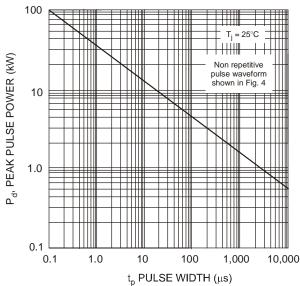
<sup>9.</sup> Suffix C denotes bidirectional device.

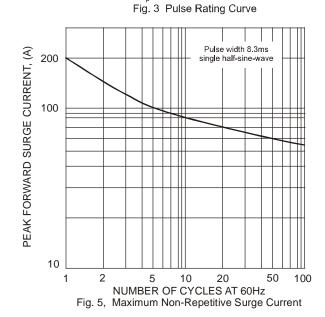
<sup>10.</sup>  $V_{BR}$  measured with  $I_T$  current pulse = 10  $\sim$  15 ms. 11. Per 10 x 1000 $\mu$ s waveform. See Figure 4.

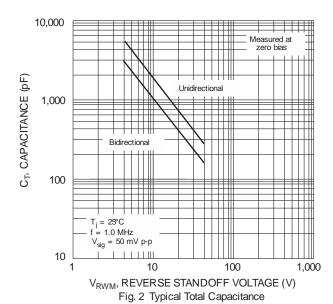


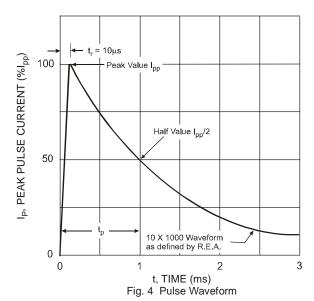


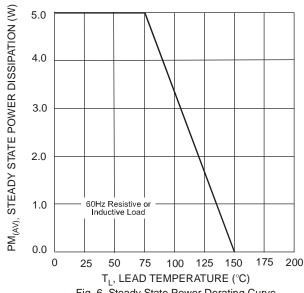










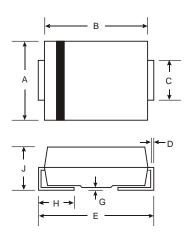




# **Package Outline Dimensions**

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

#### SMC

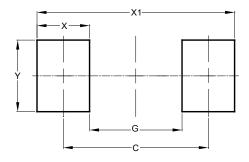


SMC				
Dim	Min	Max		
Α	5.59	6.22		
В	6.60	7.11		
С	2.75	3.18		
D	0.15	0.31		
Е	7.75	8.13		
G	0.10	0.20		
Н	0.76	1.52		
J	2.00	2.50		
All Dimensions in mm				

# **Suggested Pad Layout**

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

#### SMC



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



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### Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru\_6 moschip.ru 4 moschip.ru 9