

# Unidirectional and Bidirectional Surface Mount Transient Voltage Suppressor



## Features:

- Rating to 200V  $V_{BR}$
- For surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Plastic material has UL recognition 94V-0
- Typical IR less than 1 $\mu$ A above 10V
- Fast response time : typically less than 1.0ns for Uni-direction, less than 5.0ns for Bi-direction, from 0 Volts to BV min

## Mechanical Data:

Case	: Molded Plastic
Polarity	: Cathode band denotes uni-directional device No cathode band denotes bi-directional device
Weight	: 0.002 ounces, 0.053 grams
Reverse Voltage	: 5 to 170 Volts
Power Dissipation	: 400 Watts

## Maximum Ratings and Electrical Characteristics:

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Characteristics	Symbol	Values	Unit
Peak Power Dissipation at $T_A = 25^\circ\text{C}$ TP = 1ms (Note 1, 2)	$P_{PK}$	Min. 400	Watts
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Super Imposed on Rated Load (JEDEC Method)	$I_{FSM}$	40	Amps
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$	$P_{M(AV)}$	1	Watts
Max. Instantaneous Forward Voltage at 50A for Uni-Directional Devices Only (Note 3)	$V_F$	3.5	Volts
Operating Temperature Range	$T_J$	-55 to +150	°C
Storage Temperature Range	$T_{STG}$	-55 to +175	°C

## Notes:

1. Non-repetitive current pulse ,per Fig. 3 and derated above  $T_A = 25^\circ\text{C}$  per Fig. 1.
2. Thermal Resistance junction to Lead.
3. 8.3ms single half-wave duty cycle=4 pulses per minutes maximum (uni-directional units only).

# Unidirectional and Bidirectional Surface Mount Transient Voltage Suppressor



Part Number		Working Peak Reverse Voltage $V_{RWM}$ (V)	Breakdown Voltage VBR Volts			Max. Reverse Voltage at $I_{RSM}$ (Clamping Voltage) $V_{RSM}$ (V)	Max. Reverse Surge Current $I_{RSM}$ (Amps)	Max. Reverse Leakage at $V_{RWM}$ $I_R$ ( $\mu$ A)
Device Unidirectional	Device Bidirectional		Min. (V)	Max. (V)	$I_t$ (mA)			
SMAJ10A+	SMAJ10CA+	10	11.1	12.3	1	17	23.5	5/10
-	SMAJ11CA+	11	12.2	13.5	1	18.2	22	5
SMAJ120A+	-	120	133	147	1	193	2	5
SMAJ12A+	SMAJ12CA+	12	13.3	14.7	1	19.9	20.1	5
SMAJ13A+	SMAJ13CA+	13	14.4	15.9	1	21.5	18.6	5
SMAJ150A+	SMAJ150CA+	150	167	185	1	243	1.6	5
SMAJ15A+	SMAJ15CA+	15	16.7	18.5	1	24.4	16.4	5
SMAJ16A+	-	16	17.8	19.7	1	26	15.3	5
SMAJ18A+	SMAJ18CA+	18	20	22.1	1	29.2	13.7	5
SMAJ20A+	SMAJ20CA+	20	22.2	24.5	1	32.4	12.3	5
SMAJ22A+	-	22	24.4	26.9	1	35.5	11.2	5
SMAJ24A+	SMAJ24CA+	24	26.7	29.5	1	38.9	10.3	5
SMAJ26A+	SMAJ26CA+	26	28.9	31.9	1	42.1	9.5	5
SMAJ28A+	-	28	31.1	34.4	1	45.4	8.8	5
SMAJ30A+	SMAJ30CA+	30	33.3	36.8	1	48.4	8.3	5
SMAJ33A+	SMAJ33CA+	33	36.7	40.6	1	53.3	7.5	5
SMAJ36A+	SMAJ36CA+	36	40	44.2	1	58.1	6.9	5
SMAJ40A+	SMAJ40CA+	40	44.4	49.1	1	64.5	6.2	5
-	SMAJ43CA+	43	47.8	52.8	1	69.4	5.7	5
-	SMAJ48CA+	48	53.3	58.9	1	77.4	5.2	5
SMAJ5.0A+	SMAJ5.0CA+	5	6.4	7	10	9.2	43.5	800/1600
SMAJ51A+	SMAJ51CA+	51	56.7	62.7	1	82.4	4.9	5
SMAJ54A+	SMAJ54CA+	54	60	66.3	1	87.1	4.6	5
SMAJ58A+	SMAJ58CA+	58	64.4	71.2	1	93.6	4.3	5
SMAJ6.0A+	-	6	6.67	7.37	10	10.3	38.8	800/1600
SMAJ6.5A+	-	6.5	7.22	7.98	10	11.2	35.7	500/1000
SMAJ60A+	-	60	66.7	73.7	1	96.8	4.1	5
SMAJ64A+	-	64	71.1	78.6	1	103	3.9	5
-	SMAJ7.0CA+	7	7.78	8.6	10	12	33.3	200/400
SMAJ7.5A+	-	7.5	8.33	9.21	1	12.9	31	100/200
SMAJ8.5A+	-	8.5	9.44	10.4	1	14.4	27.7	10/20
-	SMAJ9.0CA+	9	10	11.1	1	15.4	26	5/10

## Ratings and Characteristic Curves

FIG.1-PULSE DERATING CURVE

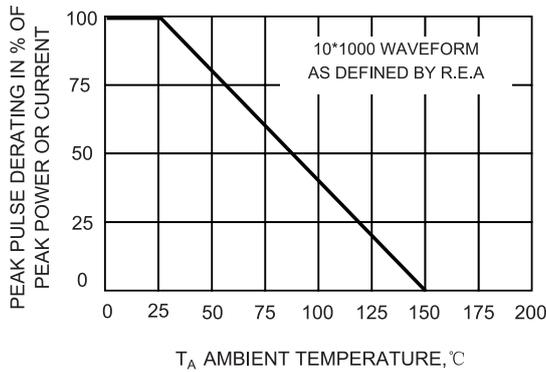


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

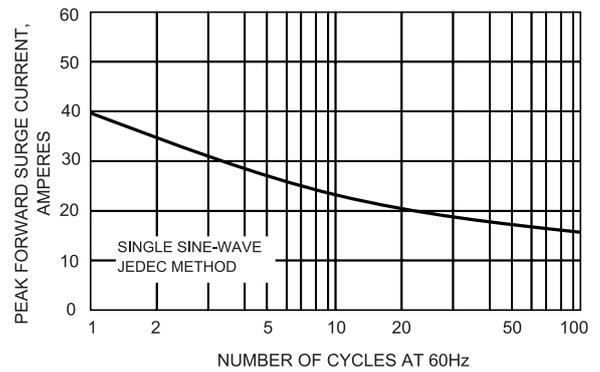


FIG.3-PULSE WAVEFORM

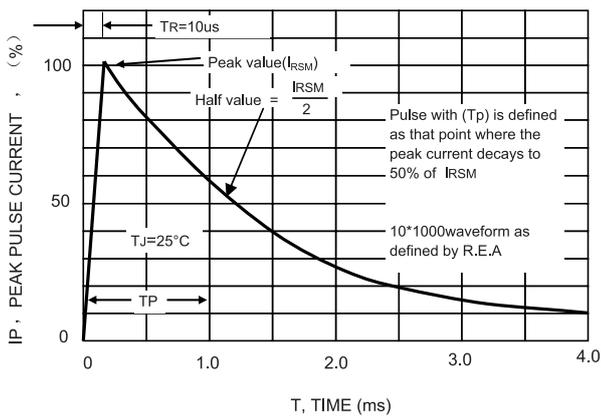


FIG.4-TYPICAL JUNCTION CAPACITANCE

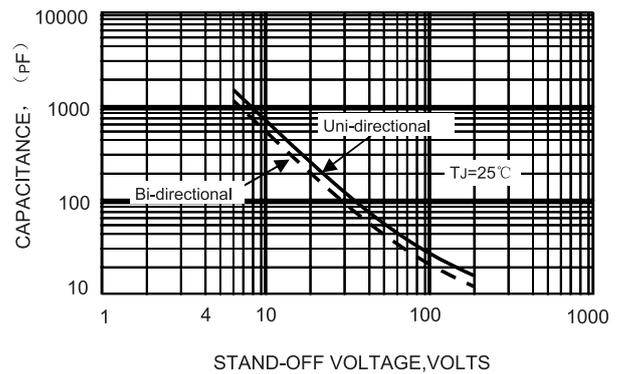


FIG.5-PULSE RATING CURVE

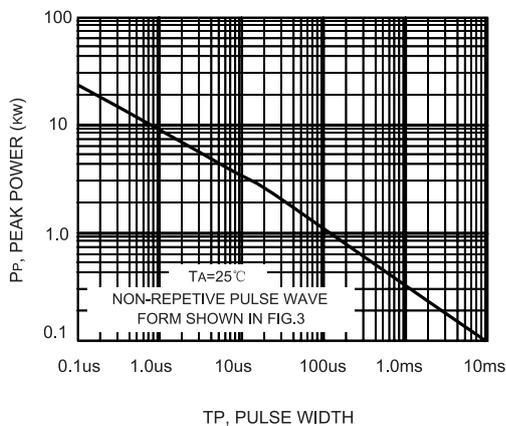
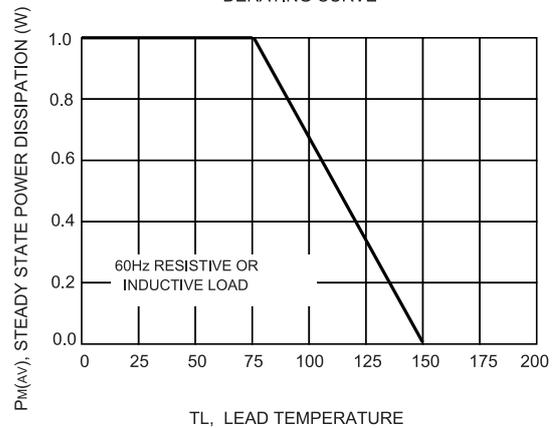


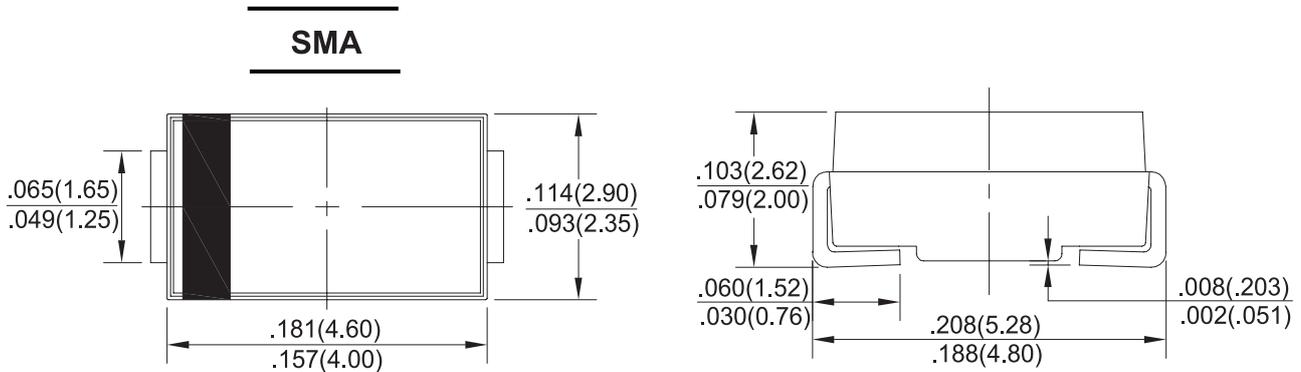
FIG.6-STEADY STATE POWER DERATING CURVE



# Unidirectional and Bidirectional Surface Mount Transient Voltage Suppressor



## Dimensions:



Dimensions : Inches (Millimetres)

## Part Number Table

Description	Part Number	Description	Part Number	Description	Part Number
Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors	SMAJ10A+	Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors	SMAJ22A+	Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors	SMAJ5.0CA+
	SMAJ10CA+		SMAJ24A+		SMAJ51A+
	SMAJ11CA+		SMAJ24CA+		SMAJ51CA+
	SMAJ120A+		SMAJ26A+		SMAJ54A+
	SMAJ12A+		SMAJ26CA+		SMAJ54CA+
	SMAJ12CA+		SMAJ28A+		SMAJ58A+
	SMAJ13A+		SMAJ30A+		SMAJ58CA+
	SMAJ13CA+		SMAJ30CA+		SMAJ6.0A+
	SMAJ150A+		SMAJ33A+		SMAJ6.5A+
	SMAJ150CA+		SMAJ33CA+		SMAJ60A+
	SMAJ15A+		SMAJ36A+		SMAJ64A+
	SMAJ15CA+		SMAJ36CA+		SMAJ7.0CA+
	SMAJ16A+		SMAJ40A+		SMAJ7.5A+
	SMAJ18A+		SMAJ40CA+		SMAJ8.5A+
	SMAJ18CA+		SMAJ43CA+		SMAJ9.0CA+
	SMAJ20A+		SMAJ48CA+		
SMAJ20CA+	SMAJ5.0A+				

**Important Notice :** This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell Limited 2016.

www.element14.com  
www.farnell.com  
www.newark.com

