

### DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

### FEATURES:

- ✧ Glass passivated or planar junction.
- ✧ Excellent clamping capability.
- ✧ Repetition rate (duty cycle): 0.01%.
- ✧ Typical  $I_R$  less than  $1\mu A$  above 10V.
- ✧ Low profile package and low inductance.
- ✧ 3000W peak pulse power capability at  $10 \times 1000\mu s$  waveform.
- ✧ Fast response time: typically less than 1.0ps from 0V to  $V_{BR}$  min.
- ✧ High temperature soldering:  $260^\circ C/10s$  at terminals.
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0.
- ✧ For surface mounted applications in order to optimize board space.
- ✧ AEC-Q101 qualified.



SMC



Bi-directional



Uni-direction

Symbol

### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ C$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	$T_{stg}$	-55 to +150	$^\circ C$
Operating junction temperature range	$T_j$	-55 to +125	$^\circ C$
Steady state power dissipation at $T_L=75^\circ C$	$P_{M(AV)}$	8.0	W
Peak pulse power dissipation on 10/1000 $\mu s$ waveform	$P_{PP}$	3000	W
Maximum instantaneous forward voltage at 80A for unidirectional	$V_F$	5.0	V

### ELECTRICAL CHARACTERISTICS (T =25°C)

Part Number		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> <sup>①</sup>
Uni-Polar	Bi-Polar	V	μA	min(V)	max(V)	mA	max(V)	A
SMDJ5.0A	SMDJ5.0CA	5.0	800	6.40	7.00	10	9.2	326.1
SMDJ6.0A	SMDJ6.0CA	6.0	800	6.67	7.37	10	10.3	291.3
SMDJ6.5A	SMDJ6.5CA	6.5	500	7.22	7.98	10	11.2	267.9
SMDJ7.0A	SMDJ7.0CA	7.0	200	7.78	8.60	10	12.0	250.0
SMDJ7.5A	SMDJ7.5CA	7.5	100	8.33	9.21	1	12.9	232.6
SMDJ8.0A	SMDJ8.0CA	8.0	50	8.89	9.83	1	13.6	220.6
SMDJ8.5A	SMDJ8.5CA	8.5	20	9.44	10.40	1	14.4	208.3
SMDJ9.0A	SMDJ9.0CA	9.0	10	10.00	11.10	1	15.4	194.8
SMDJ10A	SMDJ10CA	10	5	11.10	12.30	1	17.0	176.5
SMDJ11A	SMDJ11CA	11	1	12.20	13.50	1	18.2	164.8
SMDJ12A	SMDJ12CA	12	1	13.30	14.70	1	19.9	150.8
SMDJ13A	SMDJ13CA	13	1	14.40	15.90	1	21.5	139.5
SMDJ14A	SMDJ14CA	14	1	15.60	17.20	1	23.2	129.3
SMDJ15A	SMDJ15CA	15	1	16.70	18.50	1	24.4	123.0
SMDJ16A	SMDJ16CA	16	1	17.80	19.70	1	26.0	115.4
SMDJ17A	SMDJ17CA	17	1	18.90	20.90	1	27.6	108.7
SMDJ18A	SMDJ18CA	18	1	20.00	22.10	1	29.2	102.7
SMDJ20A	SMDJ20CA	20	1	22.20	24.50	1	32.4	92.6
SMDJ22A	SMDJ22CA	22	1	24.40	26.90	1	35.5	84.5
SMDJ24A	SMDJ24CA	24	1	26.70	29.50	1	38.9	77.1
SMDJ26A	SMDJ26CA	26	1	28.90	31.90	1	42.1	71.3
SMDJ28A	SMDJ28CA	28	1	31.10	34.40	1	45.4	66.1
SMDJ30A	SMDJ30CA	30	1	33.30	36.80	1	48.4	62.0
SMDJ33A	SMDJ33CA	33	1	36.70	40.60	1	53.3	56.3
SMDJ36A	SMDJ36CA	36	1	40.00	44.20	1	58.1	51.6
SMDJ40A	SMDJ40CA	40	1	44.40	49.10	1	64.5	46.5
SMDJ43A	SMDJ43CA	43	1	47.80	52.80	1	69.4	43.2
SMDJ45A	SMDJ45CA	45	1	50.00	55.30	1	72.7	41.3
SMDJ48A	SMDJ48CA	48	1	53.30	58.90	1	77.4	38.8
SMDJ51A	SMDJ51CA	51	1	56.70	62.70	1	82.4	36.4

### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , continued)

Part Number		$V_R$	$I_R@V_R$	$V_{BR}@I_T$		$I_T$	$V_C@I_{PP}$	$I_{PP}^{①}$
Uni-Polar	Bi-Polar	V	$\mu\text{A}$	min(V)	max(V)	mA	max(V)	A
SMDJ54A	SMDJ54CA	54	1	60.00	66.30	1	87.1	34.4
SMDJ58A	SMDJ58CA	58	1	64.40	71.20	1	93.6	32.1
SMDJ60A	SMDJ60CA	60	1	66.70	73.70	1	96.8	31.0
SMDJ64A	SMDJ64CA	64	1	71.10	78.60	1	103.0	29.1
SMDJ70A	SMDJ70CA	70	1	77.80	86.00	1	113.0	26.5
SMDJ75A	SMDJ75CA	75	1	83.30	92.10	1	121.0	24.8
SMDJ78A	SMDJ78CA	78	1	86.70	95.80	1	126.0	23.8
SMDJ85A	SMDJ85CA	85	1	94.40	104.0	1	137.0	21.9
SMDJ90A	SMDJ90CA	90	1	100.0	111.0	1	146.0	20.5
SMDJ100A	SMDJ100CA	100	1	111.0	123.0	1	162.0	18.5
SMDJ110A	SMDJ110CA	110	1	122.0	135.0	1	177.0	16.9
SMDJ120A	SMDJ120CA	120	1	133.0	147.0	1	193.0	15.5
SMDJ130A	SMDJ130CA	130	1	144.0	159.0	1	209.0	14.4
SMDJ150A	SMDJ150CA	150	1	167.0	185.0	1	243.0	12.3
SMDJ160A	SMDJ160CA	160	1	178.0	197.0	1	259.0	11.6
SMDJ170A	SMDJ170CA	170	1	189.0	209.0	1	275.0	10.9
SMDJ180A	SMDJ180CA	180	1	201.0	222.0	1	292.0	10.3
SMDJ190A	SMDJ190CA	190	1	211.0	234.0	1	307.0	9.7
SMDJ200A	SMDJ200CA	200	1	224.0	247.0	1	324.0	9.3
SMDJ210A	SMDJ210CA	210	1	233.0	258.0	1	337.0	8.8
SMDJ220A	SMDJ220CA	220	1	246.0	272.0	1	356.0	8.4

① Surge waveform: 10/1000 $\mu\text{s}$

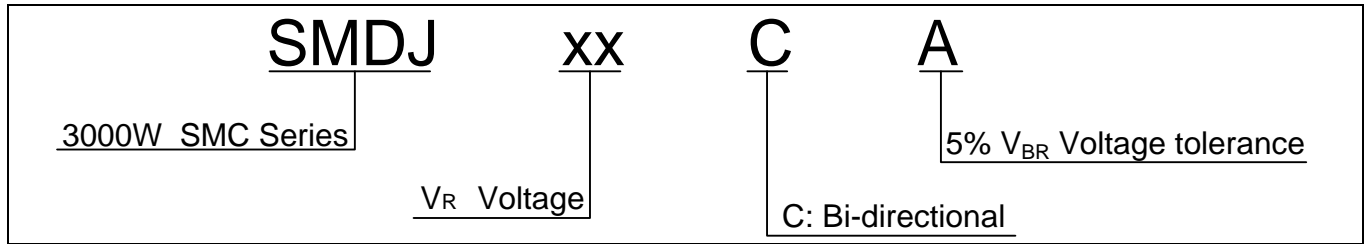
$V_R$ : Stand-off voltage -- Maximum voltage that can be applied

$V_{BR}$ : Breakdown voltage

$V_C$ : Clamping voltage -- Peak voltage measured across the suppressor at a specified  $I_{PP}$

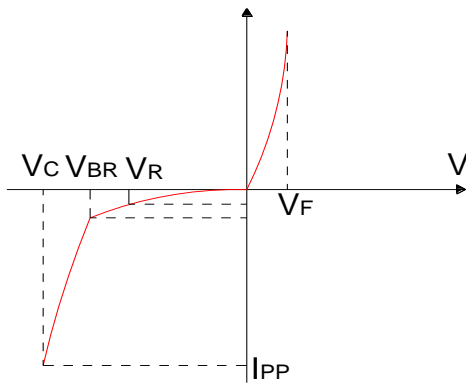
$I_R$ : Reverse leakage current

## ORDERING INFORMATION

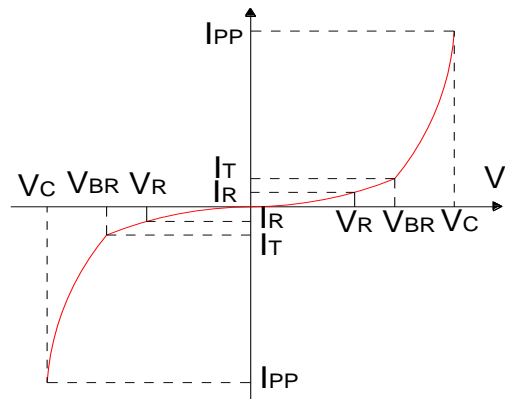


## RATINGS AND V-I CHARACTERISTICS CURVES ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

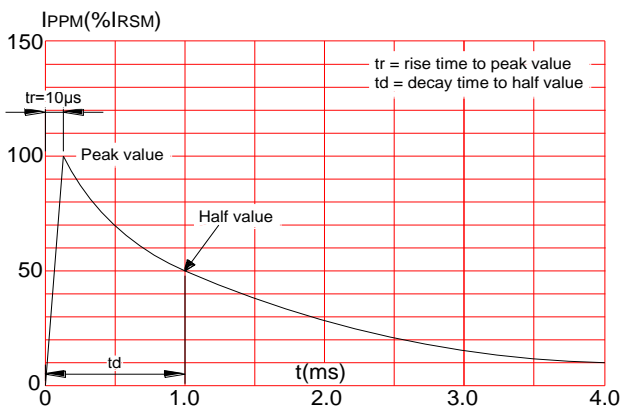
**FIG.1: V- I curve characteristics (Uni-directional)**



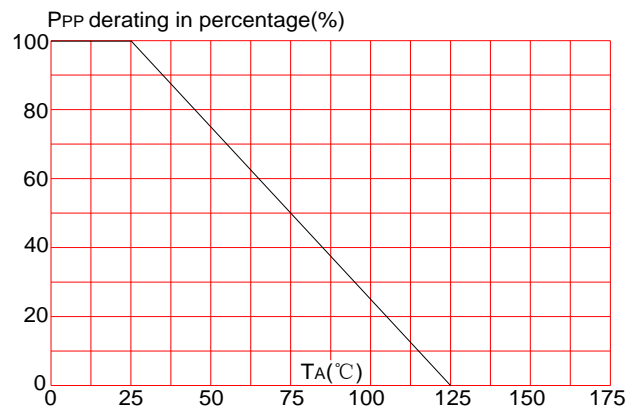
**FIG.2: V- I curve characteristics (Bi-directional)**



**FIG.3: Pulse waveform**

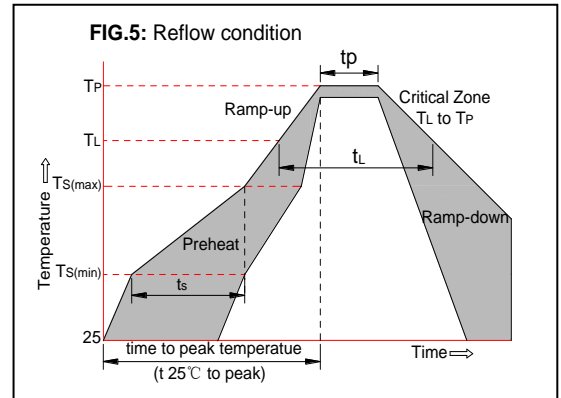


**FIG.4: Pulse derating curve**

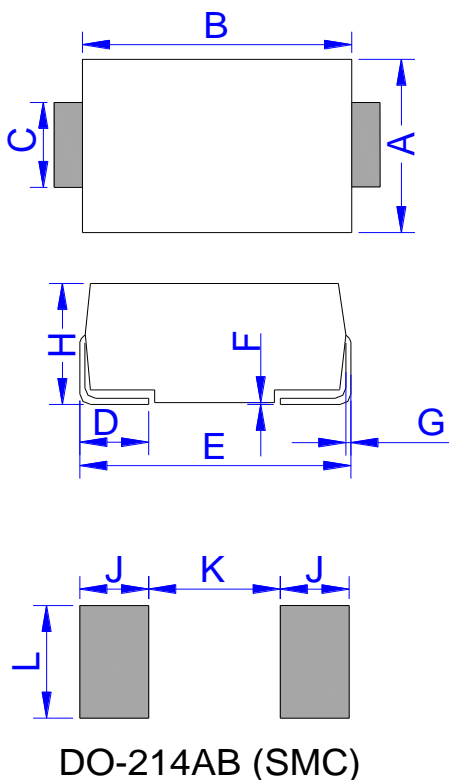


## SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C

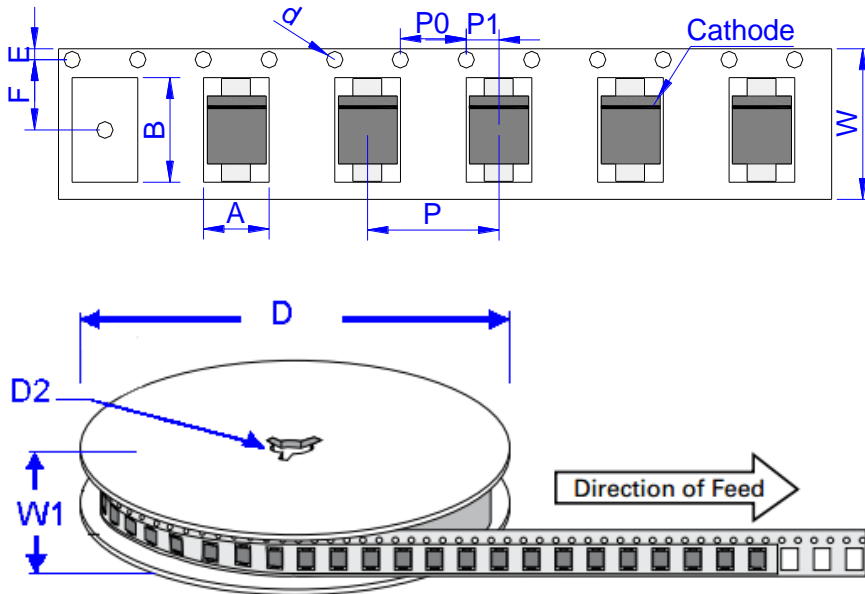


## PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

## TAPE AND REEL SPECIFICATION-SMC



Ref.	Dimensions	
	Millimeters	Inches
A	6.05 ± 0.3	0.238 ± 0.012
B	8.31 ± 0.3	0.327 ± 0.012
d	1.55 ± 0.1	0.061 ± 0.004
D	330.0	13.0
D2	13.3 ± 0.3	0.524 ± 0.012
E	1.75 ± 0.2	0.069 ± 0.008
F	7.50 ± 0.2	0.295 ± 0.008
P	8.00 ± 0.2	0.3145 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	2.00 ± 0.2	0.079 ± 0.008
W	16.0 ± 0.2	0.630 ± 0.008
W1	19.7 ± 2.0	0.776 ± 0.079

PART No.	PACKAGE	QUANTITY	TAPE & REEL
SMDJxxCA/A	SMC(DO-214AB)	3,000	13 inch

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