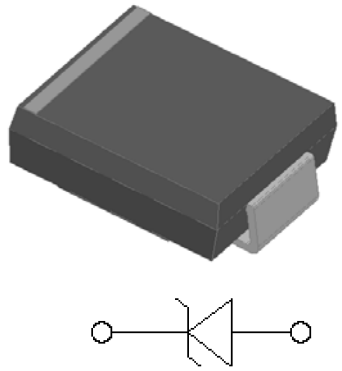
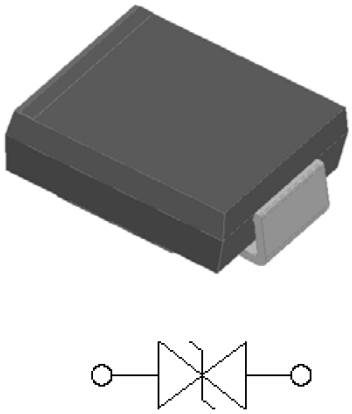
Surface Mount Transient Voltage Suppressor Diodes

Uni-directional



Bi-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500W peak pulse power capability with a 10/1000 μs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meets MSL level 1
- Component in accordance to RoHS

Typical Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication.

Mechanical Data

- **Package**: DO-214AB (SMC)
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity**: For uni-directional types the band denotes cathode end, no marking on bi-directional types

■Maximum Ratings (T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2)	P_{PPM}	W	1500
Peak pulse current, with a 10/1000us waveform (1)	I_{PPM}	A	See Next Table
Power dissipation, on infinite heat sink at TL=75℃ (2)	P_D	W	6.5
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only (3)	I_{FSM}	A	200
Operating junction and storage temperature range	T_J,T_{STG}	℃	-55 to +150
Electrostatic Discharge（IEC61000-4-2 air discharge）	ESD	KV	±30
Electrostatic Discharge（IEC61000-4-2 contact discharge）			

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	VALUE
Maximum instantaneous forward voltage at 100A for unidirectional only(4)	V_{FM}	V	3.5/5.0

■Thermal Characteristics （Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	Conditions	VALUE
Thermal Resistance(Typical)	$R_{\theta J-A}$(5)	℃/W	junction to ambient	75
	$R_{\theta J-L}$	℃/W	junction to lead	15

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A= 25℃ per Fig.2.
(2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal
(3) Measured on 8.3ms single half sine-wave or equivalent square wave,duty cycle=4 pulses per minute maximum.
(4) VF=3.5V Max for devices of VBR≤220V，and VF=5.0V Max for devices of VBR＞220V.
(5) Mounted on minimum recommended pad layout.

■Electrical Characteristics (TA=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R (3) @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}(2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T(1)(mA)				
SMCJ5.0A	SMCJ5.0CA(4)	6.4	7.07	10	1000	5	163.04	9.2
SMCJ6.0A	SMCJ6.0CA	6.67	7.37	10	1000	6	145.63	10.3
SMCJ6.5A	SMCJ6.5CA	7.22	7.98	10	500	6.5	133.93	11.2
SMCJ7.0A	SMCJ7.0CA	7.78	8.6	10	200	7	125	12
SMCJ7.5A	SMCJ7.5CA	8.33	9.21	1	100	7.5	116.28	12.9
SMCJ8.0A	SMCJ8.0CA	8.89	9.83	1	50	8	110.29	13.6
SMCJ8.5A	SMCJ8.5CA	9.44	10.4	1	20	8.5	104.17	14.4
SMCJ9.0A	SMCJ9.0CA	10	11.1	1	10	9	97.4	15.4
SMCJ10A	SMCJ10CA	11.1	12.3	1	5	10	88.24	17
SMCJ11A	SMCJ11CA	12.2	13.5	1	5	11	82.42	18.2
SMCJ12A	SMCJ12CA	13.3	14.7	1	5	12	75.38	19.9
SMCJ13A	SMCJ13CA	14.4	15.9	1	5	13	69.77	21.5
SMCJ14A	SMCJ14CA	15.6	17.2	1	5	14	64.66	23.2
SMCJ15A	SMCJ15CA	16.7	18.5	1	5	15	61.48	24.4
SMCJ16A	SMCJ16CA	17.8	19.7	1	5	16	57.69	26
SMCJ17A	SMCJ17CA	18.9	20.9	1	5	17	54.35	27.6
SMCJ18A	SMCJ18CA	20	22.1	1	5	18	51.37	29.2
SMCJ19A	SMCJ19CA	21.1	23.3	1	5	19	48.73	30.8
SMCJ20A	SMCJ20CA	22.2	24.5	1	5	20	46.3	32.4
SMCJ22A	SMCJ22CA	24.4	26.9	1	1	22	42.25	35.5
SMCJ24A	SMCJ24CA	26.7	29.5	1	1	24	38.56	38.9
SMCJ26A	SMCJ26CA	28.9	31.9	1	1	26	35.63	42.1
SMCJ28A	SMCJ28CA	31.1	34.4	1	1	28	33.04	45.4
SMCJ30A	SMCJ30CA	33.3	36.8	1	1	30	30.99	48.4
SMCJ33A	SMCJ33CA	36.7	40.6	1	1	33	28.14	53.3
SMCJ36A	SMCJ36CA	40	44.2	1	1	36	25.82	58.1
SMCJ40A	SMCJ40CA	44.4	49.1	1	1	40	23.26	64.5
SMCJ43A	SMCJ43CA	47.8	52.8	1	1	43	21.61	69.4
SMCJ45A	SMCJ45CA	50	55.3	1	1	45	20.63	72.7
SMCJ48A	SMCJ48CA	53.3	58.9	1	1	48	19.38	77.4
SMCJ51A	SMCJ51CA	56.7	62.7	1	1	51	18.2	82.4

■Electrical Characteristics (TA=25℃ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage V_{BR}@I_T			Maximum Reverse Leakage I_R (3) @ V_{RWM} (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP}(2) (A)	Maximum Clamping Voltage Vc @ I_{PP} (V)
		Min(V)	Max (V)	I_T(1)(mA)				
SMCJ54A	SMCJ54CA	60	66.3	1	1	54	17.22	87.1
SMCJ58A	SMCJ58CA	64.4	71.2	1	1	58	16.03	93.6
SMCJ60A	SMCJ60CA	66.7	73.7	1	1	60	15.5	96.8
SMCJ64A	SMCJ64CA	71.1	78.6	1	1	64	14.56	103
SMCJ70A	SMCJ70CA	77.8	86	1	1	70	13.27	113
SMCJ75A	SMCJ75CA	83.3	92.1	1	1	75	12.4	121
SMCJ78A	SMCJ78CA	86.7	95.8	1	1	78	11.9	126
SMCJ80A	SMCJ80CA	88.8	97.6	1	1	80	11.57	129.6
SMCJ85A	SMCJ85CA	94.4	104	1	1	85	10.95	137
SMCJ90A	SMCJ90CA	100	111	1	1	90	10.27	146
SMCJ100A	SMCJ100CA	111	123	1	1	100	9.26	162
SMCJ110A	SMCJ110CA	122	135	1	1	110	8.47	177
SMCJ120A	SMCJ120CA	133	147	1	1	120	7.77	193
SMCJ130A	SMCJ130CA	144	159	1	1	130	7.18	209
SMCJ140A	SMCJ140CA	155	171	1	1	140	6.61	226.8
SMCJ150A	SMCJ150CA	167	185	1	1	150	6.17	243
SMCJ160A	SMCJ160CA	178	197	1	1	160	5.79	259
SMCJ170A	SMCJ170CA	189	209	1	1	170	5.45	275
SMCJ180A	SMCJ180CA	200	220	1	1	180	5.14	291.6
SMCJ190A	SMCJ190CA	211	232	1	1	190	4.87	307.8
SMCJ200A	SMCJ200CA	224	247	1	1	200	4.63	324
SMCJ220A	SMCJ220CA	246	272	1	1	220	4.2	356
SMCJ250A	SMCJ250CA	279	309	1	1	250	3.7	405
SMCJ300A	SMCJ300CA	335	371	1	1	300	3.1	486
SMCJ350A	SMCJ350CA	391	432	1	1	350	2.65	567
SMCJ400A	SMCJ400CA	447	494	1	1	400	2.31	648
SMCJ440A	SMCJ440CA	492	543	1	1	440	2.1	713

Notes:

(1) Pulse Test：tp≤50ms Pulse test: tp≤50ms.
(2) Surge current waveform per Fig. 3 and derated per Fig.2.
(3) For bi-directional types having V_{RWM} of 10 V and less, the IR limit is doubled.
(4) For the bi-directional SMCJ5.0CA, the maximum V_{BR} is 7.25 V.

■Ordering Information (Example)

PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
SMCJ SERIES	F1	Approximate 0.257	3000	/	42000	13" reel

■ Characteristics(Typical)

FIG1:Peak Pulse Power Rating Curve

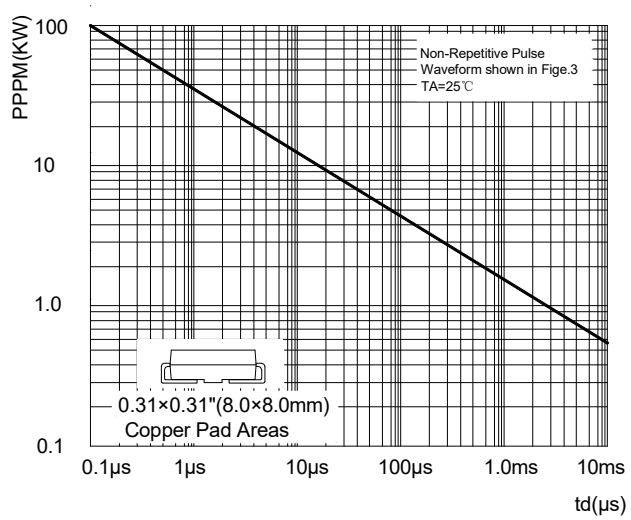


FIG2: Pulse Power or Current vs. Initial Junction Temperature

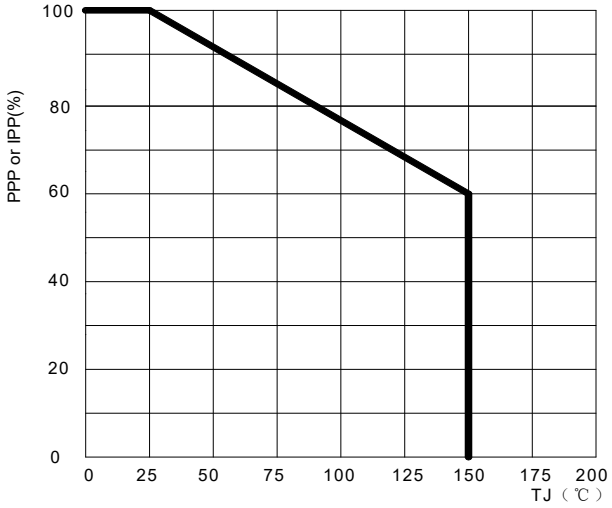


FIG3: Pulse Waveform

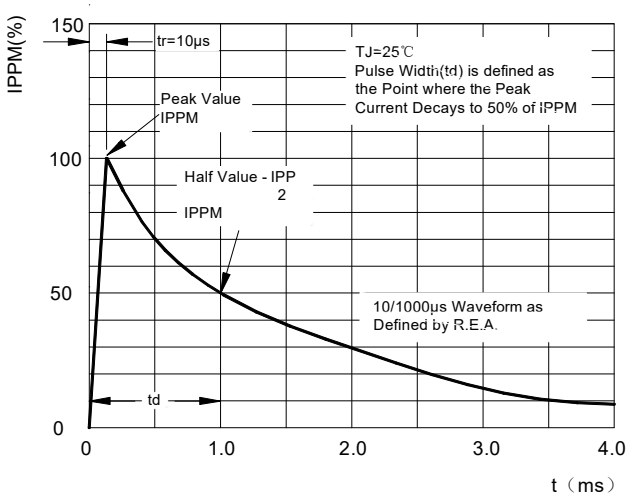


FIG4:Typical Transient Thermal Impedance

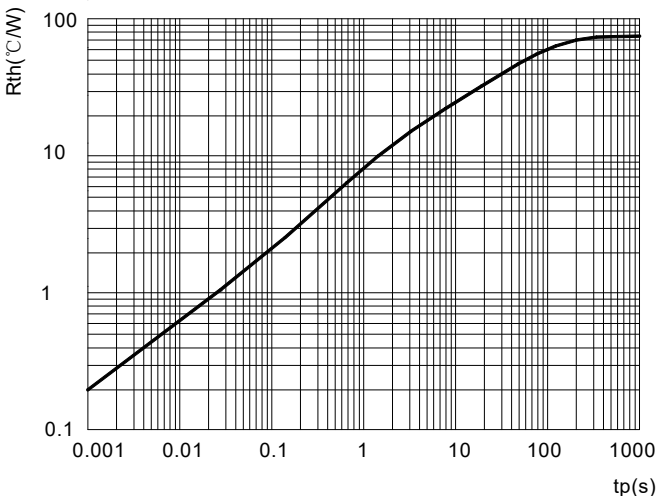


FIG5: Maximum Non-Repetitive Surge Current

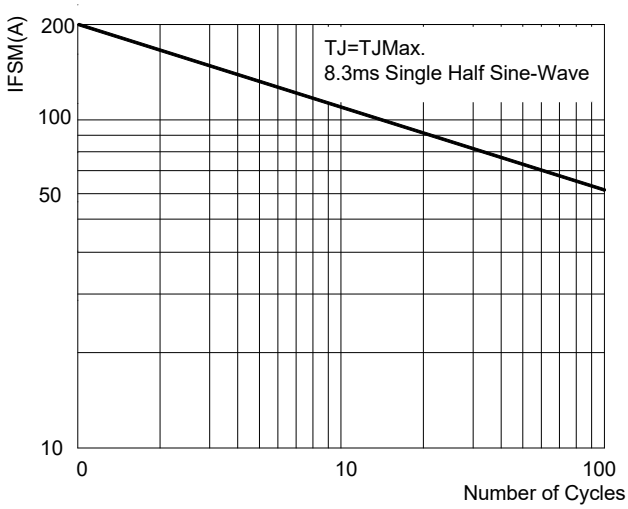
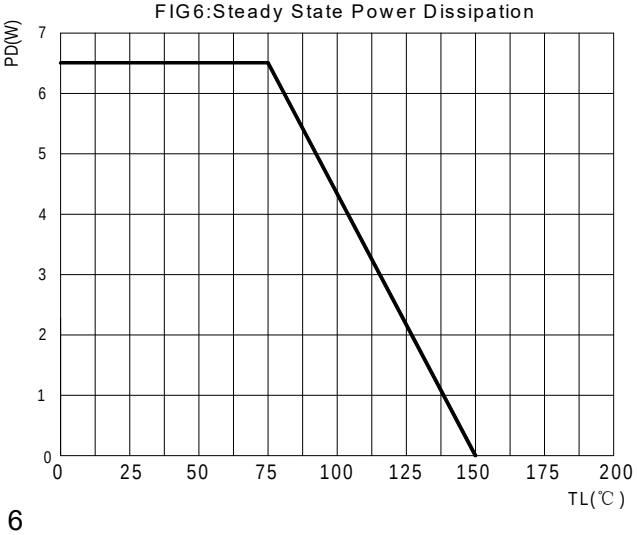
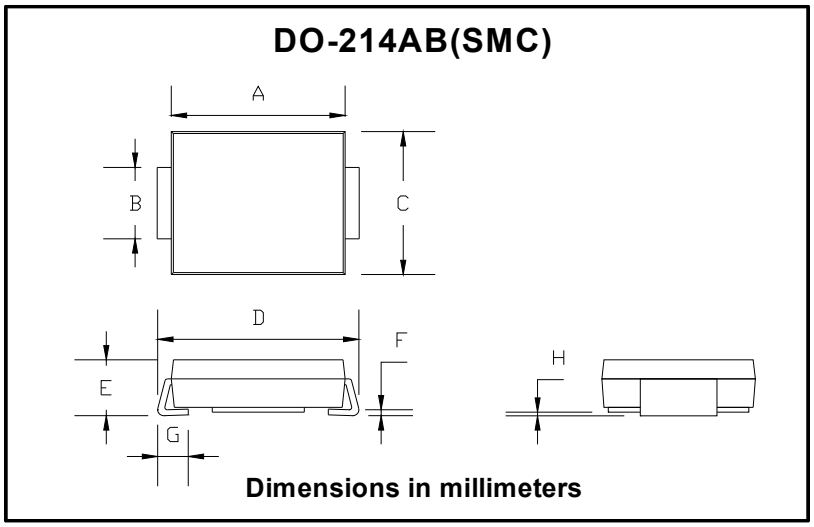


FIG6:Steady State Power Dissipation

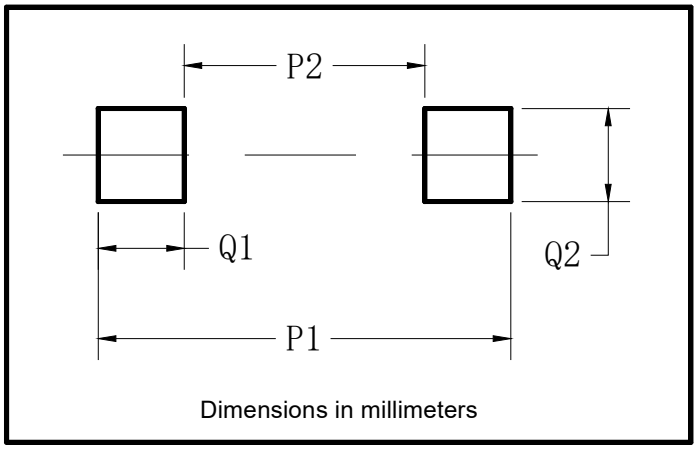


■ Outline Dimensions



DO-214AB (SMC)		
Dim	Min	Max
A	6.60	7.11
B	2.85	3.27
C	5.59	6.22
D	7.75	8.13
E	1.99	2.61
F	0.15	0.31
G	0.76	1.52
H	0.05	0.20

■ Suggested pad layout



Dim	Typ
P1	9.9
P2	3.84
Q1	3.03
Q2	3.82

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