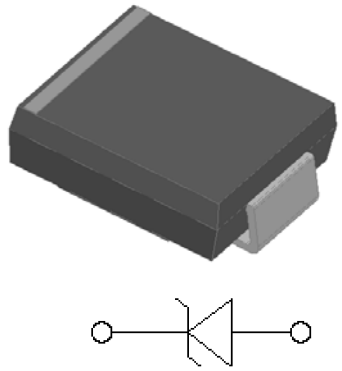
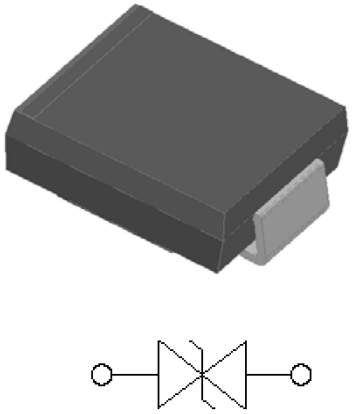
Surface Mount Transient Voltage Suppressor Diodes

Uni-directional



Bi-directional



Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 2000W 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 (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform (1) (2)	P_{PPM}	W	2000
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

■Electrical Characteristics (Ta=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)				
SMC20J5.0A	SMC20J5.0CA(4)	6.4	7.07	10	1000	5	217.39	9.2
SMC20J6.0A	SMC20J6.0CA	6.67	7.37	10	1000	6	194.17	10.3
SMC20J6.5A	SMC20J6.5CA	7.22	7.98	10	500	6.5	178.57	11.2
SMC20J7.0A	SMC20J7.0CA	7.78	8.6	10	200	7	166.67	12
SMC20J7.5A	SMC20J7.5CA	8.33	9.21	1	100	7.5	155.04	12.9
SMC20J8.0A	SMC20J8.0CA	8.89	9.83	1	50	8	147.06	13.6
SMC20J8.5A	SMC20J8.5CA	9.44	10.4	1	20	8.5	138.89	14.4
SMC20J9.0A	SMC20J9.0CA	10	11.1	1	10	9	129.87	15.4
SMC20J10A	SMC20J10CA	11.1	12.3	1	5	10	117.65	17
SMC20J11A	SMC20J11CA	12.2	13.5	1	5	11	109.89	18.2
SMC20J12A	SMC20J12CA	13.3	14.7	1	5	12	100.50	19.9
SMC20J13A	SMC20J13CA	14.4	15.9	1	5	13	93.02	21.5
SMC20J14A	SMC20J14CA	15.6	17.2	1	5	14	86.21	23.2
SMC20J15A	SMC20J15CA	16.7	18.5	1	5	15	81.97	24.4
SMC20J16A	SMC20J16CA	17.8	19.7	1	5	16	76.92	26
SMC20J17A	SMC20J17CA	18.9	20.9	1	5	17	72.46	27.6
SMC20J18A	SMC20J18CA	20	22.1	1	5	18	68.49	29.2
SMC20J19A	SMC20J19CA	21.1	23.3	1	5	19	64.94	30.8
SMC20J20A	SMC20J20CA	22.2	24.5	1	5	20	61.73	32.4
SMC20J22A	SMC20J22CA	24.4	26.9	1	1	22	56.34	35.5
SMC20J24A	SMC20J24CA	26.7	29.5	1	1	24	51.41	38.9
SMC20J26A	SMC20J26CA	28.9	31.9	1	1	26	47.51	42.1
SMC20J28A	SMC20J28CA	31.1	34.4	1	1	28	44.05	45.4
SMC20J30A	SMC20J30CA	33.3	36.8	1	1	30	41.32	48.4
SMC20J33A	SMC20J33CA	36.7	40.6	1	1	33	37.52	53.3
SMC20J36A	SMC20J36CA	40	44.2	1	1	36	34.42	58.1
SMC20J40A	SMC20J40CA	44.4	49.1	1	1	40	31.01	64.5
SMC20J43A	SMC20J43CA	47.8	52.8	1	1	43	28.82	69.4
SMC20J45A	SMC20J45CA	50	55.3	1	1	45	27.51	72.7
SMC20J48A	SMC20J48CA	53.3	58.9	1	1	48	25.84	77.4
SMC20J51A	SMC20J51CA	56.7	62.7	1	1	51	24.27	82.4
SMC20J54A	SMC20J54CA	60	66.3	1	1	54	22.96	87.1
SMC20J58A	SMC20J58CA	64.4	71.2	1	1	58	21.37	93.6

■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)				
SMC20J60A	SMC20J60CA	66.7	73.7	1	1	60	20.66	96.8
SMC20J64A	SMC20J64CA	71.1	78.6	1	1	64	19.42	103
SMC20J70A	SMC20J70CA	77.8	86	1	1	70	17.70	113
SMC20J75A	SMC20J75CA	83.3	92.1	1	1	75	16.53	121
SMC20J78A	SMC20J78CA	86.7	95.8	1	1	78	15.87	126
SMC20J80A	SMC20J80CA	88.8	97.6	1	1	80	15.43	129.6
SMC20J85A	SMC20J85CA	94.4	104	1	1	85	14.60	137
SMC20J90A	SMC20J90CA	100	111	1	1	90	13.70	146
SMC20J100A	SMC20J100CA	111	123	1	1	100	12.35	162
SMC20J110A	SMC20J110CA	122	135	1	1	110	11.30	177

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 SMC20J5.0CA, 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
SMC20J SERIES	F1	Approximate 0.257	3000	6000	42000	13” reel

■ Characteristics(Typical)

FIG1:Peak Pulse Power Rating Curve

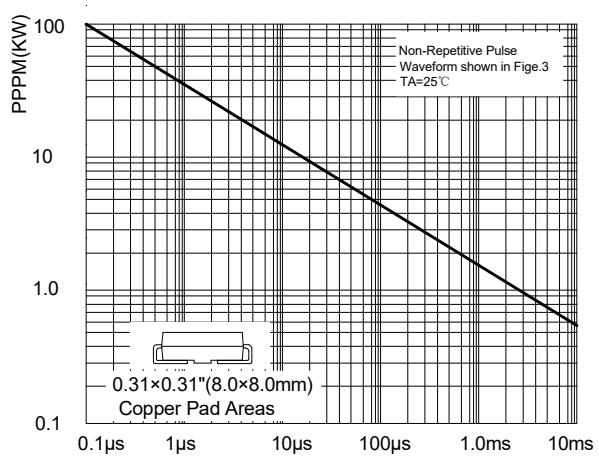


FIG2: Pulse Power or Current vs. Initial Junction Temperature

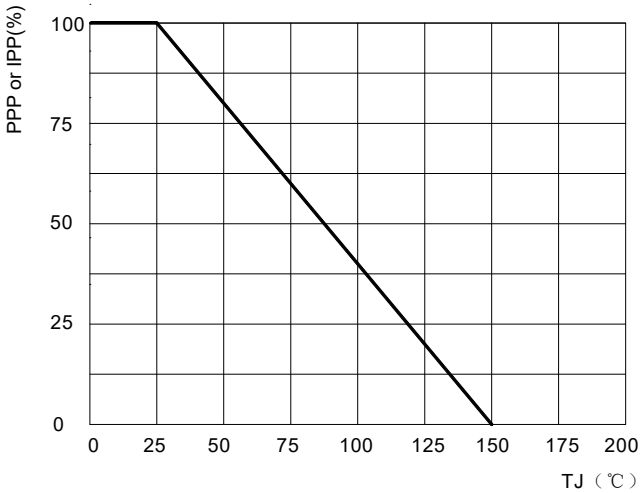


FIG3: Pulse Waveform

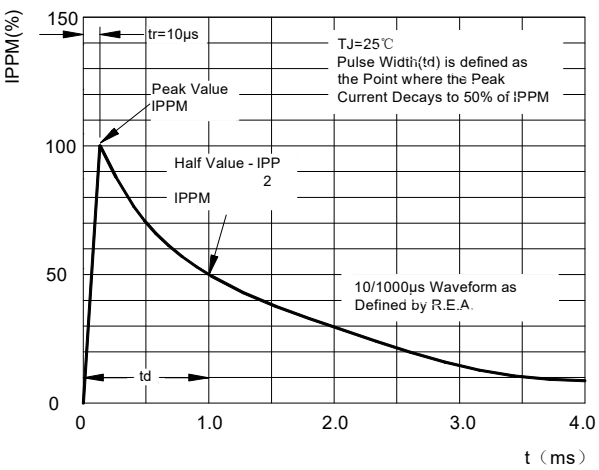


FIG4:Typical Transient Thermal Impedance

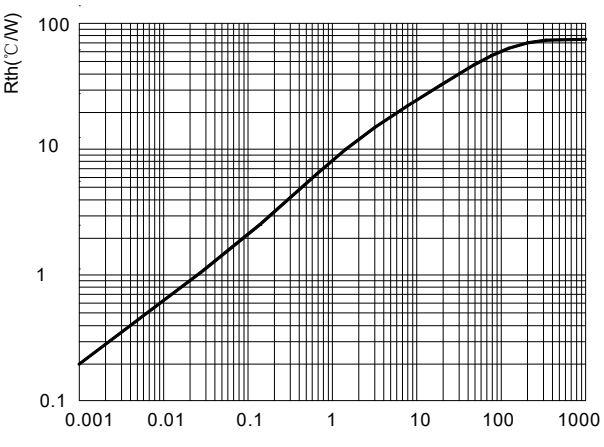
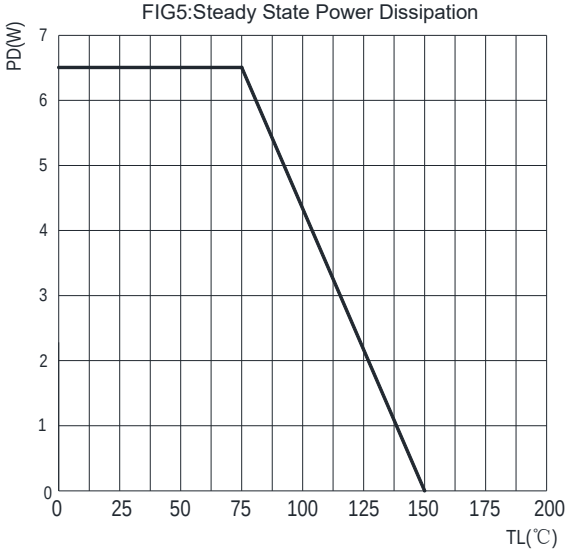
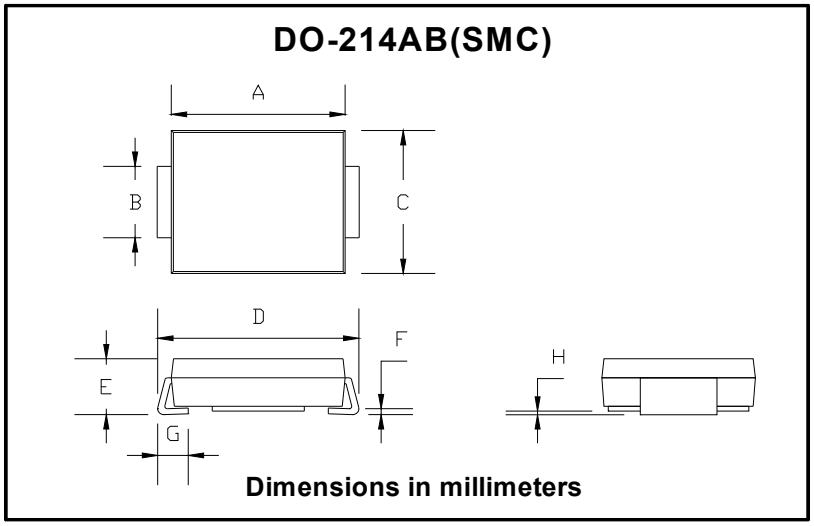


FIG5:Steady State Power Dissipation

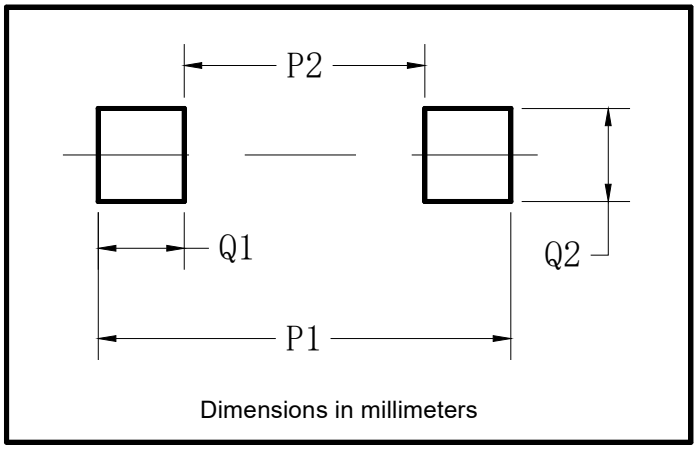


■ Outline Dimensions



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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