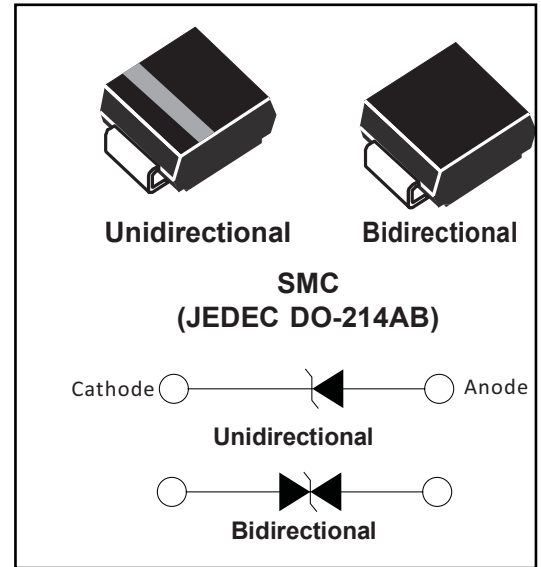


## Automotive 1500W

### Features

- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Available in Unidirectional and Bidirectional
- 1500W peak pulse power capability with a 10/1000µs waveform
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- High temperature soldering guaranteed: 260 °C/10 s at terminals
- Meest MSL level 1
- AEC-Q101



### 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.

#### ■ Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	Max
Peak power dissipation, with a 10/1000us waveform <sup>(1)</sup> <sup>(2)</sup>	P <sub>PPM</sub>	W	1500
Peak pulse current, with a 10/1000us waveform <sup>(1)</sup>	I <sub>PPM</sub>	A	See Next Table
Power dissipation, on infinite heat sink at TL=75°C <sup>(2)</sup>	P <sub>D</sub>	W	6.5
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(3)</sup>	I <sub>FSM</sub>	A	200
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	°C	-55 to +150

Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub> = 25°C per Fig.2.
- (2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal

**■Electrical Characteristics** (TA=25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ @ $V_{RWM}$ ( $\mu A$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_c$ @ $I_{PP}$ (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMC15J5.0UC	SMC15J5.0BC(4)	6.4	7.07	10	1000	5	163.04	9.2
SMC15J6.0UC	SMC15J6.0BC	6.67	7.37	10	1000	6	145.63	10.3
SMC15J6.5UC	SMC15J6.5BC	7.22	7.98	10	500	6.5	133.93	11.2
SMC15J7.0UC	SMC15J7.0BC	7.78	8.6	10	200	7	125	12
SMC15J7.5UC	SMC15J7.5BC	8.33	9.21	1	100	7.5	116.28	12.9
SMC15J8.0UC	SMC15J8.0BC	8.89	9.83	1	50	8	110.29	13.6
SMC15J8.5UC	SMC15J8.5BC	9.44	10.4	1	20	8.5	104.17	14.4
SMC15J9.0UC	SMC15J9.0BC	10	11.1	1	10	9	97.4	15.4
SMC15J10UC	SMC15J10BC	11.1	12.3	1	5	10	88.24	17
SMC15J11UC	SMC15J11BC	12.2	13.5	1	5	11	82.42	18.2
SMC15J12UC	SMC15J12BC	13.3	14.7	1	5	12	75.38	19.9
SMC15J13UC	SMC15J13BC	14.4	15.9	1	5	13	69.77	21.5
SMC15J14UC	SMC15J14BC	15.6	17.2	1	5	14	64.66	23.2
SMC15J15UC	SMC15J15BC	16.7	18.5	1	5	15	61.48	24.4
SMC15J16UC	SMC15J16BC	17.8	19.7	1	5	16	57.69	26
SMC15J17UC	SMC15J17BC	18.9	20.9	1	5	17	54.35	27.6
SMC15J18UC	SMC15J18BC	20	22.1	1	5	18	51.37	29.2
SMC15J19UC	SMC15J19BC	21.1	23.3	1	5	19	48.73	30.8
SMC15J20UC	SMC15J20BC	22.2	24.5	1	5	20	46.3	32.4
SMC15J22UC	SMC15J22BC	24.4	26.9	1	1	22	42.25	35.5
SMC15J24UC	SMC15J24BC	26.7	29.5	1	1	24	38.56	38.9
SMC15J26UC	SMC15J26BC	28.9	31.9	1	1	26	35.63	42.1
SMC15J28UC	SMC15J28BC	31.1	34.4	1	1	28	33.04	45.4
SMC15J30UC	SMC15J30BC	33.3	36.8	1	1	30	30.99	48.4
SMC15J33UC	SMC15J33BC	36.7	40.6	1	1	33	28.14	53.3
SMC15J36UC	SMC15J36BC	40	44.2	1	1	36	25.82	58.1
SMC15J40UC	SMC15J40BC	44.4	49.1	1	1	40	23.26	64.5
SMC15J43UC	SMC15J43BC	47.8	52.8	1	1	43	21.61	69.4
SMC15J45UC	SMC15J45BC	50	55.3	1	1	45	20.63	72.7
SMC15J48UC	SMC15J48BC	53.3	58.9	1	1	48	19.38	77.4
SMC15J51UC	SMC15J51BC	56.7	62.7	1	1	51	18.2	82.4

**■Electrical Characteristics (TA=25°C unless otherwise noted)**

Part Number (Uni)	Part Number (Bi)	Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R^{(3)}$ @ $V_{RWM}$ ( $\mu A$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}^{(2)}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Min(V)	Max (V)	$I_T^{(1)}$ (mA)				
SMC15J54UC	SMC15J54BC	60	66.3	1	1	54	17.22	87.1
SMC15J58UC	SMC15J58BC	64.4	71.2	1	1	58	16.03	93.6
SMC15J60UC	SMC15J60BC	66.7	73.7	1	1	60	15.5	96.8
SMC15J64UC	SMC15J64BC	71.1	78.6	1	1	64	14.56	103
SMC15J70UC	SMC15J70BC	77.8	86	1	1	70	13.27	113
SMC15J75UC	SMC15J75BC	83.3	92.1	1	1	75	12.4	121
SMC15J78UC	SMC15J78BC	86.7	95.8	1	1	78	11.9	126
SMC15J80UC	SMC15J80BC	88.8	97.6	1	1	80	11.57	129.6
SMC15J85UC	SMC15J85BC	94.4	104	1	1	85	10.95	137
SMC15J90UC	SMC15J90BC	100	111	1	1	90	10.27	146
SMC15J100UC	SMC15J100BC	111	123	1	1	100	9.26	162
SMC15J110UC	SMC15J110BC	122	135	1	1	110	8.47	177
SMC15J120UC	SMC15J120BC	133	147	1	1	120	7.77	193
SMC15J130UC	SMC15J130BC	144	159	1	1	130	7.18	209
SMC15J140UC	SMC15J140BC	155	171	1	1	140	6.61	226.8
SMC15J150UC	SMC15J150BC	167	185	1	1	150	6.17	243
SMC15J160UC	SMC15J160BC	178	197	1	1	160	5.79	259
SMC15J170UC	SMC15J170BC	189	209	1	1	170	5.45	275
SMC15J180UC	SMC15J180BC	200	220	1	1	180	5.14	291.6
SMC15J190UC	SMC15J190BC	211	232	1	1	190	4.87	307.8
SMC15J200UC	SMC15J200BC	224	247	1	1	200	4.63	324
SMC15J220UC	SMC15J220BC	246	272	1	1	220	4.2	356
SMC15J250UC	SMC15J250BC	279	309	1	1	250	3.7	405
SMC15J300UC	SMC15J300BC	335	371	1	1	300	3.1	486
SMC15J350UC	SMC15J350BC	391	432	1	1	350	2.65	567
SMC15J400UC	SMC15J400BC	447	494	1	1	400	2.31	648
SMC15J440UC	SMC15J440BC	492	543	1	1	440	2.1	713

**Notes:**

- (1) Pulse Test:  $t_p \leq 50ms$  Pulse test:  $t_p \leq 50ms$ .
- (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  $I_R$  limit is doubled.
- (4) For the bi-directional SMC15J5.0BC, the maximum  $V_{BR}$  is 7.25 V.

## ■ Characteristics(Typical)

FIG1: Peak Pulse Power Rating Curve

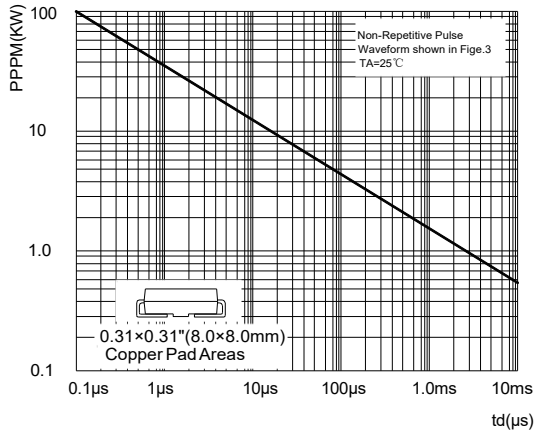


FIG2: Pulse Power or Current vs. Initial Junction Temperature

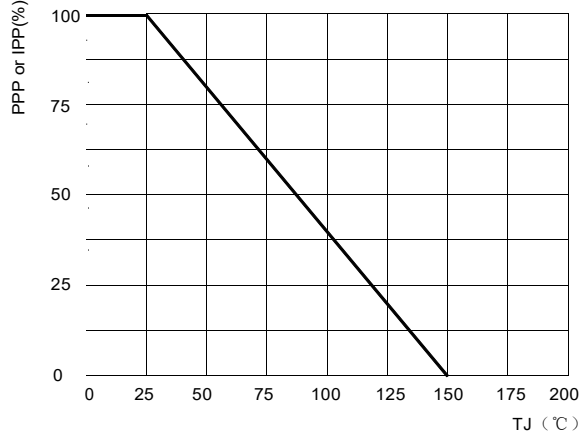


FIG3: Pulse Waveform

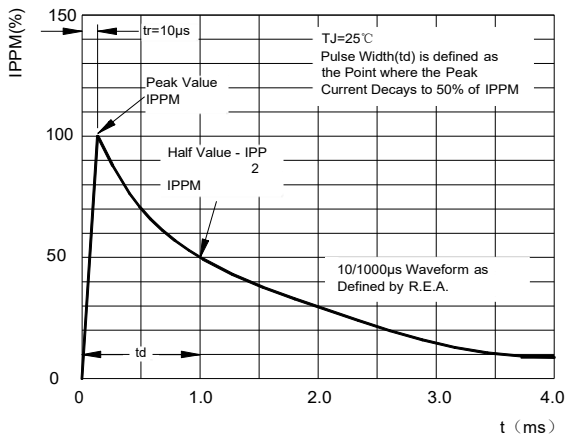


FIG4: Typical Transient Thermal Impedance

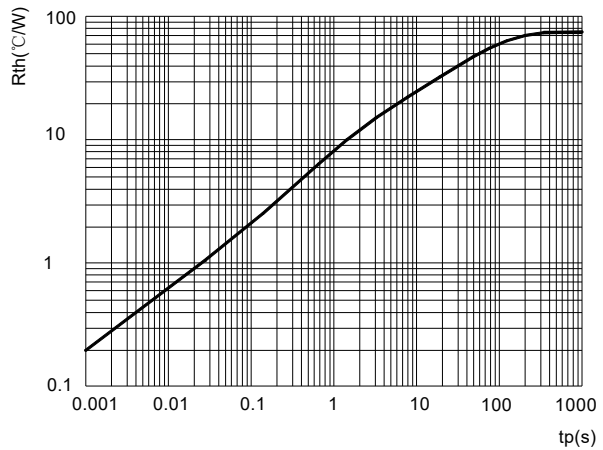


FIG5: Maximum Non-Repetitive Surge Current

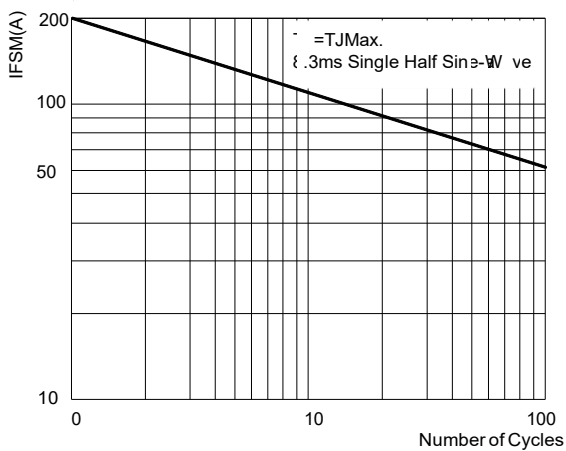
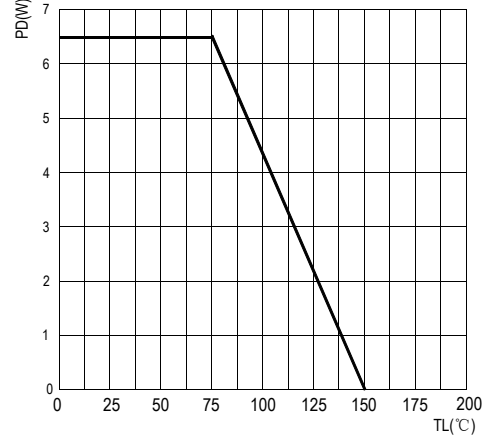
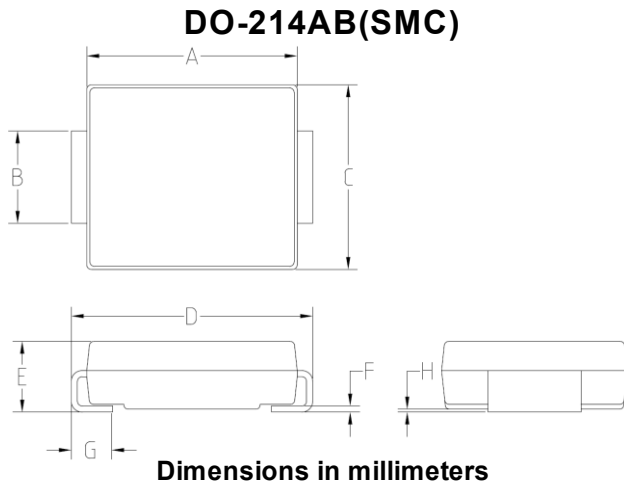


FIG6: Steady State Power Dissipation

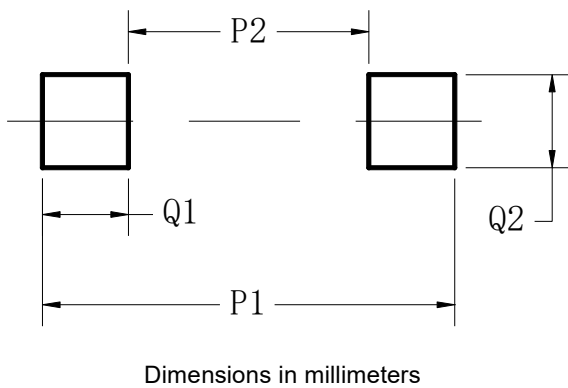


## ■ Outline Dimensions



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	0.00	0.20

## ■ Suggested pad layout



Dim	Typ
P1	9.9
P2	3.84
Q1	3.03
Q2	3.82