WON-TOP ELECTRONICS

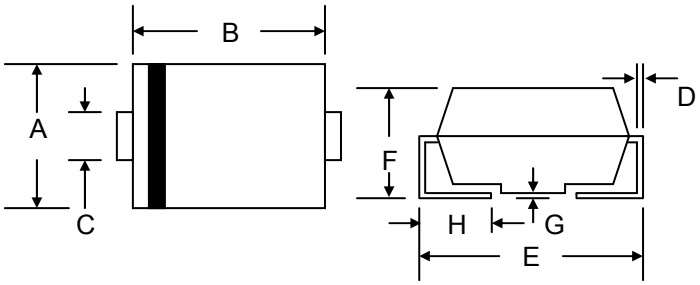
1.5SMCJ SERIES

1500W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

RoHS Pb

Features

- Glass Passivated Die Construction
- 1500W Peak Pulse Power Dissipation
- 5.0V – 440V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Voltage
- Typical Response Time < 1nS
- Plastic Case Material has UL Flammability Classification Rating 94V-0



Mechanical Data

- Case: SMC/DO-214AB, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band Except Bi-Directional
- Marking: Device Code
- Weight: 0.21 grams (approx.)
- **Lead Free: For RoHS / Lead Free Version, Add "-LF" Suffix to Part Number, See Page 6**

SMC/DO-214AB		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.25
D	0.152	0.305
E	7.75	8.13
F	2.00	2.62
G	0.051	0.203
H	0.76	1.27
All Dimensions in mm		

Maximum Ratings and Electrical Characteristics @T_A=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μS Waveform (Note 1, 2, 5)	P_{PPM}	1500	W
Peak Pulse Current on 10/1000μS Waveform (Note 1)	I_{PPM}	See Table 1	A
Peak Forward Surge Current (Note 2, 3)	I_{FSM}	200	A
Maximum Instantaneous Forward Voltage at 100A (Note 3, 4)	V_F	3.5 / 5.0	V
Power Dissipation on Infinite Heatsink at T_A = 50°C	P_D	6.5	W
Typical Thermal Resistance, Junction to Ambient (Note 2) Typical Thermal Resistance, Junction to Lead (Note 2)	$R_{\theta JA}$ $R_{\theta JL}$	75 15	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note: 1. Non-repetitive current pulse per Figure 5 and derated above T_A = 25°C per Figure 1.
2. Mounted on 8.0 x 8.0mm copper pads to each terminal.
3. Measured on 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum. For uni-directional devices only.
4. V_F < 3.5V for V_{BR} ≤ 200V and V_F < 5.0V for V_{BR} ≥ 201V.
5. Peak pulse power waveform is 10/1000μS.

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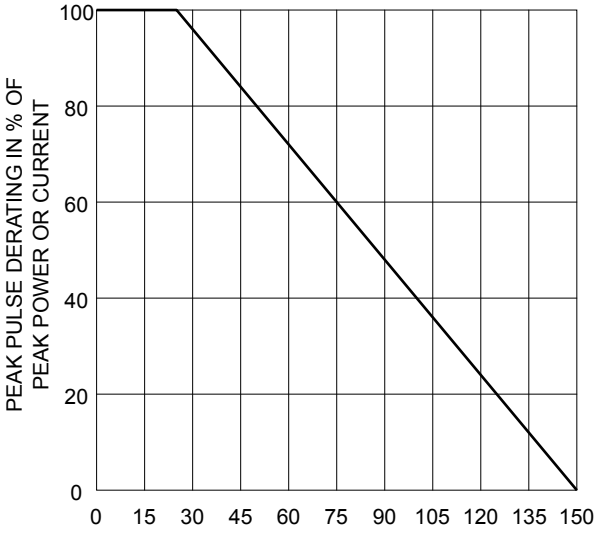


Fig. 1 Pulse Derating Curve

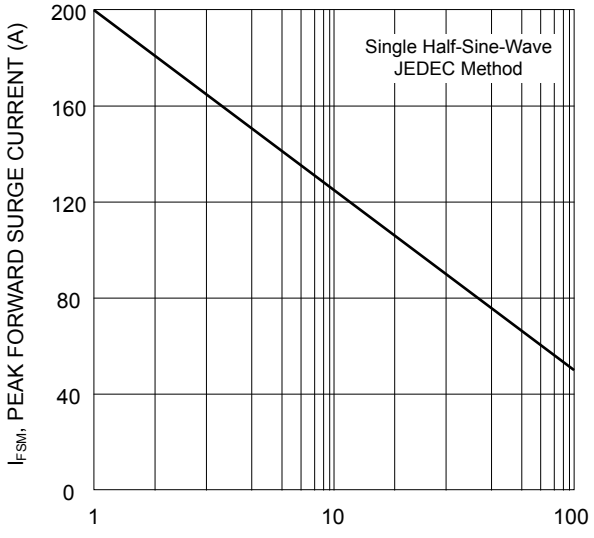


Fig. 2 Forward Surge Current Derating Curve

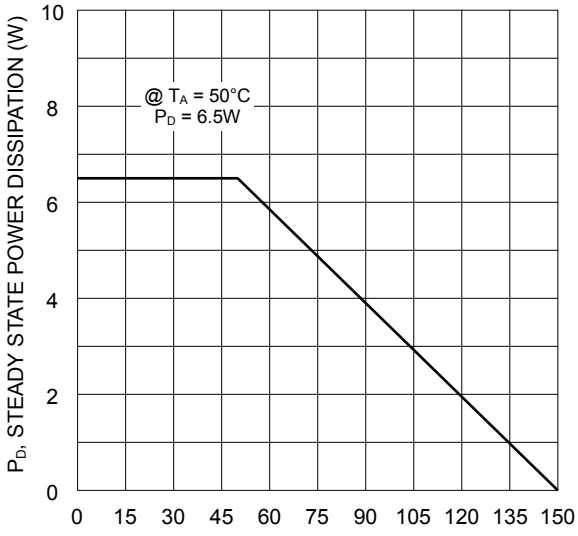


Fig. 3 Steady State Power Derating Curve

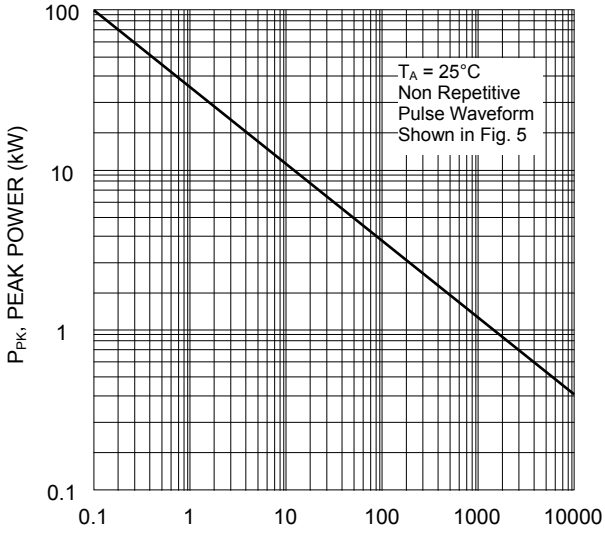


Fig. 4 Pulse Rating Curve

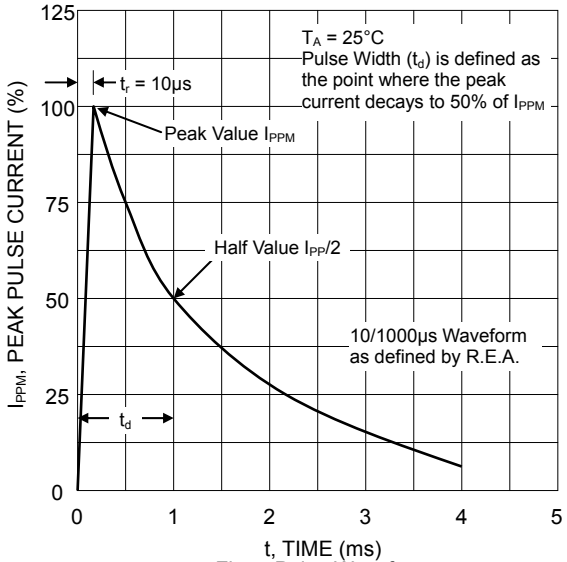


Fig. 5 Pulse Waveform

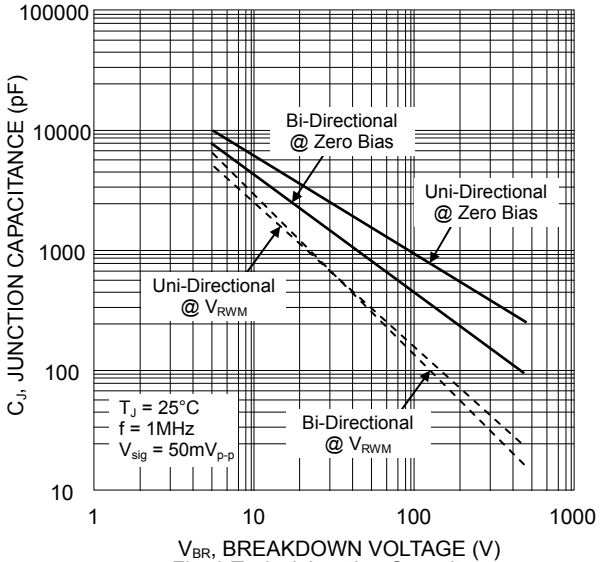


Fig. 6 Typical Junction Capacitance

Electrical Characteristics (@T_A=25°C unless otherwise specified) Table 1

Uni-Directional Part No.	Bi-Directional Part No.	Device Marking Code		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage @I_{PP} V_C (V)	Peak Pulse Current I_{PP} (A)	Reverse Leakage* @V_{RWM} I_R (μA)
		UNI	BI		Min.	Max.				
1.5SMCJ5.0	1.5SMCJ5.0C	GDD	BDD	5.0	6.40	7.30	10	9.6	156.25	1000
1.5SMCJ5.0A	1.5SMCJ5.0CA	GDE	BDE	5.0	6.40	7.00	10	9.2	163.04	1000
1.5SMCJ6.0	1.5SMCJ6.0C	GDF	BDF	6.0	6.67	8.15	10	11.4	131.58	1000
1.5SMCJ6.0A	1.5SMCJ6.0CA	GDG	BDG	6.0	6.67	7.37	10	10.3	145.63	1000
1.5SMCJ6.5	1.5SMCJ6.5C	GDH	BDH	6.5	7.22	8.82	10	12.3	121.95	500
1.5SMCJ6.5A	1.5SMCJ6.5CA	GDK	BDK	6.5	7.22	7.98	10	11.2	133.93	500
1.5SMCJ7.0	1.5SMCJ7.0C	GDL	BDL	7.0	7.78	9.51	10	13.3	112.78	200
1.5SMCJ7.0A	1.5SMCJ7.0CA	GDM	BDM	7.0	7.78	8.60	10	12.0	125.00	200
1.5SMCJ7.5	1.5SMCJ7.5C	GDN	BDN	7.5	8.33	10.20	1	14.3	104.90	100
1.5SMCJ7.5A	1.5SMCJ7.5CA	GDP	BDP	7.5	8.33	9.21	1	12.9	116.28	100
1.5SMCJ8.0	1.5SMCJ8.0C	GDQ	BDQ	8.0	8.89	10.90	1	15.0	100.00	50
1.5SMCJ8.0A	1.5SMCJ8.0CA	GDR	BDR	8.0	8.89	9.83	1	13.6	110.29	50
1.5SMCJ8.5	1.5SMCJ8.5C	GDS	BDS	8.5	9.44	11.50	1	15.9	94.34	20
1.5SMCJ8.5A	1.5SMCJ8.5CA	GDT	BDT	8.5	9.44	10.40	1	14.4	104.17	20
1.5SMCJ9.0	1.5SMCJ9.0C	GDU	BDU	9.0	10.00	12.20	1	16.9	88.76	10
1.5SMCJ9.0A	1.5SMCJ9.0CA	GDV	BDV	9.0	10.00	11.10	1	15.4	97.40	10
1.5SMCJ10	1.5SMCJ10C	GDW	BDW	10.0	11.10	13.60	1	18.8	79.79	5
1.5SMCJ10A	1.5SMCJ10CA	GDX	BDX	10.0	11.10	12.30	1	17.0	88.24	5
1.5SMCJ11	1.5SMCJ11C	GDY	BDY	11.0	12.20	14.90	1	20.1	74.63	5
1.5SMCJ11A	1.5SMCJ11CA	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.42	5
1.5SMCJ12	1.5SMCJ12C	GED	BED	12.0	13.30	16.30	1	22.0	68.18	5
1.5SMCJ12A	1.5SMCJ12CA	GEE	BEE	12.0	13.30	14.70	1	19.9	75.38	5
1.5SMCJ13	1.5SMCJ13C	GEF	BEF	13.0	14.40	17.60	1	23.8	63.03	1
1.5SMCJ13A	1.5SMCJ13CA	GEG	BEG	13.0	14.40	15.90	1	21.5	69.77	1
1.5SMCJ14	1.5SMCJ14C	GEH	BEH	14.0	15.60	19.10	1	25.8	58.14	1
1.5SMCJ14A	1.5SMCJ14CA	GEK	BEK	14.0	15.60	17.20	1	23.2	64.66	1
1.5SMCJ15	1.5SMCJ15C	GEL	BEL	15.0	16.70	20.40	1	26.9	55.76	1
1.5SMCJ15A	1.5SMCJ15CA	GEM	BEM	15.0	16.70	18.50	1	24.4	61.48	1
1.5SMCJ16	1.5SMCJ16C	GEN	BEN	16.0	17.80	21.80	1	28.8	52.08	1
1.5SMCJ16A	1.5SMCJ16CA	GEP	BEP	16.0	17.80	19.70	1	26.0	57.69	1
1.5SMCJ17	1.5SMCJ17C	GEQ	BEQ	17.0	18.90	23.10	1	30.5	49.18	1
1.5SMCJ17A	1.5SMCJ17CA	GER	BER	17.0	18.90	20.90	1	27.6	54.35	1
1.5SMCJ18	1.5SMCJ18C	GES	BES	18.0	20.00	24.40	1	32.2	46.58	1
1.5SMCJ18A	1.5SMCJ18CA	GET	BET	18.0	20.00	22.10	1	29.2	51.37	1
1.5SMCJ20	1.5SMCJ20C	GEU	BEU	20.0	22.20	27.10	1	35.8	41.90	1
1.5SMCJ20A	1.5SMCJ20CA	GEV	BEV	20.0	22.20	24.50	1	32.4	46.30	1
1.5SMCJ22	1.5SMCJ22C	GEW	BEW	22.0	24.40	29.80	1	39.4	38.07	1
1.5SMCJ22A	1.5SMCJ22CA	GEX	BEX	22.0	24.40	26.90	1	35.5	42.25	1
1.5SMCJ24	1.5SMCJ24C	GEY	BEY	24.0	26.70	32.60	1	43.0	34.88	1
1.5SMCJ24A	1.5SMCJ24CA	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.56	1
1.5SMCJ26	1.5SMCJ26C	GFD	BFD	26.0	28.90	35.30	1	46.6	32.19	1
1.5SMCJ26A	1.5SMCJ26CA	GFE	BFE	26.0	28.90	31.90	1	42.1	35.63	1
1.5SMCJ28	1.5SMCJ28C	GFF	BFF	28.0	31.10	38.00	1	50.0	30.00	1
1.5SMCJ28A	1.5SMCJ28CA	GFG	BFG	28.0	31.10	34.40	1	45.4	33.04	1
1.5SMCJ30	1.5SMCJ30C	GFH	BFH	30.0	33.30	40.70	1	53.5	28.04	1
1.5SMCJ30A	1.5SMCJ30CA	GFK	BFK	30.0	33.30	36.80	1	48.4	30.99	1
1.5SMCJ33	1.5SMCJ33C	GFL	BFL	33.0	36.70	44.90	1	59.0	25.42	1
1.5SMCJ33A	1.5SMCJ33CA	GFM	BFM	33.0	36.70	40.60	1	53.3	28.14	1
1.5SMCJ36	1.5SMCJ36C	GFN	BFN	36.0	40.00	48.90	1	64.3	23.33	1
1.5SMCJ36A	1.5SMCJ36CA	GFP	BFP	36.0	40.00	44.20	1	58.1	25.82	1
1.5SMCJ40	1.5SMCJ40C	GFQ	BFQ	40.0	44.40	54.30	1	71.4	21.01	1
1.5SMCJ40A	1.5SMCJ40CA	GFR	BFR	40.0	44.40	49.10	1	64.5	23.26	1
1.5SMCJ43	1.5SMCJ43C	GFS	BFS	43.0	47.80	58.40	1	76.7	19.56	1
1.5SMCJ43A	1.5SMCJ43CA	GFT	BFT	43.0	47.80	52.80	1	69.4	21.61	1
1.5SMCJ45	1.5SMCJ45C	GFU	BFU	45.0	50.00	61.10	1	80.3	18.68	1
1.5SMCJ45A	1.5SMCJ45CA	GFV	BFV	45.0	50.00	55.30	1	72.7	20.63	1
1.5SMCJ48	1.5SMCJ48C	GFW	BFW	48.0	53.30	65.10	1	85.5	17.54	1
1.5SMCJ48A	1.5SMCJ48CA	GFX	BFX	48.0	53.30	58.90	1	77.4	19.38	1
1.5SMCJ51	1.5SMCJ51C	GFY	BFY	51.0	56.70	69.30	1	91.1	16.47	1
1.5SMCJ51A	1.5SMCJ51CA	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.20	1
1.5SMCJ54	1.5SMCJ54C	GGD	BGD	54.0	60.00	73.30	1	96.3	15.58	1
1.5SMCJ54A	1.5SMCJ54CA	GGE	BGE	54.0	60.00	66.30	1	87.1	17.22	1
1.5SMCJ58	1.5SMCJ58C	GGF	BGF	58.0	64.40	78.70	1	103.0	14.56	1
1.5SMCJ58A	1.5SMCJ58CA	GGG	BGG	58.0	64.40	71.20	1	93.6	16.03	1

*For bi-directional devices V_{RWM} ≤ 10V, the I_R limit is double.

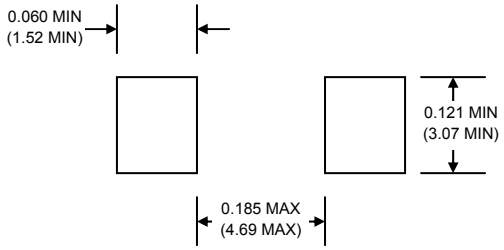
Electrical Characteristics (@T_A=25°C unless otherwise specified) Table 1 (Cont'd)

Uni-Directional Part No.	Bi-Directional Part No.	Device Marking Code		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage @I_{PP} V_C (V)	Peak Pulse Current I_{PP} (A)	Reverse Leakage @V_{RWM} I_R (μA)
		UNI	BI		Min.	Max.				
1.5SMCJ60	1.5SMCJ60C	GGH	BGH	60.0	66.70	81.50	1	107.0	14.02	1
1.5SMCJ60A	1.5SMCJ60CA	GGK	BGK	60.0	66.70	73.70	1	96.8	15.50	1
1.5SMCJ64	1.5SMCJ64C	GGL	BGL	64.0	71.10	86.90	1	114.0	13.16	1
1.5SMCJ64A	1.5SMCJ64CA	GGM	BGM	64.0	71.10	78.60	1	103.0	14.56	1
1.5SMCJ70	1.5SMCJ70C	GGN	BGN	70.0	77.80	95.10	1	125.0	12.00	1
1.5SMCJ70A	1.5SMCJ70CA	GGP	BGP	70.0	77.80	86.00	1	113.0	13.27	1
1.5SMCJ75	1.5SMCJ75C	GGQ	BGQ	75.0	83.30	102.00	1	134.0	11.19	1
1.5SMCJ75A	1.5SMCJ75CA	GGR	BGR	75.0	83.30	92.10	1	121.0	12.40	1
1.5SMCJ78	1.5SMCJ78C	GGS	BGS	78.0	86.70	106.00	1	139.0	10.79	1
1.5SMCJ78A	1.5SMCJ78CA	GGT	BGT	78.0	86.70	95.80	1	126.0	11.90	1
1.5SMCJ85	1.5SMCJ85C	GGU	BGU	85.0	94.40	115.00	1	151.0	9.93	1
1.5SMCJ85A	1.5SMCJ85CA	GGV	BGV	85.0	94.40	104.00	1	137.0	10.95	1
1.5SMCJ90	1.5SMCJ90C	GGW	BGW	90.0	100.00	122.00	1	160.0	9.38	1
1.5SMCJ90A	1.5SMCJ90CA	GGX	BGX	90.0	100.00	111.00	1	146.0	10.27	1
1.5SMCJ100	1.5SMCJ100C	GGY	BGY	100.0	111.00	136.00	1	179.0	8.38	1
1.5SMCJ100A	1.5SMCJ100CA	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.26	1
1.5SMCJ110	1.5SMCJ110C	GHD	BHD	110.0	122.00	149.00	1	196.0	7.65	1
1.5SMCJ110A	1.5SMCJ110CA	GHE	BHE	110.0	122.00	135.00	1	177.0	8.47	1
1.5SMCJ120	1.5SMCJ120C	GHF	BHF	120.0	133.00	163.00	1	214.0	7.01	1
1.5SMCJ120A	1.5SMCJ120CA	GHG	BHG	120.0	133.00	147.00	1	193.0	7.77	1
1.5SMCJ130	1.5SMCJ130C	GHH	BHH	130.0	144.00	176.00	1	231.0	6.49	1
1.5SMCJ130A	1.5SMCJ130CA	GHK	BHK	130.0	144.00	159.00	1	209.0	7.18	1
1.5SMCJ150	1.5SMCJ150C	GHL	BHL	150.0	167.00	204.00	1	268.0	5.60	1
1.5SMCJ150A	1.5SMCJ150CA	GHM	BHM	150.0	167.00	185.00	1	243.0	6.17	1
1.5SMCJ160	1.5SMCJ160C	GHN	BHN	160.0	178.00	218.00	1	287.0	5.23	1
1.5SMCJ160A	1.5SMCJ160CA	GHP	BHP	160.0	178.00	197.00	1	259.0	5.79	1
1.5SMCJ170	1.5SMCJ170C	GHQ	BHQ	170.0	189.00	231.00	1	304.0	4.93	1
1.5SMCJ170A	1.5SMCJ170CA	GHR	BHR	170.0	189.00	209.00	1	275.0	5.45	1
1.5SMCJ180	1.5SMCJ180C	GHS	BHS	180.0	200.00	244.80	1	322.2	4.66	1
1.5SMCJ180A	1.5SMCJ180CA	GHT	BHT	180.0	200.00	220.00	1	291.6	5.14	1
1.5SMCJ190	1.5SMCJ190C	GHU	BHU	190.0	211.00	258.40	1	340.1	4.41	1
1.5SMCJ190A	1.5SMCJ190CA	GHV	BHV	190.0	211.00	232.00	1	307.8	4.87	1
1.5SMCJ200A	1.5SMCJ200CA	GHX	BHX	200.0	224.00	247.00	1	324.0	4.60	1
1.5SMCJ220A	1.5SMCJ220CA	GIE	BIE	220.0	246.00	272.00	1	356.0	4.20	1
1.5SMCJ250A	1.5SMCJ250CA	GIF	BIF	250.0	279.00	309.00	1	405.0	3.70	1
1.5SMCJ300A	1.5SMCJ300CA	GIG	BIG	300.0	335.00	371.00	1	486.0	3.10	1
1.5SMCJ350A	1.5SMCJ350CA	GIH	BIH	350.0	391.00	432.00	1	567.0	2.60	1
1.5SMCJ400A	1.5SMCJ400CA	GIK	BIK	400.0	447.00	494.00	1	648.0	2.30	1
1.5SMCJ440A	1.5SMCJ440CA	GIL	BIL	440.0	492.00	543.00	1	713.0	2.10	1

MARKING INFORMATION

Cathode = Polarity Band Except Bi-Directional Types
xx = Device Code, See Table 1

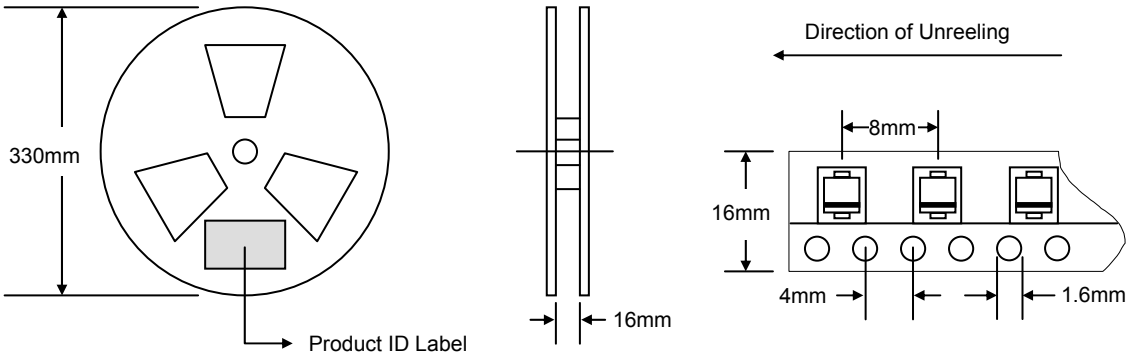
RECOMMENDED FOOTPRINT



inches(mm)

PACKAGING INFORMATION

TAPE & REEL



Reel Diameter (mm)	Quantity (PCS)	Inner Box Size L x W x H (mm)	Quantity (PCS)	Carton Size L x W x H (mm)	Quantity (PCS)	Approx. Gross Weight (KG)
330	3,000	340 x 337 x 45	6,000	370 x 370 x 420	48,000	19.0

Note: 1. Paper reel, white or gray color.
2. Components are packed in accordance with EIA standard 481-1 and 481-2.

WON-TOP ELECTRONICS

ORDERING INFORMATION

Product No.	Package Type	Shipping Quantity
1.5SMCJxx-T3	SMC	3000/Tape & Reel

1. Shipping quantity given is for minimum packing quantity only. For minimum order quantity, please consult the Sales Department.
2. **To order RoHS / Lead Free version (with Lead Free finish), add "-LF" suffix to part number above. For example, 1.5SMCJ5.0-T3-LF**.

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