

## FEATURES

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 1500W peak pulse power capability with
- Excellent clamping capability
- Very fast response time
- MSL:2a
- ESD body mode HBM:30KV

DO-214AB (SMC)



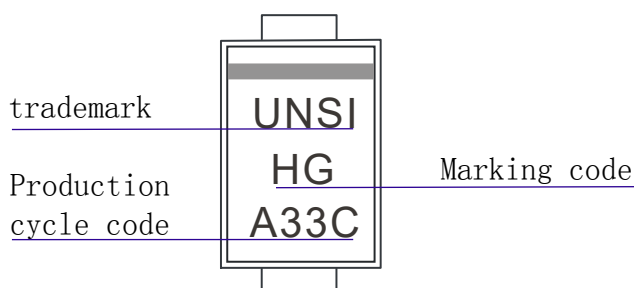
## TYPICAL APPLICATIONS

- Use in sensitive electronics protection
- against voltage transients induced by
- inductive load switching and for consumer, computer,
- industrial, automotive and telecommunication.

## MECHANICAL DATA

- Case: DO-214AB (SMC)
- Epoxy meets UL 94V-0 flammability rating
- Polarity: Color band denotes cathode end

## Printing description



MAXIMUM RATINGS (TA=25°C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power dissipation with a 10/1000 $\mu$ s waveform	PPM	1500	W
Peak pulse current with a waveform	IPPM	See next table	A
Peak forward surge current 8.3 ms single half sine-wave uni-directional only	IFSM	200	A
Operating junction and storage temperature range	TJ, TSTG	-55 to +150	°C

### Notes:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above TA = 25°C per
- (2) Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal



# SMCJ5.0 THRU SMCJ440

Stand-off Voltage:5.0 to 440V

Peak pulse power:1500W

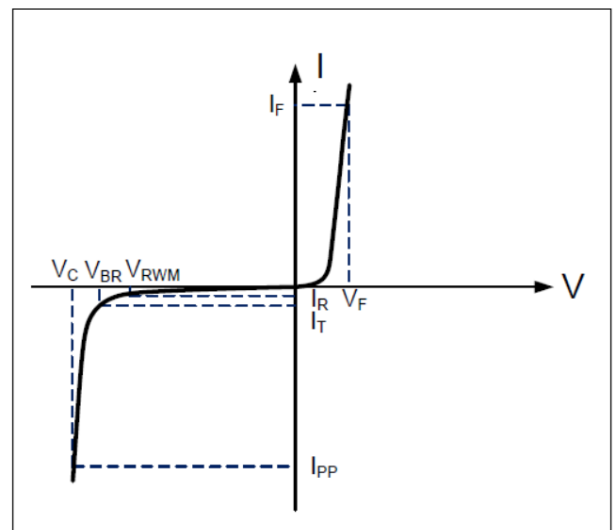
## ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)

Part Number		Marking code		Breakdown voltage VBR@IT		Test Current IT	Reverse Stand off Voltage RWMV	Max. Reverse Leakage@VRWM	Max. Clamping Voltage@IPP	Max. Peak Pulse Current
UNI	Bi	UNI	Bi	MIN(V)	MAX(V)	(mA)	V	uA	V	A
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	6.4	7.07	10	5	800	9.2	163
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.67	7.37	10	6	800	10.3	145.6
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	7.22	7.98	10	6.5	500	11.2	133.9
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.78	8.6	10	7	200	12	125
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	8.33	9.21	1	7.5	100	12.9	116.3
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.89	9.83	1	8	50	13.6	110.3
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	9.44	10.4	1	8.5	20	14.4	104.2
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	10	11.1	1	9	10	15.4	97.4
SMCJ10A	SMCJ10CA	GDY	BDY	11.1	12.3	1	10	5	17	88.2
SMCJ11A	SMCJ11CA	GDZ	BDZ	12.2	13.5	1	11	1	18.2	82.4
SMCJ12A	SMCJ12CA	GEE	BEE	13.3	14.7	1	12	1	19.9	75.4
SMCJ13A	SMCJ13CA	GEG	BEG	14.4	15.9	1	13	1	21.5	69.8
SMCJ14A	SMCJ14CA	GEK	BEK	15.6	17.2	1	14	1	23.2	64.7
SMCJ15A	SMCJ15CA	GEM	BEM	16.7	18.5	1	15	1	24.4	61.5
SMCJ16A	SMCJ16CA	GEP	BEP	17.8	19.7	1	16	1	26	57.7
SMCJ17A	SMCJ17CA	GER	BER	18.9	20.9	1	17	1	27.6	54.3
SMCJ18A	SMCJ18CA	GET	BET	20	22.1	1	18	1	29.2	51.4
SMCJ20A	SMCJ20CA	GEV	BEV	22.2	24.5	1	20	1	32.4	46.3
SMCJ22A	SMCJ22CA	GEX	BEX	24.4	27	1	22	1	35.5	42.3
SMCJ24A	SMCJ24CA	GEZ	BEZ	26.7	29.5	1	24	1	38.9	38.6
SMCJ26A	SMCJ26CA	GFE	BFE	28.9	31.9	1	26	1	42.1	35.6
SMCJ28A	SMCJ28CA	GFG	BFG	31.1	34.4	1	28	1	45.4	33
SMCJ30A	SMCJ30CA	GFK	BFK	33.3	36.8	1	30	1	48.4	31
SMCJ33A	SMCJ33CA	GFM	BFM	36.7	40.6	1	33	1	53.3	28.1
SMCJ36A	SMCJ36CA	GFP	BFP	40	44.2	1	36	1	58.1	25.8
SMCJ40A	SMCJ40CA	GFR	BFR	44.4	49.1	1	40	1	64.5	23.3
SMCJ43A	SMCJ43CA	GFT	BFT	47.8	52.8	1	43	1	69.4	21.6
SMCJ45A	SMCJ45CA	GFV	BFV	50	55.3	1	45	1	72.7	20.6
SMCJ48A	SMCJ48CA	GFX	BFX	53.3	58.9	1	48	1	77.4	19.4
SMCJ51A	SMCJ51CA	GFZ	BFZ	56.7	62.7	1	51	1	82.4	18.2
SMCJ54A	SMCJ54CA	GGE	BGE	60	66.3	1	54	1	87.1	17.2
SMCJ58A	SMCJ58CA	GGG	BGG	64.4	71.2	1	58	1	93.6	16
SMCJ60A	SMCJ60CA	GGK	BGK	66.7	73.7	1	60	1	96.8	15.5

## ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)

Part Number		Marking code		Breakdown voltage VBR@IT		Test Current IT	Reverse Stand off Voltage RWMV	Max. Reverse Leakage@VRWM	Max. Clamping Voltage@IPP	Max. Peak Pulse Current
UNI	Bi	UNI	Bi	MIN (V)	MAX (V)	(mA)	V	uA	V	A
SMCJ64A	SMCJ64CA	GGM	BGM	71.1	78.6	1	64	1	103	14.6
SMCJ70A	SMCJ70CA	GGP	BGP	77.8	86	1	70	1	113	13.3
SMCJ75A	SMCJ75CA	GGR	BGR	83.3	92.1	1	75	1	121	12.4
SMCJ78A	SMCJ78CA	GGT	BGT	86.7	95.8	1	78	1	126	11.9
SMCJ85A	SMCJ85CA	GGV	BGV	94.4	104	1	85	1	137	10.9
SMCJ90A	SMCJ90CA	GGX	BGX	100	111	1	90	1	146	10.3
SMCJ100A	SMCJ100CA	GGZ	BGZ	111	123	1	100	1	162	9.3
SMCJ110A	SMCJ110CA	GHE	BHE	122	135	1	110	1	177	8.5
SMCJ120A	SMCJ120CA	GHG	BHG	133	147	1	120	1	193	7.8
SMCJ130A	SMCJ130CA	GHK	BHK	144	159	1	130	1	209	7.2
SMCJ150A	SMCJ150CA	GHM	BHM	167	185	1	150	1	243	6.2
SMCJ160A	SMCJ160CA	GHP	BHP	178	197	1	160	1	259	5.8
SMCJ170A	SMCJ170CA	GHR	BHR	189	209	1	170	1	275	5.5
SMCJ180A	SMCJ180CA	GHT	BHT	201	222	1	180	1	292	5.1
SMCJ200A	SMCJ200CA	GHV	BHV	224	247	1	200	1	324	4.6
SMCJ220A	SMCJ220CA	GHX	BHX	246	272	1	220	1	356	4.2
SMCJ250A	SMCJ250CA	GJG	BJG	278	309	1	250	1	403	3.7
SMCJ300A	SMCJ300CA	GJH	BJH	333	371	1	300	1	484	3.1
SMCJ350A	SMCJ350CA	GJM	BJM	389	432	1	350	1	565	2.7
SMCJ400A	SMCJ400CA	GJP	BJP	444	494	1	400	1	645	2.3
SMCJ440A	SMCJ440CA	GJR	BJR	489	543	1	440	1	710	2.1

Symbol	Parameter
IPP	Reverse Peak Pulse Current
VC	Clamping Voltage @ IPP
VRWM	Reverse Stand-Off Voltage
IR	Reverse Leakage Current @ VRWM
VBR	Breakdown Voltage @ IT
IT	Test Current
IF	Forward Current
VF	Forward Voltage @ IF



## RATINGS AND CHARACTERISTICS CURVES

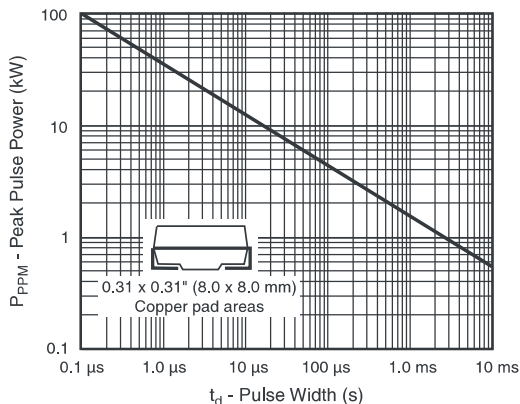


Figure 1. Peak Pulse Power Rating Curve

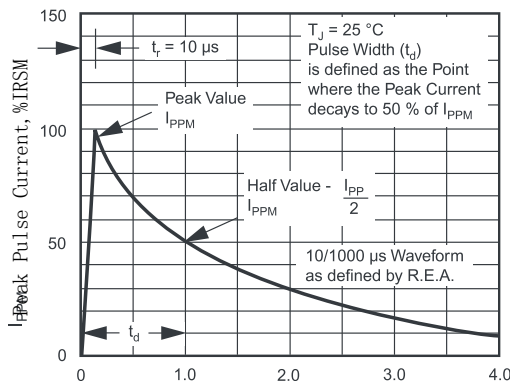


Figure 3. Pulse Waveform

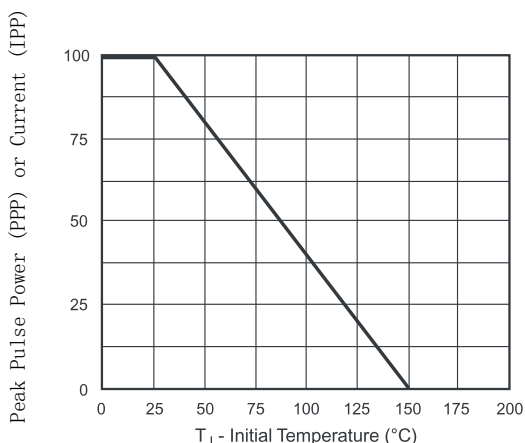


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

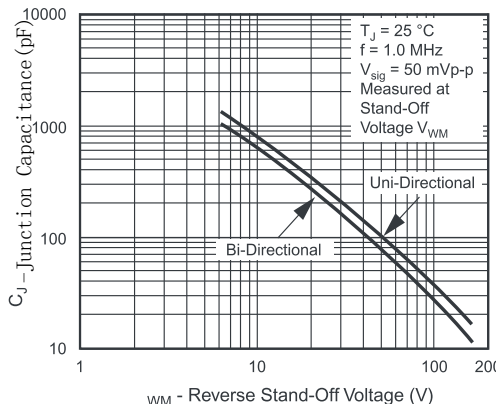


Figure 4. Typical Junction Capacitance

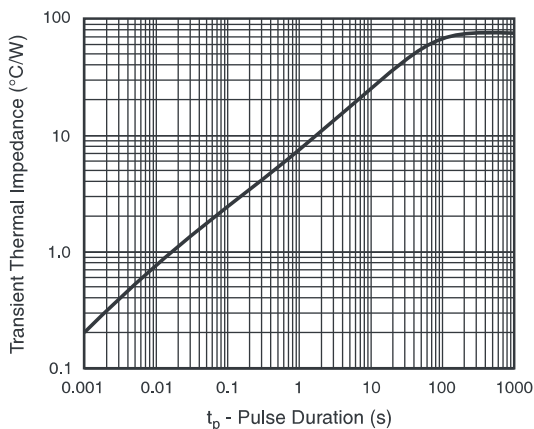


Figure 5 - Typical Transient Thermal Impedance

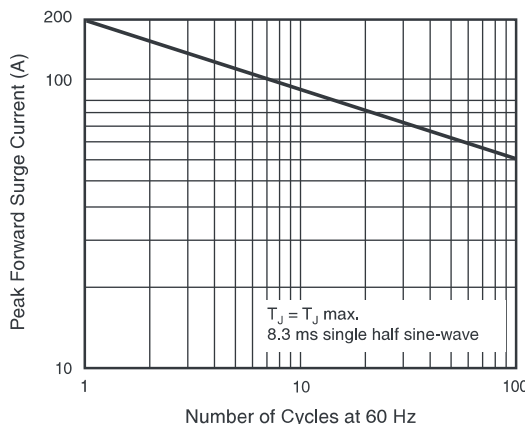
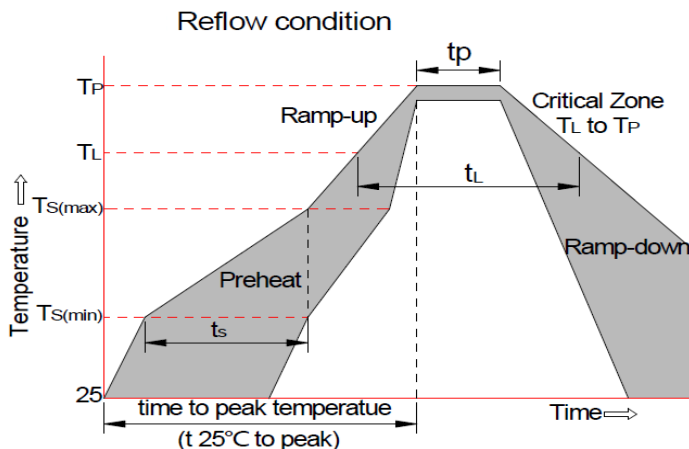


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Use On

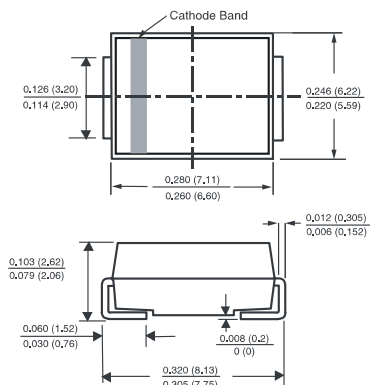
## Soldering Parameters



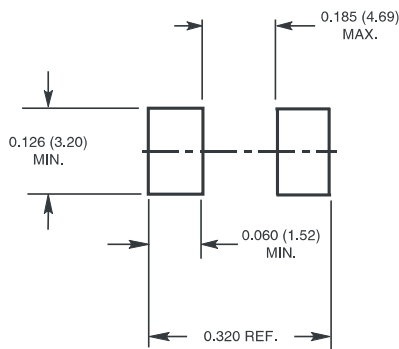
Reflow Condition		PbFree assembly (see asbellow)
Pre Heat	-Temperature Min ( $T_{s(Min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
	$T_{s(max)}$ to $T_L$ -Ramp-up Rate	3°C/sec. Max
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 OUTLINE DIMENSIONS

in inches (millimeters)



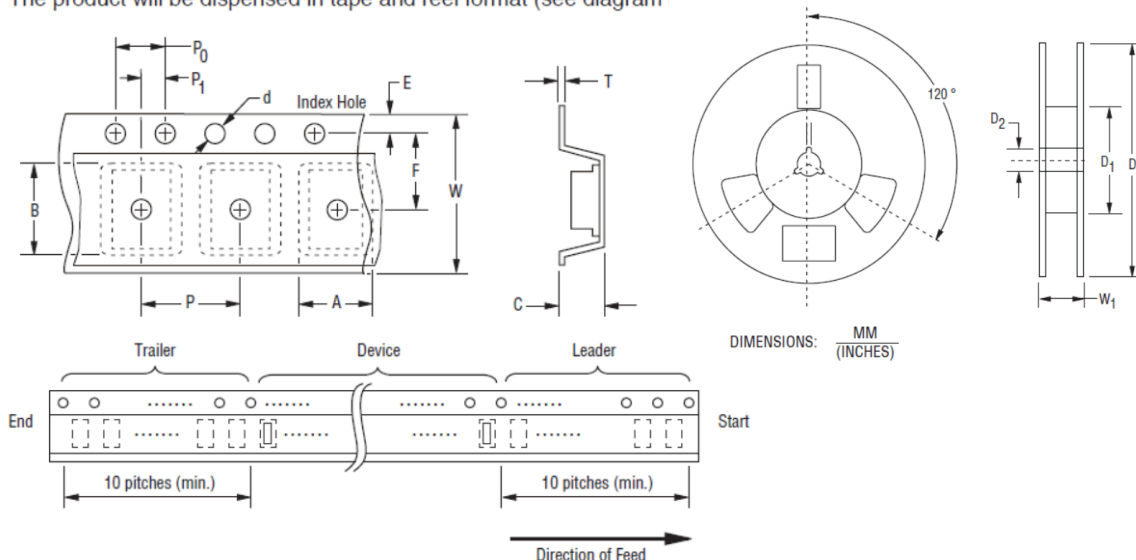
## Mounting Pad Layout



Unmarked tolerance: +0.2mm

## Packaging Information

The product will be dispensed in tape and reel format (see diagram)



Item	Symbol	SMC (DO-214AB)	
		7 Inch Reel	13 Inch Reel
Carrier Width	A	$6.0 \pm 2.0$ (0.236 - 0.079)	
Carrier Length	B	$8.3 \pm 0.20$ (0.327 ± 0.008)	
Carrier Depth	C	$2.5 \pm 0.20$ (0.098 ± 0.008)	
Sprocket Hole	d	$1.50 \pm 0.10$ (0.059 ± 0.004)	
Reel Outside Diameter	D	$\frac{178}{(7.008)}$	$\frac{330}{(12.992)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{50.0}{(1.969)}$ MIN.	
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 + 0.50/-0.20}{(0.512 + 0.020/-0.008)}$	
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$	
Punch Hole Position	F	$\frac{7.50 \pm 0.10}{(0.295 \pm 0.004)}$	
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$	
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$	
Overall Tape Thickness	T	$\frac{0.30 \pm 0.10}{(0.012 \pm 0.004)}$	
Tape Width	W	$\frac{16.00 \pm 0.30}{(0.630 \pm 0.012)}$	
Reel Width	W <sub>1</sub>	$\frac{22.4}{(0.882)}$ MAX.	
Quantity per Reel	--	500	3,000