



Micro Commercial Components  
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# SMCJ5.0 THRU SMCJ170CA

## Features

- For surface mount application in order to optimize board space
- Low inductance
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Repetition Rate( duty cycle): 0.05%
- Fast response time: typical less than 1ps from 0V to BV min
- Typical  $I_b$  less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Plastic package has Underwrites Laboratory Flammability Classification 94V-O

## Transient Voltage Suppressor 5.0 to 170 Volts 1500 Watt

## Mechanical Data

- CASE: JEDEC DO-214AB molded plastic body over passivated junction
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end( cathode) except Bi-directional types.
- Standard packaging: 16mm tape per ( EIA 481).
- Weight: 0.007 ounce, 0.21 gram

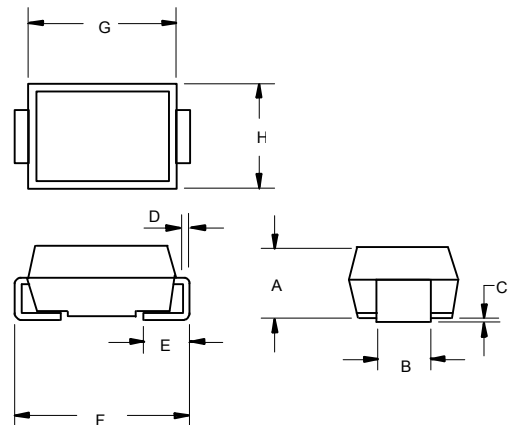
Maximum Ratings @ 25°C Unless Otherwise Specified

Peak Pulse Current on 10/1000us waveform(Note1, Fig3)	$I_{PPM}$	See Table 1	Amps
Peak Pulse Power Dissipation on 10/1000us waveform(Note1,2, Fig1)	$P_{PPM}$	Minimum 1500	Watts
Peak forward surge current (JEDEC Method) (Note 2,3)	$I_{FSM}$	200.0	Amps
Operation And Storage Temperature Range	$T_J, T_{STG}$	-55°C to +150°C	

### NOTES:

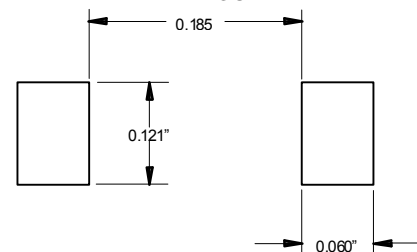
1. Non-repetitive current pulse per Fig.3 and derated above  $T_A=25^\circ\text{C}$  per Fig.2.
2. Mounted on 8.0mm<sup>2</sup> copper pads to each terminal.
3. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.

## DO-214AB (SMCJ) (LEAD FRAME)



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	.079	.103	2.00	2.62	
B	.108	.128	2.75	3.25	
C	.002	.008	0.051	0.203	
D	.006	.012	0.152	0.305	
E	.030	.050	0.76	1.27	
F	.305	.320	7.75	8.13	
G	.280	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

### SUGGESTED SOLDER PAD LAYOUT



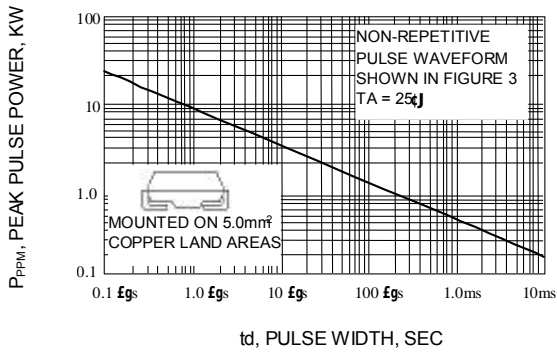


Fig. 1-PEAK PULSE POWER RATING CURVE

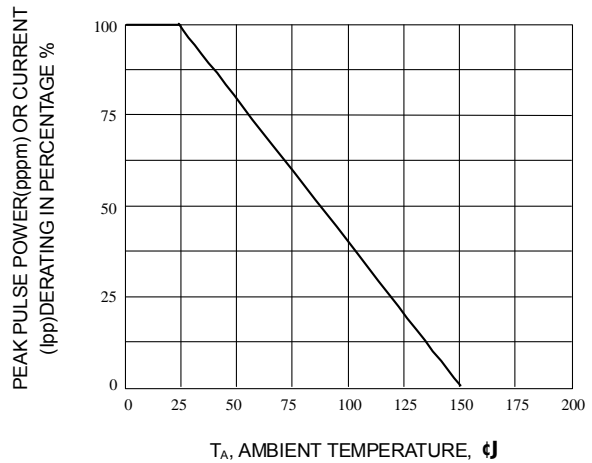


Fig. 2-PULSE DERATING CURVE

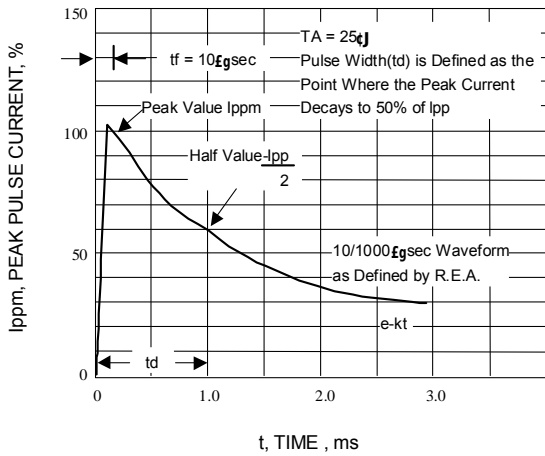


Fig. 3-PULSE WAVEFORM

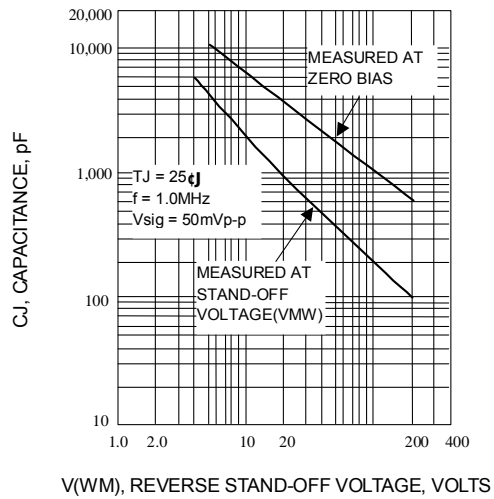


Fig. 4-TYPICAL JUNCTION CAPACITANCE

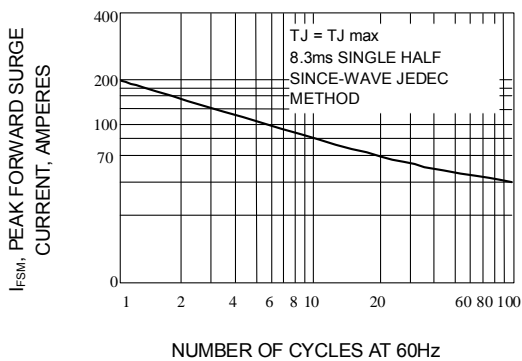


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

# SMCJ5.0 THRU SMCJ170CA

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE@ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_b$	MARKING CODE
	$V_{WM}$	$V_{(BR)}$ @ $I_T$ (VOLTS)		$I_T$ (mA)				
	VOLTS	MIN	MAX					
SMCJ5.0	5.0	6.40	7.30	10	9.6	156.2	1000	GDD
SMCJ5.0A	5.0	6.40	7.00	10	9.2	163.0	1000	GDE
SMCJ6.0	6.0	6.67	8.15	10	11.4	131.6	1000	GDF
SMCJ6.0A	6.0	6.67	7.37	10	10.3	145.6	1000	GDG
SMCJ6.5	6.5	7.22	8.82	10	12.3	122.0	500	GDH
SMCJ6.5A	6.5	7.22	7.98	10	11.2	133.9	500	GDK
SMCJ7.0	7.0	7.78	9.51	10	13.3	112.8	200	GDL
SMCJ7.0A	7.0	7.78	8.60	10	12.0	125.0	200	GDM
SMCJ7.5	7.5	8.33	10.2	1	14.3	104.9	100	GDN
SMCJ7.5A	7.5	8.33	9.21	1	12.9	116.3	100	GDP
SMCJ8.0	8.0	8.89	10.9	1	15.0	100.0	50	GDQ
SMCJ8.0A	8.0	8.89	9.83	1	13.6	110.3	50	GDR
SMCJ8.5	8.5	9.44	11.5	1	15.9	94.3	10	GDS
SMCJ8.5A	8.5	9.44	10.4	1	14.4	104.2	10	GDT
SMCJ9.0	9.0	10.0	12.2	1	16.9	88.7	5	GDU
SMCJ9.0A	9.0	10.0	11.1	1	15.4	97.4	5	GDV
SMCJ10	10	11.1	13.6	1	18.8	79.8	5	GDW
SMCJ10A	10	11.1	12.3	1	17.0	88.2	5	GDX
SMCJ11	11	12.2	14.9	1	20.1	74.6	5	GDY
SMCJ11A	11	12.2	13.5	1	18.2	82.4	5	GDZ
SMCJ12	12	13.3	16.3	1	22.0	68.2	5	GED
SMCJ12A	12	13.3	14.7	1	19.9	75.3	5	GEE
SMCJ13	13	14.4	17.6	1	23.8	63.0	5	GEF
SMCJ13A	13	14.4	15.9	1	21.5	69.7	5	GEG
SMCJ14	14	15.6	19.1	1	25.8	58.1	5	GEH
SMCJ14A	14	15.6	17.2	1	23.2	64.7	5	GEK
SMCJ15	15	16.7	20.4	1	26.9	55.8	5	GEL
SMCJ15A	15	16.7	18.5	1	24.4	61.5	5	GEM
SMCJ16	16	17.8	21.8	1	28.8	52.1	5	GEN
SMCJ16A	16	17.8	19.7	1	26.0	57.7	5	GEP
SMCJ17	17	18.9	23.1	1	30.5	49.2	5	GEQ
SMCJ17A	17	18.9	20.9	1	27.6	53.3	5	GER
SMCJ18	18	20.0	24.4	1	32.2	46.6	5	GES
SMCJ18A	18	20.0	22.1	1	29.2	51.4	5	GET
SMCJ20	20	22.2	27.1	1	35.8	41.9	5	GEU
SMCJ20A	20	22.2	24.5	1	32.4	46.3	5	GEV
SMCJ22	22	24.4	29.8	1	39.4	38.1	5	GEW
SMCJ22A	22	24.4	26.9	1	35.5	42.2	5	GEX
SMCJ24	24	26.7	32.6	1	43.0	34.9	5	GEY
SMCJ24A	24	26.7	29.5	1	38.9	38.6	5	GEZ
SMCJ26	26	28.9	35.3	1	46.6	32.2	5	GFD
SMCJ26A	26	28.9	31.9	1	42.1	35.6	5	GFE

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	$V_{WM}$	$V_{(BR)}$ @ $I_T$ (VOLTS)		$I_T$ (mA)				
	VOLTS	MIN	MAX					
SMCJ28	28	31.1	38.0	1	50.0	30.0	5	GFF
SMCJ28A	28	31.1	34.4	1	45.4	33.0	5	GFG
SMCJ30	30	33.3	40.7	1	53.5	28.0	5	GFH
SMCJ30A	30	33.3	36.8	1	48.4	31.0	5	GFK
SMCJ33	33	36.7	44.9	1	59.0	25.2	5	GFL
SMCJ33A	33	36.7	40.6	1	53.3	28.1	5	GFM
SMCJ36	36	40.0	48.9	1	64.3	23.3	5	GFN
SMCJ36A	36	40.0	44.2	1	58.1	25.8	5	GFP
SMCJ40	40	44.4	54.3	1	71.4	21.0	5	GFQ
SMCJ40A	40	44.4	49.1	1	64.5	23.2	5	GFR
SMCJ43	43	47.8	58.4	1	76.7	19.6	5	GFS
SMCJ43A	43	47.8	52.8	1	69.4	21.6	5	GFT
SMCJ45	45	50.0	61.1	1	80.3	18.7	5	GFU
SMCJ45A	45	50.0	55.3	1	72.7	20.6	5	GFV
SMCJ48	48	53.3	65.1	1	85.5	17.5	5	GFW
SMCJ48A	48	53.3	58.9	1	77.4	19.4	5	GFX
SMCJ51	51	56.7	69.3	1	91.1	18.5	5	GFY
SMCJ51A	51	56.7	62.7	1	82.4	18.2	5	GFZ
SMCJ54	54	60.0	73.3	1	96.3	15.6	5	GGD
SMCJ54A	54	60.0	66.3	1	87.1	17.2	5	GGE
SMCJ58	58	64.4	78.7	1	103	14.6	5	GGF
SMCJ58A	58	64.4	71.2	1	93.6	16.0	5	GGG
SMCJ60	60	66.7	81.5	1	107	14.0	5	GGH
SMCJ60A	60	66.7	73.7	1	96.8	15.5	5	GGK
SMCJ64	64	71.1	86.9	1	114	13.2	5	GGL
SMCJ64A	64	71.1	78.6	1	103	14.6	5	GGM
SMCJ70	70	77.8	95.1	1	125	12.0	5	GGN
SMCJ70A	70	77.8	86.0	1	113	13.3	5	GGP
SMCJ75	75	83.3	102	1	134	11.2	5	GGQ
SMCJ75A	75	83.3	92.1	1	121	12.4	5	GGR
SMCJ78	78	86.7	106	1	139	10.8	5	GGS
SMCJ78A	78	86.7	95.8	1	126	11.4	5	GGT
SMCJ85	85	94.4	115	1	151	9.9	5	GGU
SMCJ85A	85	94.4	104	1	137	10.4	5	GGV
SMCJ90	90	100	122	1	160	9.4	5	GGW
SMCJ90A	90	100	111	1	146	10.3	5	GGX
SMCJ100	100	111	136	1	179	8.4	5	GGY
SMCJ100A	100	111	123	1	162	9.3	5	GGZ
SMCJ110	110	122	149	1	196	7.7	5	GHD
SMCJ110A	110	122	135	1	177	8.4	5	GHE
SMCJ120	120	133	163	1	214	7.0	5	GHF
SMCJ120A	120	133	147	1	193	7.8	5	GHG

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MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)}@I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE@ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_b$	MARKING CODE
	VOLTS	MIN	MAX	$I_T$ (mA)	VOLTS	(AMPS)	( $\mu$ A)	
SMCJ130	130	144	176	1	231	6.5	5	GHH
SMCJ130A	130	144	159	1	209	7.2	5	GHK
SMCJ150	150	167	204	1	268	5.6	5	GHL
SMCJ150A	150	167	185	1	243	6.2	5	GHM
SMCJ160	160	178	218	1	287	5.2	5	GHN
SMCJ160A	160	178	197	1	259	5.8	5	GHP
SMCJ170	170	189	231	1	304	4.9	5	GHO
SMCJ170A	170	189	209	1	275	5.5	5	GHR

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MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE@ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_b$	MARKING CODE
	$V_{WM}$	$V_{(BR)}$ @ $I_T$ (VOLTS)		$I_T$ (mA)				
	VOLTS	MIN	MAX		VOLTS	(AMPS)	( $\mu$ A)	
SMCJ5.0 C	5.0	6.40	7.30	10	9.6	156.2	2000	BDD
SMCJ5.0 CA	5.0	6.40	7.00	10	9.2	163.0	2000	BDE
SMCJ6.0 C	6.0	6.67	8.15	10	11.4	131.6	2000	BDF
SMCJ6.0 CA	6.0	6.67	7.37	10	10.3	145.6	2000	BDG
SMCJ6.5 C	6.5	7.22	8.82	10	12.3	122.0	1000	BDH
SMCJ6.5 CA	6.5	7.22	7.98	10	11.2	133.9	1000	BDK
SMCJ7.0 C	7.0	7.78	9.51	10	13.3	112.8	400	BDL
SMCJ7.0 CA	7.0	7.78	8.60	10	12.0	125.0	400	BDM
SMCJ7.5 C	7.5	8.33	10.2	1	14.3	104.9	200	BDN
SMCJ7.5 CA	7.5	8.33	9.21	1	12.9	116.3	200	BDP
SMCJ8.0 C	8.0	8.89	10.9	1	15.0	100.0	100	BDQ
SMCJ8.0 CA	8.0	8.89	9.83	1	13.6	110.3	100	BDR
SMCJ8.5 C	8.5	9.44	11.5	1	15.9	94.3	20	BDS
SMCJ8.5 CA	8.5	9.44	10.4	1	14.4	104.2	20	BDT
SMCJ9.0 C	9.0	10.0	12.2	1	16.9	88.7	10	BDU
SMCJ9.0 CA	9.0	10.0	11.1	1	15.4	97.4	10	BDV
SMCJ10 C	10	11.1	13.6	1	18.8	79.8	5	BDW
SMCJ10 CA	10	11.1	12.3	1	17.0	88.2	5	BDX
SMCJ11 C	11	12.2	14.9	1	20.1	74.6	5	BDY
SMCJ11 CA	11	12.2	13.5	1	18.2	82.4	5	BDZ
SMCJ12 C	12	13.3	16.3	1	22.0	68.2	5	BED
SMCJ12 CA	12	13.3	14.7	1	19.9	75.3	5	BEE
SMCJ13C	13	14.4	17.6	1	23.8	63.0	5	BEF
SMCJ13 CA	13	14.4	15.9	1	21.5	69.7	5	BEG
SMCJ14 C	14	15.6	19.1	1	25.8	58.1	5	BEH
SMCJ14 CA	14	15.6	17.2	1	23.2	64.7	5	BEK
SMCJ15 C	15	16.7	20.4	1	26.9	55.8	5	BEL
SMCJ15 CA	15	16.7	18.5	1	24.4	61.5	5	BEM
SMCJ16C	16	17.8	21.8	1	28.8	52.1	5	BEN
SMCJ16 CA	16	17.8	19.7	1	26.0	57.7	5	BEP
SMCJ17 C	17	18.9	23.1	1	30.5	49.2	5	BEQ
SMCJ17 CA	17	18.9	20.9	1	27.6	53.3	5	BER
SMCJ18 C	18	20.0	24.4	1	32.2	46.6	5	BES
SMCJ18 CA	18	20.0	22.1	1	29.2	51.4	5	BET
SMCJ20 C	20	22.2	27.1	1	35.8	41.9	5	BEU
SMCJ20 CA	20	22.2	24.5	1	32.4	46.3	5	BEV
SMCJ22 C	22	24.4	29.8	1	39.4	38.1	5	BEW
SMCJ22 CA	22	24.4	26.9	1	35.5	42.2	5	BEX
SMCJ24 C	24	26.7	32.6	1	43.0	34.9	5	BEY
SMCJ24 CA	24	26.7	29.5	1	38.9	38.6	5	BEZ
SMCJ26 C	26	28.9	35.3	1	46.6	32.2	5	BFD
SMCJ26 CA	26	28.9	31.9	1	42.1	35.6	5	BFE

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MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE@ <sub>PP</sub>	PEAK PULSE CURRENT <sub>PP</sub>	MAXIMUM REVERSE LEAKAGE @ <sub>V<sub>WM</sub></sub> <sub>I<sub>b</sub></sub>	MARKING CODE
	<sub>V<sub>WM</sub></sub>	<sub>V<sub>(BR)</sub></sub> @ <sub>I<sub>T</sub></sub> (VOLTS)		<sub>I<sub>T</sub></sub> (mA)				
	VOLTS	MIN	MAX					
SMCJ28C	28	31.1	38.0	1	50.0	30.0	5	BFF
SMCJ28CA	28	31.1	34.4	1	45.4	33.0	5	BFG
SMCJ30C	30	33.3	40.7	1	53.5	28.0	5	BFH
SMCJ30CA	30	33.3	36.8	1	48.4	31.0	5	BFK
SMCJ33C	33	36.7	44.9	1	59.0	25.2	5	BFL
SMCJ33CA	33	36.7	40.6	1	53.3	28.1	5	BFM
SMCJ36C	36	40.0	48.9	1	64.3	23.3	5	BFN
SMCJ36CA	36	40.0	44.2	1	58.1	25.8	5	BFP
SMCJ40C	40	44.4	54.3	1	71.4	21.0	5	BFQ
SMCJ40CA	40	44.4	49.1	1	64.5	23.2	5	BFR
SMCJ43C	43	47.8	58.4	1	76.7	19.6	5	BFS
SMCJ43CA	43	47.8	52.8	1	69.4	21.6	5	BFT
SMCJ45C	45	50.0	61.1	1	80.3	18.7	5	BFU
SMCJ45CA	45	50.0	55.3	1	72.7	20.6	5	BFV
SMCJ48C	48	53.3	65.1	1	85.5	17.5	5	BFW
SMCJ48CA	48	53.3	58.9	1	77.4	19.4	5	BFX
SMCJ51C	51	56.7	69.3	1	91.1	18.5	5	BFY
SMCJ51CA	51	56.7	62.7	1	82.4	18.2	5	BFZ
SMCJ54C	54	60.0	73.3	1	96.3	15.6	5	BGD
SMCJ54CA	54	60.0	66.3	1	87.1	17.2	5	BGE
SMCJ58C	58	64.4	78.7	1	103	14.6	5	BGF
SMCJ58CA	58	64.4	71.2	1	93.6	16.0	5	BGG
SMCJ60C	60	66.7	81.5	1	107	14.0	5	BGH
SMCJ60CA	60	66.7	73.7	1	96.8	15.5	5	BGK
SMCJ64C	64	71.1	86.9	1	114	13.2	5	BGL
SMCJ64CA	64	71.1	78.6	1	103	14.6	5	BGM
SMCJ70C	70	77.8	95.1	1	125	12.0	5	BGN
SMCJ70CA	70	77.8	86.0	1	113	13.3	5	BGP
SMCJ75C	75	83.3	102	1	134	11.2	5	BGQ
SMCJ75CA	75	83.3	92.1	1	121	12.4	5	BGR
SMCJ78C	78	86.7	106	1	139	10.8	5	BGS
SMCJ78CA	78	86.7	95.8	1	126	11.4	5	BGT
SMCJ85C	85	94.4	115	1	151	9.9	5	BGU
SMCJ85CA	85	94.4	104	1	137	10.4	5	BGV
SMCJ90C	90	100	122	1	160	9.4	5	BGW
SMCJ90CA	90	100	111	1	146	10.3	5	BGX
SMCJ100C	100	111	136	1	179	8.4	5	BGY
SMCJ100CA	100	111	123	1	162	9.3	5	BGZ
SMCJ110C	110	122	149	1	196	7.7	5	BHD
SMCJ110CA	110	122	135	1	177	8.4	5	BHE
SMCJ120C	120	133	163	1	214	7.0	5	BHF
SMCJ120CA	120	133	147	1	193	7.8	5	BHG

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MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE $V_{WM}$	BREAKDOWN VOLTAGE $V_{(BR)}@I_T$ (VOLTS)			MAXIMUM CLAMPING VOLTAGE@ $I_{PP}$	PEAK PULSE CURRENT $I_{PP}$	MAXIMUM REVERSE LEAKAGE @ $V_{WM}$ $I_b$	MARKING CODE
	VOLTS	MIN	MAX	$I_T$ (mA)	VOLTS	(AMPS)	( $\mu$ A)	
SMCJ130C	130	144	176	1	231	6.5	5	BHH
SMCJ130CA	130	144	159	1	209	7.2	5	BHK
SMCJ150C	150	167	204	1	268	5.6	5	BHL
SMCJ150CA	150	167	185	1	243	6.2	5	BHM
SMCJ160C	160	178	218	1	287	5.2	5	BHN
SMCJ160CA	160	178	197	1	259	5.8	5	BHP
SMCJ170C	170	189	231	1	304	4.9	5	BHQ
SMCJ170CA	170	189	209	1	275	5.5	5	BHR