



Micro Commercial Components
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SMLJ5.0 THRU SMLJ170CA

Transient Voltage Suppressor 5.0 to 170 Volts 3000 Watt

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): 0.5%
- Fast response time: typical less than 1ps from 0V to BV min
- Typical I_b less than 1uA above 10V
- High temperature soldering: 250°C/10 seconds at terminals
- Plastic package has Underwrites Laboratory Flammability Classification 94V-O

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

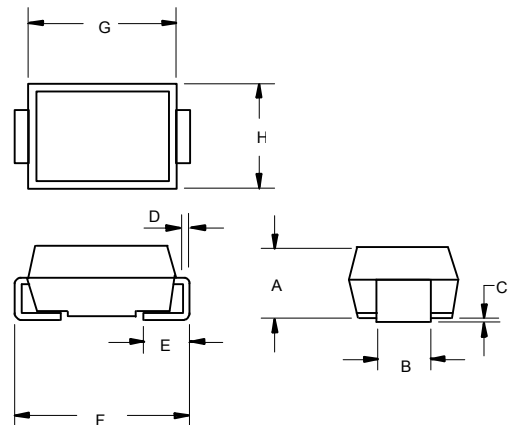
Maximum Ratings @ 25°C Unless Otherwise Specified

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 3000	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:

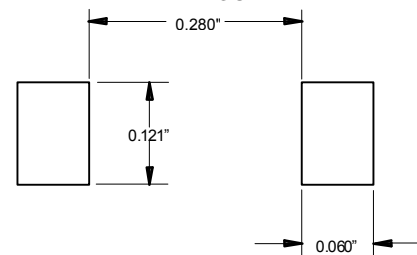
1. Non-repetitive current pulse per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2.
2. Mounted on 8.0mm² copper pads to each terminal.
3. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.

DO-214AB (SMLJ) (LEAD FRAME)



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.079	.103	2.00	2.62	
B	.115	.121	2.92	3.07	
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	.260	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

SUGGESTED SOLDER PAD LAYOUT



SMLJ5.0 thru SMLJ170CA

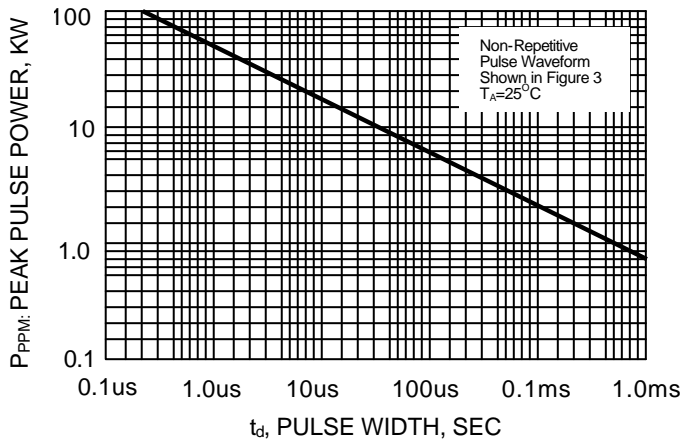


Fig. 1- PEAL PULSE POWER VS PULSE.TIME

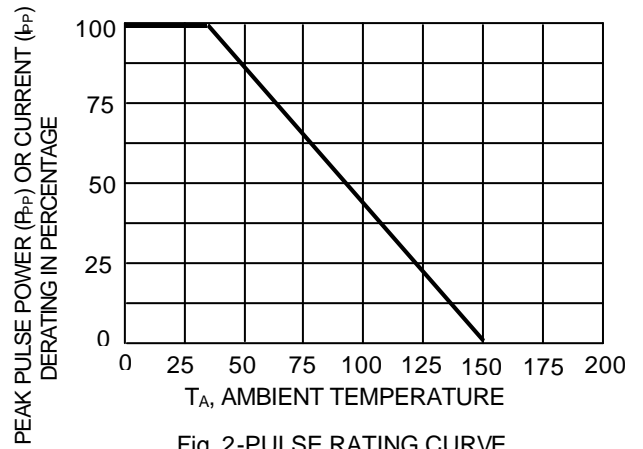


Fig. 2-PULSE RATING CURVE

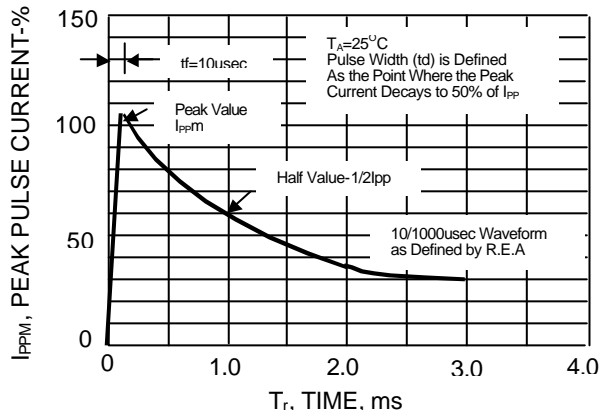


Fig. 3-PULSE WAVEFORM

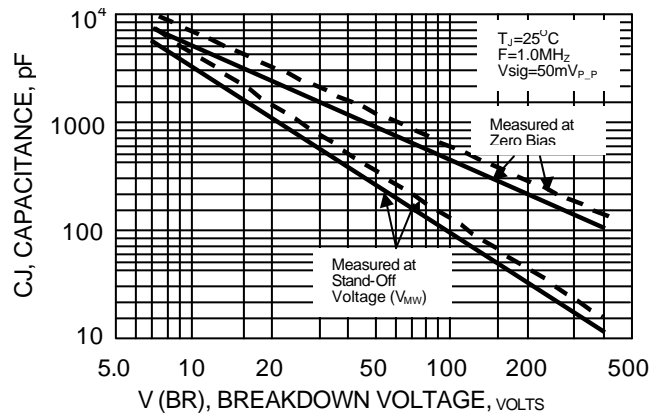


Fig. 4-TYPICAL CAPACITANCE VS STAND-OFF VOLTAGE

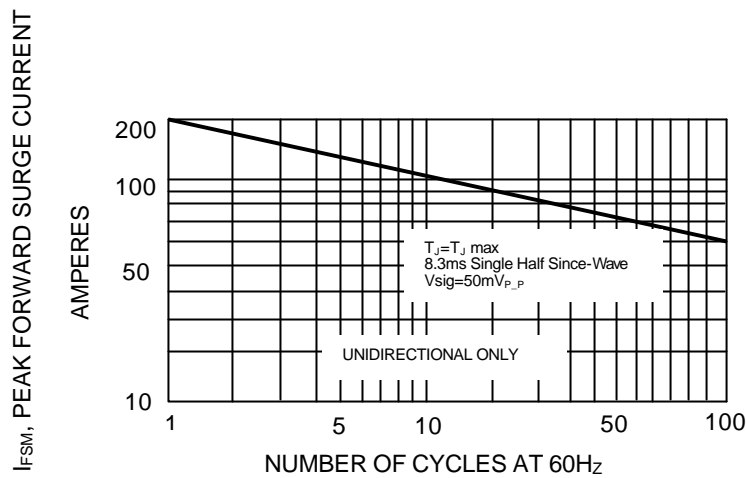


Fig-5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CUTTENT

SMLJ5.0 THRU SMLJ170CA

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}	MARKING CODE		
	V_{WM}	$V_{(BR)}$ @ I_T (VOLTS)		I_T (mA)					VOLTS	I_b
	VOLTS	MIN	MAX							
SMLJ5.0	5.0	6.40	7.30	10	9.6	312.5	1000	HDD		
SMLJ5.0A	5.0	6.40	7.00	10	9.2	326.0	1000	HDE		
SMLJ6.0	6.0	6.67	8.15	10	11.4	263.2	1000	HDF		
SMLJ6.0A	6.0	6.67	7.37	10	10.3	291.3	1000	HDG		
SMLJ6.5	6.5	7.22	8.82	10	12.3	243.9	500	HDH		
SMLJ6.5A	6.5	7.22	7.98	10	11.2	267.9	500	HDK		
SMLJ7.0	7.0	7.78	9.51	10	13.3	225.6	200	HDL		
SMLJ7.0A	7.0	7.78	8.60	10	12.0	250.0	200	HDM		
SMLJ7.5	7.5	8.33	10.2	1	14.3	209.8	100	HDN		
SMLJ7.5A	7.5	8.33	9.21	1	12.9	232.6	100	HDP		
SMLJ8.0	8.0	8.89	10.9	1	15.0	200.0	50	HDQ		
SMLJ8.0A	8.0	8.89	9.83	1	13.6	220.6	50	HDR		
SMLJ8.5	8.5	9.44	11.5	1	15.9	118.8	25	HDS		
SMLJ8.5A	8.5	9.44	10.4	1	14.4	208.4	25	HDT		
SMLJ9.0	9.0	10.0	12.2	1	16.9	177.4	10	HDU		
SMLJ9.0A	9.0	10.0	11.1	1	15.4	194.8	10	HDV		
SMLJ10	10	11.1	13.6	1	18.8	159.6	5	HDW		
SMLJ10A	10	11.1	12.3	1	17.0	176.4	5	HDX		
SMLJ11	11	12.2	14.9	1	20.1	149.2	5	HDY		
SMLJ11A	11	12.2	13.5	1	18.2	164.8	5	HDZ		
SMLJ12	12	13.3	16.3	1	22.0	136.4	5	HED		
SMLJ12A	12	13.3	14.7	1	19.9	150.6	5	HEE		
SMLJ13	13	14.4	17.6	1	23.8	126.0	5	HEF		
SMLJ13A	13	14.4	15.5	1	21.5	139.4	5	HEG		
SMLJ14	14	15.6	19.1	1	25.8	116.2	5	HEH		
SMLJ14A	14	15.6	17.2	1	23.2	129.4	5	HEK		
SMLJ15	15	16.7	20.4	1	26.9	111.6	5	HEL		
SMLJ15A	15	16.7	18.5	1	24.4	123.0	5	HEM		
SMLJ16	16	17.8	21.8	1	28.8	104.2	5	HEN		
SMLJ16A	16	17.8	19.7	1	26.0	115.4	5	HEP		
SMLJ17	17	18.9	23.1	1	30.5	98.4	5	HEQ		
SMLJ17A	17	18.9	20.9	1	27.6	106.6	5	HER		
SMLJ18	18	20.0	24.4	1	32.2	93.2	5	HES		
SMLJ18A	18	20.0	22.1	1	29.2	102.8	5	HET		
SMLJ20	20	22.2	27.1	1	35.8	83.8	5	HEU		
SMLJ20A	20	22.2	24.5	1	32.4	92.6	5	HEV		
SMLJ22	22	24.4	29.8	1	39.4	76.2	5	HEW		
SMLJ22A	22	24.4	26.9	1	35.5	84.4	5	HEX		
SMLJ24	24	26.7	32.6	1	43.0	69.8	5	HEY		
SMLJ24A	24	26.7	29.5	1	38.9	77.2	5	HEZ		
SMLJ26	26	28.9	35.3	1	46.6	64.4	5	HFD		
SMLJ26A	26	28.9	31.9	1	42.1	71.2	5	HFE		

SMLJ5.0 THRU SMLJ170CA

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE@ _{PP}	PEAK PULSE CURRENT _{PP}	MAXIMUM REVERSE LEAKAGE @ _{V_{WM}} _{I_b}	MARKING CODE
	{V{WM}}	_{V_(BR)} @ _{I_T}		_{I_T} (mA)				
	VOLTS	MIN	MAX					
SMLJ28	28	31.1	38.0	1	50.0	60.0	5	HFF
SMLJ28A	28	31.1	34.4	1	45.4	66.0	5	HFG
SMLJ30	30	33.3	40.7	1	53.5	56.0	5	HFH
SMLJ30A	30	33.3	36.8	1	48.4	62.0	5	HFK
SMLJ33	33	36.7	44.9	1	59.0	50.4	5	HFL
SMLJ33A	33	36.7	40.6	1	53.3	56.2	5	HFM
SMLJ36	36	40.0	48.9	1	64.3	46.6	5	HFN
SMLJ36A	36	40.0	44.2	1	58.1	51.6	5	HFP
SMLJ40	40	44.4	54.3	1	71.4	42.0	5	HFQ
SMLJ40A	40	44.4	49.1	1	64.5	46.4	5	HFR
SMLJ43	43	47.8	58.4	1	76.7	39.2	5	HFS
SMLJ43A	43	47.8	52.8	1	69.4	43.2	5	HFT
SMLJ45	45	50.0	61.1	1	80.3	37.4	5	HFU
SMLJ45A	45	50.0	55.3	1	72.7	41.2	5	HFV
SMLJ48	48	53.3	65.1	1	85.5	35.0	5	HFW
SMLJ48A	48	53.3	58.9	1	77.4	38.8	5	HFX
SMLJ51	51	56.7	69.3	1	91.1	37.0	5	HFY
SMLJ51A	51	56.7	62.7	1	82.4	36.4	5	HFZ
SMLJ54	54	60.0	73.3	1	96.3	31.2	5	HGD
SMLJ54A	54	60.0	66.3	1	87.1	34.4	5	HGE
SMLJ58	58	64.4	78.7	1	103	39.2	5	HGF
SMLJ58A	58	64.4	71.2	1	93.6	32.0	5	HGG
SMLJ60	60	66.7	81.5	1	107	28.0	5	HGH
SMLJ60A	60	66.7	73.7	1	96.8	31.0	5	HGK
SMLJ64	64	71.1	86.9	1	114	26.4	5	HGL
SMLJ64A	64	71.1	78.6	1	103	29.2	5	HGM
SMLJ70	70	77.8	95.1	1	125	24.0	5	HGN
SMLJ70A	70	77.8	86.0	1	113	26.6	5	HGP
SMLJ75	75	83.3	102.0	1	134	22.4	5	HGQ
SMLJ75A	75	83.3	92.1	1	121	24.8	5	HGR
SMLJ78	78	86.7	106.0	1	139	21.6	5	HGS
SMLJ78A	78	86.7	95.8	1	126	22.8	5	HGT
SMLJ85	85	94.4	115.0	1	151	19.8	5	HGU
SMLJ85A	85	94.4	104.0	1	137	20.8	5	HGV
SMLJ90	90	100	122.0	1	160	18.8	5	HGW
SMLJ90A	90	100	111.0	1	146	20.6	5	HGX
SMLJ100	100	111	136	1	179	16.8	5	HGY
SMLJ100A	100	111	123	1	162	18.6	5	HGZ
SMLJ110	110	122	149.0	1	196	15.4	5	HHD
SMLJ110A	110	122	135.0	1	177	16.8	5	HHE
SMLJ120	120	133	163	1	214	14.0	5	HHF
SMLJ120A	120	133	147	1	193	15.6	5	HHG

SMLJ5.0 THRU SMLJ170CA

Electrical Characteristics @ 25°C Unless Otherwise Specified

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)	(μ A)	
SMLJ130	130	144	176.0	1	231	13.0	5	HHH
SMLJ130A	130	144	159.0	1	209	14.4	5	HHK
SMLJ150	150	167	204.0	1	268	11.2	5	HHL
SMLJ150A	150	167	185.0	1	243	12.4	5	HHM
SMLJ160	160	178	218.0	1	287	10.4	5	HHN
SMLJ160A	160	178	197.0	1	259	11.6	5	HHP
SMLJ170	170	189	231.0	1	304	9.8	5	HHO
SMLJ170A	170	189	209.0	1	275	11.0	5	HHR

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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					
SMLJ5.0 C	5.0	6.40	7.30	10	9.6	312.5	2000	IDD
SMLJ5.0 CA	5.0	6.40	7.00	10	9.2	326.0	2000	IDE
SMLJ6.0 C	6.0	6.67	8.15	10	11.4	263.2	2000	IDF
SMLJ6.0 CA	6.0	6.67	7.37	10	10.3	291.3	2000	IDG
SMLJ6.5 C	6.5	7.22	8.82	10	12.3	243.9	1000	IDH
SMLJ6.5 CA	6.5	7.22	7.98	10	11.2	267.9	1000	IDK
SMLJ7.0 C	7.0	7.78	9.51	10	13.3	225.6	400	IDL
SMLJ7.0 CA	7.0	7.78	8.60	10	12.0	250.0	400	IDM
SMLJ7.5 C	7.5	8.33	10.20	1	14.3	209.8	200	IDN
SMLJ7.5 CA	7.5	8.33	9.21	1	12.9	232.6	200	IDP
SMLJ8.0 C	8.0	8.89	10.9	1	15.0	200.0	100	IDQ
SMLJ8.0 CA	8.0	8.89	9.83	1	13.6	220.6	100	IDR
SMLJ8.5 C	8.5	9.44	11.50	1	15.9	168.8	50	IDS
SMLJ8.5 CA	8.5	9.44	10.40	1	14.4	208.4	50	IDT
SMLJ9.0 C	9.0	10.0	12.2	1	16.9	177.4	20	IDU
SMLJ9.0CA	9.0	10.0	11.1	1	15.4	194.8	20	IDV
SMLJ10 C	10	11.1	13.6	1	18.8	159.6	5	IDW
SMLJ10 CA	10	11.1	12.3	1	17.0	176.4	5	IDX
SMLJ11 C	11	12.2	14.9	1	20.1	149.2	5	IDY
SMLJ11 CA	11	12.2	13.5	1	18.2	184.8	5	IDZ
SMLJ12 C	12	13.3	16.3	1	22.0	136.4	5	IED
SMLJ12 CA	12	13.3	14.7	1	19.9	150.6	5	IEE
SMLJ13C	13	14.4	17.6	1	23.8	126.0	5	IEF
SMLJ13 CA	13	14.4	15.9	1	21.5	139.4	5	IEG
SMLJ14 C	14	15.6	19.1	1	25.8	116.2	5	IEH
SMLJ14 CA	14	15.6	17.2	1	23.2	129.4	5	IEK
SMLJ15 C	15	16.7	20.4	1	26.9	111.6	5	IEL
SMLJ15 CA	15	16.7	18.5	1	24.4	123.0	5	IEM
SMLJ16C	16	17.8	21.8	1	28.8	104.2	5	IEN
SMLJ16 CA	16	17.8	19.7	1	26.0	115.4	5	IEP
SMLJ17 C	17	18.9	23.1	1	30.5	98.4	5	IEQ
SMLJ17 CA	17	18.9	20.9	1	27.6	106.6	5	IER
SMLJ18 C	18	20.0	24.4	1	32.2	93.2	5	IES
SMLJ18 CA	18	20.0	22.1	1	29.2	102.8	5	IET
SMLJ20 C	20	22.2	27.1	1	35.8	83.8	5	IEU
SMLJ20 CA	20	22.2	24.1	1	32.4	92.6	5	IEV
SMLJ22 C	22	24.4	29.8	1	39.4	76.2	5	IEW
SMLJ22 CA	22	24.4	26.9	1	35.5	84.4	5	IEX
SMLJ24 C	24	26.7	32.6	1	43.0	69.8	5	IEY
SMLJ24 CA	24	26.7	29.5	1	38.9	77.2	5	IEZ
SMLJ26 C	26	28.9	35.3	1	46.6	64.4	5	IFD
SMLJ26 CA	26	28.9	31.9	1	42.1	71.2	5	IFE

SMLJ5.0 THRU SMLJ170CA

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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}	MARKING CODE		
	V_{WM}	$V_{(BR)}$ @ I_T (VOLTS)		I_T (mA)					VOLTS	I_b
	VOLTS	MIN	MAX							
SMLJ28C	28	31.1	38.0	1	50.0	60.0	5	IFF		
SMLJ28CA	28	31.1	34.4	1	45.4	66.0	5	IFG		
SMLJ30C	30	33.3	40.7	1	53.5	56.0	5	IFH		
SMLJ30CA	30	33.3	36.8	1	48.4	62.0	5	IFK		
SMLJ33C	33	36.7	44.9	1	59.0	50.4	5	IFL		
SMLJ33CA	33	36.7	40.6	1	53.3	56.2	5	IFM		
SMLJ36C	36	40.0	48.9	1	64.3	46.6	5	IFN		
SMLJ36CA	36	40.0	44.2	1	58.1	51.6	5	IFP		
SMLJ40C	40	44.4	54.3	1	71.4	42.0	5	IFQ		
SMLJ40CA	40	44.4	49.1	1	64.5	46.4	5	IFR		
SMLJ43C	43	47.8	58.4	1	76.7	39.2	5	IFS		
SMLJ43CA	43	47.8	52.8	1	69.4	43.2	5	IFT		
SMLJ45C	45	50.0	61.1	1	80.3	37.4	5	IFU		
SMLJ45CA	45	50.0	55.3	1	72.7	41.2	5	IFV		
SMLJ48C	48	53.3	65.1	1	85.5	35.0	5	IFW		
SMLJ48CA	48	53.3	58.9	1	77.4	38.8	5	IFX		
SMLJ51C	51	56.7	69.3	1	91.1	37.0	5	IFY		
SMLJ51CA	51	56.7	62.7	1	82.4	36.4	5	IFZ		
SMLJ54C	54	60.0	73.3	1	96.3	31.2	5	IGD		
SMLJ54CA	54	60.0	66.3	1	87.1	34.4	5	IGE		
SMLJ58C	58	64.4	78.7	1	103	39.2	5	IGF		
SMLJ58CA	58	64.4	71.2	1	93.6	32.0	5	IGG		
SMLJ60C	60	66.7	81.5	1	107	28.0	5	IGH		
SMLJ60CA	60	66.7	73.7	1	96.8	31.0	5	IGK		
SMLJ64C	64	71.1	86.9	1	114	26.4	5	IGL		
SMLJ64CA	64	71.1	78.6	1	103	29.2	5	IGM		
SMLJ70C	70	77.8	95.1	1	125	24.0	5	IGN		
SMLJ70CA	70	77.8	86.0	1	113	26.6	5	IGP		
SMLJ75C	75	83.3	102.0	1	134	22.4	5	IGQ		
SMLJ75CA	75	83.3	92.1	1	121	24.8	5	IGR		
SMLJ78C	78	86.7	106.0	1	139	21.6	5	IGS		
SMLJ78CA	78	86.7	95.8	1	126	22.8	5	IGT		
SMLJ85C	85	94.4	115.0	1	151	19.8	5	IGU		
SMLJ85CA	85	94.4	104.0	1	137	20.8	5	IGV		
SMLJ90C	90	100	122.0	1	160	18.8	5	IGW		
SMLJ90CA	90	100	111.0	1	146	20.6	5	IGX		
SMLJ100C	100	111	136	1	179	16.8	5	IGY		
SMLJ100CA	100	111	123	1	162	18.6	5	IGZ		
SMLJ110C	110	122	149.0	1	196	15.4	5	IHD		
SMLJ110CA	110	122	135.0	1	177	16.8	5	IHE		
SMLJ120C	120	133	163	1	214	14.0	5	IHF		
SMLJ120CA	120	133	147	1	193	15.6	5	IHG		

SMCL5.0 THRU SMCL170CA

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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)	(μ A)	
SMLJ130C	130	144	176.0	1	231	13.0	5	IHH
SMLJ130CA	130	144	159.0	1	209	14.4	5	IHK
SMLJ150C	150	167	204.0	1	268	11.2	5	IHL
SMLJ150CA	150	167	185.0	1	243	12.4	5	IHM
SMLJ160C	160	178	218.0	1	287	10.4	5	IHN
SMLJ160CA	160	178	197.0	1	259	11.6	5	IHP
SMLJ170C	170	189	231.0	1	304	9.8	5	IHO
SMLJ170CA	170	189	209.0	1	275	11.0	5	IHR