Micro Commercial Components

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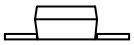
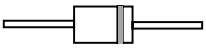
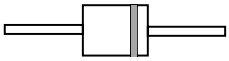
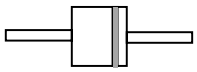
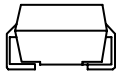
Micro Commercial Components Corp.

Transient Voltage Suppressors (TVS) Selection Guide

Package Types	Part No.	Electrical Characteristics(Rating at 25℃ Ambient Temperature)				
		Peak Power Dissipation P_{PK}(W)	Reverse Standoff Voltage-V_{wm}(V)	Max.Peak Pulse Current-I_{pp}(A)	Max. Clamping Voltage Vc (V)@I_{pp}	Max.Reverse Leakage I_D(uA)@V_{wm}
 SOD-123FL	SMF5.0(C)A~SMF170(C)A	200	5.0~170	21.7~0.6	9.2~275	400~1.0
 DO-41	P4KE6.8(C)(A)~P4KE550(C)(A)	400	5.8~495	39~0.52	10.5~760	1000~1.0
 DO-15	P5KE5.0(C)(A)~P5KE200(C)(A)	500	5~200	54.3~1.5	9.2~324	600~3.0
	SAC5.0~SAC50		5~50	44~5.8	10~88	300~5.0
	SA5.0(C)(A)~SA170(C)(A)		5~170	55.4~1.9	9.2~275	600~1.0
	P6KE6.8(C)(A)~P6KE600(C)(A)	600	5.8~512	57~0.75	10.5~828	1000~5.0
	NEW SAC136	1.5	136	2.7	219	1.0
 DO-201AE	1.5KE6.8(C)(A)~1.5KE550(C)(A)	1500	5.8~467	144.8~2	10.5~760	1000~5.0
	LCE6.5A~LCE28A		6.5~28	100~33	11.2~45.5	1000~5
 R-6	3KP5.0(C)(A)~3KP220(C)(A)	3000	5~220	326.1~8.1	9.2~371.1	5000~10
	5KP5.0(C)(A)~5KP250(C)(A)	5000	5~250	543~12	9.2~425	5000~10
	15KP17(C)(A)~15KP280(C)(A)	15000	17~280	512~33	29.3~452	5000~10
	30KP28(C)(A)~30KP288(C)(A)	30000	28~288	606~64.5	50~469.9	5000~10
 SMA(DO-214AC)	SMAJ5.0(C)(A)~SMAJ440(C)(A)	400	5~440	43.5~0.6	9.2~713	800~1.0
	SMAJP4KE6.8(C)(A)~SMAJP4KE550(C)(A)		5.8~495	39~0.5	10.5~760	1000~1
	NEW SMA6J5.0A~SMA6J33A	600	5~33	65.2~11.3	9.2~53.3	800~5.0
	NEW SMA6J9.0CA~SMA6J28CA	600	9~28	39~13.2	15.4~45.4	5.0
 SMB(DO-214AA)	SMBSAC5.0~SMBSAC50	500	5~50	44~5.8	10~88	300~5
	SMBJP6KE6.8(C)(A)~SMBJP6KE550(C)(A)	600	5.8~495	58.1~0.8	10.5~760	1000~5
	SMBJ5.0(C)(A)~SMBJ440(C)(A)		5~440	65.2~0.9	9.2~713	800~5
 SMC(DO-214AB)	SMCJ5.0(C)(A)~SMCJ440(C)(A)	1500	5~440	163~2.1	9.2~713	800~5
	SMCJ1.5KE6.8(C)(A)~SMCJ1.5KE550(C)(A)		5.8~495	144.8~2	10.5~760	1000~5.0
	SMLJ5.0(C)(A)~SMLJ170(C)(A)	3000	5~170	326~11	9.2~275	1000~5
	5.0SMLJ11A~5.0SMLJ170A	5000	11~170	275~18.2	18.2~275	800~5

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SMAJ5.0 THRU SMAJ440CA

400 Watt Transient Voltage Suppressors 5.0 to 440 Volts

Features

- For Surface Mount Applications
- Unidirectional And Bidirectional
- Low Inductance
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- For Bidirectional Devices Add “C” To The Suffix of The Part Number: i.e.SMAJ5.0CA for 5% Tolerance
- Lead Free Finish/Rohs Compliant (Note1) ("P"Suffix designates Compliant. See ordering information)
- UL Recognized File # E331408

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Polarity: Indicated by cathode band except bi-directional types

Maximum Rating:

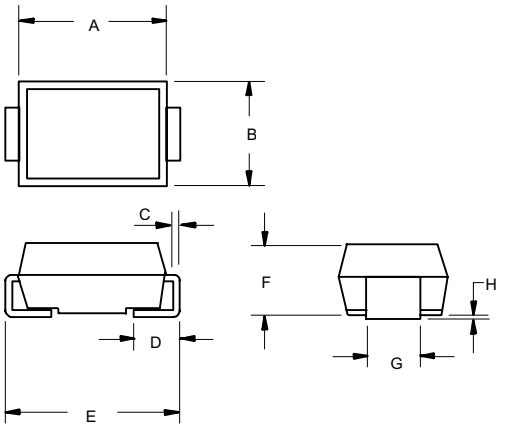
- Operating Temperature: -55°C to +175°C
- Storage Temperature: -55°C to +175°C
- Typical Thermal Resistance: 100℃/W Junction to Ambient

Peak Pulse Current on 10/1000μs Waveform	I_{PPM}	See Table 1	Note 2
Peak Pulse Power Dissipation	P_{PPM}	Min 400 W	Note 2, 6
Steady State Power Dissipation	$P_{M(AV)}$	1.5 W	Note 2, 5
Peak Forward Surge Current	I_{FSM}	40A	Note:5

Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

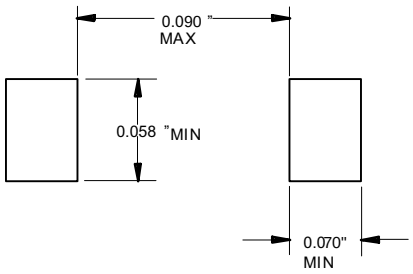
2. Non-repetitive current pulse, per Fig.3 and derated above T_A=25℃ per Fig.2.
3. Mounted on 5.0mm^2 copper pads to each terminal.
4. 8.3ms, single half sine wave duty cycle = 4 pulses per Minutes maximum.
5. Lead temperature at T_L = 75℃.
6. Peak pulse power waveform is 10/1000μs.

DO-214AC
(SMA)(LEAD FRAME)



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.157	.181	4.00	4.60	
B	.098	.114	2.50	2.90	
C	.006	.012	0.152	0.305	
D	.030	.060	0.76	1.52	
E	.188	.208	4.80	5.28	
F	.078	.096	2.00	2.44	
G	.055	.062	1.40	1.60	
H	.002	.008	0.051	0.203	

SUGGESTED SOLDER PAD LAYOUT



SMAJ5.0 thru SMAJ440CA

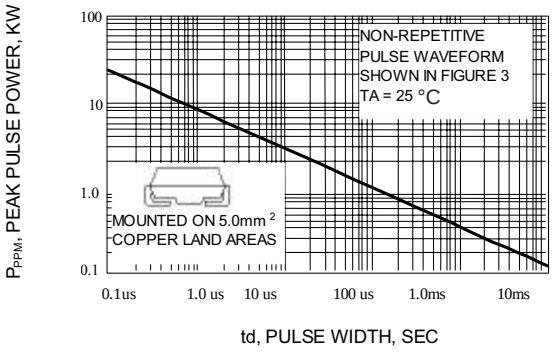


Fig. 1-PEAK PULSE POWER RATING CURVE

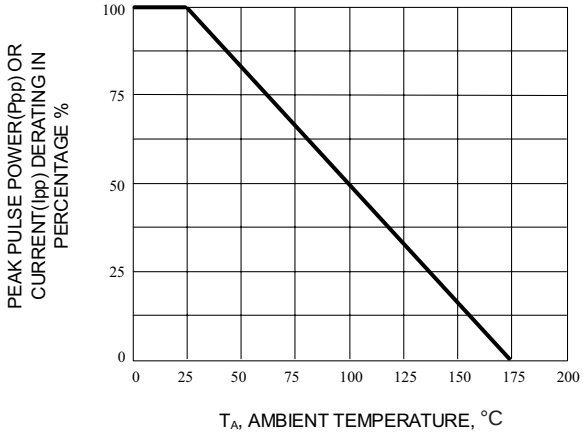


Fig. 2-PULSE RATING CURVE

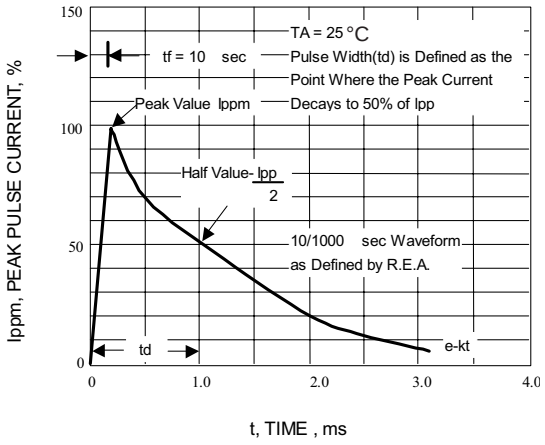


Fig. 3-PULSE WAVEFORM

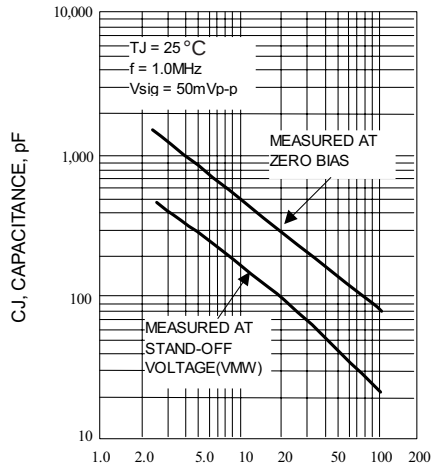


Fig. 4-TYPICAL JUNCTION CAPACITANCE

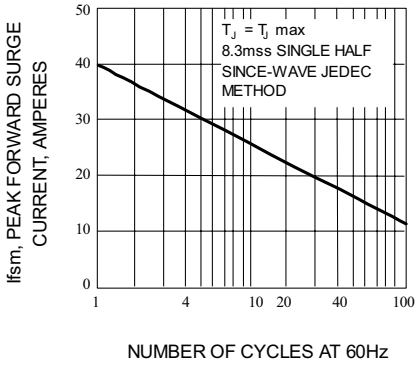


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

ELECTRICAL CHARACTERISTICS @25°C

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_D	MARKING CODE	
UNI-POLAR	BI-POLAR	(VOLTS)	MIN	MAX	I_T (mA)	(VOLTS)	(AMPS)	(μA)	1	2
SMAJ5.0A	SMAJ5.0CA	5.0	6.40	7.00	10	9.2	43.5	800	AE	WE
SMAJ6.0A	SMAJ6.0CA	6.0	6.67	7.37	10	10.3	38.8	800	AG	WG
SMAJ6.5A	SMAJ6.5CA	6.5	7.22	7.98	10	11.2	35.7	500	AK	WK
SMAJ7.0A	SMAJ7.0CA	7.0	7.78	8.60	10	12.0	33.3	200	AM	WM
SMAJ7.5A	SMAJ7.5CA	7.5	8.33	9.21	1	12.9	31.0	100	AP	WP
SMAJ8.0A	SMAJ8.0CA	8.0	8.89	9.83	1	13.6	29.4	50	AR	WR
SMAJ8.5A	SMAJ8.5CA	8.5	9.44	10.4	1	14.4	27.7	20	AT	WT
SMAJ9.0A	SMAJ9.0CA	9.0	10.0	11.1	1	15.4	26.0	10	AV	WV
SMAJ10A	SMAJ10CA	10	11.1	12.3	1	17.0	23.5	5	AX	WX
SMAJ11A	SMAJ11CA	11	12.2	13.5	1	18.2	22.0	1	AZ	WZ
SMAJ12A	SMAJ12CA	12	13.3	14.7	1	19.9	20.1	1	BE	XE
SMAJ13A	SMAJ13CA	13	14.4	15.9	1	21.5	18.6	1	BG	XG
SMAJ14A	SMAJ14CA	14	15.6	17.2	1	23.2	17.2	1	BK	XK
SMAJ15A	SMAJ15CA	15	16.7	18.5	1	24.4	16.4	1	BM	XM
SMAJ16A	SMAJ16CA	16	17.8	19.7	1	26.0	15.3	1	BP	XP
SMAJ17A	SMAJ17CA	17	18.9	20.9	1	27.6	14.5	1	BR	XR
SMAJ18A	SMAJ18CA	18	20.0	22.1	1	29.2	13.7	1	BT	XT
SMAJ20A	SMAJ20CA	20	22.2	24.5	1	32.4	12.3	1	BV	XV
SMAJ22A	SMAJ22CA	22	24.4	26.9	1	35.5	11.2	1	BX	XX
SMAJ24A	SMAJ24CA	24	26.7	29.5	1	38.9	10.3	1	BZ	XZ
SMAJ26A	SMAJ26CA	26	28.9	31.9	1	42.1	9.5	1	CE	YE
SMAJ28A	SMAJ28CA	28	31.1	34.4	1	45.4	8.8	1	CG	YG
SMAJ30A	SMAJ30CA	30	33.3	36.8	1	48.4	8.3	1	CK	YK
SMAJ33A	SMAJ33CA	33	36.7	40.6	1	53.3	7.5	1	CM	YM
SMAJ36A	SMAJ36CA	36	40.0	44.2	1	58.1	6.9	1	CP	YP
SMAJ40A	SMAJ40CA	40	44.4	49.1	1	64.5	6.2	1	CR	YR
SMAJ43A	SMAJ43CA	43	47.8	52.8	1	69.4	5.7	1	CT	YT
SMAJ45A	SMAJ45CA	45	50.0	55.3	1	72.7	5.5	1	CV	YV
SMAJ48A	SMAJ48CA	48	53.3	58.9	1	77.4	5.2	1	CX	YX
SMAJ51A	SMAJ51CA	51	56.7	62.7	1	82.4	4.9	1	CZ	YZ
SMAJ54A	SMAJ54CA	54	60.0	66.3	1	87.1	4.6	1	RE	ZE
SMAJ58A	SMAJ58CA	58	64.4	71.2	1	93.6	4.3	1	RG	ZG
SMAJ60A	SMAJ60CA	60	66.7	73.7	1	96.8	4.1	1	RK	ZK
SMAJ64A	SMAJ64CA	64	71.1	78.6	1	103	3.9	1	RM	ZM
SMAJ70A	SMAJ70CA	70	77.8	86.0	1	113	3.5	1	RP	ZP
SMAJ75A	SMAJ75CA	75	83.3	92.1	1	121	3.3	1	RR	ZR
SMAJ78A	SMAJ78CA	78	86.7	95.8	1	126	2.2	1	RT	ZT
SMAJ85A	SMAJ85CA	85	94.4	104	1	137	2.9	1	RV	ZV
SMAJ90A	SMAJ90CA	90	100	111	1	146	2.7	1	RX	ZX
SMAJ100A	SMAJ100CA	100	111	123	1	162	2.5	1	RZ	ZZ
SMAJ110A	SMAJ110CA	110	122	135	1	177	2.3	1	SE	VE
SMAJ120A	SMAJ120CA	120	133	147	1	193	2.1	1	SG	VG
SMAJ130A	SMAJ130CA	130	144	159	1	209	1.9	1	SK	VK
SMAJ150A	SMAJ150CA	150	167	185	1	243	1.6	1	SM	VM
SMAJ160A	SMAJ160CA	160	178	197	1	259	1.5	1	SP	VP
SMAJ170A	SMAJ170CA	170	189	209	1	275	1.5	1	SR	VR
SMAJ180A	SMAJ180CA	180	201	222	1	292	1.4	1	ST	VT
SMAJ200A	SMAJ200CA	200	224	247	1	324	1.2	1	SV	VV
SMAJ220A	SMAJ220CA	220	246	272	1	356	1.1	1	SX	VX
SMAJ250A	SMAJ250CA	250	279	309	1	405	1.0	1	SZ	VZ
SMAJ300A	SMAJ300CA	300	335	371	1	486	0.8	1	TE	UE
SMAJ350A	SMAJ350CA	350	391	432	1	567	0.7	1	TG	UG
SMAJ400A	SMAJ400CA	400	447	494	1	648	0.6	1	TK	UK
SMAJ440A	SMAJ440CA	440	492	543	1	713	0.6	1	TM	UM

For bi-directional type having Vrwm of 10 Volts and less, the IR limit is double.
For parts without A, the VBR is +10%.

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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel

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SMBJ5.0 THRU SMBJ440CA

Transient Voltage Suppressor 5.0 to 440 Volts 600 Watt

Features

- For surface mount applicationsin order to optimize board space
- Lead Free Finish/Rohs Compliant (Note1) ("P"Suffix designates Compliant. See ordering information)
- Fast response time: typical less than 1.0ps from 0 volts to V_{BR} minimum
- Low inductance
- UL Recognized File # E331408

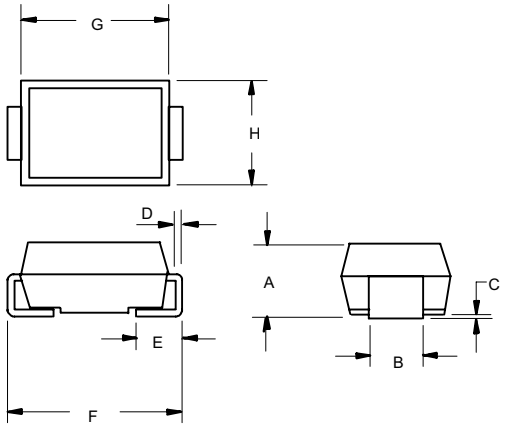
Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode) except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

Maximum Ratings @ 25°C Unless Otherwise Specified

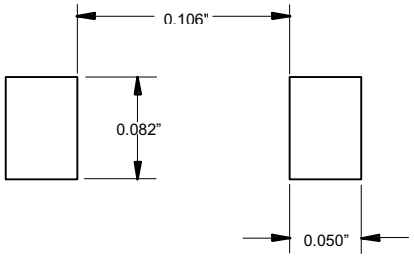
Peak Pulse Current on 10/1000us waveform	I_{PP}	See Table 1	Note: 2
Peak Pulse Power Dissipation	P_{PP}	600W	Note: 2, 3
Peak Forward Surge Current	$I_{FSM)}$	100A	Note: 3 4,5
Operation And Storage Temperature Range	T_J, T_{STG}	-55°C to +175°C	
Thermal Resistance	R	33°C/W	

DO-214AA
(SMB) (LEAD FRAME)



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.083	.096	2.13	2.44	
B	.075	.083	1.91	2.11	
C	.002	.008	0.051	0.203	
D	.006	.012	0.152	0.305	
E	.030	.050	0.76	1.27	
F	.200	.220	5.08	5.59	
G	.160	.185	4.06	4.70	
H	.130	.155	3.30	3.94	

SUGGESTED SOLDER PAD LAYOUT



NOTES:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
3. Mounted on 5.0mm^2 copper pads to each terminal.
4. 8.3ms, single half sine wave duty cycle=4 pulses per. Minute maximum.
5. Peak pulse current waveform is 10/1000us, with maximum duty Cycle of 0.01%.
6. Unidirectional and bidirectional available,for bidirectional devices add 'C' suffix to the pn#, i.e.SMBJ5.0CA
7. For bi-directional type having Vrwm of 10 Volts and less, the IR limit is double.

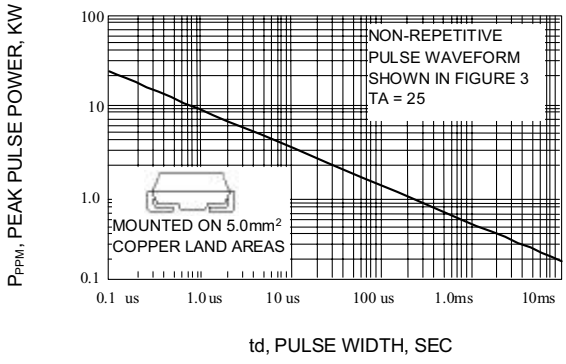


Fig. 1-PEAK PULSE POWER RATING CURVE

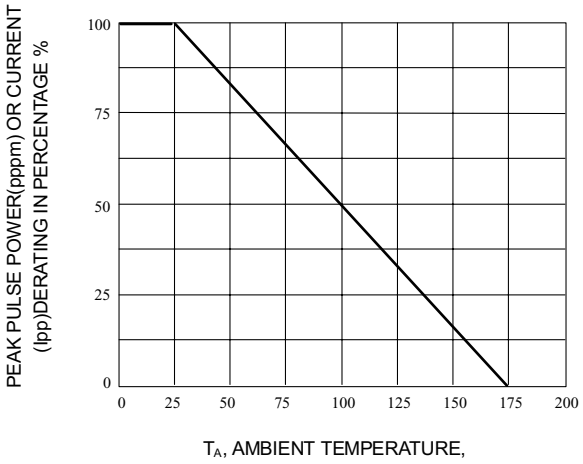


Fig. 2-PULSE DERATING CURVE

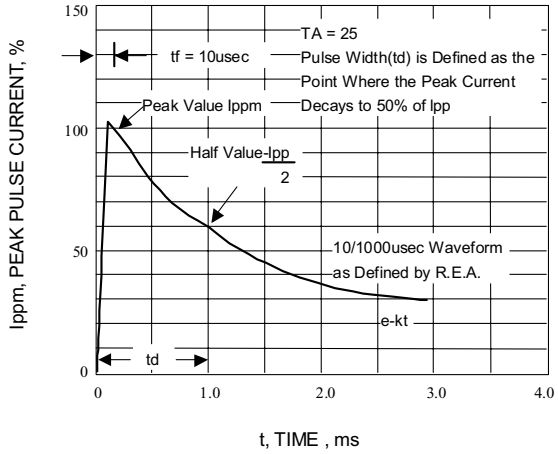


Fig. 3-PULSE WAVEFORM

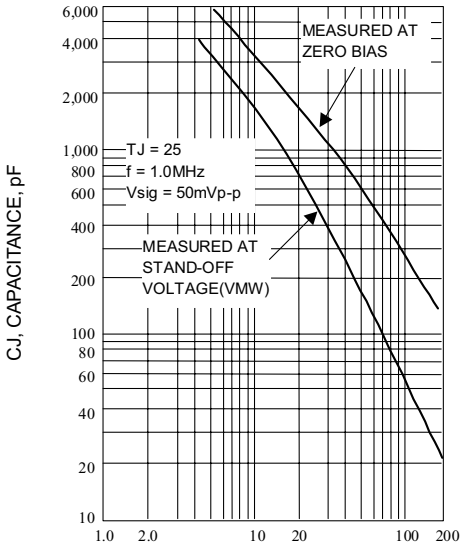


Fig. 4-TYPICAL JUNCTION CAPACITANCE

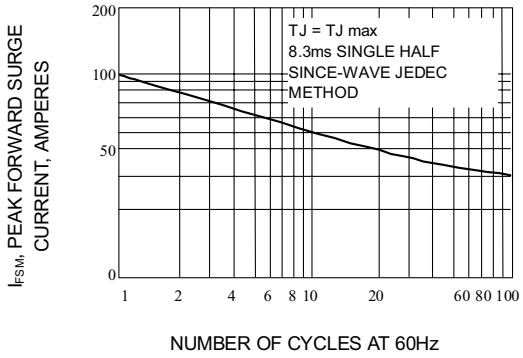


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

SMBJ5.0(A) thru SMBJ440(A)

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_D	MARKING CODE
	VOLTS	MIN	MAX	I_T(mA)	VOLTS	(AMPS)	(uA)	
SMBJ5.0	5.0	6.40	7.30	10	9.6	62.5	800	KD
SMBJ5.0A	5.0	6.40	7.00	10	9.2	65.2	800	KE
SMBJ6.0	6.0	6.67	8.15	10	11.4	52.6	800	KF
SMBJ6.0A	6.0	6.67	7.37	10	10.3	58.3	800	KG
SMBJ6.5	6.5	7.22	8.82	10	12.3	48.7	500	KH
SMBJ6.5A	6.5	7.22	7.98	10	11.2	53.6	500	KK
SMBJ7.0	7.0	7.78	9.51	10	13.3	45.1	200	KL
SMBJ7.0A	7.0	7.78	8.60	10	12.0	50.0	200	KM
SMBJ7.5	7.5	8.33	10.2	1	14.3	42.0	100	KN
SMBJ7.5A	7.5	8.33	9.21	1	12.9	46.5	100	KP
SMBJ8.0	8.0	8.89	10.9	1	15.0	40.0	50	KQ
SMBJ8.0A	8.0	8.89	9.83	1	13.6	44.1	50	KR
SMBJ8.5	8.5	9.44	11.5	1	15.9	37.7	10	KS
SMBJ8.5A	8.5	9.44	10.4	1	14.4	41.7	10	KT
SMBJ9.0	9.0	10.0	12.2	1	16.9	35.5	5	KU
SMBJ9.0A	9.0	10.0	11.1	1	15.4	39.0	5	KV
SMBJ10	10	11.1	13.6	1	18.8	31.9	5	KW
SMBJ10A	10	11.1	12.3	1	17.0	35.3	5	KX
SMBJ11	11	12.2	14.9	1	20.1	29.9	5	KY
SMBJ11A	11	12.2	13.5	1	18.2	33.0	5	KZ
SMBJ12	12	13.3	16.3	1	22.0	27.3	5	LD
SMBJ12A	12	13.3	14.7	1	19.9	30.2	5	LE
SMBJ13	13	14.4	17.6	1	23.8	25.2	5	LF
SMBJ13A	13	14.4	15.9	1	21.5	27.9	5	LG
SMBJ14	14	15.6	19.1	1	25.8	23.3	5	LH
SMBJ14A	14	15.6	17.2	1	23.2	25.8	5	LK
SMBJ15	15	16.7	20.4	1	26.9	22.3	5	LL
SMBJ15A	15	16.7	18.5	1	24.4	24.0	5	LM
SMBJ16	16	17.8	21.8	1	28.8	20.8	5	LN
SMBJ16A	16	17.8	19.7	1	26.0	23.1	5	LP
SMBJ17	17	18.9	23.1	1	30.5	19.7	5	LQ
SMBJ17A	17	18.9	20.9	1	27.6	21.7	5	LR
SMBJ18	18	20.0	24.4	1	32.2	18.6	5	LS
SMBJ18A	18	20.0	22.1	1	29.2	20.5	5	LT
SMBJ20	20	22.2	27.1	1	35.8	16.7	5	LU
SMBJ20A	20	22.2	24.5	1	32.4	18.5	5	LV
SMBJ22	22	24.4	29.8	1	39.4	15.2	5	LW
SMBJ22A	22	24.4	26.9	1	35.5	16.9	5	LX
SMBJ24	24	26.7	32.6	1	43.0	14.0	5	LY
SMBJ24A	24	26.7	29.5	1	38.9	15.4	5	LZ
SMBJ26	26	28.9	35.3	1	46.6	12.4	5	MD
SMBJ26A	26	28.9	31.9	1	42.1	14.2	5	ME

SMBJ5.0(A) thru SMBJ440(A)

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_D	MARKING CODE
	VOLTS	MIN	MAX	I_T(mA)	VOLTS	(AMPS)	(uA)	
SMBJ28	28	31.1	38.0	1	50.0	12.0	5	MF
SMBJ28A	28	31.1	34.4	1	45.4	13.2	5	MG
SMBJ30	30	33.3	40.7	1	53.5	11.2	5	MH
SMBJ30A	30	33.3	36.8	1	48.4	12.4	5	MK
SMBJ33	33	36.7	44.9	1	59.0	10.2	5	ML
SMBJ33A	33	36.7	40.6	1	53.3	11.3	5	MM
SMBJ36	36	40.0	48.9	1	64.3	9.3	5	MN
SMBJ36A	36	40.0	44.2	1	58.1	10.3	5	MP
SMBJ40	40	44.4	54.3	1	71.4	8.4	5	MQ
SMBJ40A	40	44.4	49.1	1	64.5	9.3	5	MR
SMBJ43	43	47.8	58.4	1	76.7	7.8	5	MS
SMBJ43A	43	47.8	52.8	1	69.4	8.6	5	MT
SMBJ45	45	50.0	61.1	1	80.3	7.5	5	MU
SMBJ45A	45	50.0	55.3	1	72.7	8.3	5	MV
SMBJ48	48	53.3	65.1	1	85.5	7.0	5	MW
SMBJ48A	48	53.3	58.9	1	77.4	7.7	5	MX
SMBJ51	51	56.7	69.3	1	91.1	6.6	5	MY
SMBJ51A	51	56.7	62.7	1	82.4	7.3	5	MZ
SMBJ54	54	60.0	73.3	1	96.3	6.2	5	ND
SMBJ54A	54	60.0	66.3	1	87.1	6.9	5	NE
SMBJ58	58	64.4	78.7	1	103	5.8	5	NF
SMBJ58A	58	64.4	71.2	1	93.6	6.4	5	NG
SMBJ60	60	66.7	81.5	1	107	5.6	5	NH
SMBJ60A	60	66.7	73.7	1	96.8	6.2	5	NK
SMBJ64	64	71.1	86.9	1	114	5.3	5	NL
SMBJ64A	64	71.1	78.6	1	103	5.8	5	NM
SMBJ70	70	77.8	95.1	1	125	4.8	5	NN
SMBJ70A	70	77.8	86.0	1	113	5.3	5	NP
SMBJ75	75	83.3	102	1	134	4.5	5	NQ
SMBJ75A	75	83.3	92.1	1	121	4.9	5	NR
SMBJ78	78	86.7	106	1	139	4.3	5	NS
SMBJ78A	78	86.7	95.8	1	126	4.7	5	NT
SMBJ85	85	94.4	115	1	151	3.9	5	NU
SMBJ85A	85	94.4	104	1	137	4.4	5	NV
SMBJ90	90	100	122	1	160	3.8	5	NW
SMBJ90A	90	100	111	1	146	4.1	5	NX
SMBJ100	100	111	136	1	179	3.4	5	NY
SMBJ100A	100	111	123	1	162	3.7	5	NZ
SMBJ110	110	122	149	1	196	3.0	5	PD
SMBJ110A	110	122	135	1	177	3.4	5	PE
SMBJ120	120	133	163	1	214	2.8	5	PF
SMBJ120A	120	133	147	1	193	3.1	5	PG

SMBJ5.0(A) THRU SMBJ440(A)

ELECTRICAL CHARACTERISTICS @25°C

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_D	MARKING CODE
	(VOLTS)	MIN	MAX	I_T (mA)	(VOLTS)	(AMPS)	(µA)	
SMBJ130	130	144	176	1	231	2.6	5	PH
SMBJ130A	130	144	159	1	209	2.9	5	PK
SMBJ150	150	167	204	1	268	2.2	5	PL
SMBJ150A	150	167	185	1	243	2.5	5	PM
SMBJ160	160	178	218	1	287	2.1	5	PN
SMBJ160A	160	178	197	1	259	2.3	5	PP
SMBJ170	170	189	231	1	304	2.0	5	PQ
SMBJ170A	170	189	209	1	275	2.2	5	PR
SMBJ180A	180	201	222	1	292	2.1	5	PT
SMBJ200A	200	224	247	1	324	1.9	5	PV
SMBJ220A	220	246	272	1	356	1.7	5	PX
SMBJ250A	250	279	309	1	405	1.5	5	PZ
SMBJ300A	300	335	371	1	486	1.3	5	QE
SMBJ350A	350	391	432	1	567	1.1	5	QG
SMBJ400A	400	447	494	1	648	0.9	5	QK
SMBJ440A	440	492	543	1	713	0.9	5	QM

SMBJ5.0C(A) thru SMBJ440C(A)

Micro Commercial Components

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_D	MARKING CODE
	VOLTS	MIN	MAX	I_T(mA)	VOLTS	(AMPS)	(uA)	
SMBJ5.0C	5.0	6.40	7.30	10	9.6	62.5	1600	AD
SMBJ5.0CA	5.0	6.40	7.00	10	9.2	65.2	1600	AE
SMBJ6.0C	6.0	6.67	8.15	10	11.4	52.6	1600	AF
SMBJ6.0CA	6.0	6.67	7.37	10	10.3	58.3	1600	AG
SMBJ6.5C	6.5	7.22	8.82	10	12.3	48.7	1000	AH
SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	1000	AK
SMBJ7.0C	7.0	7.78	9.51	10	13.3	45.1	400	AL
SMBJ7.0CA	7.0	7.78	8.60	10	12.0	50.0	400	AM
SMBJ7.5C	7.5	8.33	10.2	1	14.3	42.0	200	AN
SMBJ7.5CA	7.5	8.33	9.21	1	12.9	46.5	200	AP
SMBJ8.0C	8.0	8.89	10.9	1	15.0	40.0	100	AQ
SMBJ8.0CA	8.0	8.89	9.83	1	13.6	44.1	100	AR
SMBJ8.5C	8.5	9.44	11.5	1	15.9	37.7	20	AS
SMBJ8.5CA	8.5	9.44	10.4	1	14.4	41.7	20	AT
SMBJ9.0C	9.0	10.0	12.2	1	16.9	35.5	10	AU
SMBJ9.0CA	9.0	10.0	11.1	1	15.4	39.0	10	AV
SMBJ10C	10	11.1	13.6	1	18.8	31.9	5	AW
SMBJ10CA	10	11.1	12.3	1	17.0	35.3	5	AX
SMBJ11C	11	12.2	14.9	1	20.1	29.9	5	AY
SMBJ11CA	11	12.2	13.5	1	18.2	33.0	5	AZ
SMBJ12C	12	13.3	16.3	1	22.0	27.3	5	BD
SMBJ12CA	12	13.3	14.7	1	19.9	30.2	5	BE
SMBJ13C	13	14.4	17.6	1	23.8	25.2	5	BF
SMBJ13CA	13	14.4	15.9	1	21.5	27.9	5	BG
SMBJ14C	14	15.6	19.1	1	25.8	23.3	5	BH
SMBJ14CA	14	15.6	17.2	1	23.2	25.8	5	BK
SMBJ15C	15	16.7	20.4	1	26.9	22.3	5	BL
SMBJ15CA	15	16.7	18.5	1	24.4	24.0	5	BM
SMBJ16C	16	17.8	21.8	1	28.8	20.8	5	BN
SMBJ16CA	16	17.8	19.7	1	26.0	23.1	5	BP
SMBJ17C	17	18.9	23.1	1	30.5	19.7	5	BQ
SMBJ17CA	17	18.9	20.9	1	27.6	21.7	5	BR
SMBJ18C	18	20.0	24.4	1	32.2	18.6	5	BS
SMBJ18CA	18	20.0	22.1	1	29.2	20.5	5	BT
SMBJ20C	20	22.2	27.1	1	35.8	16.7	5	BU
SMBJ20CA	20	22.2	24.5	1	32.4	18.5	5	BV
SMBJ22C	22	24.4	29.8	1	39.4	15.2	5	BW
SMBJ22CA	22	24.4	26.9	1	35.5	16.9	5	BX
SMBJ24C	24	26.7	32.6	1	43.0	14.0	5	BY
SMBJ24CA	24	26.7	29.5	1	38.9	15.4	5	BZ
SMBJ26C	26	28.9	35.3	1	46.6	12.4	5	CD
SMBJ26CA	26	28.9	31.9	1	42.1	14.2	5	CE

SMBJ5.0C(A) thru SMBJ440C(A)

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_D	MARKING CODE
	VOLTS	MIN	MAX	I_T(mA)	VOLTS	(AMPS)	(uA)	
SMBJ28C	28	31.1	38.0	1	50.0	12.0	5	CF
SMBJ28CA	28	31.1	34.4	1	45.4	13.2	5	CG
SMBJ30C	30	33.3	40.7	1	53.5	11.2	5	CH
SMBJ30CA	30	33.3	36.8	1	48.4	12.4	5	CK
SMBJ33C	33	36.7	44.9	1	59.0	10.2	5	CL
SMBJ33CA	33	36.7	40.6	1	53.3	11.3	5	CM
SMBJ36C	36	40.0	48.9	1	64.3	9.3	5	CN
SMBJ36CA	36	40.0	44.2	1	58.1	10.3	5	CP
SMBJ40C	40	44.4	54.3	1	71.4	8.4	5	CQ
SMBJ40CA	40	44.4	49.1	1	64.5	9.3	5	CR
SMBJ43C	43	47.8	58.4	1	76.7	7.8	5	CS
SMBJ43CA	43	47.8	52.8	1	69.4	8.6	5	CT
SMBJ45C	45	50.0	61.1	1	80.3	7.5	5	CU
SMBJ45CA	45	50.0	55.3	1	72.7	8.3	5	CV
SMBJ48C	48	53.3	65.1	1	85.5	7.0	5	CW
SMBJ48CA	48	53.3	58.9	1	77.4	7.7	5	CX
SMBJ51C	51	56.7	69.3	1	91.1	6.6	5	CY
SMBJ51CA	51	56.7	62.7	1	82.4	7.3	5	CZ
SMBJ54C	54	60.0	73.3	1	96.3	6.2	5	DD
SMBJ54CA	54	60.0	66.3	1	87.1	6.9	5	DE
SMBJ58C	58	64.4	78.7	1	103	5.8	5	DF
SMBJ58CA	58	64.4	71.2	1	93.6	6.4	5	DG
SMBJ60C	60	66.7	81.5	1	107	5.6	5	DH
SMBJ60CA	60	66.7	73.7	1	96.8	6.2	5	DK
SMBJ64C	64	71.1	86.9	1	114	5.3	5	DL
SMBJ64CA	64	71.1	78.6	1	103	5.8	5	DM
SMBJ70C	70	77.8	95.1	1	125	4.8	5	DN
SMBJ70CA	70	77.8	86.0	1	113	5.3	5	DP
SMBJ75C	75	83.3	102	1	134	4.5	5	DQ
SMBJ75CA	75	83.3	92.1	1	121	4.9	5	DR
SMBJ78C	78	86.7	106	1	139	4.3	5	DS
SMBJ78CA	78	86.7	95.8	1	126	4.7	5	DT
SMBJ85C	85	94.4	115	1	151	3.9	5	DU
SMBJ85CA	85	94.4	104	1	137	4.4	5	DV
SMBJ90C	90	100	122	1	160	3.8	5	DW
SMBJ90CA	90	100	111	1	146	4.1	5	DX
SMBJ100C	100	111	136	1	179	3.4	5	DY
SMBJ100CA	100	111	123	1	162	3.7	5	DZ
SMBJ110C	110	122	149	1	196	3.0	5	ED
SMBJ110CA	110	122	135	1	177	3.4	5	EE
SMBJ120C	120	133	163	1	214	2.8	5	EF
SMBJ120CA	120	133	147	1	193	3.1	5	EG

SMBJ5.0C(A) THRU SMBJ440C(A)

ELECTRICAL CHARACTERISTICS @25°C

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_D	MARKING CODE
	(VOLTS)	MIN	MAX	I_T (mA)	(VOLTS)	(AMPS)	(µA)	
SMBJ130C	130	144	176	1	231	2.6	5	EH
SMBJ130CA	130	144	159	1	209	2.9	5	EK
SMBJ150C	150	167	204	1	268	2.2	5	EL
SMBJ150CA	150	167	185	1	243	2.5	5	EM
SMBJ160C	160	178	218	1	287	2.1	5	EN
SMBJ160CA	160	178	197	1	259	2.3	5	EP
SMBJ170C	170	189	231	1	304	2.0	5	EQ
SMBJ170CA	170	189	209	1	275	2.2	5	ER
SMBJ180CA	180	201	222	1	292	2.1	5	ET
SMBJ200CA	200	224	247	1	324	1.9	5	EV
SMBJ220CA	220	246	272	1	356	1.7	5	EX
SMBJ250CA	250	279	309	1	405	1.5	5	EZ
SMBJ300CA	300	335	371	1	486	1.3	5	FE
SMBJ350CA	350	391	432	1	567	1.1	5	FG
SMBJ400CA	400	447	494	1	648	0.9	5	FK
SMBJ440CA	440	492	543	1	713	0.9	5	FM

Micro Commercial Components

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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Micro Commercial Components

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SMBJP6KE6.8(C)A THRU SMBJP6KE550(C)A

Transient Voltage Suppressor 6.8 to 550 Volts 600 Watt

Features

- For surface mount applicationsin in order to optimize board space
- Available in both unidirectional and bidirectional construction and suffix"C" designates bidirectional type
- Lead Free Finish/Rohs Compliant (Note1) ("P"Suffix designates Compliant. See ordering information)
- Fast response time: typical less than 1.0ps from 0 volts to V_{BR} minimum
- Low inductance
- Excellent clamping capability
- UL Recognized File # E331408

Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotespositive end (cathode) except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

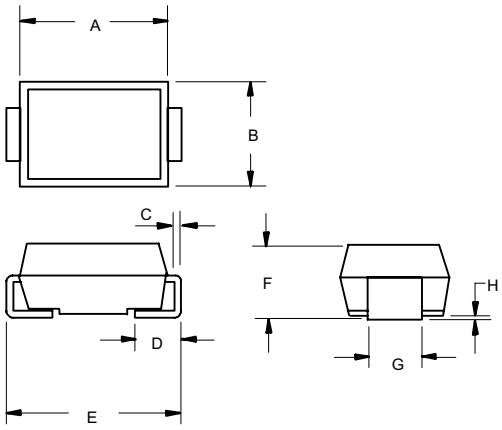
Maximum Ratings @ 25°C Unless Otherwise Specified

Peak Pulse Current on 10/1000us waveform	I_{PP}	See Table 1	Note: 2
Peak Pulse Power Dissipation	P_{PP}	600W	Note: 2,
Peak Forward Surge Current	$I_{FSM)}$	100A	Note: 3
Operation And Storage Temperature Range	T_J, T_{STG}	-55°C to +175°C	

NOTES:

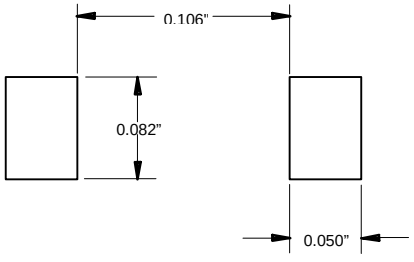
1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
3. 8.3ms, single half sine wave duty cycle=4 pulses per. Minute maximum.

DO-214AA
(SMBJ) (LEAD FRAME)



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.160	.185	4.06	4.70	
B	.130	.155	3.30	3.94	
C	.006	.012	0.15	0.31	
D	.030	.060	0.76	1.52	
E	.200	.220	5.08	5.59	
F	.079	.096	2.00	2.44	
G	.075	.087	1.91	2.21	
H	.002	.008	0.05	0.203	

SUGGESTED SOLDER PAD LAYOUT



ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{WM} (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T (VOLTS) MIN	MAX	I_T (mA)	MAXIMUM CLAMPING VOLTAGE @ I_{PP} (VOLTS)	PEAK PULSE CURRENT I_{PP} (AMPS)	MAXIMUM REVERSE LEAKAGE @V_{WM} I_D (μA)	MARKING CODE
SMBJP6KE6.8A	5.80	6.45	7.14	10	10.5	58.1	1000	6V8A
SMBJP6KE7.5A	6.40	7.13	7.88	10	11.3	54.0	500	7V5A
SMBJP6KE8.2A	7.02	7.79	8.61	10	12.1	50.4	200	8V2A
SMBJP6KE9.1A	7.78	8.65	9.55	1	13.4	45.5	50	9V1A
SMBJP6KE10A	8.55	9.50	10.50	1	14.5	42.1	10	10A
SMBJP6KE11A	9.40	10.50	11.60	1	15.6	39.1	5	11A
SMBJP6KE12A	10.20	11.40	12.60	1	16.7	36.5	5	12A
SMBJP6KE13A	11.10	12.40	13.70	1	18.2	33.5	1	13A
SMBJP6KE15A	12.80	14.30	15.80	1	21.2	28.8	1	15A
SMBJP6KE16A	13.60	15.20	16.80	1	22.5	27.1	1	16A
SMBJP6KE18A	15.30	17.10	18.90	1	25.5	24.2	1	18A
SMBJP6KE20A	17.10	19.00	21.00	1	27.7	22.0	1	20A
SMBJP6KE22A	18.80	20.90	23.10	1	30.6	19.9	1	22A
SMBJP6KE24A	20.50	22.80	25.20	1	33.2	18.4	1	24A
SMBJP6KE27A	23.10	25.70	28.40	1	37.5	16.3	1	27A
SMBJP6KE30A	25.60	28.50	31.50	1	41.4	14.7	1	30A
SMBJP6KE33A	28.20	31.40	34.70	1	45.7	13.3	1	33A
SMBJP6KE36A	30.80	34.20	37.80	1	49.9	12.2	1	36A
SMBJP6KE39A	33.30	37.10	41.00	1	53.9	11.3	1	39A
SMBJP6KE43A	36.80	40.90	45.20	1	59.3	10.3	1	43A
SMBJP6KE47A	40.20	44.70	49.40	1	64.8	9.4	1	47A
SMBJP6KE51A	43.60	48.50	53.60	1	70.1	8.7	1	51A
SMBJP6KE56A	47.80	53.20	58.80	1	77.0	7.9	1	56A
SMBJP6KE62A	53.00	58.90	65.10	1	85.0	7.2	1	62A
SMBJP6KE68A	58.10	64.60	71.40	1	92.0	6.6	1	68A
SMBJP6KE75A	64.10	71.30	78.80	1	103.0	5.9	1	75A
SMBJP6KE82A	70.10	77.90	86.10	1	113.0	5.4	1	82A
SMBJP6KE91A	77.80	86.50	95.50	1	125.0	4.9	1	91A
SMBJP6KE100A	85.50	95.00	105.00	1	137.0	4.5	1	100A
SMBJP6KE110A	94.00	105.00	116.00	1	152.0	4.0	1	110A
SMBJP6KE120A	102.00	114.00	126.00	1	165.0	3.7	1	120A
SMBJP6KE130A	111.00	124.00	137.00	1	179.0	3.4	1	130A
SMBJP6KE150A	128.00	143.00	158.00	1	207.0	2.9	1	150A
SMBJP6KE160A	136.00	152.00	168.00	1	219.0	2.8	1	160A
SMBJP6KE170A	145.00	162.00	179.00	1	234.0	2.6	1	170A
SMBJP6KE180A	154.00	171.00	189.00	1	246.0	2.5	1	180A
SMBJP6KE200A	171.00	190.00	210.00	1	274.0	2.2	1	200A
SMBJP6KE220A	185.00	209.00	231.00	1	328.0	1.9	1	220A
SMBJP6KE250A	214.00	237.00	263.00	1	344.0	1.9	1	250A
SMBJP6KE300A	256.00	285.00	315.00	1	414.0	1.5	1	300A
SMBJP6KE350A	300.00	332.00	368.00	1	482.0	1.3	1	350A
SMBJP6KE400A	342.00	380.00	420.00	1	548.0	1.1	1	400A
SMBJP6KE440A	376.00	418.00	462.00	1	602.0	1.0	1	440A
SMBJP6KE480A	408.00	456.00	504.00	1	658.0	0.9	1	480A
SMBJP6KE510A	434.00	485.00	535.00	1	698.0	0.9	1	510A
SMBJP6KE530A	477.00	503.50	556.50	1	725.0	0.8	1	530A
SMBJP6KE540A	459.00	513.00	567.00	1	740.0	0.8	1	540A
SMBJP6KE550A	495.00	522.50	577.50	1	760.0	0.8	1	550A

For bi-directional type having V_{rwm} of 10 volts and less, the I_R limit is double.
The available parts are “A” type only, the parts without A (V_{BR} is ±10%) is not available.

ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{WM} (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T (VOLTS) MIN	MAX	I_T (mA)	MAXIMUM CLAMPING VOLTAGE @ I_{PP} (VOLTS)	PEAK PULSE CURRENT I_{PP} (AMPS)	MAXIMUM REVERSE LEAKAGE @V_{WM} I_D (μA)	MARKING CODE
SMBJP6KE6.8CA	5.80	6.45	7.14	10	10.5	58.1	1000	6V8C
SMBJP6KE7.5CA	6.40	7.13	7.88	10	11.3	54.0	500	7V5C
SMBJP6KE8.2CA	7.02	7.79	8.61	10	12.1	50.4	200	8V2C
SMBJP6KE9.1CA	7.78	8.65	9.55	1	13.4	45.5	50	9V1C
SMBJP6KE10CA	8.55	9.50	10.50	1	14.5	42.1	10	10C
SMBJP6KE11CA	9.40	10.50	11.60	1	15.6	39.1	5	11C
SMBJP6KE12CA	10.20	11.40	12.60	1	16.7	36.5	5	12C
SMBJP6KE13CA	11.10	12.40	13.70	1	18.2	33.5	5	13C
SMBJP6KE15CA	12.80	14.30	15.80	1	21.2	28.8	5	15C
SMBJP6KE16CA	13.60	15.20	16.80	1	22.5	27.1	5	16C
SMBJP6KE18CA	15.30	17.10	18.90	1	25.5	24.2	5	18C
SMBJP6KE20CA	17.10	19.00	21.00	1	27.7	22.0	5	20C
SMBJP6KE22CA	18.80	20.90	23.10	1	30.6	19.9	5	22C
SMBJP6KE24CA	20.50	22.80	25.20	1	33.2	18.4	5	24C
SMBJP6KE27CA	23.10	25.70	28.40	1	37.5	16.3	5	27C
SMBJP6KE30CA	25.60	28.50	31.50	1	41.4	14.7	5	30C
SMBJP6KE33CA	28.20	31.40	34.70	1	45.7	13.3	5	33C
SMBJP6KE36CA	30.80	34.20	37.80	1	49.9	12.2	5	36C
SMBJP6KE39CA	33.30	37.10	41.00	1	53.9	11.3	5	39C
SMBJP6KE43CA	36.80	40.90	45.20	1	59.3	10.3	5	43C
SMBJP6KE47CA	40.20	44.70	49.40	1	64.8	9.4	5	47C
SMBJP6KE51CA	43.60	48.50	53.60	1	70.1	8.7	5	51C
SMBJP6KE56CA	47.80	53.20	58.80	1	77.0	7.9	5	56C
SMBJP6KE62CA	53.00	58.90	65.10	1	85.0	7.2	5	62C
SMBJP6KE68CA	58.10	64.60	71.40	1	92.0	6.6	5	68C
SMBJP6KE75CA	64.10	71.30	78.80	1	103.0	5.9	5	75C
SMBJP6KE82CA	70.10	77.90	86.10	1	113.0	5.4	5	82C
SMBJP6KE91CA	77.80	86.50	95.50	1	125.0	4.9	5	91C
SMBJP6KE100CA	85.50	95.00	105.00	1	137.0	4.5	5	100C
SMBJP6KE110CA	94.00	105.00	116.00	1	152.0	4.0	5	110C
SMBJP6KE120CA	102.00	114.00	126.00	1	165.0	3.7	5	120C
SMBJP6KE130CA	111.00	124.00	137.00	1	179.0	3.4	5	130C
SMBJP6KE150CA	128.00	143.00	158.00	1	207.0	2.9	5	150C
SMBJP6KE160CA	136.00	152.00	168.00	1	219.0	2.8	5	160C
SMBJP6KE170CA	145.00	162.00	179.00	1	234.0	2.6	5	170C
SMBJP6KE180CA	154.00	171.00	189.00	1	246.0	2.5	5	180C
SMBJP6KE200CA	171.00	190.00	210.00	1	274.0	2.2	5	200C
SMBJP6KE220CA	185.00	209.00	231.00	1	328.0	1.9	5	220C
SMBJP6KE250CA	214.00	237.00	263.00	1	344.0	1.9	5	250C
SMBJP6KE300CA	256.00	285.00	315.00	1	414.0	1.5	5	300C
SMBJP6KE350CA	300.00	332.00	368.00	1	482.0	1.3	5	350C
SMBJP6KE400CA	342.00	380.00	420.00	1	548.0	1.1	5	400C
SMBJP6KE440CA	376.00	418.00	462.00	1	602.0	1.0	5	440C
SMBJP6KE480CA	408.00	456.00	504.00	1	658.0	0.9	5	480C
SMBJP6KE510CA	434.00	485.00	535.00	1	698.0	0.9	5	510C
SMBJP6KE530CA	477.00	503.50	556.50	1	725.0	0.8	5	530C
SMBJP6KE540CA	459.00	513.00	567.00	1	740.0	0.8	5	540C
SMBJP6KE550CA	495.00	522.50	577.50	1	760.0	0.8	5	550C

For bi-directional type having V_{rwm} of 10 volts and less, the I_R limit is double.
The available parts are “A” type only, the parts without A (V_{BR} is ±10%) is not available.

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

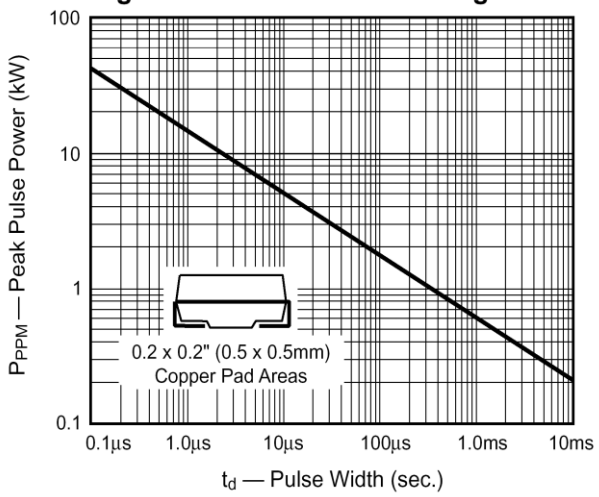


Fig. 2-PULSE RATING CURVE

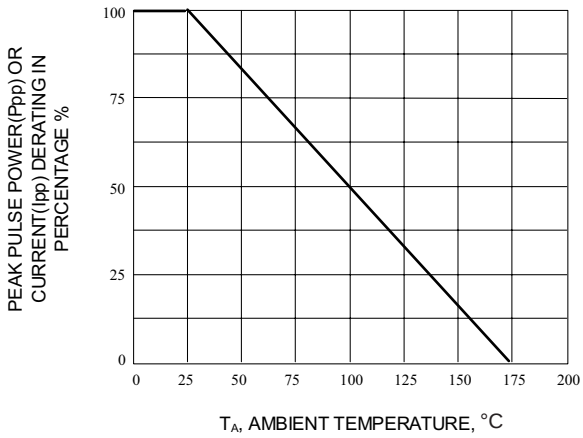


Fig. 3 – Pulse Waveform

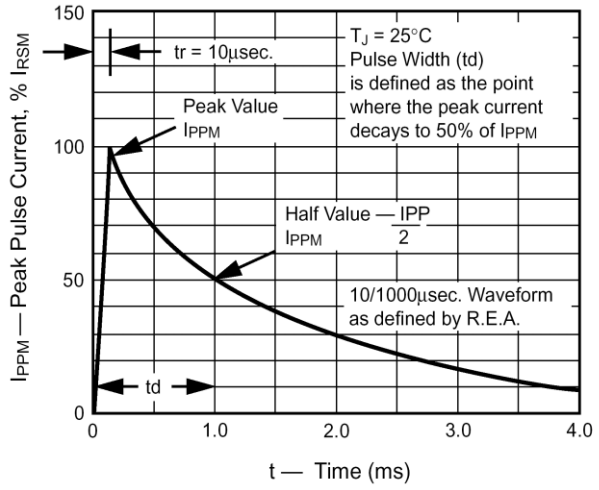


Fig. 4 – Typical Junction Capacitance

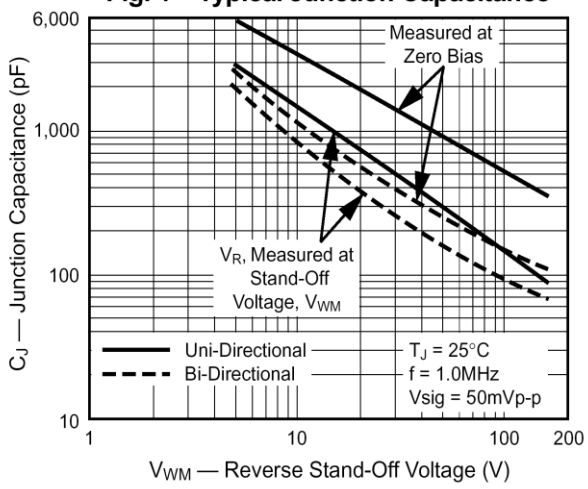


Fig. 5 – Typical Transient Thermal Impedance

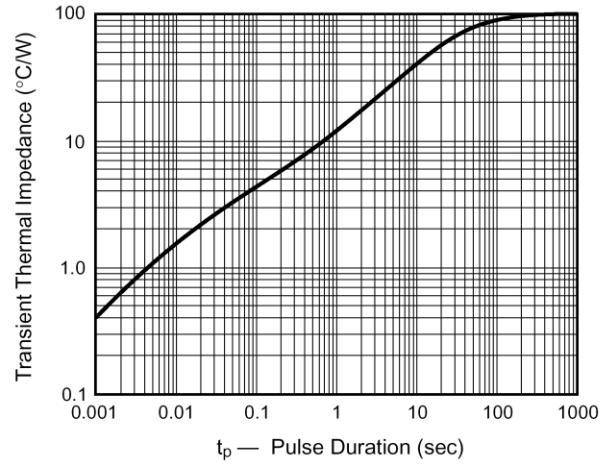
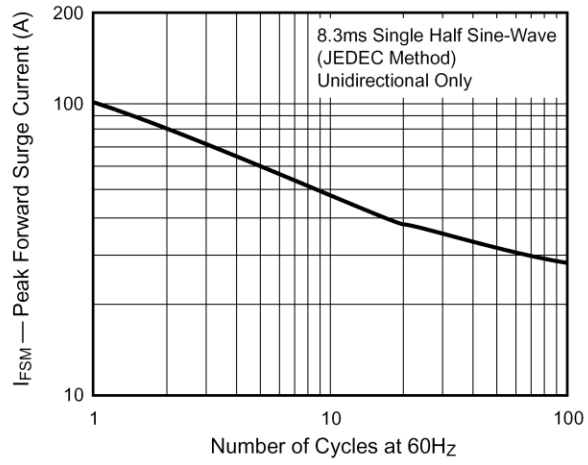


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current



Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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Micro Commercial Components
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SMCJ1.5KE6.8(C)A THRU SMCJ1.5KE550(C)A

Transient Voltage Suppressor 6.8 to 550 Volts 1500 Watt

Features

- For surface mount applicationsin in order to optimize board space
- Lead Free Finish/Rohs Compliant (Note1) ("P"Suffix designates Compliant. See ordering information)
- Low profile package
- Fast response time: typical less than 1.0ps from 0 volts to V_{BR} minimum
- Low inductance
- Excellent clamping capability
- UL Recognized File # E331408

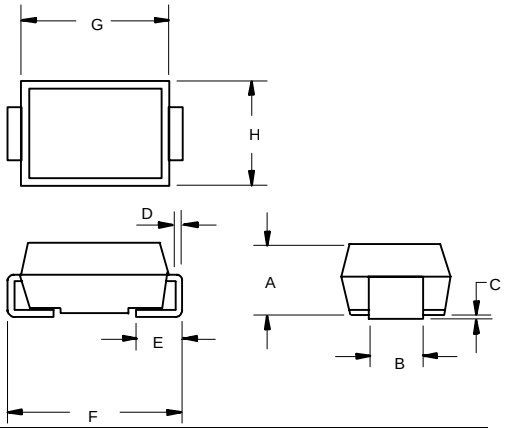
Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Terminals: solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotespositive end (cathode) except Bidirectional
- Maximum soldering temperature: 260°C for 10 seconds

Maximum Ratings @ 25°C Unless Otherwise Specified

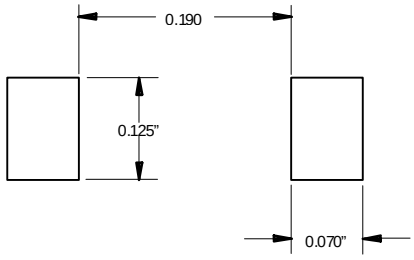
Peak Pulse Current on 10/1000us waveform	I_{PP}	See Table 1	Note: 2
Peak Pulse Power Dissipation	P_{PP}	1500W	Note: 2 3
Peak Forward Surge Current	$I_{FSM)}$	200A	Note: 4
Operation And Storage Temperature Range	T_J, T_{STG}	-55°C to +175°C	
Typical Thermal Resistance Junction to Lead	R_{thJL}	15°C/W	
Typical Thermal Resistance Junction to Ambient	R_{thJA}	75°C/W	

DO-214AB
(SMCJ) (LEAD FRAME)



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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	.260	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

SUGGESTED SOLDER PAD LAYOUT



NOTES:

1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
3. Mounted on 8.0mm^2 copper pads to each terminal.
4. 8.3ms, single half sine wave duty cycle=4 pulses per. Minute maximum.

SMCJ1.5KE6.8(C)A THRU SMCJ1.5KE550(C)A

Micro Commercial Components

ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{WM} (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T (VOLTS) MIN	MAX	I_T (mA)	MAXIMUM CLAMPING VOLTAGE @ I_{PP} (VOLTS)	PEAK PULSE CURRENT I_{PP} (AMPS)	MAXIMUM REVERSE LEAKAGE @V_{WM} I_D (μA)	MARKING CODE
SMCJ1.5KE6.8A	5.80	6.45	7.14	10	10.5	144.8	1000	6V8A
SMCJ1.5KE7.5A	6.40	7.13	7.88	10	11.3	134.5	500	7V5A
SMCJ1.5KE8.2A	7.02	7.79	8.61	10	12.1	125.6	200	8V2A
SMCJ1.5KE9.1A	7.78	8.65	9.55	1	13.4	113.4	50	9V1A
SMCJ1.5KE10A	8.55	9.50	10.50	1	14.5	104.8	10	10A
SMCJ1.5KE11A	9.40	10.50	11.60	1	15.6	97.4	5	11A
SMCJ1.5KE12A	10.20	11.40	12.60	1	16.7	91.0	5	12A
SMCJ1.5KE13A	11.10	12.40	13.70	1	18.2	83.5	5	13A
SMCJ1.5KE15A	12.80	14.30	15.80	1	21.2	71.7	5	15A
SMCJ1.5KE16A	13.60	15.20	16.80	1	22.5	67.6	5	16A
SMCJ1.5KE18A	15.30	17.10	18.90	1	25.5	60.3	5	18A
SMCJ1.5KE20A	17.10	19.00	21.00	1	27.7	54.9	5	20A
SMCJ1.5KE22A	18.80	20.90	23.10	1	30.6	49.7	5	22A
SMCJ1.5KE24A	20.50	22.80	25.20	1	33.2	45.8	5	24A
SMCJ1.5KE27A	23.10	25.70	28.40	1	37.5	40.5	5	27A
SMCJ1.5KE30A	25.60	28.50	31.50	1	41.4	36.7	5	30A
SMCJ1.5KE33A	28.20	31.40	34.70	1	45.7	33.3	5	33A
SMCJ1.5KE36A	30.80	34.20	37.80	1	49.9	30.5	5	36A
SMCJ1.5KE39A	33.30	37.10	41.00	1	53.9	28.2	5	39A
SMCJ1.5KE43A	36.80	40.90	45.20	1	59.3	25.6	5	43A
SMCJ1.5KE47A	40.20	44.70	49.40	1	64.8	23.5	5	47A
SMCJ1.5KE51A	43.60	48.50	53.60	1	70.1	21.7	5	51A
SMCJ1.5KE56A	47.80	53.20	58.80	1	77.0	19.7	5	56A
SMCJ1.5KE62A	53.00	58.90	65.10	1	85.0	17.9	5	62A
SMCJ1.5KE68A	58.10	64.60	71.40	1	92.0	16.5	5	68A
SMCJ1.5KE75A	64.10	71.30	78.80	1	103.0	14.8	5	75A
SMCJ1.5KE82A	70.10	77.90	86.10	1	113.0	13.5	5	82A
SMCJ1.5KE91A	77.80	86.50	95.50	1	125.0	12.2	5	91A
SMCJ1.5KE100A	85.50	95.00	105.00	1	137.0	11.1	5	100A
SMCJ1.5KE110A	94.00	105.00	116.00	1	152.0	10.0	5	110A
SMCJ1.5KE120A	102.00	114.00	126.00	1	165.0	9.2	5	120A
SMCJ1.5KE130A	111.00	124.00	137.00	1	179.0	8.5	5	130A
SMCJ1.5KE150A	128.00	143.00	158.00	1	207.0	7.3	5	150A
SMCJ1.5KE160A	136.00	152.00	168.00	1	219.0	6.9	5	160A
SMCJ1.5KE170A	145.00	162.00	179.00	1	234.0	6.5	5	170A
SMCJ1.5KE180A	154.00	171.00	189.00	1	246.0	6.2	5	180A
SMCJ1.5KE200A	171.00	190.00	210.00	1	274.0	5.5	5	200A
SMCJ1.5KE220A	185.00	209.00	231.00	1	328.0	4.6	5	220A
SMCJ1.5KE250A	214.00	237.00	263.00	1	344.0	4.4	5	250A
SMCJ1.5KE300A	256.00	285.00	315.00	1	414.0	3.7	5	300A
SMCJ1.5KE350A	300.00	332.00	368.00	1	482.0	3.2	5	350A
SMCJ1.5KE400A	342.00	380.00	420.00	1	548.0	2.8	5	400A
SMCJ1.5KE440A	376.00	418.00	462.00	1	602.0	2.5	5	440A
SMCJ1.5KE480A	408.00	456.00	504.00	1	658.0	2.3	5	480A
SMCJ1.5KE510A	434.00	485.00	535.00	1	698.0	2.1	5	510A
SMCJ1.5KE530A	477.00	503.50	556.50	1	725.0	2.1	5	530A
SMCJ1.5KE540A	459.00	513.00	567.00	1	740.0	2.0	5	540A
SMCJ1.5KE550A	495.00	522.50	577.50	1	760.0	2.0	5	550A

For bi-directional type having V_{rwm} of 10 volts and less, the I_R limit is double.
The available parts are “A” type only, the parts without A (V_{BR} is ±10%) is not available.

ELECTRICAL CHARACTERISTICS @25°C

MCC PART NUMBER	REVERSE STAND-OFF VOLTAGE V_{WM} (VOLTS)	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T (VOLTS) MIN	MAX	I_T (mA)	MAXIMUM CLAMPING VOLTAGE @ I_{PP} (VOLTS)	PEAK PULSE CURRENT I_{PP} (AMPS)	MAXIMUM REVERSE LEAKAGE @V_{WM} I_D (μA)	MARKING CODE
SMCJ1.5KE6.8CA	5.80	6.45	7.14	10	10.5	144.8	1000	6V8C
SMCJ1.5KE7.5CA	6.40	7.13	7.88	10	11.3	134.5	500	7V5C
SMCJ1.5KE8.2CA	7.02	7.79	8.61	10	12.1	125.6	200	8V2C
SMCJ1.5KE9.1CA	7.78	8.65	9.55	1	13.4	113.4	50	9V1C
SMCJ1.5KE10CA	8.55	9.50	10.50	1	14.5	104.8	10	10C
SMCJ1.5KE11CA	9.40	10.50	11.60	1	15.6	97.4	5	11C
SMCJ1.5KE12CA	10.20	11.40	12.60	1	16.7	91.0	5	12C
SMCJ1.5KE13CA	11.10	12.40	13.70	1	18.2	83.5	5	13C
SMCJ1.5KE15CA	12.80	14.30	15.80	1	21.2	71.7	5	15C
SMCJ1.5KE16CA	13.60	15.20	16.80	1	22.5	67.6	5	16C
SMCJ1.5KE18CA	15.30	17.10	18.90	1	25.5	60.3	5	18C
SMCJ1.5KE20CA	17.10	19.00	21.00	1	27.7	54.9	5	20C
SMCJ1.5KE22CA	18.80	20.90	23.10	1	30.6	49.7	5	22C
SMCJ1.5KE24CA	20.50	22.80	25.20	1	33.2	45.8	5	24C
SMCJ1.5KE27CA	23.10	25.70	28.40	1	37.5	40.5	5	27C
SMCJ1.5KE30CA	25.60	28.50	31.50	1	41.4	36.7	5	30C
SMCJ1.5KE33CA	28.20	31.40	34.70	1	45.7	33.3	5	33C
SMCJ1.5KE36CA	30.80	34.20	37.80	1	49.9	30.5	5	36C
SMCJ1.5KE39CA	33.30	37.10	41.00	1	53.9	28.2	5	39C
SMCJ1.5KE43CA	36.80	40.90	45.20	1	59.3	25.6	5	43C
SMCJ1.5KE47CA	40.20	44.70	49.40	1	64.8	23.5	5	47C
SMCJ1.5KE51CA	43.60	48.50	53.60	1	70.1	21.7	5	51C
SMCJ1.5KE56CA	47.80	53.20	58.80	1	77.0	19.7	5	56C
SMCJ1.5KE62CA	53.00	58.90	65.10	1	85.0	17.9	5	62C
SMCJ1.5KE68CA	58.10	64.60	71.40	1	92.0	16.5	5	68C
SMCJ1.5KE75CA	64.10	71.30	78.80	1	103.0	14.8	5	75C
SMCJ1.5KE82CA	70.10	77.90	86.10	1	113.0	13.5	5	82C
SMCJ1.5KE91CA	77.80	86.50	95.50	1	125.0	12.2	5	91C
SMCJ1.5KE100CA	85.50	95.00	105.00	1	137.0	11.1	5	100C
SMCJ1.5KE110CA	94.00	105.00	116.00	1	152.0	10.0	5	110C
SMCJ1.5KE120CA	102.00	114.00	126.00	1	165.0	9.2	5	120C
SMCJ1.5KE130CA	111.00	124.00	137.00	1	179.0	8.5	5	130C
SMCJ1.5KE150CA	128.00	143.00	158.00	1	207.0	7.3	5	150C
SMCJ1.5KE160CA	136.00	152.00	168.00	1	219.0	6.9	5	160C
SMCJ1.5KE170CA	145.00	162.00	179.00	1	234.0	6.5	5	170C
SMCJ1.5KE180CA	154.00	171.00	189.00	1	246.0	6.2	5	180C
SMCJ1.5KE200CA	171.00	190.00	210.00	1	274.0	5.5	5	200C
SMCJ1.5KE220CA	185.00	209.00	231.00	1	328.0	4.6	5	220C
SMCJ1.5KE250CA	214.00	237.00	263.00	1	344.0	4.4	5	250C
SMCJ1.5KE300CA	256.00	285.00	315.00	1	414.0	3.7	5	300C
SMCJ1.5KE350CA	300.00	332.00	368.00	1	482.0	3.2	5	350C
SMCJ1.5KE400CA	342.00	380.00	420.00	1	548.0	2.8	5	400C
SMCJ1.5KE440CA	376.00	418.00	462.00	1	602.0	2.5	5	440C
SMCJ1.5KE480CA	408.00	456.00	504.00	1	658.0	2.3	5	480C
SMCJ1.5KE510CA	434.00	485.00	535.00	1	698.0	2.1	5	510C
SMCJ1.5KE530CA	477.00	503.50	556.50	1	725.0	2.1	5	530C
SMCJ1.5KE540CA	459.00	513.00	567.00	1	740.0	2.0	5	540C
SMCJ1.5KE550CA	495.00	522.50	577.50	1	760.0	2.0	5	550C

For bi-directional type having V_{rwm} of 10 volts and less, the I_R limit is double.
The available parts are “A” type only, the parts without A (V_{BR} is ±10%) is not available.

Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1 – Peak Pulse Power Rating Curve

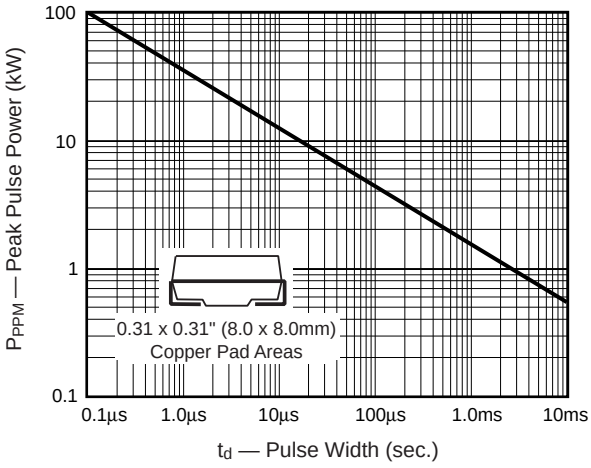


Fig. 2 – Pulse Derating Curve

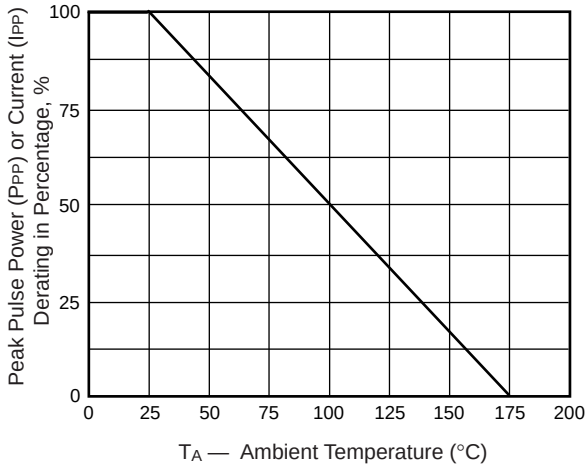


Fig. 3 – Pulse Waveform

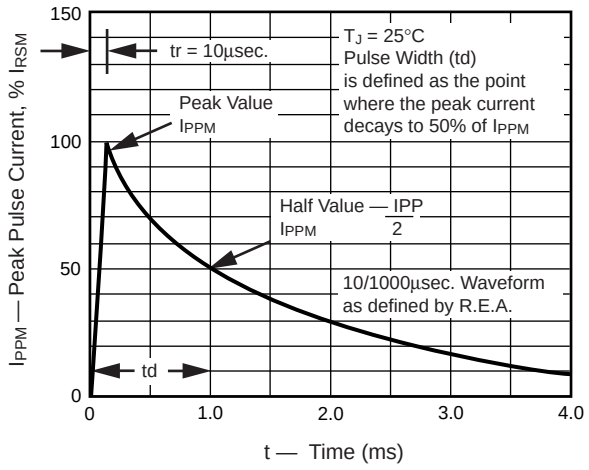


Fig. 4 – Typical Junction Capacitance Uni-Directional

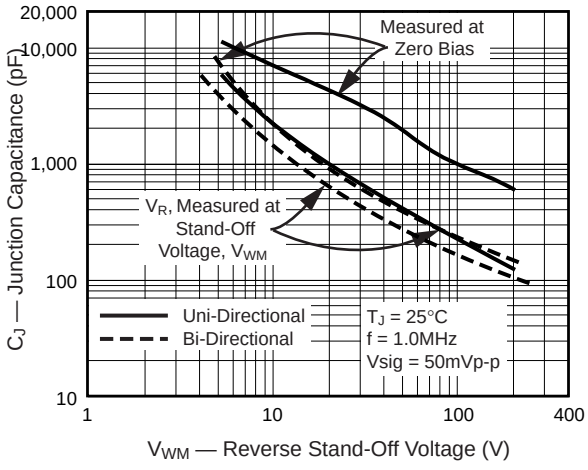


Fig. 5 – Typical Transient Thermal Impedance

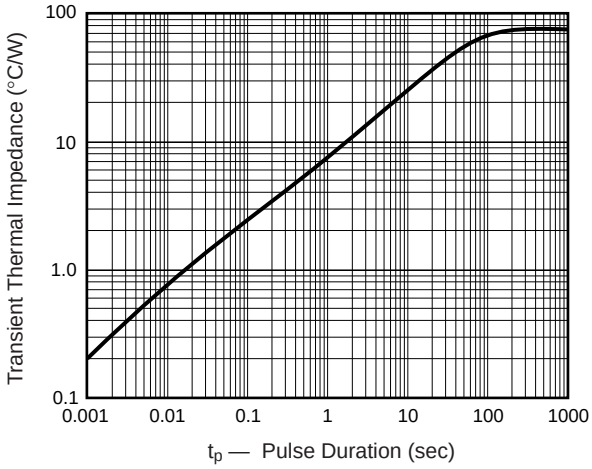
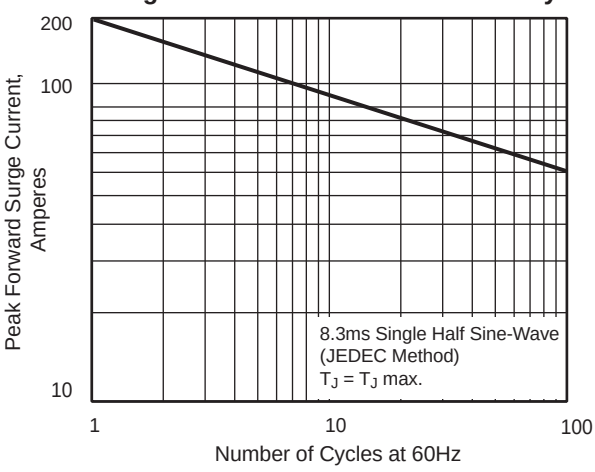


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Use Only



Micro Commercial Components

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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RoHS COMPLIANT

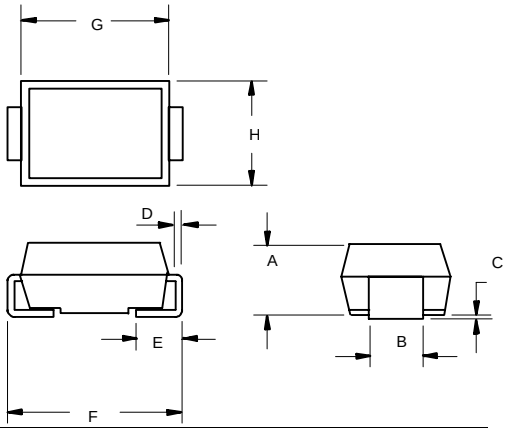
SMCJ5.0(C)A THRU SMCJ440(C)A

Transient Voltage Suppressor 5.0 to 440 Volts 1500 Watt

Features

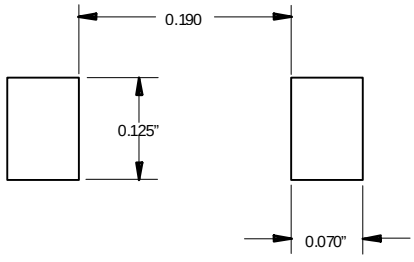
- Lead Free Finish/Rohs Compliant (Note1) ("P"Suffix designates Compliant. See ordering information)
- For surface mount application in order to optimize board space
- Built-in strain relief
- Glass passivated junction
- Typical I_D less than 1uA above 10V
- High temperature soldering: 260°C/10 seconds at terminals
- Plastic package has Underwrites Laboratory Flammability
- UL Recognized File # E331408

DO-214AB
(SMC) (LEAD FRAME)



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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	.260	.280	6.60	7.11	
H	.220	.245	5.59	6.22	

SUGGESTED SOLDER PAD LAYOUT



Mechanical Data

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- 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(Note2, Fig4)	I_{PPM}	See Table 1	Amps
Peak Pulse Power Disspation on 10/1000us waveform(Note2,3,Fig1)	P_{PPM}	Minimum 1500	Watts
Peak forward surge current (JEDEC Method) (Note 3,4)	$I_{FSM)}$	200.0	Amps
Operation And Storage Temperature Range	T_J, T_{STG}	-55°C to +175°C	

Notes: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.
2. Non-repetitive current pulse per Fig.3 and derated above TA=25°C per Fig.2.
3. Mounted on 8.0mm^2 copper pads to each terminal.
4. 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per. Minutes maximum.
5. Unidirectional and bidirectional available,for bidirectional devices add 'C' suffix to the pn#, i.e.SMCJ5.0CA

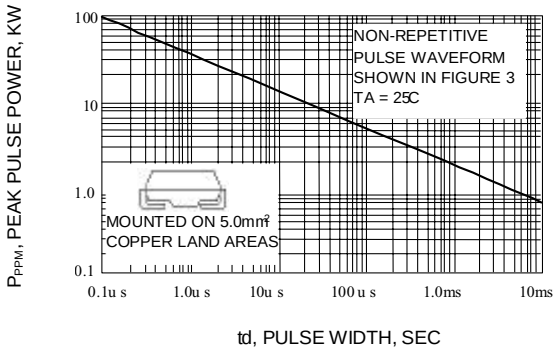


Fig. 1-PEAK PULSE POWER RATING CURVE

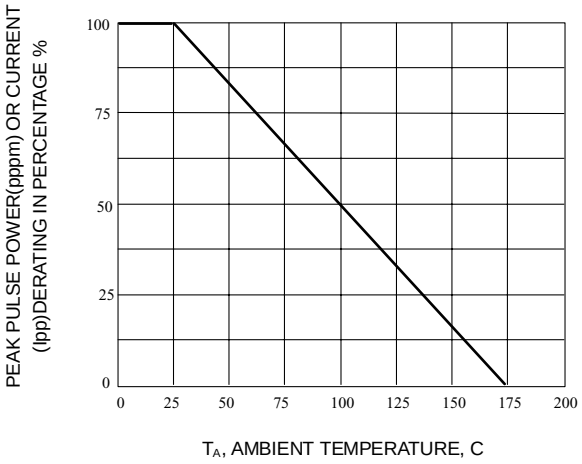


Fig. 2-PULSE DERATING CURVE

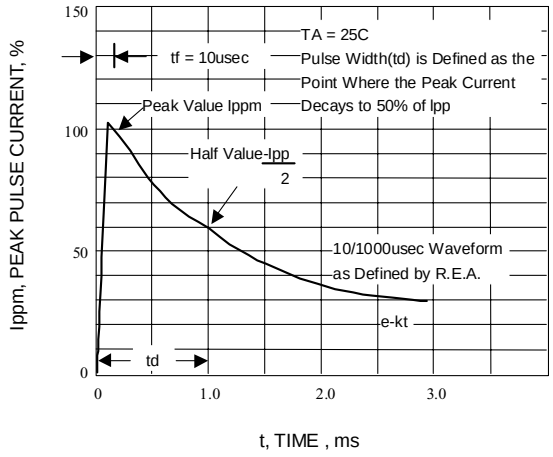


Fig. 3-PULSE WAVEFORM

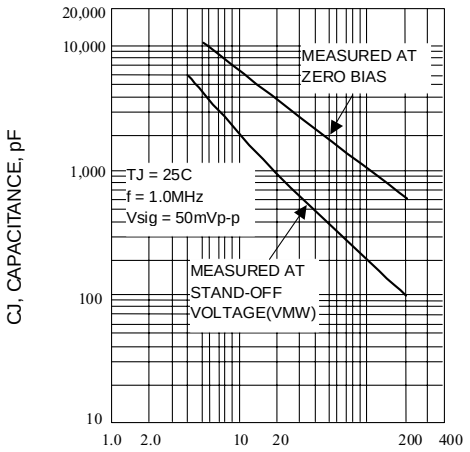


Fig. 4-TYPICAL JUNCTION CAPACITANCE

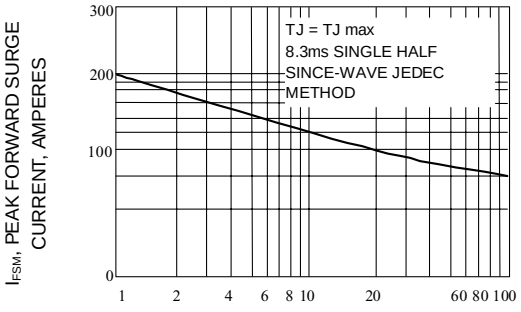


Fig. 5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

SMCJ5.0 THRU SMCJ440CA

Micro Commercial Components

ELECTRICAL CHARACTERISTICS @25°C

MCC Part Number		Reverse Stand -Off Voltage	Breakdown Voltage V_{BR}(V)		Test Current	Max. Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage Current@V_{WM}	Marking Code	
Uni-Polar	Bi-Polar	V_{WM}(V)	Min	Max	I_T(mA)	V_C(V)	I_{PP}(A)	I_D(uA)	UNI	BI
SMCJ5.0A	SMCJ5.0CA	5	6.4	7.0	10	9.2	163.0	800	GDE	BDE
SMCJ6.0A	SMCJ6.0CA	6	6.7	7.4	10	10.3	145.7	800	GDG	BDG
SMCJ6.5A	SMCJ6.5CA	6.5	7.2	8.0	10	11.2	134.0	500	GDK	BDK
SMCJ7.0A	SMCJ7.0CA	7	7.8	8.6	10	12.0	125.0	200	GDM	BDM
SMCJ7.5A	SMCJ7.5CA	7.5	8.3	9.2	1	12.9	116.3	100	GDP	BDP
SMCJ8.0A	SMCJ8.0CA	8	8.9	9.8	1	13.6	110.3	50	GDR	BDR
SMCJ8.5A	SMCJ8.5CA	8.5	9.4	10.4	1	14.4	104.2	20	GDT	BDT
SMCJ9.0A	SMCJ9.0CA	9	10.0	11.1	1	15.4	97.4	10	GDV	BDV
SMCJ10A	SMCJ10CA	10	11.1	12.3	1	17.0	88.3	5	GDX	BDX
SMCJ11A	SMCJ11CA	11	12.2	13.5	1	18.2	82.5	5	GDZ	BDZ
SMCJ12A	SMCJ12CA	12	13.3	14.7	1	19.9	75.4	5	GEE	BEE
SMCJ13A	SMCJ13CA	13	14.4	15.9	1	21.5	69.8	5	GEG	BEG
SMCJ14A	SMCJ14CA	14	15.6	17.2	1	23.2	64.7	5	GEK	BEK
SMCJ15A	SMCJ15CA	15	16.7	18.5	1	24.4	61.5	5	GEM	BEM
SMCJ16A	SMCJ16CA	16	17.8	19.7	1	26.0	57.7	5	GEP	BEP
SMCJ17A	SMCJ17CA	17	18.9	20.9	1	27.6	54.4	5	GER	BER
SMCJ18A	SMCJ18CA	18	20.0	22.1	1	29.2	51.4	5	GET	BET
SMCJ20A	SMCJ20CA	20	22.2	24.5	1	32.4	46.3	5	GEV	BEV
SMCJ22A	SMCJ22CA	22	24.4	26.9	1	35.5	42.3	5	GEX	BEX
SMCJ24A	SMCJ24CA	24	26.7	29.5	1	38.9	38.6	5	GEZ	BEZ
SMCJ26A	SMCJ26CA	26	28.9	31.9	1	42.1	35.7	5	GFE	BFE
SMCJ28A	SMCJ28CA	28	31.1	34.4	1	45.4	33.1	5	GFG	BFG
SMCJ30A	SMCJ30CA	30	33.3	36.8	1	48.4	31.0	5	GFK	BFK
SMCJ33A	SMCJ33CA	33	36.7	40.6	1	53.3	28.2	5	GFM	BFM
SMCJ36A	SMCJ36CA	36	40.0	44.2	1	58.1	25.9	5	GFP	BFP
SMCJ40A	SMCJ40CA	40	44.4	49.1	1	64.5	23.3	5	GFR	BFR
SMCJ43A	SMCJ43CA	43	47.8	52.8	1	69.4	21.7	5	GFT	BFT
SMCJ45A	SMCJ45CA	45	50.0	55.3	1	72.7	20.6	5	GFV	BFV
SMCJ48A	SMCJ48CA	48	53.3	58.9	1	77.4	19.4	5	GFX	BFX
SMCJ51A	SMCJ51CA	51	56.7	62.7	1	82.4	18.2	5	GFZ	BFZ
SMCJ54A	SMCJ54CA	54	60.0	66.3	1	87.1	17.3	5	GGE	BGE
SMCJ58A	SMCJ58CA	58	64.4	71.2	1	93.6	16.1	5	GGG	BGG
SMCJ60A	SMCJ60CA	60	66.7	73.7	1	96.8	15.5	5	GGK	BGK
SMCJ64A	SMCJ64CA	64	71.1	78.6	1	103.0	14.6	5	GGM	BGM
SMCJ70A	SMCJ70CA	70	77.8	86.0	1	113.0	13.3	5	GGP	BGP
SMCJ75A	SMCJ75CA	75	83.3	92.1	1	121.0	12.4	5	GGR	BGR
SMCJ78A	SMCJ78CA	78	86.7	95.8	1	126.0	11.9	5	GGT	BGT
SMCJ85A	SMCJ85CA	85	94.4	104.0	1	137.0	11.0	5	GGV	BGV
SMCJ90A	SMCJ90CA	90	100.0	111.0	1	146.0	10.3	5	GGX	BGX
SMCJ100A	SMCJ100CA	100	111.0	123.0	1	162.0	9.3	5	GGZ	BGZ

For bi-directional type having Vrwm of 10volts and less, the IR limit is double. For parts without A, the VBR is ±10%

ELECTRICAL CHARACTERISTICS @25°C

MCC Part Number		Reverse Standard - Off Voltage	Breakdown Voltage V_{BR}(V)		Test Current	Max. Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage Current@V_{WM}	Marking Code	
Uni-Polar	Bi-Polar	V_{WM}(V)	Min	Max	I_T(mA)	V_C(V)	I_{PP}(A)	I_D(uA)	UNI	BI
SMCJ110A	SMCJ110CA	110	122.0	135.0	1	177	8.5	5	GHE	BHE
SMCJ120A	SMCJ120CA	120	133.0	147.0	1	193	7.8	5	GHG	BHG
SMCJ130A	SMCJ130CA	130	144.0	159.0	1	209	7.2	5	GHK	BHK
SMCJ150A	SMCJ150CA	150	167.0	185.0	1	243	6.2	5	GHM	BHM
SMCJ160A	SMCJ160CA	160	178.0	197.0	1	259	5.8	5	GHP	BHP
SMCJ170A	SMCJ170CA	170	189.0	209.0	1	275	5.5	5	GHR	BHR
SMCJ180A	SMCJ180CA	180	201.0	222.0	1	292	5.1	5	GHT	BHT
SMCJ200A	SMCJ200CA	200	224.0	247.0	1	324	4.6	5	GHV	BHV
SMCJ220A	SMCJ220CA	220	246.0	272.0	1	356	4.2	5	GHX	BHX
SMCJ250A	SMCJ250CA	250	279.0	309.0	1	405	3.7	5	GHZ	BHZ
SMCJ300A	SMCJ300CA	300	335.0	371.0	1	486	3.1	5	GJE	BJE
SMCJ350A	SMCJ350CA	350	391.0	432.0	1	567	2.6	5	GJG	BJG
SMCJ400A	SMCJ400CA	400	447.0	494.0	1	648	2.3	5	GJK	BJK
SMCJ440A	SMCJ440CA	440	492.0	543.0	1	713	2.1	5	GJM	BJM

For bi-directional type having Vrwm of 10volts and less, the IR limit is double. For parts without A, the VBR is ±10%

Micro Commercial Components

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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