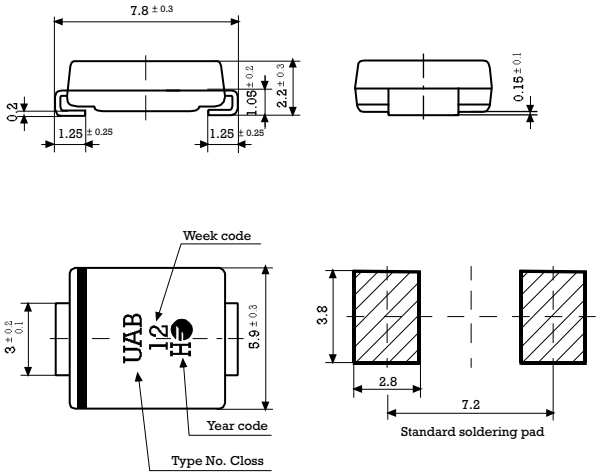
1500 W Unidirectional and Bidirectional Surface Mounted Transient Voltage Suppressor Diodes

Dimensions in mm.

CASE:
SMC/DO-214AB



Voltage	Power
6.8 to 220 V	1500 W/ms

HYPERECTIFIER®

- **Glass passivated junction**
- Typical I_{RM} less than 1µ A above 10V
- Response time typically <1ns
- The plastic material carries UL 94 V-0
- Low profile package
- Easy pick and place
- High temperature soldering 260 °C 10 sec

MECHANICAL DATA

Terminals: Solder plated, solderable per IEC 68-2-20.
Standard Packaging: 8 mm. tape (EIA-RS-481)
Weight: 1.12 g.

Maximum Ratings and Electrical Characteristics at 25 °C

P_{PPM}	Peak Pulse Power Dissipation with 10/1000 µs exponential pulse	1500 W
I_{FSM}	Peak Forward Surge Current 8.3 ms. (Jedec Method) (Note 1)	200 A
V_F	Max. forward voltage drop at I_F = 100 A (Note 1)	3.5 V
T_J - T_{STG}	Operating Junction and Storage Temperature Range	- 65 to + 175 °C

Note 1: Only for Unidirectional

FAGOR

1.5SMC6V8.....1.5SMC220A
1.5SMC6V8C.....1.5SMC220CA

Type		Maximum Reverse Leakage Current I_{RM} at V_{RM}		(1) Breakdown Voltage V_{BR} at I_R (V)				Max. Clamping Voltage V_{CL} at I_{pp} max. 1ms. Expo.	
Unidirectional	Marking Code	(µA)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
1.5SMC6V8	UAA	1000	5.50	6.12	6.8	7.48	10	10.8	139
1.5SMC6V8A	UAB	1000	5.80	6.45	6.8	7.14	10	10.5	143
1.5SMC7V5	UAC	500	6.05	6.75	7.5	8.25	10	11.7	128
1.5SMC7V5A	UAD	500	6.40	7.13	7.5	7.88	10	11.3	132
1.5SMC8V2	UAE	200	6.63	7.38	8.2	9.02	10	12.5	120
1.5SMC8V2A	UAF	200	7.02	7.79	8.2	8.61	10	12.1	124
1.5SMC9V1	UAG	50	7.37	8.19	9.1	10.0	1	13.8	109
1.5SMC9V1A	UAH	50	7.78	8.65	9.1	9.55	1	13.4	112
1.5SMC10	UAK	10	8.10	9.00	10	11.0	1	15.0	100
1.5SMC10A	UAL	10	8.55	9.50	10	10.5	1	14.5	103
1.5SMC11	UAM	5	8.92	9.90	11	12.1	1	16.2	93
1.5SMC11A	UAN	5	9.40	10.5	11	11.6	1	15.6	96
1.5SMC12	UAP	5	9.72	10.8	12	13.2	1	17.3	87
1.5SMC12A	UAR	5	10.2	11.4	12	12.6	1	16.7	90
1.5SMC13	UAS	5	10.5	11.7	13	14.3	1	19.0	79
1.5SMC13A	UAT	5	11.1	12.4	13	13.7	1	18.2	82
1.5SMC15	UAU	5	12.1	13.5	15	16.5	1	22.0	68
1.5SMC15A	UAV	5	12.8	14.3	15	15.8	1	21.2	71
1.5SMC16	UAW	5	12.9	14.4	16	17.6	1	23.5	64
1.5SMC16A	UAX	5	13.6	15.2	16	16.8	1	22.5	67
1.5SMC18	UAY	5	14.5	16.2	18	19.8	1	26.5	56.5
1.5SMC18A	UAZ	5	15.3	17.1	18	18.9	1	25.5	59.5
1.5SMC20	UBA	5	16.2	18.0	20	22.0	1	29.1	51.5
1.5SMC20A	UBB	5	17.1	19.0	20	21.0	1	27.7	54
1.5SMC22	UBC	5	17.8	19.8	22	24.2	1	31.9	47
1.5SMC22A	UBD	5	18.8	20.9	22	23.1	1	30.6	49
1.5SMC24	UBE	5	19.4	21.6	24	26.4	1	34.7	43
1.5SMC24A	UBF	5	20.5	22.8	24	25.2	1	33.2	45
1.5SMC27	UBG	5	21.8	24.3	27	29.7	1	39.1	38.5
1.5SMC27A	UBH	5	23.1	25.7	27	28.4	1	37.5	40
1.5SMC30	UBK	5	24.3	27.0	30	33.0	1	43.5	34.5
1.5SMC30A	UBL	5	25.6	28.5	30	31.5	1	41.4	36
1.5SMC33	UBM	5	26.8	29.7	33	36.3	1	47.7	31.5
1.5SMC33A	UBN	5	28.2	31.4	33	34.7	1	45.7	33
1.5SMC36	UBP	5	29.1	32.4	36	39.6	1	52.0	29
1.5SMC36A	UBR	5	30.8	34.2	36	37.8	1	49.9	30
1.5SMC39	UBS	5	31.6	35.1	39	42.9	1	56.4	26.5
1.5SMC39A	UBT	5	33.3	37.1	39	41.0	1	53.9	28
1.5SMC43	UBU	5	34.8	38.7	43	47.3	1	61.9	24
1.5SMC43A	UBV	5	36.8	40.9	43	45.2	1	59.3	25.3
1.5SMC47	UBW	5	38.1	42.3	47	51.7	1	67.8	22.2
1.5SMC47A	UBX	5	40.2	44.7	47	49.4	1	64.8	23.2
1.5SMC51	UBY	5	41.3	45.9	51	56.1	1	73.5	20.4
1.5SMC51A	UBZ	5	43.6	48.5	51	53.6	1	70.1	21.4

(1) Tested with pulses.
Pulse test: tp ≤ 50 ms; δ < 2%

Type		Maximum Reverse Leakage Current I_{RM} at V_{RM}		(1) Breakdown Voltage V_{BR} at I_R (V)				Max. Clamping Voltage V_{CL} at I_{pp} max. 1ms. Expo.	
Unidirectional	Marking Code	(µA)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
1.5SMC56	UCA	5	45.4	50.4	56	61.6	1	80.5	18.6
1.5SMC56A	UCB	5	47.8	53.2	56	58.8	1	77.0	19.5
1.5SMC62	UCC	5	50.2	55.8	62	68.2	1	89.0	16.9
1.5SMC62A	UCD	5	53.0	58.9	62	65.1	1	85.0	17.7
1.5SMC68	UCE	5	55.1	61.2	68	74.8	1	98.0	15.3
1.5SMC68A	UCF	5	58.1	64.6	68	71.4	1	92.0	16.3
1.5SMC75	UCG	5	60.7	67.5	75	82.5	1	108	13.9
1.5SMC75A	UCH	5	64.1	71.3	75	78.8	1	103	14.6
1.5SMC82	UCK	5	66.4	73.8	82	90.2	1	118	12.7
1.5SMC82A	UCL	5	70.1	77.9	82	86.1	1	113	13.3
1.5SMC91	UCM	5	73.7	81.9	91	100	1	131	11.4
1.5SMC91A	UCN	5	77.8	86.5	91	95.5	1	125	12
1.5SMC100	UCP	5	81.0	90.0	100	110	1	144	10.4
1.5SMC100A	UCR	5	85.5	95.0	100	105	1	137	11
1.5SMC110	UCS	5	89.2	99.0	110	121	1	158	9.5
1.5SMC110A	UCT	5	94.0	105	110	116	1	152	9.9
1.5SMC120	UCU	5	97.2	108	120	132	1	173	8.7
1.5SMC120A	UCV	5	102	114	120	126	1	165	9.1
1.5SMC130	UCW	5	105	117	130	143	1	187	8
1.5SMC130A	UCX	5	111	124	130	137	1	179	8.4
1.5SMC150	UCY	5	121	135	150	165	1	215	7
1.5SMC150A	UCZ	5	128	143	150	158	1	207	7.2
1.5SMC160	UDA	5	130	144	160	176	1	230	6.5
1.5SMC160A	UDB	5	136	152	160	168	1	219	6.8
1.5SMC170	UDC	5	138	153	170	187	1	244	6.2
1.5SMC170A	UDD	5	145	162	170	179	1	234	6.4
1.5SMC180	UDE	5	146	162	180	198	1	258	5.8
1.5SMC180A	UDF	5	154	171	180	189	1	246	6.1
1.5SMC200	UDG	5	162	180	200	220	1	287	5.2
1.5SMC200A	UDH	5	171	190	200	210	1	274	5.5
1.5SMC220	UDK	5	175	198	220	242	1	344	4.3
1.5SMC220A	UDL	5	185	209	220	231	1	328	4.6

(1) Tested with pulses.
Pulse test: tp ≤ 50 ms; δ < 2%

FAGOR

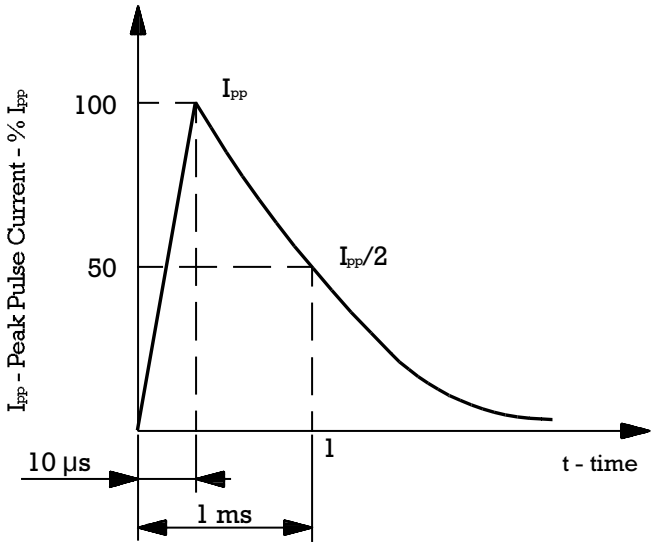
Type		Maximum Reverse Leakage Current I_{RM} at V_{RM}		(1) Breakdown Voltage V_{BR} at I_R (V)				Max. Clamping Voltage V_{CL} at I_{pp} max. 1ms. Expo.	
Bidirectional	Marking Code	(µA)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
1.5SMC6V8C	BGA	1000	5.50	6.12	6.8	7.48	10	10.8	139
1.5SMC6V8CA	BGB	1000	5.80	6.45	6.8	7.14	10	10.5	143
1.5SMC7V5C	BGC	500	6.05	6.75	7.5	8.25	10	11.7	128
1.5SMC7V5CA	BGD	500	6.40	7.13	7.5	7.88	10	11.3	132
1.5SMC8V2C	BGE	200	6.63	7.38	8.2	9.02	10	12.5	120
1.5SMC8V2CA	BGF	200	7.02	7.79	8.2	8.61	10	12.1	124
1.5SMC9V1C	BGG	50	7.37	8.19	9.1	10.0	1	13.8	109
1.5SMC9V1CA	BGH	50	7.78	8.65	9.1	9.55	1	13.4	112
1.5SMC10C	BGK	10	8.10	9.00	10	11.0	1	15.0	100
1.5SMC10CA	BGL	10	8.55	9.50	10	10.5	1	14.5	103
1.5SMC11C	BGM	5	8.92	9.90	11	12.1	1	16.2	93
1.5SMC11CA	BGN	5	9.40	10.5	11	11.6	1	15.6	96
1.5SMC12C	BGP	5	9.72	10.8	12	13.2	1	17.3	87
1.5SMC12CA	BGR	5	10.2	11.4	12	12.6	1	16.7	90
1.5SMC13C	BGS	5	10.5	11.7	13	14.3	1	19.0	79
1.5SMC13CA	BGT	5	11.1	12.4	13	13.7	1	18.2	82
1.5SMC15C	BGU	5	12.1	13.5	15	16.5	1	22.0	68
1.5SMC15CA	BGV	5	12.8	14.3	15	15.8	1	21.2	71
1.5SMC16C	BGW	5	12.9	14.4	16	17.6	1	23.5	64
1.5SMC16CA	BGX	5	13.6	15.2	16	16.8	1	22.5	67
1.5SMC18C	BGY	5	14.5	16.2	18	19.8	1	26.5	56.5
1.5SMC18CA	BGZ	5	15.3	17.1	18	18.9	1	25.5	59.5
1.5SMC20C	BHA	5	16.2	18.0	20	22.0	1	29.1	51.5
1.5SMC20CA	BHB	5	17.1	19.0	20	21.0	1	27.7	54
1.5SMC22C	BHC	5	17.8	19.8	22	24.2	1	31.9	47
1.5SMC22CA	BHD	5	18.8	20.9	22	23.1	1	30.6	49
1.5SMC24C	BHE	5	19.4	21.6	24	26.4	1	34.7	43
1.5SMC24CA	BHF	5	20.5	22.8	24	25.2	1	33.2	45
1.5SMC27C	BHG	5	21.8	24.3	27	29.7	1	39.1	38.5
1.5SMC27CA	BHH	5	23.1	25.7	27	28.4	1	37.5	40
1.5SMC30C	BHK	5	24.3	27.0	30	33.0	1	43.5	34.5
1.5SMC30CA	BHL	5	25.6	28.5	30	31.5	1	41.4	36
1.5SMC33C	BHM	5	26.8	29.7	33	36.3	1	47.7	31.5
1.5SMC33CA	BHN	5	28.2	31.4	33	34.7	1	45.7	33
1.5SMC36C	BHP	5	29.1	32.4	36	39.6	1	52.0	29
1.5SMC36CA	BHR	5	30.8	34.2	36	37.8	1	49.9	30
1.5SMC39C	BHS	5	31.6	35.1	39	42.9	1	56.4	26.5
1.5SMC39CA	BHT	5	33.3	37.1	39	41.0	1	53.9	28
1.5SMC43C	BHU	5	34.8	38.7	43	47.3	1	61.9	24
1.5SMC43CA	BHV	5	36.8	40.9	43	45.2	1	59.3	25.3
1.5SMC47C	BHW	5	38.1	42.3	47	51.7	1	67.8	22.2
1.5SMC47CA	BHX	5	40.2	44.7	47	49.4	1	64.8	23.2
1.5SMC51C	BHY	5	41.3	45.9	51	56.1	1	73.5	20.4
1.5SMC51CA	BHZ	5	43.6	48.5	51	53.6	1	70.1	21.4

(1) Tested with pulses.
Pulse test: tp ≤ 50 ms; δ < 2%

FAGOR

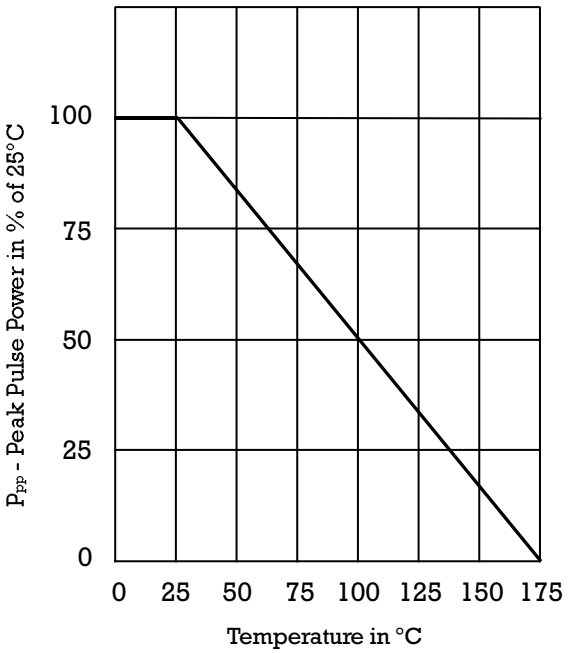
Type		Maximum Reverse Leakage Current I_{RM} at V_{RM}		(1) Breakdown Voltage V_{BR} at I_R (V)				Max. Clamping Voltage V_{CL} at I_{pp} max. 1ms. Expo.	
Bidirectional	Marking Code	(µA)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
1.5SMC56C	BKA	5	45.4	50.4	56	61.6	1	80.5	18.6
1.5SMC56CA	BKB	5	47.8	53.2	56	58.8	1	77.0	19.5
1.5SMC62C	BKC	5	50.2	55.8	62	68.2	1	89.0	16.9
1.5SMC62CA	BKD	5	53.0	58.9	62	65.1	1	85.0	17.7
1.5SMC68C	BKE	5	55.1	61.2	68	74.8	1	98.0	15.3
1.5SMC68CA	BKF	5	58.1	64.6	68	71.4	1	92.0	16.3
1.5SMC75C	BKG	5	60.7	67.5	75	82.5	1	108	13.9
1.5SMC75CA	BKH	5	64.1	71.3	75	78.8	1	103	14.6
1.5SMC82C	BKK	5	66.4	73.8	82	90.2	1	118	12.7
1.5SMC82CA	BKL	5	70.1	77.9	82	86.1	1	113	13.3
1.5SMC91C	BKM	5	73.7	81.9	91	100	1	131	11.4
1.5SMC91CA	BKN	5	77.8	86.5	91	95.5	1	125	12
1.5SMC100C	BKP	5	81.0	90.0	100	110	1	144	10.4
1.5SMC100CA	BKR	5	85.5	95.0	100	105	1	137	11
1.5SMC110C	BKS	5	89.2	99.0	110	121	1	158	9.5
1.5SMC110CA	BKT	5	94.0	105	110	116	1	152	9.9
1.5SMC120C	BKU	5	97.2	108	120	132	1	173	8.7
1.5SMC120CA	BKV	5	102	114	120	126	1	165	9.1
1.5SMC130C	BKW	5	105	117	130	143	1	187	8
1.5SMC130CA	BKX	5	111	124	130	137	1	179	8.4
1.5SMC150C	BKY	5	121	135	150	165	1	215	7
1.5SMC150CA	BKZ	5	128	143	150	158	1	207	7.2
1.5SMC160C	BLA	5	130	144	160	176	1	230	6.5
1.5SMC160CA	BLB	5	136	152	160	168	1	219	6.8
1.5SMC170C	BLC	5	138	153	170	187	1	244	6.2
1.5SMC170CA	BLD	5	145	162	170	179	1	234	6.4
1.5SMC180C	BLE	5	146	162	180	198	1	258	5.8
1.5SMC180CA	BLF	5	154	171	180	189	1	246	6.1
1.5SMC200C	BLG	5	162	180	200	220	1	287	5.2
1.5SMC200CA	BLH	5	171	190	200	210	1	274	5.5
1.5SMC220C	BLK	5	175	198	220	242	1	344	4.3
1.5SMC220CA	BLL	5	185	209	220	231	1	328	4.6

(1) Tested with pulses.
Pulse test: tp ≤ 50 ms; δ < 2%

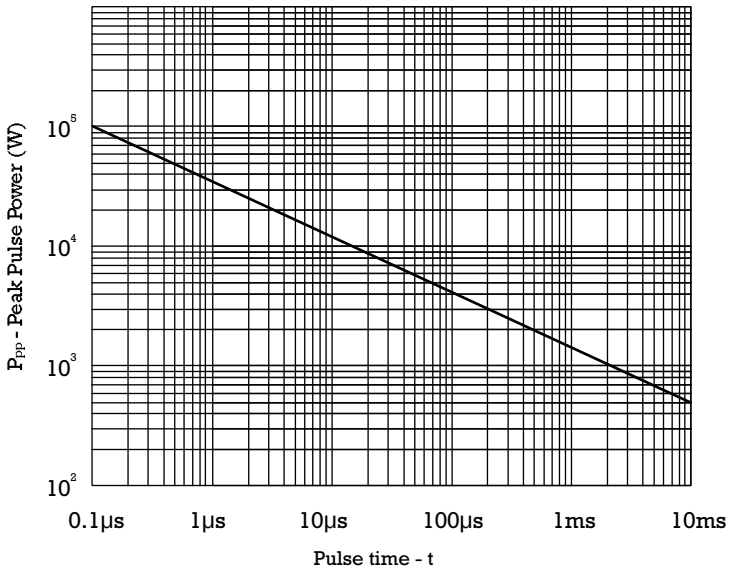


Pulse wave form 10/1000

DERATING CURVE



PEAK PULSE POWER RATING CURVE



TYPICAL JUNCTION CAPACITANCE