3000 W Surface Mount Top Glass Transient Voltage Suppressor

DO-214AB (SMC)

Voltage
9.5 V to 95 V (Uni)
9.5 V to 95 V (Bid)

Power
3000 W /ms

HYPERECTIFIER®

FEATURES

- Top-Glass Technology
- Low profile package
- Ideal for automated placement
- 3000 W peak pulse power capability with a 10/1000 µs waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Available in uni-directional and bi-directional
- AEC-Q101 qualified
- Solder dip 260°C, 10s
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260° C

AUTOMOTIVE GRADE Available

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** DO-214AB (SMC). Epoxy meets UL 94V-0 flammability rating.
- **Polarity:** For unidirectional types color band denotes cathode end. No marking on bidirectional types.
- **Terminals:** Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.
- **HE3 suffix** for high reliability grade, meets JESD 201 class 2 whisker test.

TYPICAL APPLICATIONS

Used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.

Maximun Ratings and Electrical Characteristics at 25°C

P_{PPM}	Peak Pulse Power Dissipation with 10/1000 µs exponential pulse	3000 W
I_{FSM}	Peak Forward Surge Current 8.3 ms. (Note 1) (Jedec Method) (Note 2)	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 + 150 °C

Notes: 1. Only for Unidirectional
2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

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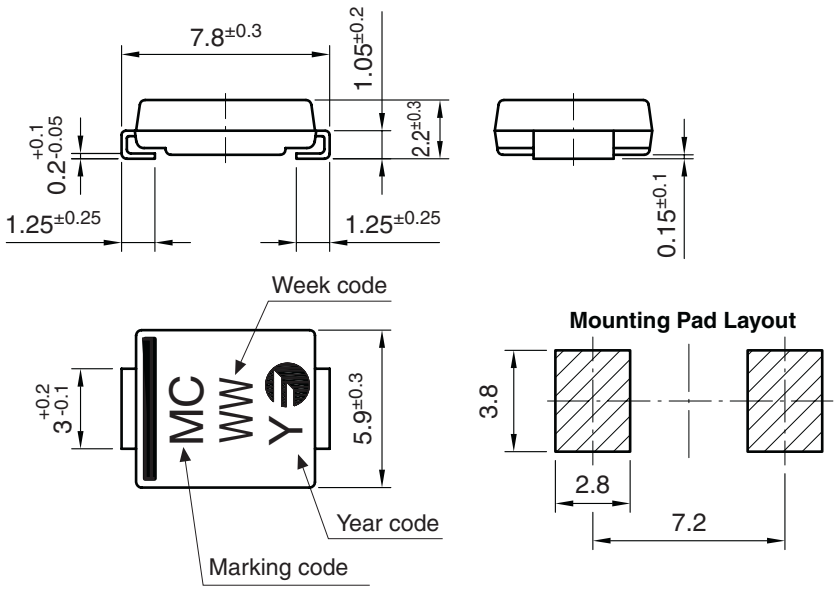
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
3KSMC33A TG TRTB	TRTB	13" diameter tape and reel	3,500	0.211
3KSMC33A TG HE3 TRTB	TRTB	13" diameter tape and reel	3,500	0.211
3KSMC33CA TG TRTB	TRTB	13" diameter tape and reel	3,500	0.211
3KSMC33CA TG HE3 TRTB	TRTB	13" diameter tape and reel	3,500	0.211

Package Outline Dimensions: (mm) DO-214AB (SMC)



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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Device Type	MC (3)	V_{BR} @ I_T (1) (V)			I_R @ V_R		I_{RM} @ Tj = 150°C	V_{CL} @ I_{PP} 10/1000 µs		R_D 10/1000 µs	V_{CL} @ I_{PP} 8/20 µs		R_D 8/20 µs	αT
Unidirectional		min	max	mA	(V)	(µA)	(µA)	(V)	(A)	(Ω)	(V)	(A)	(Ω)	(%/°C)
3KSMC8.5A TG	CAT	9.44	10.4	1.0	8.5	10.0	50	14.4	208.4	0.020	14.4	1944	0.006	0.070
3KSMC10A TG	CAA	11.1	12.3	1.0	10	5.0	50	17.0	177	0.026	22.5	1217	0.008	0.075
3KSMC11A TG	CAB	12.2	13.5	1.0	11	5.0	50	18.2	165	0.028	23.7	1156	0.009	0.075
3KSMC12A TG	CAC	13.3	14.7	1.0	12	2.0	20	19.9	151	0.034	25.4	1078	0.010	0.080
3KSMC13A TG	CAD	14.4	15.9	1.0	13	2.0	20	21.5	140	0.040	27.0	1014	0.011	0.080
3KSMC14A TG	CAE	15.6	17.2	1.0	14	1.0	10	23.2	129	0.046	28.7	955	0.012	0.085
3KSMC15A TG	CAF	16.7	18.5	1.0	15	1.0	10	24.4	123	0.048	30.0	910	0.013	0.085
3KSMC16A TG	CAG	17.8	19.7	1.0	16	1.0	10	26.0	115	0.055	31.5	870	0.013	0.085
3KSMC17A TG	CAH	18.9	20.9	1.0	17	1.0	10	27.6	109	0.061	33.1	827	0.015	0.075
3KSMC18A TG	CAI	20.0	22.1	1.0	18	1.0	10	29.2	103	0.069	35.0	790	0.016	0.090
3KSMC20A TG	CAJ	22.2	24.5	1.0	20	1.0	10	32.4	92.6	0.085	37.5	730	0.018	0.090
3KSMC22A TG	CAK	24.4	26.9	1.0	22	1.0	10	35.5	84.5	0.102	40.5	680	0.020	0.095
3KSMC24A TG	CAL	26.7	29.5	1.0	24	1.0	10	38.9	77.1	0.122	43.9	630	0.023	0.095
3KSMC26A TG	CAM	28.9	31.9	1.0	26	1.0	10	42.1	71.3	0.143	47.0	600	0.025	0.095
3KSMC28A TG	CAN	31.1	34.4	1.0	28	1.0	10	45.4	66.1	0.166	50.0	560	0.028	0.095
3KSMC30A TG	CAO	33.3	36.8	1.0	30	1.0	15	48.4	62.0	0.187	53.0	530	0.030	0.095
3KSMC33A TG	CAP	36.7	40.6	1.0	33	1.0	15	53.3	56.3	0.226	58.0	490	0.035	0.100
3KSMC36A TG	CAQ	40.0	44.2	1.0	36	1.0	20	58.1	51.6	0.269	62.7	437	0.042	0.100
3KSMC40A TG	CAR	44.4	49.1	1.0	40	1.0	20	64.5	46.5	0.331	69.0	396	0.050	0.105
3KSMC43A TG	CAS	47.8	52.8	1.0	43	1.0	20	69.4	43.2	0.384	73.9	371	0.057	0.105
3KSMC45A TG	CAU	50.0	55.3	1.0	45	2.0	20	72.7	41.3	0.421	77.4	354	0.062	0.105
3KSMC48A TG	CAV	53.3	58.9	1.0	48	2.0	20	77.4	38.8	0.477	82.0	334	0.069	0.105
3KSMC51A TG	CAW	56.7	62.7	1.0	51	2.0	20	82.4	36.4	0.541	87.0	314	0.077	0.105
3KSMC54A TG	CAX	60.0	66.3	1.0	54	2.0	20	87.1	34.4	0.605	91.7	298	0.085	0.105
3KSMC58A TG	CAY	64.4	71.2	1.0	58	2.0	20	93.6	32.1	0.698	98.3	278	0.097	0.110
3KSMC60A TG	CAZ	66.7	73.7	1.0	60	2.0	20	96.8	31.0	0.745	102	268	0.106	0.110
3KSMC64A TG	CCA	71.1	78.6	1.0	64	2.0	20	103	29.1	0.838	108	253	0.116	0.110
3KSMC70A TG	CCB	77.8	86.0	1.0	70	2.0	20	113	26.5	1.019	118	232	0.138	0.110
3KSMC75A TG	CCC	83.3	92.1	1.0	75	2.0	20	121	24.8	1.165	126	217	0.156	0.110
3KSMC78A TG	CCD	86.7	95.8	1.0	78	2.0	20	126	23.8	1.269	132	207	0.175	0.110

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

- All terms and symbols are consistent with ANSI/IEEE C62.35

(3) Marking code

3000 W Surface Mount Top Glass Transient Voltage Suppressor

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

DEVICE TYPE Bidirectional	MC (3)	VBR @ IT (1) (V)			IR @ VR		IRM @ Tj = 150°C	VCL @ IPP 10/1000 µs		RD 10/1000 µs	VCL @ IPP 8/20 µs		RD 8/20 µs	αT
		min	max	mA	(V)	(µA)	(µA)	(V)	(A)	(Ω)	(V)	(A)	(Ω)	(%/°C)
3KSMC8.5CA TG	CBT	9.44	10.4	1.0	8.5	10.0	50	14.4	208.4	0.020	14.4	1944	0.006	0.070
3KSMC10CA TG	CBU	11.1	12.3	1.0	10	5.0	50	17.0	177	0.026	22.5	1217	0.008	0.075
3KSMC11CA TG	CBV	12.2	13.5	1.0	11	5.0	50	18.2	165	0.028	23.7	1156	0.009	0.075
3KSMC12CA TG	CBW	13.3	14.7	1.0	12	2.0	20	19.9	151	0.034	25.4	1078	0.010	0.080
3KSMC13CA TG	CBX	14.4	15.9	1.0	13	2.0	20	21.5	140	0.040	27.0	1014	0.011	0.080
3KSMC14CA TG	CBY	15.6	17.2	1.0	14	1.0	10	23.2	129	0.046	28.7	955	0.012	0.085
3KSMC15CA TG	CBZ	16.7	18.5	1.0	15	1.0	10	24.4	123	0.048	30.0	910	0.013	0.085
3KSMC16CA TG	CCE	17.8	19.7	1.0	16	1.0	10	26.0	115	0.055	31.5	870	0.013	0.085
3KSMC17CA TG	CCF	18.9	20.9	1.0	17	1.0	10	27.6	109	0.061	33.1	827	0.015	0.075
3KSMC18CA TG	CCG	20.0	22.1	1.0	18	1.0	10	29.2	103	0.069	35.0	790	0.016	0.090
3KSMC20CA TG	CCH	22.2	24.5	1.0	20	1.0	10	32.4	92.6	0.085	37.5	730	0.018	0.090
3KSMC22CA TG	CBA	24.4	26.9	1.0	22	2.0	10	35.5	84.5	0.102	40.5	680	0.020	0.095
3KSMC24CATG	CBB	26.7	29.5	1.0	24	2.0	10	38.9	77.1	0.122	43.9	630	0.023	0.095
3KSMC26CATG	CBC	28.9	31.9	1.0	26	2.0	10	42.1	71.3	0.143	47.0	600	0.025	0.095
3KSMC28CATG	CBD	31.1	34.4	1.0	28	2.0	10	45.4	66.1	0.166	50.0	560	0.028	0.095
3KSMC30CATG	CBE	33.3	36.8	1.0	30	2.0	15	48.4	62.0	0.187	53.0	530	0.030	0.095
3KSMC33CATG	CBF	36.7	40.6	1.0	33	2.0	15	53.3	56.3	0.226	58.0	490	0.035	0.100
3KSMC36CATG	CBG	40.0	44.2	1.0	36	2.0	20	58.1	51.6	0.269	62.7	437	0.042	0.100
3KSMC40CATG	CBH	44.4	49.1	1.0	40	2.0	20	64.5	46.5	0.331	69.0	396	0.050	0.105
3KSMC43CATG	CBI	47.8	52.8	1.0	43	2.0	20	69.4	43.2	0.384	73.9	371	0.057	0.105
3KSMC45CATG	CBJ	50.0	55.3	1.0	45	2.0	20	72.7	41.3	0.421	77.4	354	0.062	0.105
3KSMC48CATG	CBK	53.3	58.9	1.0	48	2.0	20	77.4	38.8	0.477	82.0	334	0.069	0.105
3KSMC51CATG	CBL	56.7	62.7	1.0	51	2.0	20	82.4	36.4	0.541	87.0	314	0.077	0.105
3KSMC54CATG	CBM	60.0	66.3	1.0	54	2.0	20	87.1	34.4	0.605	91.7	298	0.085	0.105
3KSMC58CATG	CBN	64.4	71.2	1.0	58	2.0	20	93.6	32.1	0.698	98.3	278	0.097	0.110
3KSMC60CATG	CBO	66.7	73.7	1.0	60	2.0	20	96.8	31.0	0.745	102	268	0.106	0.110
3KSMC64CA TG	CBP	71.1	78.6	1.0	64	2.0	20	103	29.1	0.838	108	253	0.116	0.110
3KSMC70CA TG	CBQ	77.8	86.0	1.0	70	2.0	20	113	26.5	1.019	118	232	0.138	0.110
3KSMC75CA TG	CBR	83.3	92.1	1.0	75	2.0	20	121	24.8	1.165	126	217	0.156	0.110
3KSMC78CA TG	CBS	86.7	95.8	1.0	78	2.0	20	126	23.8	1.269	132	207	0.175	0.110

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

- All terms and symbols are consistent with ANSI/IEEE C62.35

(3) Marking code

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

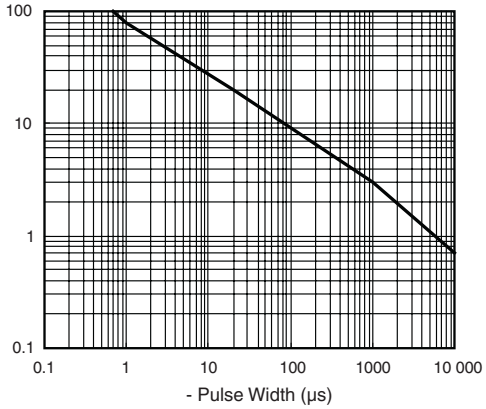

Fig. 1 - Peak Pulse Power Rating Curve

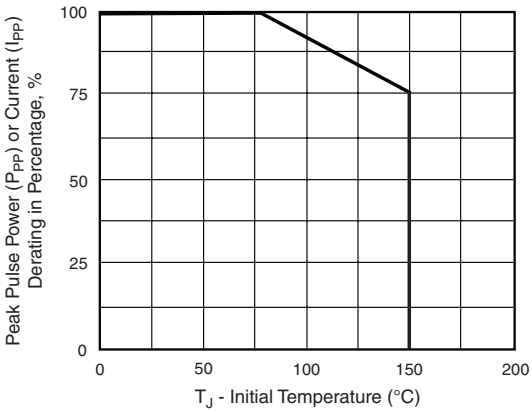

Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

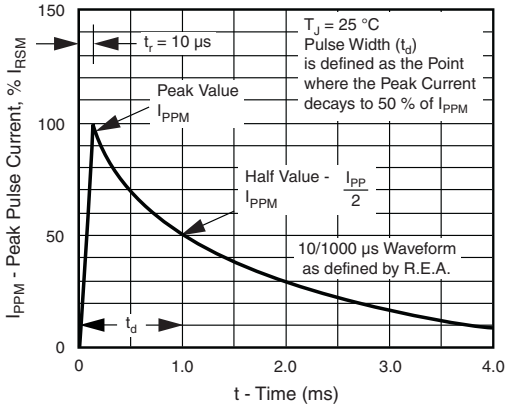

Fig. 3 - Pulse Waveform

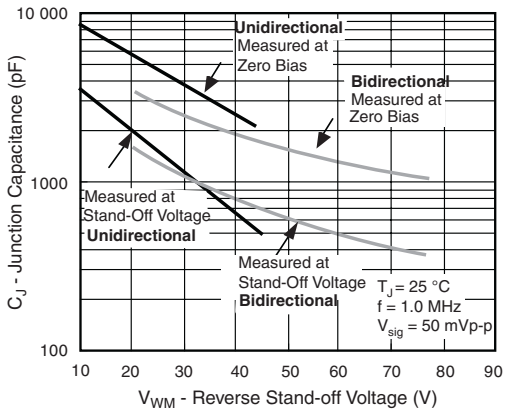

Fig. 4 - Typical Junction Capacitance

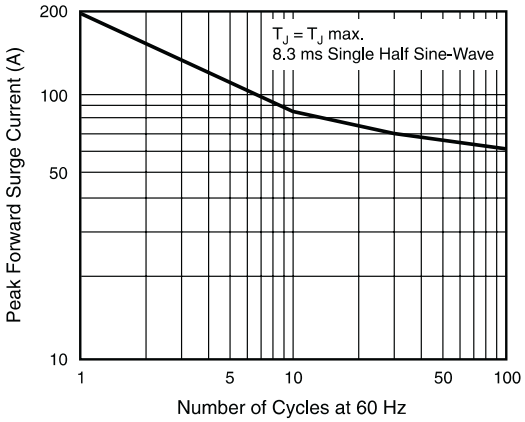

Fig. 5 - Maximum Non-Repetitive/Peak Forward Surge Current

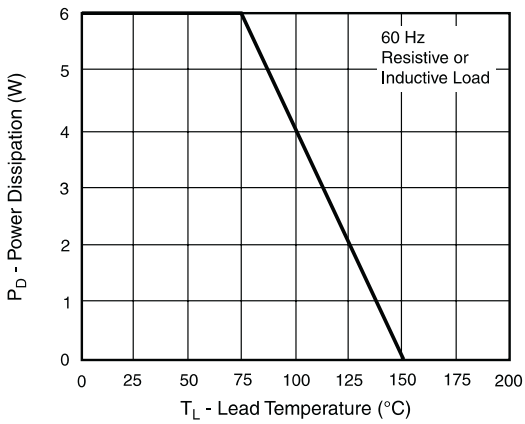

Fig. 6 - Power Derating Curve

Revision History

Date	Revision	Description of Changes
14-Dec-2012	0	Original Data Sheet
20-May-2014	1	Add: Dynamic resistance and Temperature coefficient specification.
18-Dec-2014	2	Add: New references

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