3000 W Surface Mount Top Glass Transient Voltage Suppressor

DO-214AB (SMC)

Voltage
10 V to 43 V (Uni)
22 V to 78 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
- 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 (AEC Q101 qualified), 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

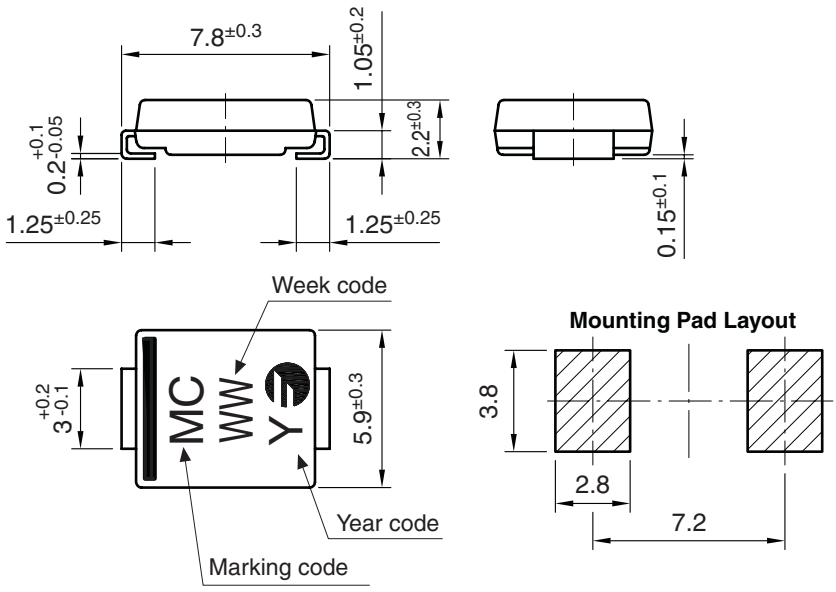
Notes: 1. Only for Unidirectional
2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

3000 W Surface Mount Top Glass Transient Voltage Suppressor

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)



3000 W Surface Mount Top Glass Transient Voltage Suppressor

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

DEVICE TYPE Unidirectional	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V_{BR} AT I_T (1) (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_R (µA)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA) T_J = 150 °C	MAXIMUM PEAK PULSE SURGE CURRENT I_{PPM} (A) (2)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
		MIN.	MAX.						
3KSMC10A TG	CAA	11.1	12.3	1.0	10	5.0	50	177	17.0
3KSMC11A TG	CAB	12.2	13.5	1.0	11	5.0	50	165	18.2
3KSMC12A TG	CAC	13.3	14.7	1.0	12	2.0	20	151	19.9
3KSMC13A TG	CAD	14.4	15.9	1.0	13	2.0	20	140	21.5
3KSMC14A TG	CAE	15.6	17.2	1.0	14	1.0	10	129	23.2
3KSMC15A TG	CAF	16.7	18.5	1.0	15	1.0	10	123	24.4
3KSMC16A TG	CAG	17.8	19.7	1.0	16	1.0	10	115	26.0
3KSMC17A TG	CAH	18.9	20.9	1.0	17	1.0	10	109	27.6
3KSMC18A TG	CAI	20.0	22.1	1.0	18	1.0	10	103	29.2
3KSMC20A TG	CAJ	22.2	24.5	1.0	20	1.0	10	92.6	32.4
3KSMC22A TG	CAK	24.4	26.9	1.0	22	1.0	10	84.5	35.5
3KSMC24A TG	CAL	26.7	29.5	1.0	24	1.0	10	77.1	38.9
3KSMC26A TG	CAM	28.9	31.9	1.0	26	1.0	10	71.3	42.1
3KSMC28A TG	CAN	31.1	34.4	1.0	28	1.0	10	66.1	45.4
3KSMC30A TG	CAO	33.3	36.8	1.0	30	1.0	15	62.0	48.4
3KSMC33A TG	CAP	36.7	40.6	1.0	33	1.0	15	56.3	53.3
3KSMC36A TG	CAQ	40.0	44.2	1.0	36	1.0	20	51.6	58.1
3KSMC40A TG	CAR	44.4	49.1	1.0	40	1.0	20	46.5	64.5
3KSMC43A TG	CAS	47.8	52.8	1.0	43	1.0	20	43.2	69.4

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

3000 W Surface Mount Top Glass Transient Voltage Suppressor

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

DEVICE TYPE Bidirectional	DEVICE MARKING CODE	BREAKDOWN VOLTAGE V_{BR} (1) (V) AT I_T		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)	MAX. PEAK PULSE SURGE CURRENT I_{PPM} (2) (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)
		MIN.	MAX.					
3KSMC22CATG	CBA	24.4	26.9	1.0	22	2.0	84.5	35.5
3KSMC24CATG	CBB	26.7	29.5	1.0	24	2.0	77.1	38.9
3KSMC26CATG	CBC	28.9	31.9	1.0	26	2.0	71.3	42.1
3KSMC28CATG	CBD	31.1	34.4	1.0	28	2.0	66.1	45.4
3KSMC30CATG	CBE	33.3	36.8	1.0	30	2.0	62.0	48.4
3KSMC33CATG	CBF	36.7	40.6	1.0	33	2.0	56.3	53.3
3KSMC36CATG	CBG	40.0	44.2	1.0	36	2.0	51.6	58.1
3KSMC40CATG	CBH	44.4	49.1	1.0	40	2.0	46.5	64.5
3KSMC43CATG	CBI	47.8	52.8	1.0	43	2.0	43.2	69.4
3KSMC45CATG	CBJ	50.0	55.3	1.0	45	2.0	41.3	72.7
3KSMC48CATG	CBK	53.3	58.9	1.0	48	2.0	38.8	77.4
3KSMC51CATG	CBL	56.7	62.7	1.0	51	2.0	36.4	82.4
3KSMC54CATG	CBM	60.0	66.3	1.0	54	2.0	34.4	87.1
3KSMC58CATG	CBN	64.4	71.2	1.0	58	2.0	32.1	93.6
3KSMC60CATG	CBO	66.7	73.7	1.0	60	2.0	31.0	96.8
3KSMC64CA TG	CBP	71.1	78.6	1.0	64	2.0	29.1	103
3KSMC70CA TG	CBQ	77.8	86.0	1.0	70	2.0	26.5	113
3KSMC75CA TG	CBR	83.3	92.1	1.0	75	2.0	24.8	121
3KSMC78CA TG	CBS	86.7	95.8	1.0	78	2.0	23.8	126

Notes

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

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

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

3000 W Surface Mount Top Glass Transient Voltage Suppressor

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

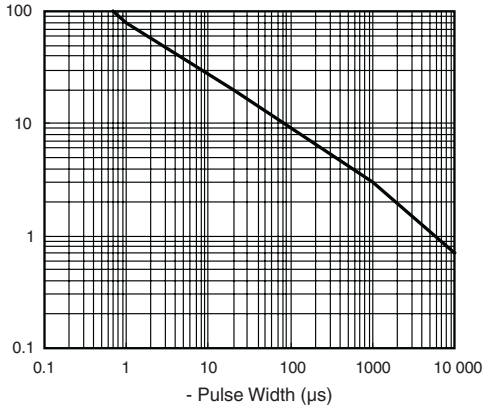


Fig. 1 - Peak Pulse Power Rating Curve

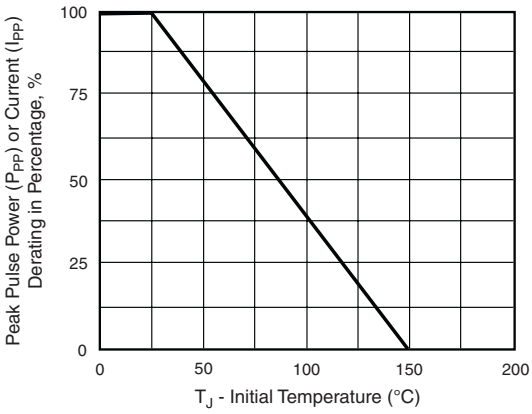


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

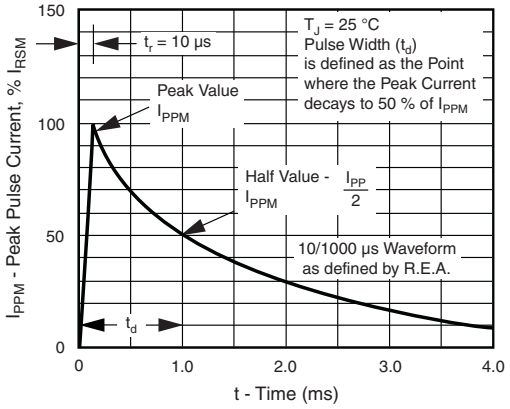


Fig. 3 - Pulse Waveform

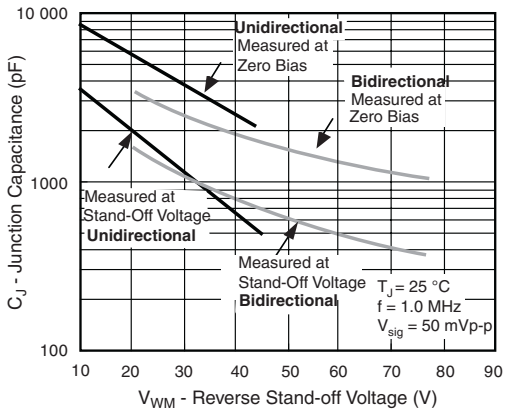


Fig. 4 - Typical Junction Capacitance

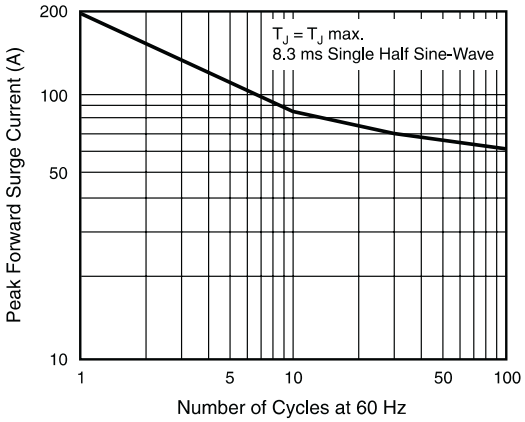


Fig. 5 - Maximum Non-Repetitive/Peak Forward Surge Current

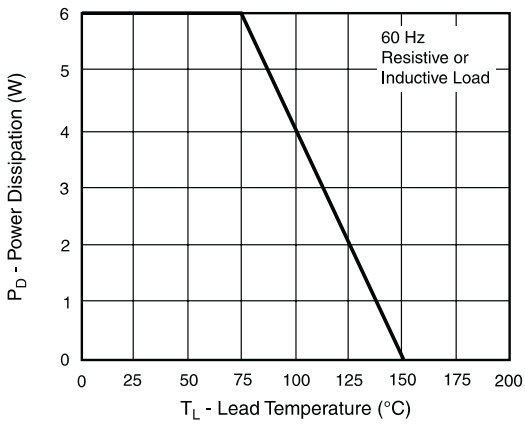


Fig. 6 - Power Derating Curve

Disclaimer

All product, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.

Fagor Electrónica, S.Coop., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Fagor"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Fagor makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Fagor disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Fagor's knowledge of typical requirements that are often placed on Fagor products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Fagor's terms and conditions of purchase, including but nos limited to the warranty expressed therein.

Except as expressly indicated in writing. Fagor products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Fagor product could result in personal injury or death. Customers using or selling Fagor products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Fagor and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attomeys fees, even if such claim alleges that Fagor or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Fagor personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Fagor, Product names and markings noted herein may be trademarks of their respective owners.