

Description

SM8S Series TVS diodes can be used in sensitive electronics protection against voltage transients induced by inductive load switching and lightning, especially for automotive load dump protection application.

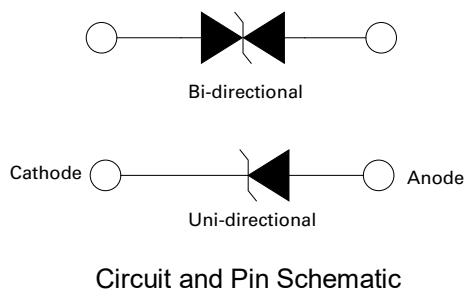
Mechanical Characteristics

- ◆ Case: DO-218AB Molding compound meets UL 94V-0 flammability rating Base
- ◆ Terminal: Matte tin plated leads, solder able per J-STD-002 and JESD 22-B102, HE3 suffix meets JESD 201 class 2 whisker tests.
- ◆ Polarity: Color band denotes cathode except Bipolar

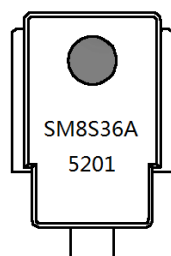
Features

- ◆ Available in uni/bi-directional polarity.
- ◆ Low forward voltage drop & Low leakage current
- ◆ High surge capability.
- ◆ Junction passivation optimized design passivated anisotropic rectifier technology.
- ◆ $T_J = 175\text{ }^\circ\text{C}$ capability suitable for high reliability and automotive requirement.
- ◆ Meets ISO7637-2 surge specification (varied by test condition).
- ◆ Meets MSL level 1, per J-STD-020, LF maximum peak of $245\text{ }^\circ\text{C}$.
- ◆ AEC-Q101 qualified.
- ◆ Compliant to ROHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Dimensions and Pin Configuration



Marking Information



SM8S36A: Part Number

5201: “5” --2015 (year)

“2” --2 (month)

“01” -- (lot)

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000us waveform	P_{pp}	6600	Watts
Peak pulse power dissipation on 10/10000us waveform		5200	Watts
Peak pulse current with 10/1000us waveform	I_{pp}	See next table	Amps
Power dissipation on infinite heat Sink at $T_C=25^\circ\text{C}$	P_D	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	700	Amps
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.9	$^\circ\text{C/Watt}$

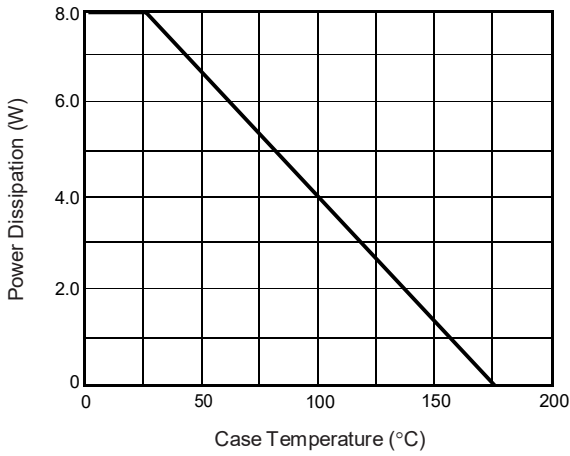
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Device Type	Breakdown Voltage $V_{(BR)}$ (V)		Test Current I_T (mA)	Stand-off Voltage V_{WM} (V)	Maximum Reverse Leakage at V_{WM} I_D (μA)	Maximum Reverse Leakage at V_{WM} $T_c = 175^\circ\text{C}$ I_D (μA)	Max. Peak Pulse Current at 10/1000 μs Waveform (A)	Maximum Clamping Voltage at I_{PPM} V_C (V)
	Min.	Max.						
SM8S10CA	11.1	13.6	5.0	10	15	250	351	18.8
SM8S10A	11.1	12.3	5.0	10	15	250	388	17.0
SM8S11CA	12.2	14.9	5.0	11	10	150	328	20.1
SM8S11A	12.2	13.5	5.0	11	10	150	363	18.2
SM8S12CA	13.3	16.3	5.0	12	10	150	300	22.0
SM8S12A	13.3	14.7	5.0	12	10	150	332	19.9
SM8S13CA	14.4	17.6	5.0	13	10	150	277	23.8
SM8S13A	14.4	15.9	5.0	13	10	150	307	21.5
SM8S14CA	15.6	19.1	5.0	14	10	150	256	25.8
SM8S14A	15.6	17.2	5.0	14	10	150	284	23.2
SM8S15CA	16.7	20.4	5.0	15	10	150	245	26.9
SM8S15A	16.7	18.5	5.0	15	10	150	270	24.4
SM8S16CA	17.8	21.8	5.0	16	10	150	229	28.8
SM8S16A	17.8	19.7	5.0	16	10	150	254	26.0
SM8S17CA	18.9	23.1	5.0	17	10	150	216	30.5
SM8S17A	18.9	20.9	5.0	17	10	150	239	27.6
SM8S18CA	20.0	24.4	5.0	18	10	150	205	32.2
SM8S18A	20.0	22.1	5.0	18	10	150	226	29.2
SM8S20CA	22.2	27.1	5.0	20	10	150	184	35.8
SM8S20A	22.2	24.5	5.0	20	10	150	204	32.4
SM8S22CA	24.4	29.8	5.0	22	10	150	168	39.4
SM8S22A	24.4	26.9	5.0	22	10	150	186	35.5
SM8S24CA	26.7	32.6	5.0	24	10	150	153	43.0
SM8S24A	26.7	29.5	5.0	24	10	150	170	38.9
SM8S26CA	28.9	35.3	5.0	26	10	150	142	46.6
SM8S26A	28.9	31.9	5.0	26	10	150	157	42.1
SM8S28CA	31.1	38.0	5.0	28	10	150	132	50.1
SM8S28A	31.1	34.4	5.0	28	10	150	145	45.4
SM8S30CA	33.3	40.7	5.0	30	10	150	123	53.5
SM8S30A	33.3	36.8	5.0	30	10	150	136	48.4
SM8S33CA	36.7	44.9	5.0	33	10	150	112	59.0
SM8S33A	36.7	40.6	5.0	33	10	150	124	53.3
SM8S36CA	40.0	48.9	5.0	36	10	150	103	64.3
SM8S36A	40.0	44.2	5.0	36	10	150	114	58.1
SM8S40CA	44.4	54.3	5.0	40	10	150	92.4	71.4
SM8S40A	44.4	49.1	5.0	40	10	150	102	64.5
SM8S43CA	47.8	58.4	5.0	43	10	150	86.0	76.7
SM8S43A	47.8	52.8	5.0	43	10	150	95.1	69.4

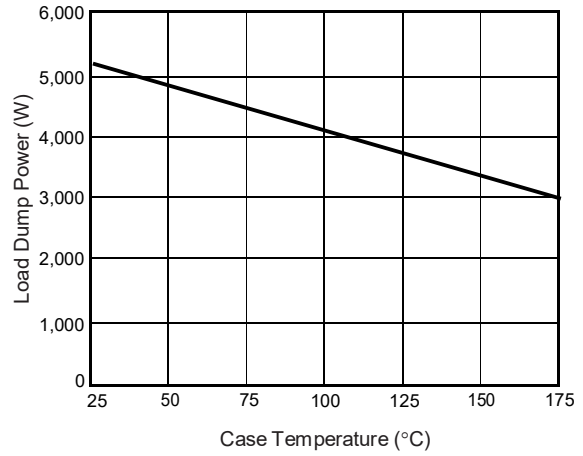
Note: For all types maximum $V_F = 1.8\text{V}$ at $I_F = 100\text{A}$ measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

Typical Performance Characteristics (TA=25°C unless otherwise Specified)

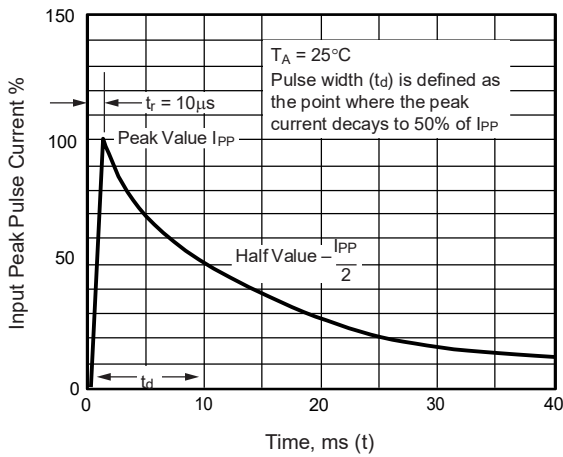
Power Derating Curve



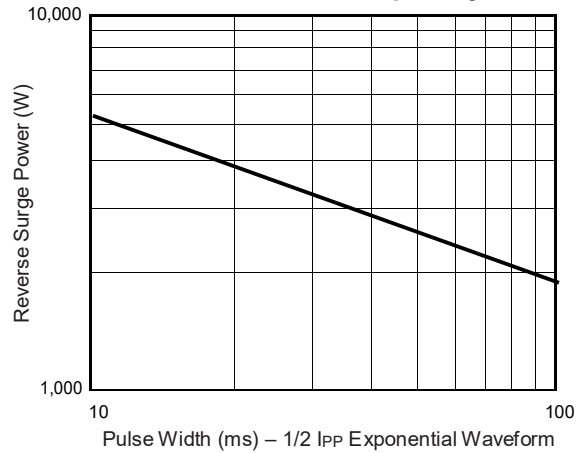
Load Dump Power Characteristics (10ms Exponential Waveform)



Pulse Waveform



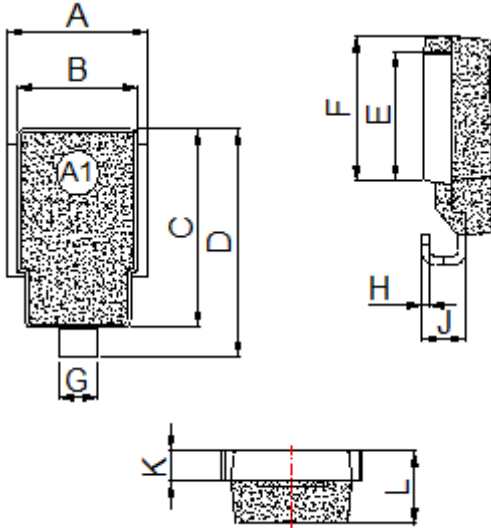
Reverse Power Capability



Typical Transient Thermal Impedance



DO-218AB Package Outline Drawing



Dimension	Inches		Millimeters	
	Min	Max	Min	Max
A	0.374	0.413	9.5	10.5
B	0.327	0.342	8.3	8.7
C	0.524	0.539	13.3	13.7
D	0.592	0.628	15.0	16.0
E	0.335	0.358	8.5	9.1
F	0.374	0.398	9.5	10.1
G	0.094	0.118	2.4	3.0
H	0.020	0.028	0.5	0.7
J	0.106	0.146	2.7	3.7
K	0.075	0.083	1.9	2.1
L	0.185	0.201	4.7	5.1

Contact Information

Changzhou D-first Electronics CO.,Ltd.

www.first-electronic.com

Email: yf@first-electronic.cn

Phone: +86 (0519) 8817 1671