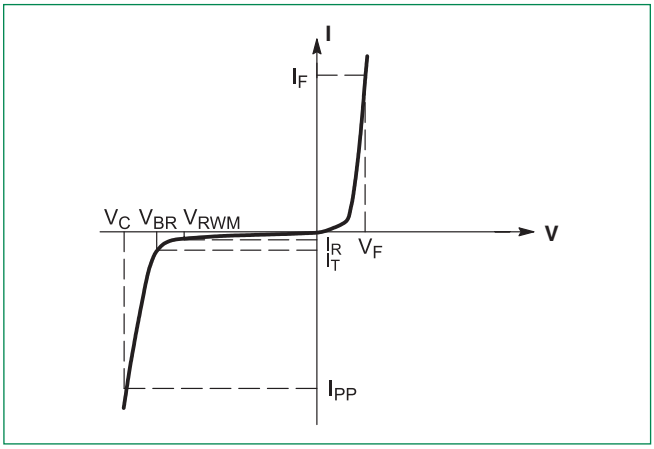
Electrical Characteristics (T_L = 30°C unless otherwise noted, V_F = 1.25 Volts @ 200 mA)

Device	Device Marking	V_{RWM}	V_{BR} @ I_T (V) (Note 6)			@ I_T	I_R @ V_{RWM}	V_C(Max)	I_{PP}(Max) (A)
		V	Min	Nom	Max	mA	(µA)	(V)	(Note 7)
SZSMF5.0AT1G	KE	5	6.40	6.70	7.00	10	400	9.2	21.7
SZSMF6.0AT1G	KG	6	6.67	7.02	7.37	10	400	10.3	19.4
SZSMF6.5AT1G	KK	6.5	7.22	7.60	7.98	10	250	11.2	17.9
SZSMF7.0AT1G	KM	7	7.78	8.19	8.60	10	100	12	16.7
SZSMF7.5AT1G	KP	7.5	8.33	8.77	9.21	1	50	12.9	15.5
SZSMF8.0AT1G	KR	8	8.89	9.36	9.83	1	25	13.6	14.7
SZSMF9.0AT1G	KV	9	10.00	10.55	11.10	1	5	15.4	13.0
SZSMF10AT1G	KX	10	11.10	11.70	12.30	1	2.5	17	11.8
SZSMF11AT1G	KZ	11	12.20	12.85	13.50	1	2.5	18.2	11.0
SZSMF12AT1G	LE	12	13.30	14.00	14.70	1	2.5	19.9	10.1
SZSMF13AT1G	LG	13	14.40	15.15	15.90	1	1	21.5	9.3
SZSMF14AT1G	LK	14	15.60	16.40	17.20	1	1	23.2	8.6
SZSMF15AT1G	LM	15	16.70	17.60	18.50	1	1	24.4	8.2
SZSMF18AT1G	LT	18	20.00	21.00	22.10	1	1	29.2	6.8
SZSMF20AT1G	LV	20	22.20	23.35	24.50	1	1	32.4	6.2
SZSMF22AT1G	LX	22	24.40	25.60	26.90	1	1	35.5	5.6
SZSMF24AT1G	LZ	24	26.70	28.10	29.50	1	1	38.9	5.1
SZSMF26AT1G	ME	26	28.90	30.40	31.90	1	1	42.1	4.8
SZSMF28AT1G	MG	28	31.10	32.80	34.40	1	1	45.4	4.4
SZSMF30AT1G	MK	30	33.30	35.10	36.80	1	1	48.4	4.1
SZSMF33AT1G	MM	33	36.70	38.70	40.60	1	1	53.3	3.8
SZSMF36AT1G	MP	36	40.00	42.10	44.20	1	1	58.1	3.4
SZSMF48AT1G	MX	48	53.30	56.10	58.90	1	1	77.4	2.6
SZSMF58AT1G	NG	58	64.40	67.80	71.20	1	1	93.6	2.1

5. A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
6. V_{BR} measured at pulse test current I_T at ambient temperature of 25°C.
7. Surge current waveform per Figure 2 and derate per Figure 3.

I-V Curve Characteristics (T_A = 25°C unless otherwise noted, V_F = 3.5 V Max. @ I_F (Note 4) = 12 A)



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F

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Ratings and Characteristic Curves

Figure 1. Pulse Rating Curve

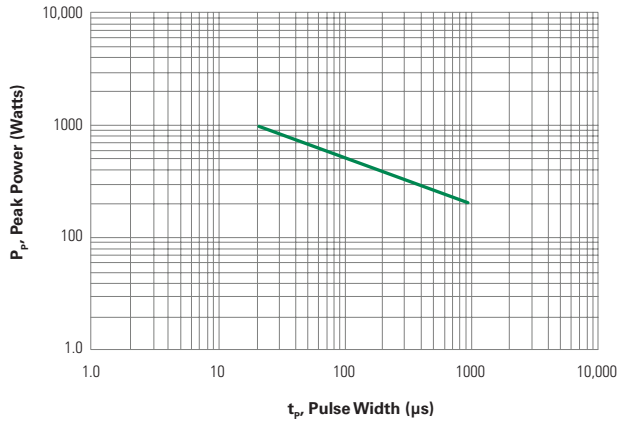

Figure 2. 10/1000 µs Pulse Waveform

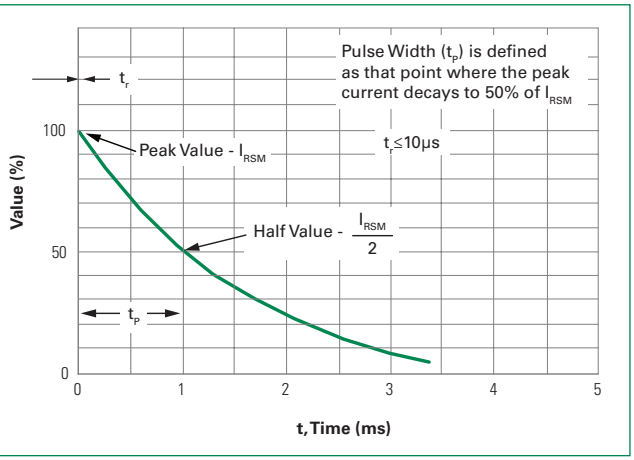

Figure 3. 8/20 µs Pulse Waveform

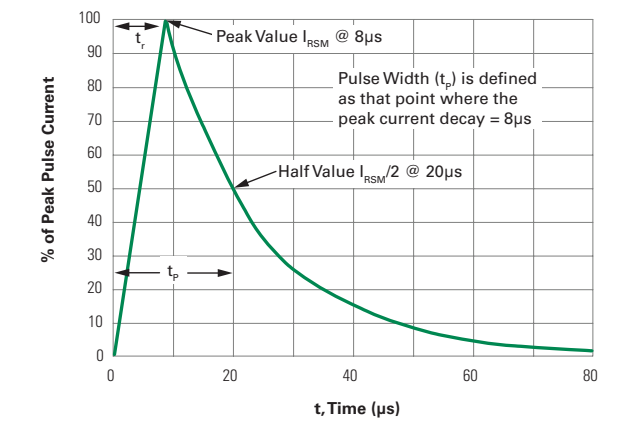

Figure 4. Surge Derating Curve

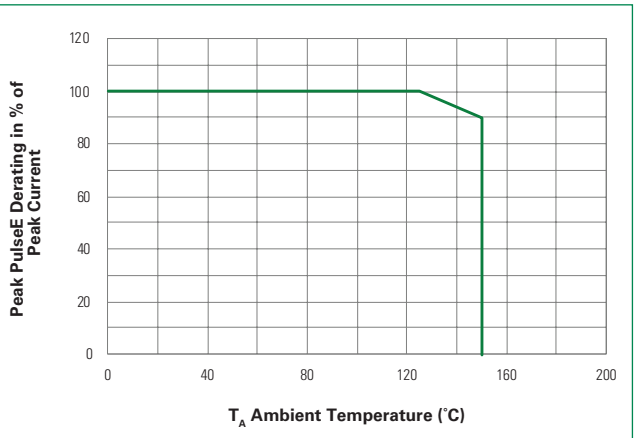

Figure 5. Typical Derating Factor for Duty Cycle

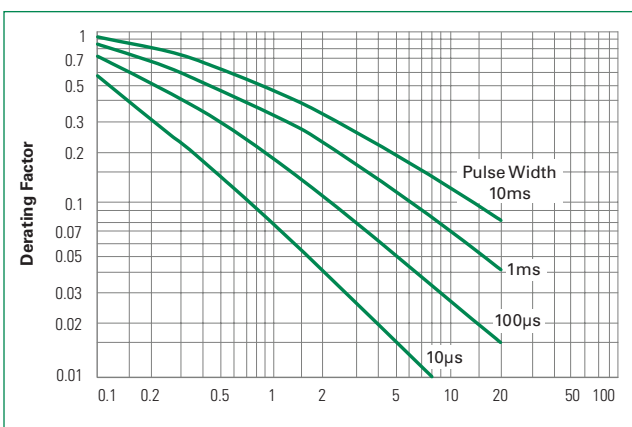

Figure 6. Steady State Power Derating

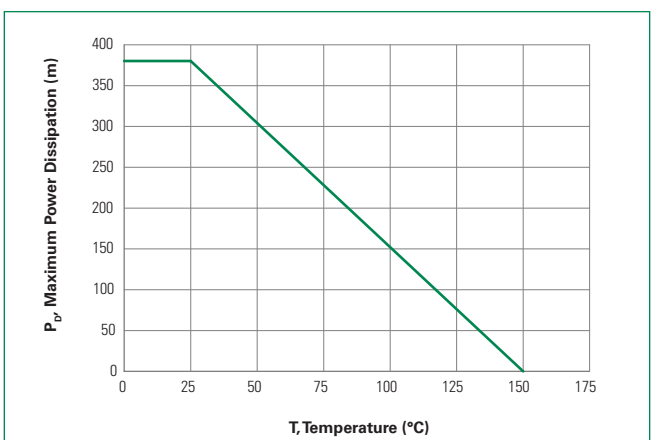

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Figure 7. Forward Voltage

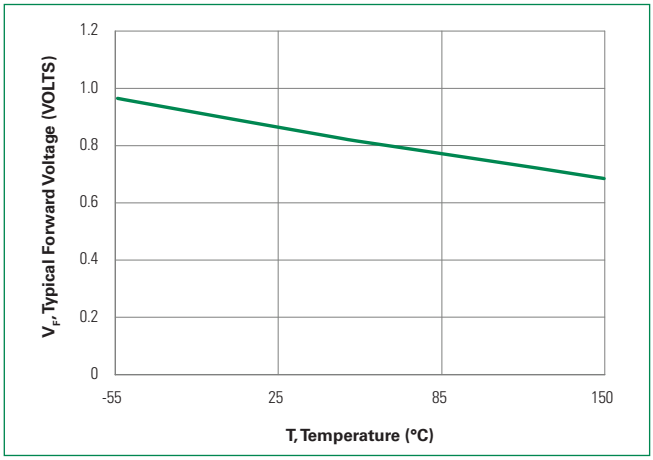
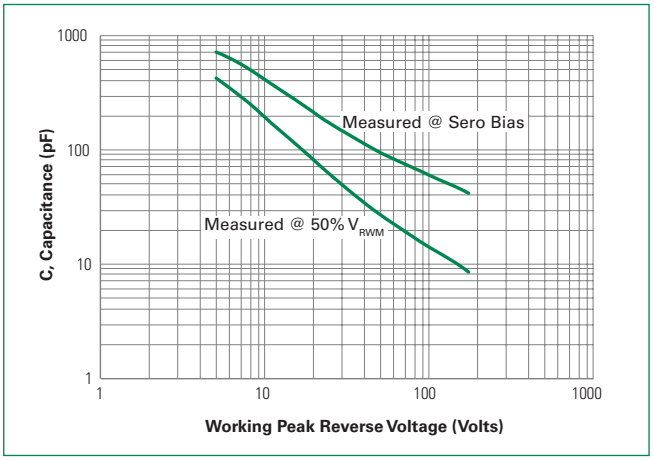
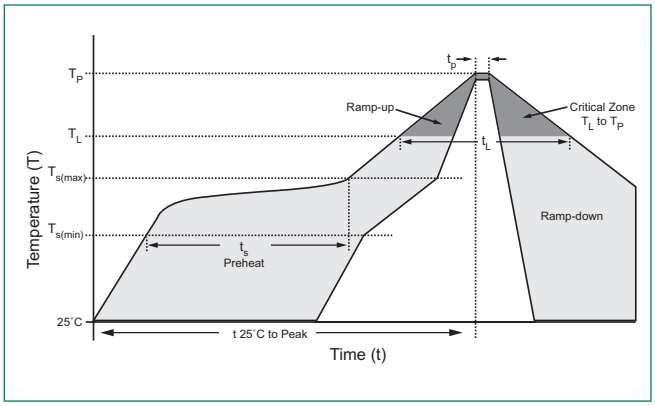


Figure 8. Capacitance vs. Working Peak Reverse Voltage



Soldering Parameters

Reflow Condition		Lead–free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 120 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		30 seconds max
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		260°C



Physical Specifications

Weight	0.004 ounce ,0.0116 grams
Case	JEDEC SOD–123FL. Void-free, transfer-molded, thermosetting plastic epoxy meets UL 94V-0
Polarity	Color band denotes positive end (cathode) except Bidirectional.
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102

Environmental Specifications

High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Temperature Cycling	JESD22-A104
MSL	JEDEC-J-STD-020, Level 1
H3TRB	JESD22-A101
RSH	JESD22-A111

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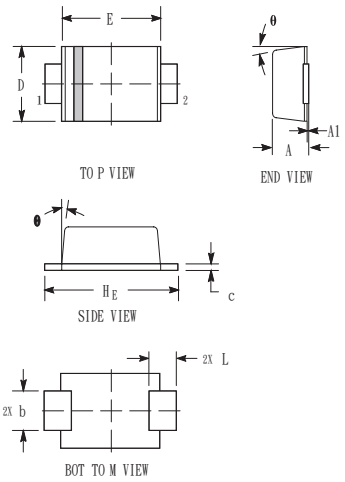
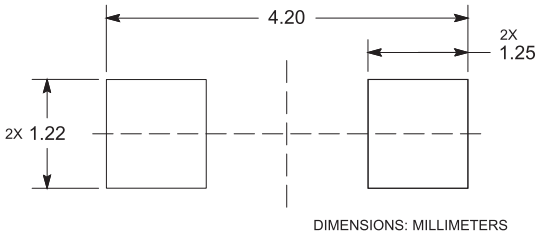
Dimensions



Dim	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	0.90	0.95	0.98	0.035	0.037	0.039
A1	0.00	0.05	0.10	0.000	0.002	0.004
b	0.70	0.90	1.10	0.028	0.035	0.043
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.50	1.65	1.80	0.059	0.065	0.071
E	2.50	2.70	2.90	0.098	0.106	0.114
L	0.55	0.75	0.95	0.022	0.030	0.037
H_E	3.40	3.60	3.80	0.134	0.142	0.150
θ	0°	–	8°	0°	–	8°

Soldering Footprint

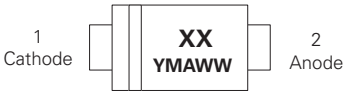


DIMENSIONS: MILLIMETERS

Ordering Information

Device	Package	Shipping
SZSMFxxxAT1G	SOD–123FL (Pb–Free)	3,000 / Tape & Reel

Part Marking System



XX =Device Code
Y =Year
M =Month
A =Assembly Location
WW =Lot Code

Part Numbering System

SZ SMF xx A T1 G

- **G** — Pb Free Plating
- **T1** — Tape/Reel Designator
- **A** — Type Code, A Uni Directional TVS
- **xx** — V_R VOLTAGE
- **SMF** — SMFTVS
- **SZ** — Zener Automotive

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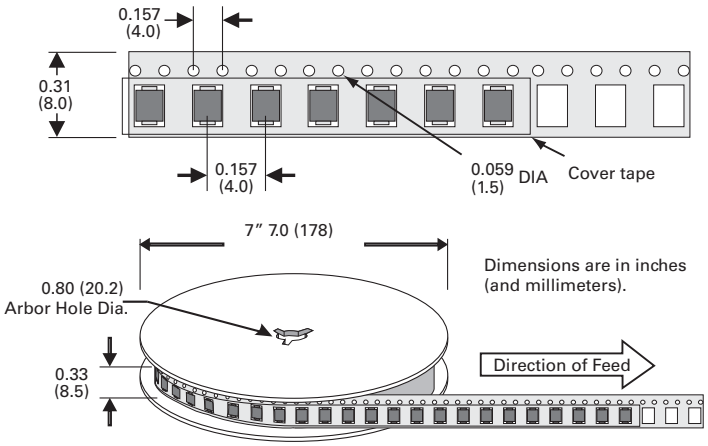
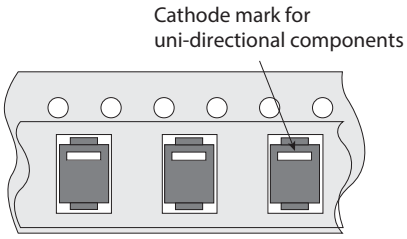
Tape and Reel Specification





Mouser Electronics

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Littelfuse:

SZSMF13AT1G SZSMF33AT1G SZSMF6.0AT1G SZSMF36AT1G SZSMF20AT1G SZSMF8.0AT1G SZSMF24AT1G SZSMF10AT1G SZSMF6.5AT1G SZSMF5.0AT1G SZSMF14AT1G SZSMF30AT1G SZSMF58AT1G SZSMF7.5AT1G SZSMF15AT1G SZSMF48AT1G SZSMF22AT1G SZSMF28AT1G SZSMF11AT1G SZSMF12AT1G SZSMF7.0AT1G SZSMF9.0AT1G SZSMF18AT1G SZSMF26AT1G