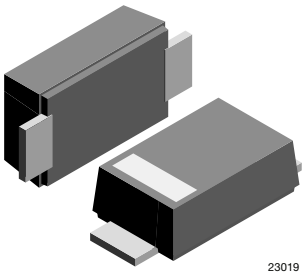
S1FLB-M, S1FLD-M, S1FLG-M, S1FLJ-M, S1FLK-M, S1FLM-M

Standard Recovery Rectifier, High Voltage Surface Mount

eSMP® Series



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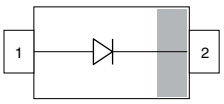

23020

SMF (DO-219AB)

FEATURES

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- Glass passivated
- High temperature soldering: 260 °C / 10 s at terminals
- Wave and reflow solderable
- Compatible to SOD-123W package case outline or SOD-123F and SOD-123FL
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT HALOGEN FREE

MECHANICAL DATA

Case: SMF (DO-219AB)
Polarity: band denotes cathode end
Weight: approx. 15 mg
Packaging codes / options:
18/10K per 13" reel (8 mm tape), MOQ = 50K
08/3K per 7" reel (8 mm tape), MOQ = 30K
Circuit configuration: single

LINKS TO ADDITIONAL RESOURCES

3D Models

PARTS TABLE

PART	ORDERING CODE	MARKING	REMARKS
S1FLB-M	S1FLB-M-18 or S1FLB-M-08	HB	Tape and reel
S1FLD-M	S1FLD-M-18 or S1FLD-M-08	HD	Tape and reel
S1FLG-M	S1FLG-M-18 or S1FLG-M-08	HG	Tape and reel
S1FLJ-M	S1FLJ-M-18 or S1FLJ-M-08	HJ	Tape and reel
S1FLK-M	S1FLK-M-18 or S1FLK-M-08	HK	Tape and reel
S1FLM-M	S1FLM-M-18 or S1FLM-M-08	HM	Tape and reel

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		S1FLB-M	V_{RRM}	100	V
		S1FLD-M	V_{RRM}	200	V
		S1FLG-M	V_{RRM}	400	V
		S1FLJ-M	V_{RRM}	600	V
		S1FLK-M	V_{RRM}	800	V
		S1FLM-M	V_{RRM}	1000	V
Maximum RMS voltage		S1FLB-M	V_{RMS}	70	V
		S1FLD-M	V_{RMS}	140	V
		S1FLG-M	V_{RMS}	280	V
		S1FLJ-M	V_{RMS}	420	V
		S1FLK-M	V_{RMS}	560	V
		S1FLM-M	V_{RMS}	700	V

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ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)					
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**VALUE**	**UNIT**
Maximum DC blocking voltage		S1FLB-M	V_{DC}	100	V
		S1FLD-M	V_{DC}	200	V
		S1FLG-M	V_{DC}	400	V
		S1FLJ-M	V_{DC}	600	V
		S1FLK-M	V_{DC}	800	V
		S1FLM-M	V_{DC}	1000	V
Maximum average forward rectified current	T_L = 75 °C (1)		$I_{F(AV)}$	1.5	A
	T_A = 25 °C (1) at R_{thJA} < 110 K/W		$I_{F(AV)}$	1	A
	T_A = 65 °C (1)		$I_{F(AV)}$	0.7	A
Peak forward surge current 8.3 ms half sine-wave	T_L = 25 °C		I_{FSM}	22	A

Note

(1) Averaged over any 20 ms period

THERMAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Thermal resistance junction to ambient air (1)		R_{thJA}	180	K/W
Operating junction and storage temperature range		T_j, T_{stg}	-55 to +150	°C

Note

(1) Mounted on epoxy substrate with 3 mm x 3 mm Cu pads (≥ 40 µm thick)

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	1 A (1)	S1FLB-M	V_F			1.1	V
		S1FLD-M	V_F			1.1	V
		S1FLG-M	V_F			1.1	V
		S1FLJ-M	V_F			1.1	V
		S1FLK-M	V_F			1.1	V
		S1FLM-M	V_F			1.1	V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C	S1FLB-M	I_R			10	µA
		S1FLD-M	I_R			10	µA
		S1FLG-M	I_R			10	µA
		S1FLJ-M	I_R			10	µA
		S1FLK-M	I_R			10	µA
		S1FLM-M	I_R			10	µA
	T_A = 125 °C	S1FLB-M	I_R			50	µA
		S1FLD-M	I_R			50	µA
		S1FLG-M	I_R			50	µA
		S1FLJ-M	I_R			50	µA
		S1FLK-M	I_R			50	µA
		S1FLM-M	I_R			50	µA

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Reverse recovery time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	S1FLB-M	t_{rr}			1800	ns
		S1FLD-M	t_{rr}			1800	ns
		S1FLG-M	t_{rr}			1800	ns
		S1FLJ-M	t_{rr}			1800	ns
		S1FLK-M	t_{rr}			1800	ns
		S1FLM-M	t_{rr}			1800	ns
Typical capacitance	4 V, 1 MHz	S1FLB-M	C_j		4		pF
		S1FLD-M	C_j		4		pF
		S1FLG-M	C_j		4		pF
		S1FLJ-M	C_j		4		pF
		S1FLK-M	C_j		4		pF
		S1FLM-M	C_j		4		pF

Note

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

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TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

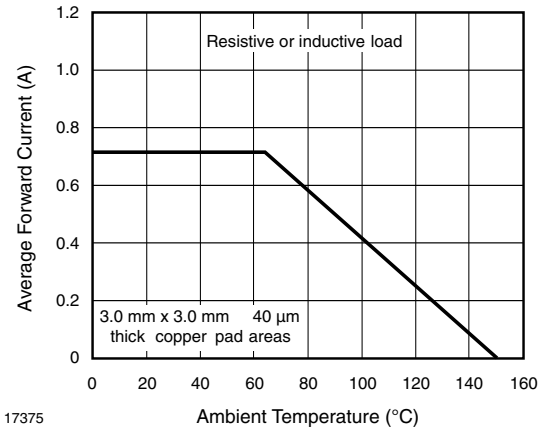

Fig. 1 - Forward Current Derating Curve

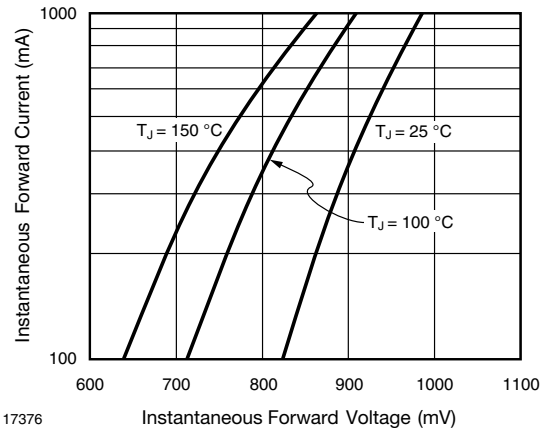

Fig. 2 - Typical Instantaneous Forward Characteristics

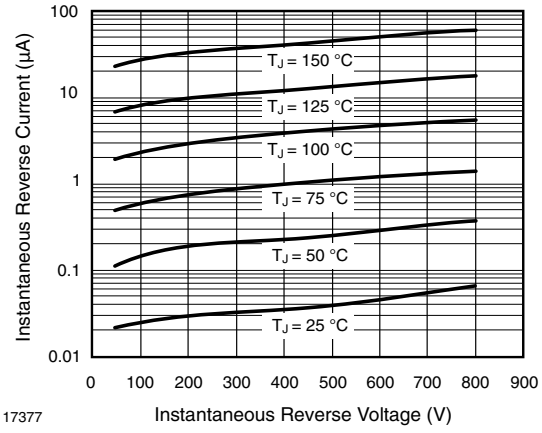

Fig. 3 - Typical Instantaneous Reverse Characteristics

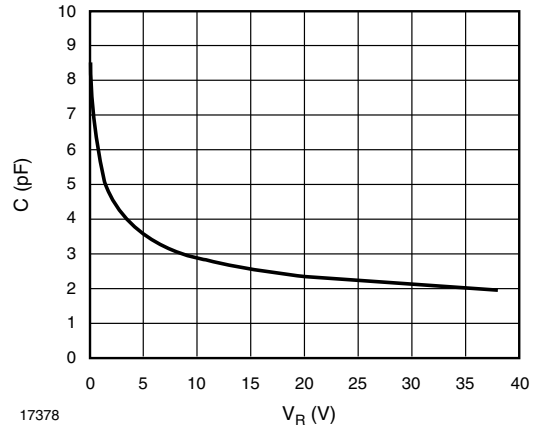

Fig. 4 - Capacitance vs. Reverse Voltage

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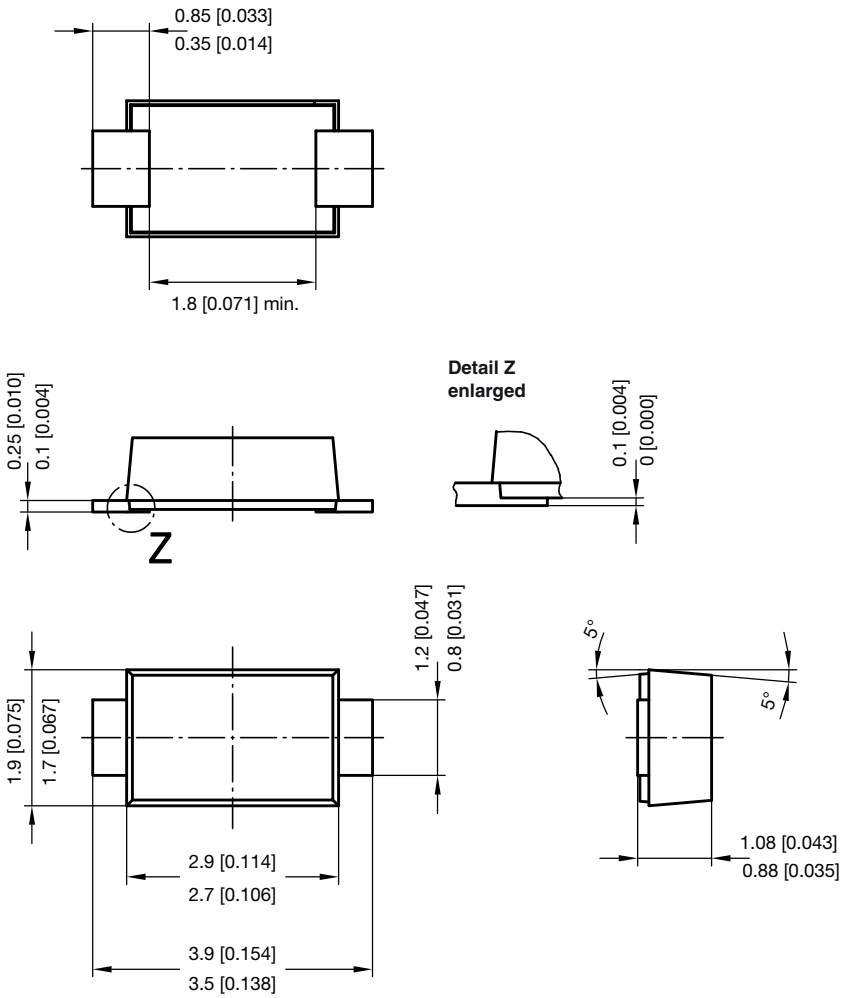
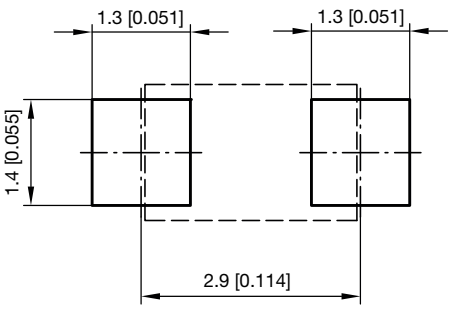
PACKAGE DIMENSIONS in millimeters (inches): **SMF (DO-219AB)**



foot print recommendation:

Reflow soldering



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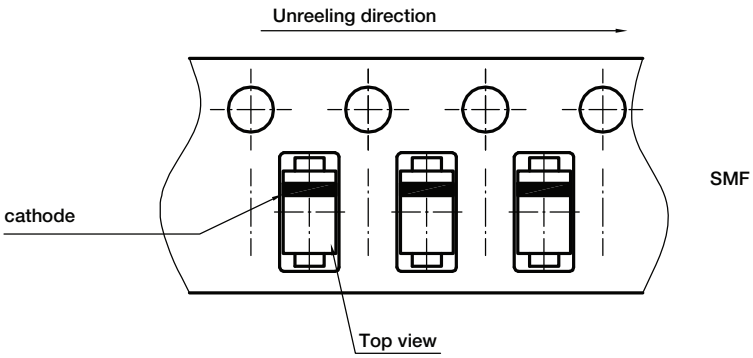
ORIENTATION IN CARRIER TAPE - SMF (DO-219AB)



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