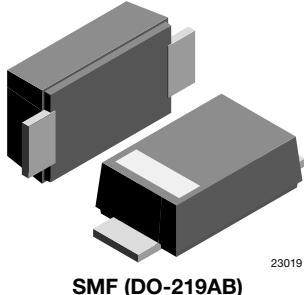
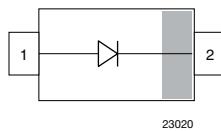


# Standard Recovery Rectifier, High Voltage Surface Mount

## eSMP® Series



23019



23020

## 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](http://www.vishay.com/doc?99912)



**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<sub>amb</sub> = 25 °C, unless otherwise specified)

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

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , 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	$T_L = 75 \text{ }^{\circ}\text{C}$ (1)		$I_{F(AV)}$	1.5	A
	$T_A = 25 \text{ }^{\circ}\text{C}$ (1) at $R_{thJA} < 110 \text{ K/W}$		$I_{F(AV)}$	1	A
	$T_A = 65 \text{ }^{\circ}\text{C}$ (1)		$I_{F(AV)}$	0.7	A
Peak forward surge current 8.3 ms half sine-wave	$T_L = 25 \text{ }^{\circ}\text{C}$		$I_{FSM}$	22	A

**Note**

(1) Averaged over any 20 ms period

**THERMAL CHARACTERISTICS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , 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	$^{\circ}\text{C}$

**Note**

(1) Mounted on epoxy substrate with 3 mm x 3 mm Cu pads ( $\geq 40 \mu\text{m}$  thick)

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , unless otherwise specified)

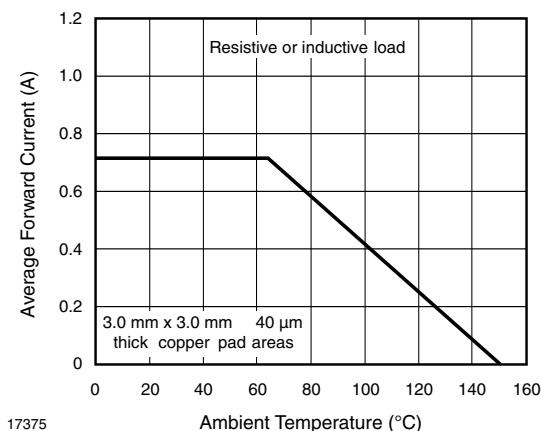
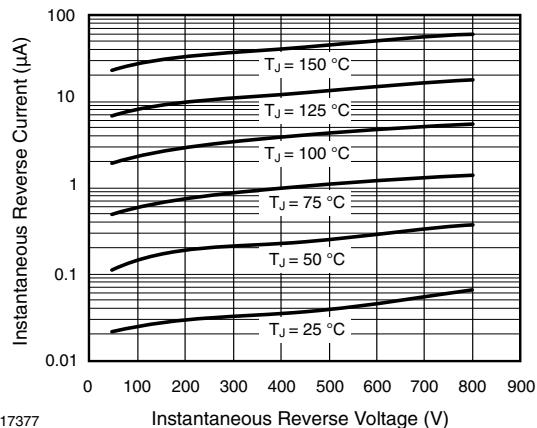
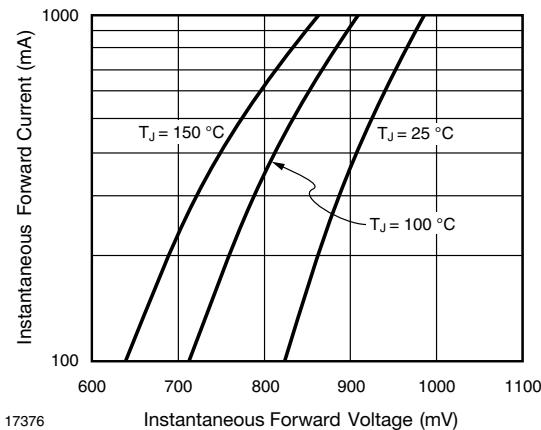
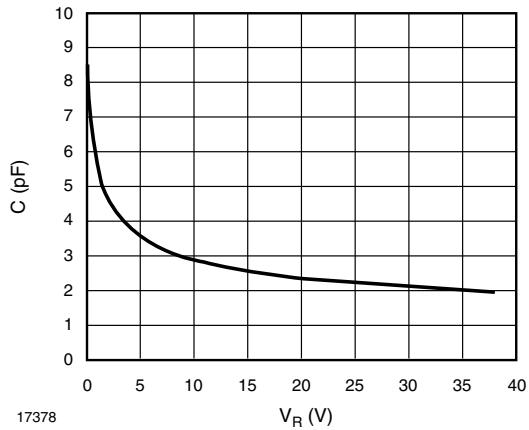
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Instantaneous forward voltage	1 A (1)	S1FLB-M	$V_F$			1.1	V
		S1FLD-M	$V_F$			1.1	V
		S1FLG-M	$V_F$			1.1	V
		S1FLJ-M	$V_F$			1.1	V
		S1FLK-M	$V_F$			1.1	V
		S1FLM-M	$V_F$			1.1	V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25 \text{ }^{\circ}\text{C}$	S1FLB-M	$I_R$			10	$\mu\text{A}$
		S1FLD-M	$I_R$			10	$\mu\text{A}$
		S1FLG-M	$I_R$			10	$\mu\text{A}$
		S1FLJ-M	$I_R$			10	$\mu\text{A}$
		S1FLK-M	$I_R$			10	$\mu\text{A}$
		S1FLM-M	$I_R$			10	$\mu\text{A}$
	$T_A = 125 \text{ }^{\circ}\text{C}$	S1FLB-M	$I_R$			50	$\mu\text{A}$
		S1FLD-M	$I_R$			50	$\mu\text{A}$
		S1FLG-M	$I_R$			50	$\mu\text{A}$
		S1FLJ-M	$I_R$			50	$\mu\text{A}$
		S1FLK-M	$I_R$			50	$\mu\text{A}$
		S1FLM-M	$I_R$			50	$\mu\text{A}$

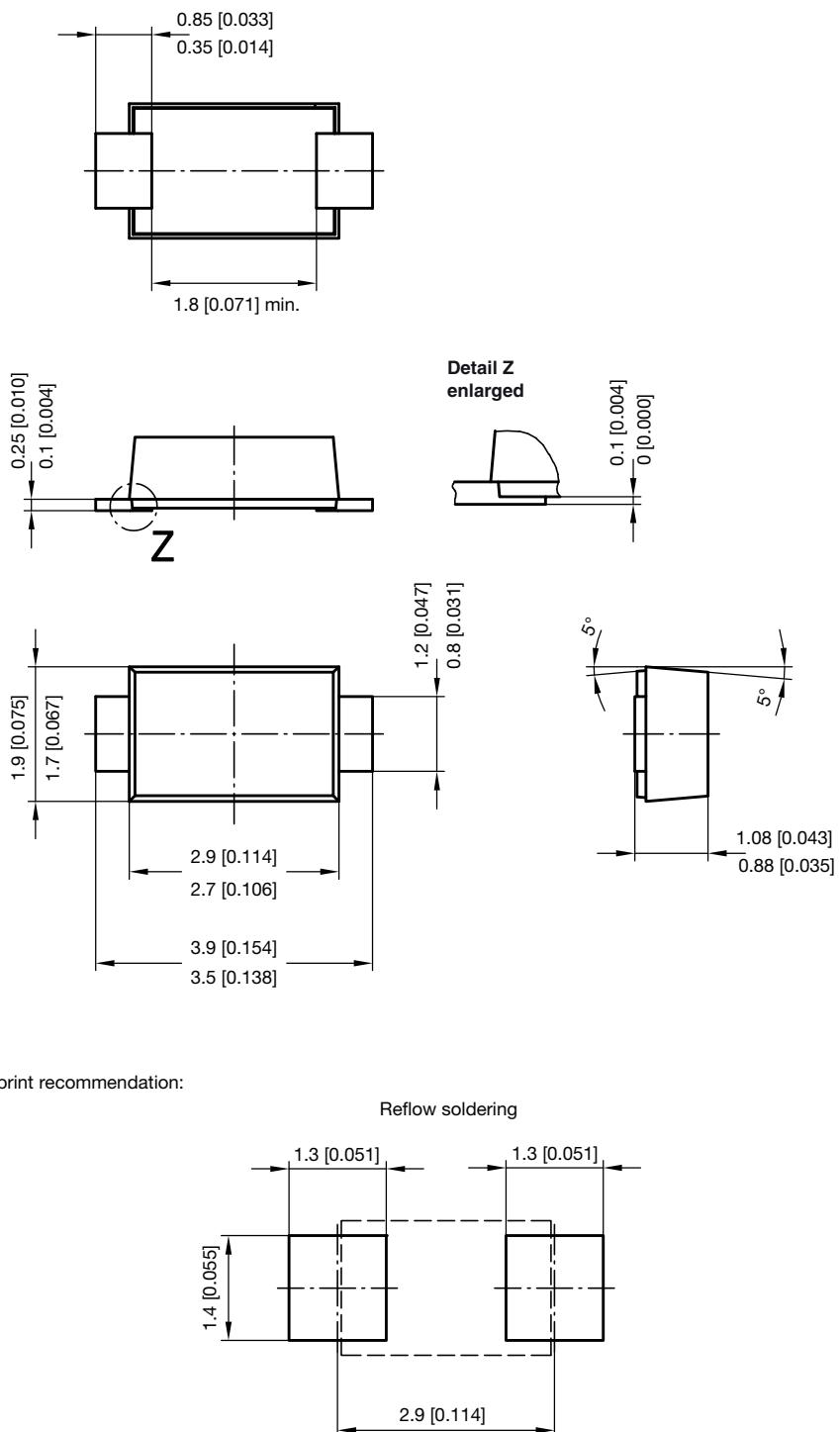
**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^\circ C$ , unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$	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**

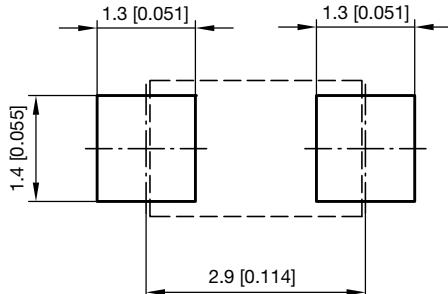
<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , unless otherwise specified)

**Fig. 1 - Forward Current Derating Curve**

**Fig. 3 - Typical Instantaneous Reverse Characteristics**

**Fig. 2 - Typical Instantaneous Forward Characteristics**

**Fig. 4 - Capacitance vs. Reverse Voltage**

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


foot print recommendation:

Reflow soldering

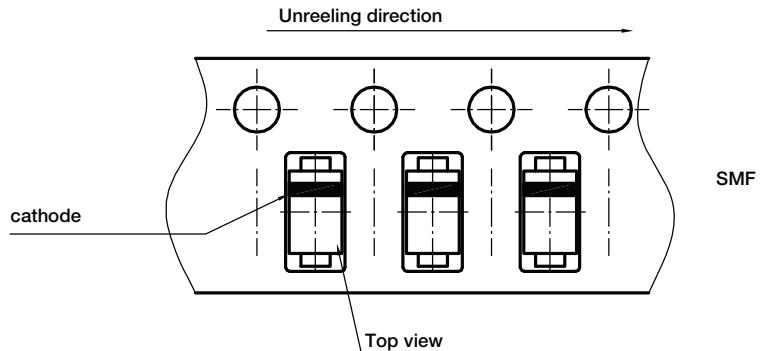


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**ORIENTATION IN CARRIER TAPE - SMF (DO-219AB)**

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22670

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