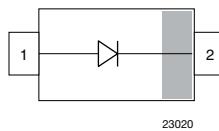
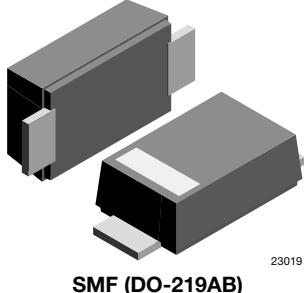


## Standard Recovery Rectifier, High Voltage Surface-Mount

### eSMP® Series



23020

SMF (DO-219AB)

23019

### 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

### LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

### MECHANICAL DATA

**Case:** SMF (DO-219AB)

**Polarity:** band denotes cathode end

**Weight:** approx. 15 mg

**Packaging codes / options:**

GS18/10K per 13" reel (8 mm tape), MOQ = 50K

GS08/3K per 7" reel (8 mm tape), MOQ = 30K

**Circuit configuration:** single

### PARTS TABLE

PART	ORDERING CODE	MARKING	REMARKS
S1FLB	S1FLB-GS18 or S1FLB-GS08	FB	Tape and reel
S1FLD	S1FLD-GS18 or S1FLD-GS08	FD	Tape and reel
S1FLG	S1FLG-GS18 or S1FLG-GS08	FG	Tape and reel
S1FLJ	S1FLJ-GS18 or S1FLJ-GS08	FJ	Tape and reel
S1FLK	S1FLK-GS18 or S1FLK-GS08	FK	Tape and reel
S1FLM	S1FLM-GS18 or S1FLM-GS08	FM	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	V <sub>RRM</sub>	100	V
		S1FLD	V <sub>RRM</sub>	200	V
		S1FLG	V <sub>RRM</sub>	400	V
		S1FLJ	V <sub>RRM</sub>	600	V
		S1FLK	V <sub>RRM</sub>	800	V
		S1FLM	V <sub>RRM</sub>	1000	V
Maximum RMS voltage		S1FLB	V <sub>RMS</sub>	70	V
		S1FLD	V <sub>RMS</sub>	140	V
		S1FLG	V <sub>RMS</sub>	280	V
		S1FLJ	V <sub>RMS</sub>	420	V
		S1FLK	V <sub>RMS</sub>	560	V
		S1FLM	V <sub>RMS</sub>	700	V
Maximum DC blocking voltage		S1FLB	V <sub>DC</sub>	100	V
		S1FLD	V <sub>DC</sub>	200	V
		S1FLG	V <sub>DC</sub>	400	V
		S1FLJ	V <sub>DC</sub>	600	V
		S1FLK	V <sub>DC</sub>	800	V
		S1FLM	V <sub>DC</sub>	1000	V
Maximum average forward rectified current	T <sub>L</sub> = 75 °C		I <sub>F(AV)</sub>	1.5	A
	T <sub>A</sub> = 65 °C <sup>(1)</sup>		I <sub>F(AV)</sub>	0.7	A
Peak forward surge current 8.3 ms single half sine-wave	T <sub>L</sub> = 25 °C		I <sub>FSM</sub>	22	A

**Note**
<sup>(1)</sup> 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 <sup>(1)</sup>		$R_{thJA}$	180	K/W
Operating junction and storage temperature range		$T_j, T_{stg}$	-55 to +150	°C

**Note**

<sup>(1)</sup> 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
Maximum instantaneous forward voltage	1 A <sup>(1)</sup>	S1FLB	$V_F$			1.1	V
		S1FLD	$V_F$			1.1	V
		S1FLG	$V_F$			1.1	V
		S1FLJ	$V_F$			1.1	V
		S1FLK	$V_F$			1.1	V
		S1FLM	$V_F$			1.1	V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25 \text{ }^{\circ}\text{C}$	S1FLB	$I_R$		10	$\mu\text{A}$	
		S1FLD	$I_R$		10	$\mu\text{A}$	
		S1FLG	$I_R$		10	$\mu\text{A}$	
		S1FLJ	$I_R$		10	$\mu\text{A}$	
		S1FLK	$I_R$		10	$\mu\text{A}$	
		S1FLM	$I_R$		10	$\mu\text{A}$	
	$T_A = 125 \text{ }^{\circ}\text{C}$	S1FLB	$I_R$		50	$\mu\text{A}$	
		S1FLD	$I_R$		50	$\mu\text{A}$	
		S1FLG	$I_R$		50	$\mu\text{A}$	
		S1FLJ	$I_R$		50	$\mu\text{A}$	
		S1FLK	$I_R$		50	$\mu\text{A}$	
		S1FLM	$I_R$		50	$\mu\text{A}$	
Reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$	S1FLB	$t_{rr}$		1800	ns	
		S1FLD	$t_{rr}$		1800	ns	
		S1FLG	$t_{rr}$		1800	ns	
		S1FLJ	$t_{rr}$		1800	ns	
		S1FLK	$t_{rr}$		1800	ns	
		S1FLM	$t_{rr}$		1800	ns	
Typical capacitance	4 V, 1 MHz	S1FLB	$C_j$		4	$\text{pF}$	
		S1FLD	$C_j$		4	$\text{pF}$	
		S1FLG	$C_j$		4	$\text{pF}$	
		S1FLJ	$C_j$		4	$\text{pF}$	
		S1FLK	$C_j$		4	$\text{pF}$	
		S1FLM	$C_j$		4	$\text{pF}$	

**Note**

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

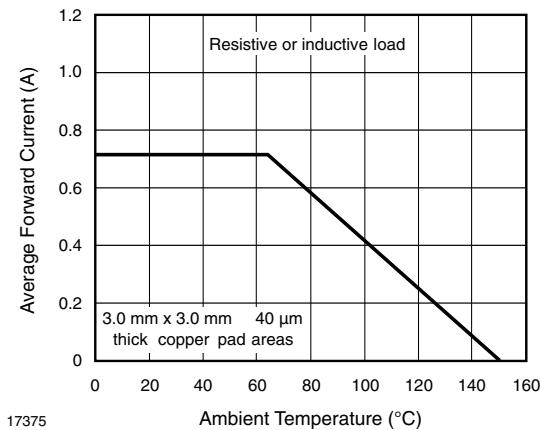
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25 \text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current Derating Curve

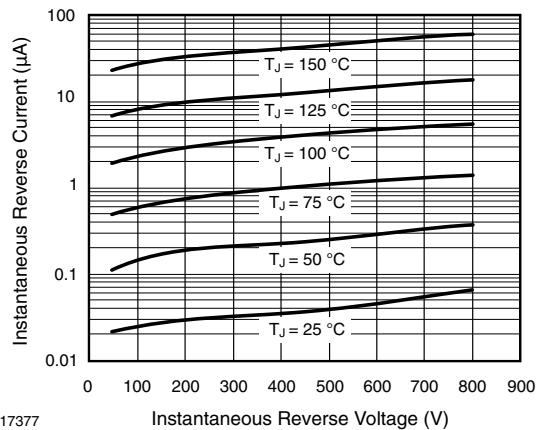


Fig. 3 - Typical Instantaneous Reverse Characteristics

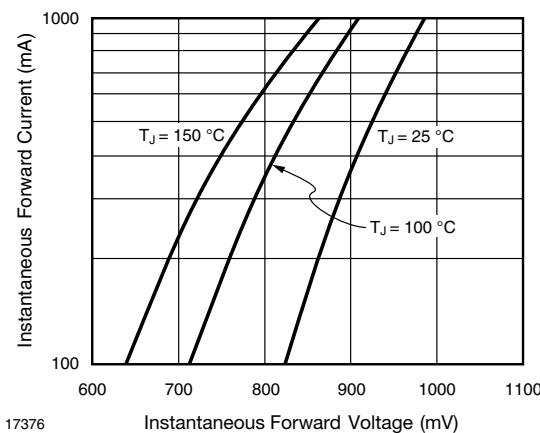


Fig. 2 - Typical Instantaneous Forward Characteristics

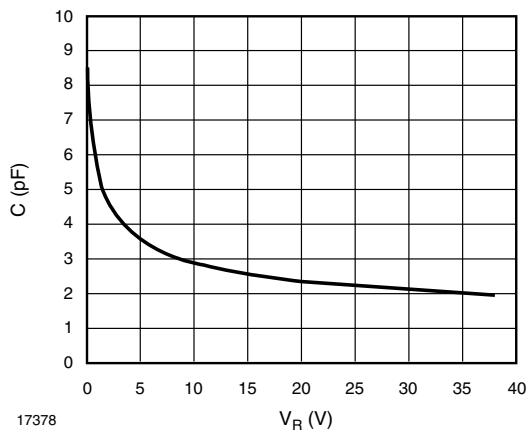
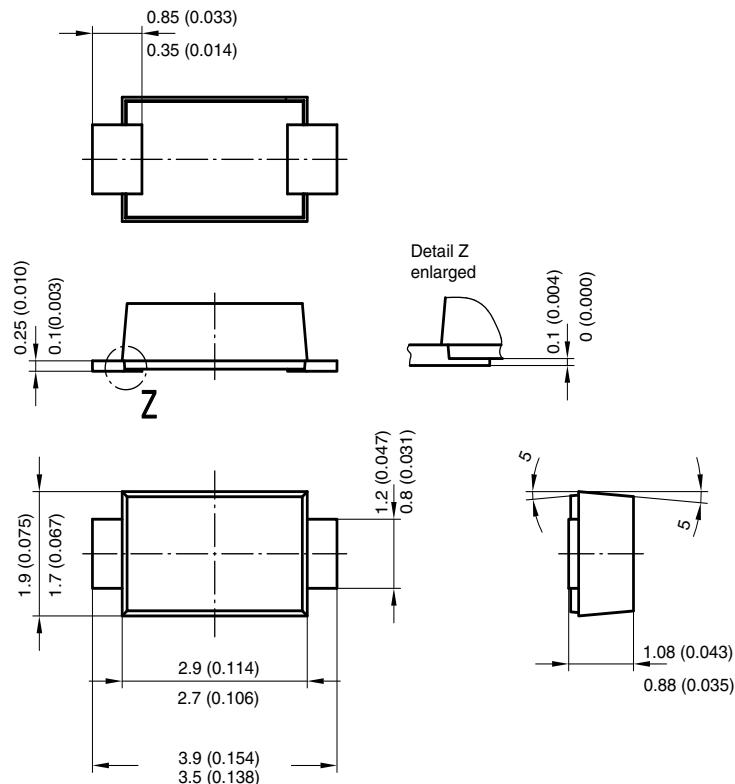
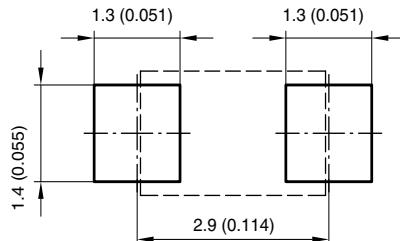


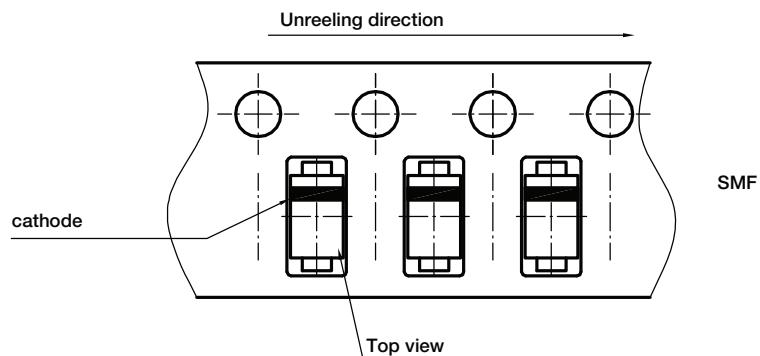
Fig. 4 - Capacitance vs. Reverse Voltage

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


Foot print recommendation:



Created - Date: 15. February 2005  
 Rev. 3 - Date: 13. March 2007  
 Document no.: S8-V-3915.01-001 (4)  
 17247

**ORIENTATION IN CARRIER TAPE - SMF**


Document no.: S8-V-3717.02-003 (4)  
 Created - Date: 09. Feb. 2010  
 22670

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