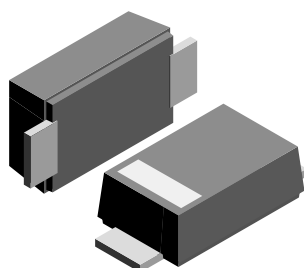


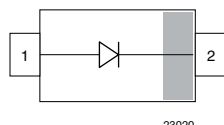


## Standard Recovery Rectifier, High Voltage Surface Mount

### eSMP® Series



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](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



### 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	$T_L = 75\text{ }^{\circ}\text{C}$ <sup>(1)</sup>		$I_{F(AV)}$	1.5	A
	$T_A = 25\text{ }^{\circ}\text{C}$ <sup>(1)</sup> at $R_{thJA} < 110\text{ K/W}$		$I_{F(AV)}$	1	A
	$T_A = 65\text{ }^{\circ}\text{C}$ <sup>(1)</sup>		$I_{F(AV)}$	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**
<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	$^{\circ}\text{C}$

**Note**
<sup>(1)</sup> Mounted on epoxy substrate with 3 mm x 3 mm Cu pads ( $\geq 40\text{ }\mu\text{m}$  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	$1\text{ A}$ <sup>(1)</sup>	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	$\mu\text{A}$



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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**

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



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

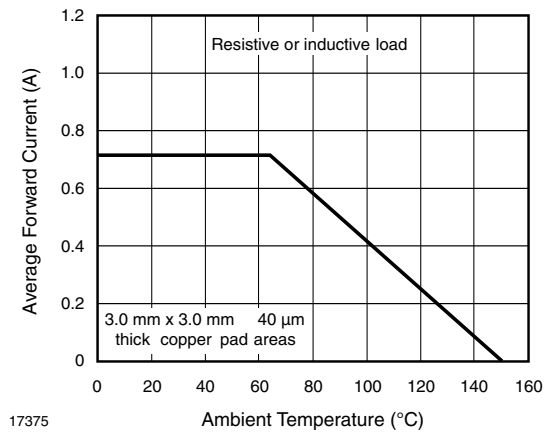


Fig. 1 - Forward Current Derating Curve

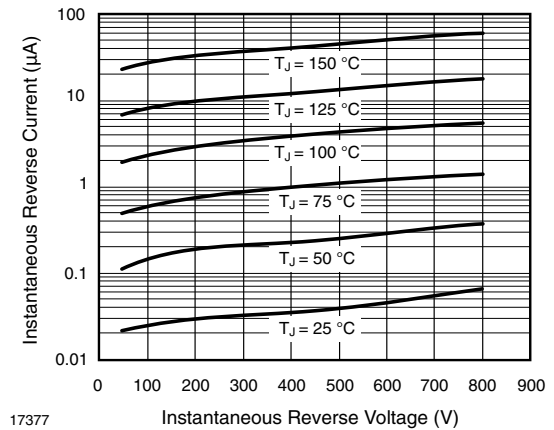


Fig. 3 - Typical Instantaneous Reverse Characteristics

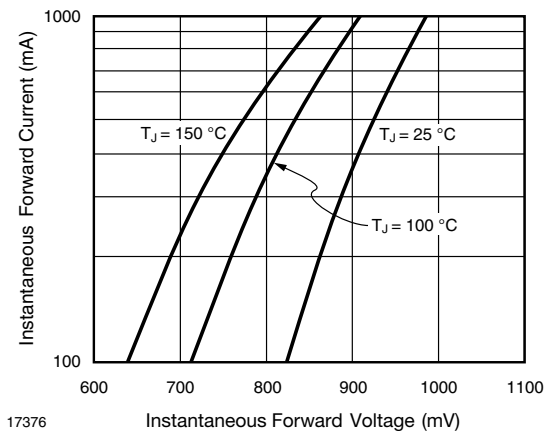


Fig. 2 - Typical Instantaneous Forward Characteristics

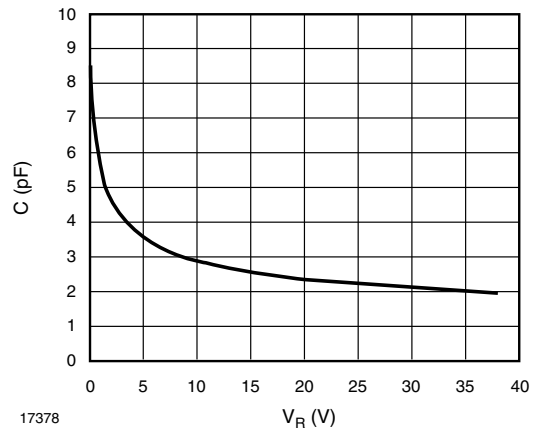
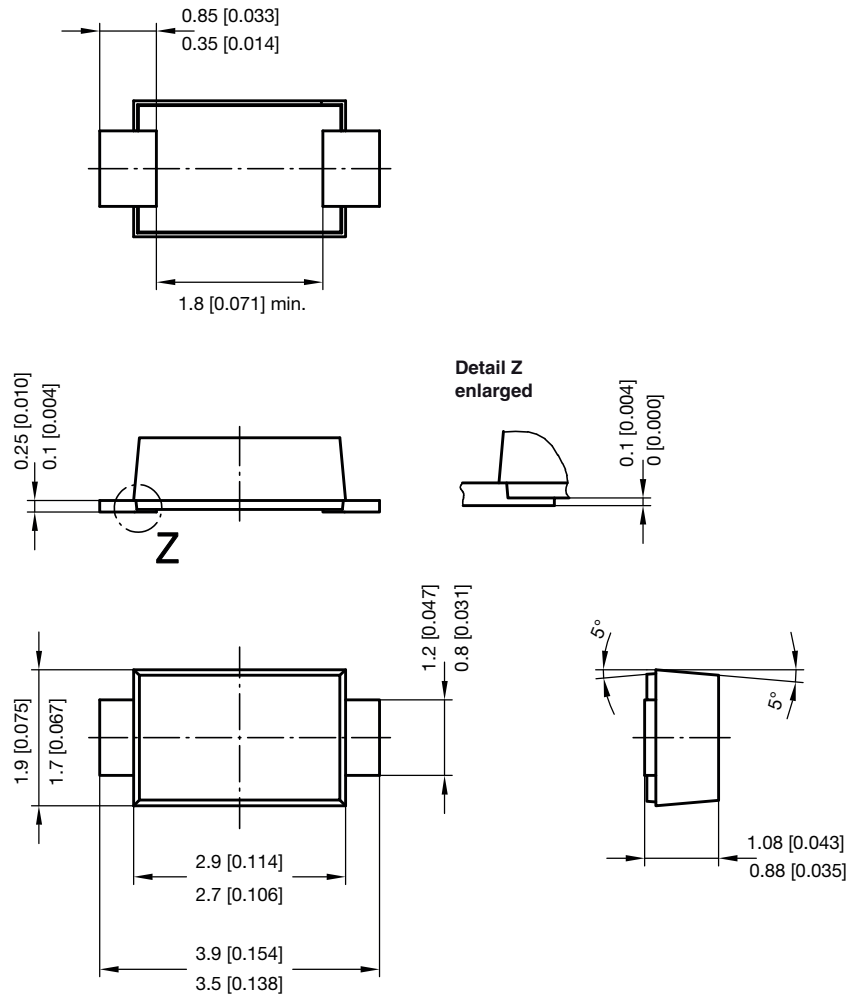


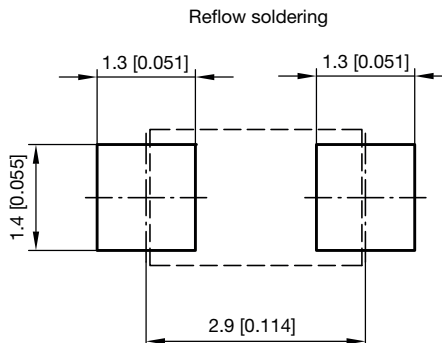
Fig. 4 - Capacitance vs. Reverse Voltage



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



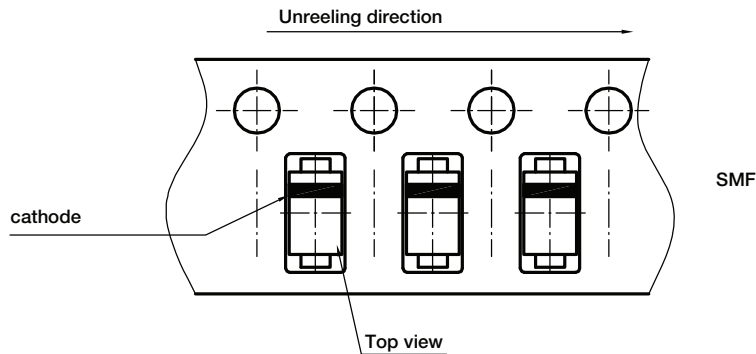
foot print recommendation:



Created - Date: 15. February 2005  
Rev. 6 - Date: 24.Feb.2021  
Document no.: S8-V-3915.01-001 (4)  
22989



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



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



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