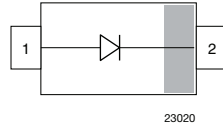
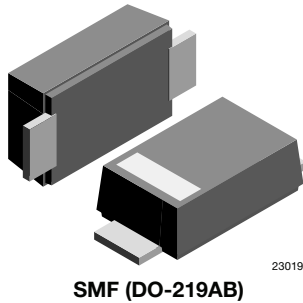


## Ultrafast Rectifier Surface-Mount

**eSMP® Series**


23020

**FEATURES**

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- Glass passivated pellet chip junction
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Meets JESD 201 class 2 whisker test
- Wave and reflow solderable
- AEC-Q101 qualified
- 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**
**SMF (DO-219AB)**

23019

**LINKS TO ADDITIONAL RESOURCES**

**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)

08/3K per 7" reel (8 mm tape)

**Circuit configuration:** single

**PARTS TABLE**

PART	ORDERING CODE	MARKING	REMARKS
ES07B-M	ES07B-M-18 or ES07B-M-08	GB	Tape and reel
ES07D-M	ES07D-M-18 or ES07D-M-08	GD	Tape and reel

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

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		ES07B-M	$V_{RRM}$	100	V
		ES07D-M	$V_{RRM}$	200	V
Maximum RMS voltage		ES07B-M	$V_{RMS}$	70	V
		ES07D-M	$V_{RMS}$	140	V
Maximum DC blocking voltage		ES07B-M	$V_{DC}$	100	V
		ES07D-M	$V_{DC}$	200	V
Maximum average forward rectified current	$T_L = 109\text{ °C}$		$I_{F(AV)}$	1.2	A
	$T_A = 65\text{ °C}$ <sup>(1)</sup>		$I_{F(AV)}$	0.5	A
Peak forward surge current 8.3 ms single half sine-wave	$T_L = 25\text{ °C}$		$I_{FSM}$	30	A

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

**THERMAL CHARACTERISTICS** ( $T_{amb} = 25\text{ °C}$ , 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 glass PCB with 3 mm x 3 mm Cu pads ( $\geq 40\text{ }\mu\text{m}$  thick)



ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 1 A <sup>(1)</sup>	ES07B-M	V <sub>F</sub>			0.98	V
		ES07D-M	V <sub>F</sub>			0.98	V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	ES07B-M	I <sub>R</sub>			10	μA
		ES07D-M	I <sub>R</sub>			10	μA
	T <sub>A</sub> = 100 °C	ES07B-M	I <sub>R</sub>			50	μA
		ES07D-M	I <sub>R</sub>			50	μA
Reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, I <sub>rr</sub> = 0.25 A	ES07B-M	t <sub>rr</sub>			25	ns
		ES07D-M	t <sub>rr</sub>			25	ns
Typical capacitance	4 V, 1 MHz	ES07B-M	C <sub>j</sub>		4		pF
		ES07D-M	C <sub>j</sub>		4		pF

**Note**

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

**TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)**

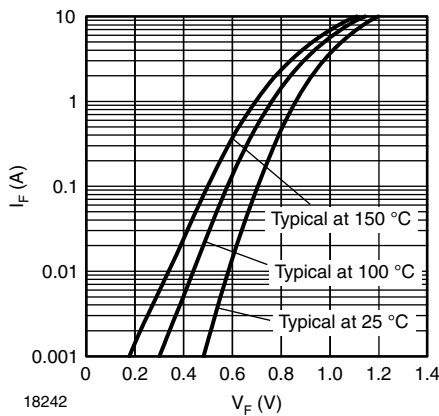


Fig. 1 - Typical Forward Characteristics

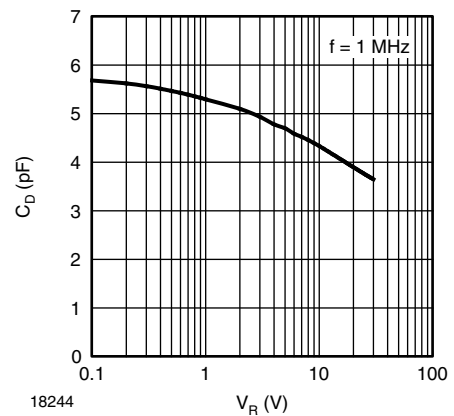


Fig. 3 - Typical Diode Capacitance vs. Reverse Voltage

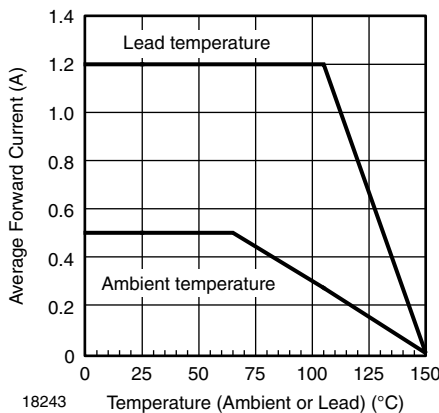


Fig. 2 - Forward Current Derating Curve

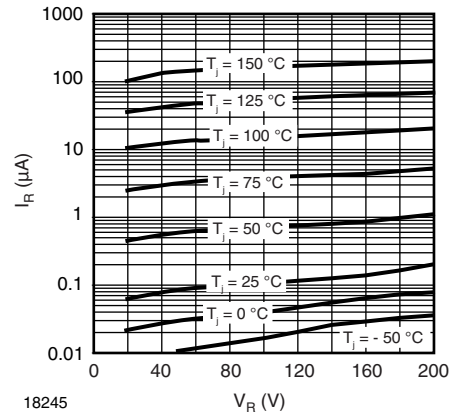
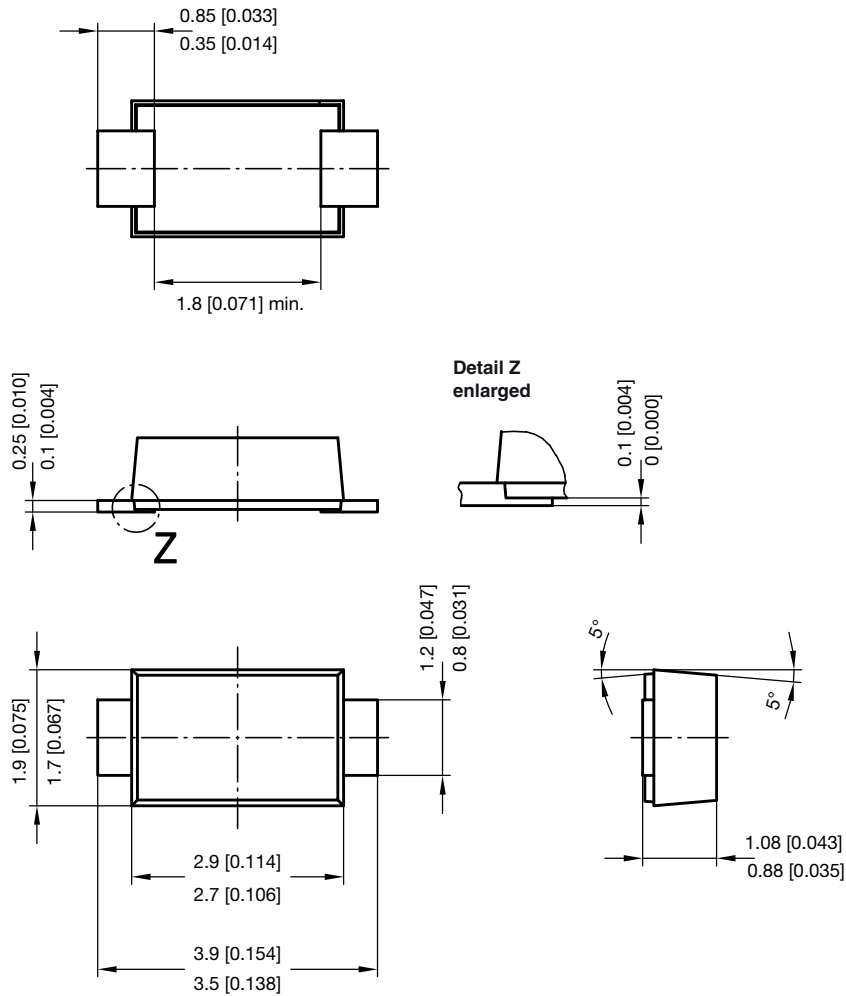
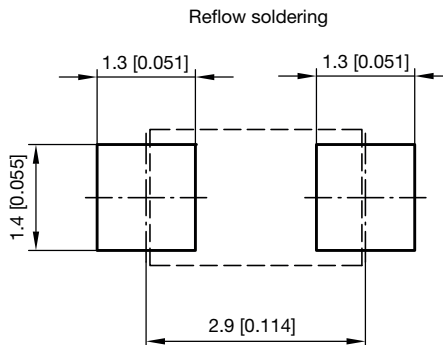


Fig. 4 - Typical Reverse Characteristics

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



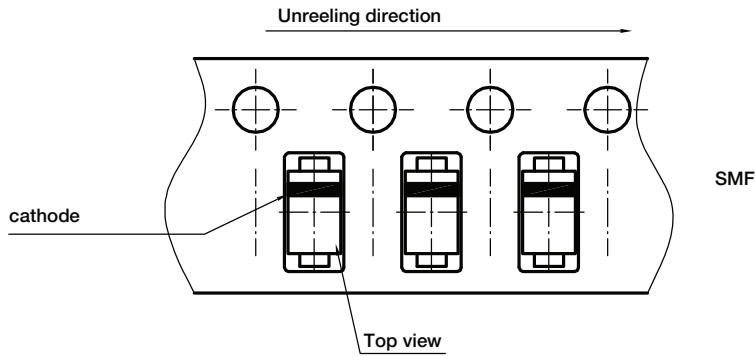
foot print recommendation:



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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