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Vishay Semiconductors

## **Fast Rectifier Surface-Mount**

# eSMP® Series

23019

### **LINKS TO ADDITIONAL RESOURCES**

**SMF (DO-219AB)** 



#### **FEATURES**







Glass passivated

 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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### **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)
GS08/3K per 7" reel (8 mm tape)
Circuit configuration: single

PARTS TABLE					
PART	ORDERING CODE	MARKING	REMARKS		
RS07B	RS07B-GS18 or RS07B-GS08	RB	Tape and reel		
RS07D	RS07D-GS18 or RS07D-GS08	RD	Tape and reel		
RS07G	RS07G-GS18 or RS07G-GS08	RG	Tape and reel		
RS07J	RS07J-GS18 or RS07J-GS08	RJ	Tape and reel		
RS07K	RS07K-GS18 or RS07K-GS08	RK	Tape and reel		

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		RS07B	$V_{RRM}$	100	V
		RS07D	$V_{RRM}$	200	V
		RS07G	$V_{RRM}$	400	V
		RS07J	$V_{RRM}$	600	V
		RS07K	$V_{RRM}$	800	V
		RS07B	$V_{RMS}$	70	V
		RS07D	V <sub>RMS</sub>	140	V
Maximum RMS voltage		RS07G	V <sub>RMS</sub>	280	V
		RS07J	$V_{RMS}$	420	V
		RS07K	V <sub>RMS</sub>	560	V
Maximum DC blocking voltage		RS07B	$V_{DC}$	100	V
		RS07D	$V_{DC}$	200	V
		RS07G	$V_{DC}$	400	V
		RS07J	$V_{DC}$	600	V
		RS07K	$V_{DC}$	800	V
Market and a second second second	T <sub>L</sub> = 65 °C		I <sub>F(AV)</sub>	1.4	Α
Maximum average forward rectified current	T <sub>A</sub> = 45 °C		I <sub>F(AV)</sub>	0.5	Α
Peak forward surge current 8.3 ms half sine-wave	T <sub>L</sub> = 25 °C		I <sub>FSM</sub>	30	Α



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THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Thermal resistance junction to lead		R <sub>thJL</sub>	30	K/W	
Thermal resistance junction to ambient air (1)		$R_{thJA}$	180	K/W	
Operating junction and storage temperature range		T <sub>j</sub> , T <sub>stg</sub>	-55 to 150	°C	

#### Note

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

<b>ELECTRICAL CHARACTERISTICS</b> (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> = 0.7 A <sup>(1)</sup>	RS07B	$V_{F}$			1.15	V
		RS07D	$V_{F}$			1.15	V
		RS07G	$V_{F}$			1.15	V
		RS07J	$V_{F}$			1.15	V
	$I_F = 1 A^{(1)}$	RS07K	$V_{F}$			1.3	V
	T <sub>A</sub> = 25 °C	RS07B	I <sub>R</sub>			10	μΑ
		RS07D	I <sub>R</sub>			10	μΑ
		RS07G	I <sub>R</sub>			10	μΑ
		RS07J	I <sub>R</sub>			10	μΑ
Maximum DC reverse current at		RS07K	I <sub>R</sub>			2	μΑ
rated DC blocking voltage	T <sub>A</sub> = 125 °C	RS07B	I <sub>R</sub>			50	μΑ
		RS07D	I <sub>R</sub>			50	μΑ
		RS07G	I <sub>R</sub>			50	μΑ
		RS07J	I <sub>R</sub>			50	μΑ
		RS07K	I <sub>R</sub>			150	μΑ
Reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, I <sub>rr</sub> = 0.25 A	RS07B	t <sub>rr</sub>			150	ns
		RS07D	t <sub>rr</sub>			150	ns
		RS07G	t <sub>rr</sub>			150	ns
		RS07J	t <sub>rr</sub>			250	ns
		RS07K	t <sub>rr</sub>			300	ns
Typical capacitance	4 V, 1 MHz	RS07B	Cj		9		pF
		RS07D	Cj		9		pF
		RS07G	Ci		9		pF
		RS07J	Cj		9		pF
		RS07K	Ci		4		pF

#### Note

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

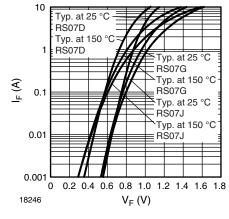


Fig. 1 - Typical Forward Characteristics

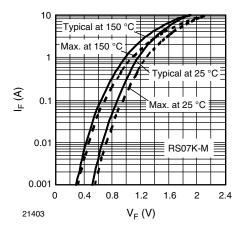


Fig. 2 - Typical Forward Characteristics

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle

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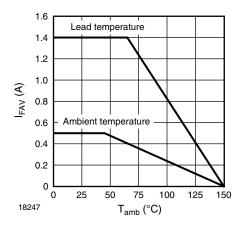


Fig. 3 - Forward Current Derating Curve

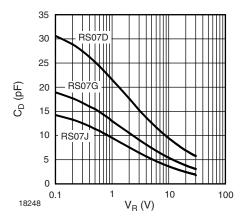


Fig. 4 - Typical Diode Capacitance vs. Reverse Voltage

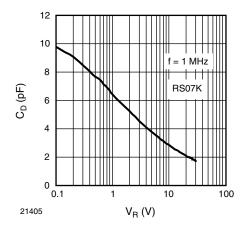


Fig. 5 - Typical Diode Capacitance vs. Reverse Voltage

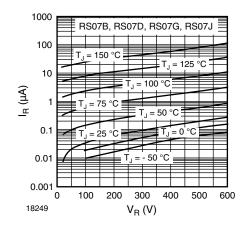


Fig. 6 - Typical Reverse Characteristics

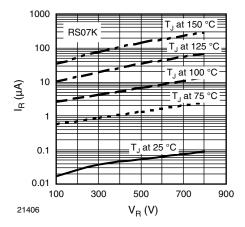
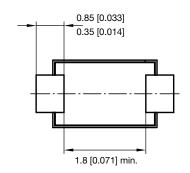


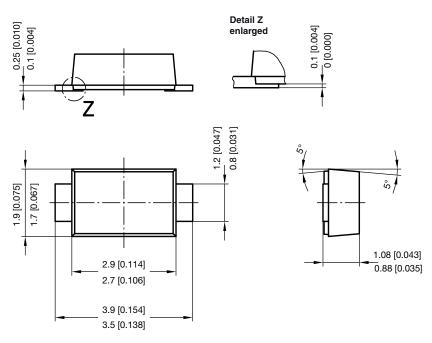
Fig. 7 - Typical Reverse Characteristics

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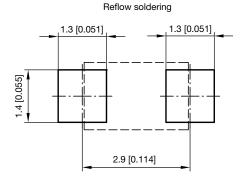
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## PACKAGE DIMENSIONS in millimeters (inches): SMF (DO-219AB)





foot print recommendation:



Created - Date: 15. February 2005 Rev. 6 - Date: 24.Feb.2021

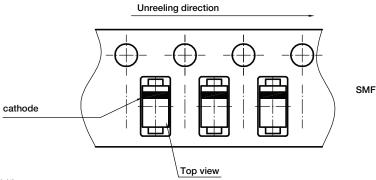
Document no.: S8-V-3915.01-001 (4)

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# RS07B, RS07D, RS07G, RS07J, RS07K

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



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