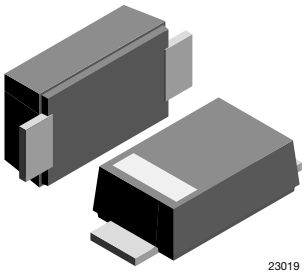
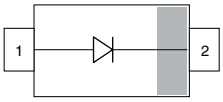
Fast Rectifier Surface-Mount

eSMP® Series



23019

SMF (DO-219AB)



23020

FEATURES

- For surface mounted applications
- Low profile package
- Ideal for automated placement
- 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
- Base P/N-E3 - RoHS-compliant
  Base P/N-GS - RoHS-compliant and 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

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)
GS08/3K per 7" reel (8 mm tape)

Circuit configuration: single

PARTS TABLE

PART	ORDERING CODE	MARKING	REMARKS
RS07B	RS07B-E3-18 or RS07B-E3-08	YB	Tape and reel
	RS07B-GS18 or RS07B-GS08	RB	
RS07D	RS07D-E3-18 or RS07D-E3-08	YD	Tape and reel
	RS07D-GS18 or RS07D-GS08	RD	
RS07G	RS07G-E3-18 or RS07G-E3-08	YG	Tape and reel
	RS07G-GS18 or RS07G-GS08	RG	
RS07J	RS07J-E3-18 or RS07J-E3-08	YJ	Tape and reel
	RS07J-GS18 or RS07J-GS08	RJ	
RS07K	RS07K-E3-18 or RS07K-E3-08	YK	Tape and reel
	RS07K-GS18 or RS07K-GS08	RK	

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)					
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
Maximum RMS voltage		RS07B	V_{RMS}	70	V
		RS07D	V_{RMS}	140	V
		RS07G	V_{RMS}	280	V
		RS07J	V_{RMS}	420	V
		RS07K	V_{RMS}	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
Maximum average forward rectified current	T_L = 65 °C		$I_{F(AV)}$	1.4	A
	T_A = 45 °C		$I_{F(AV)}$	0.5	A
Peak forward surge current 8.3 ms half sine-wave	T_L = 25 °C		I_{FSM}	30	A

THERMAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Thermal resistance junction to lead		R_{thJL}	30	K/W
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	°C

Note
(1) Mounted on epoxy glass PCB with 3 mm x 3 mm Cu pads (≥ 40 µm thick)

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 0.7 A (1)	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
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C	RS07B	I_R			10	µA
		RS07D	I_R			10	µA
		RS07G	I_R			10	µA
		RS07J	I_R			10	µA
		RS07K	I_R			2	µA
	T_A = 125 °C	RS07B	I_R			50	µA
		RS07D	I_R			50	µA
		RS07G	I_R			50	µA
		RS07J	I_R			50	µA
		RS07K	I_R			150	µA
Reverse recovery time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A	RS07B	t_{rr}			150	ns
		RS07D	t_{rr}			150	ns
		RS07G	t_{rr}			150	ns
		RS07J	t_{rr}			250	ns
		RS07K	t_{rr}			300	ns
Typical capacitance	4 V, 1 MHz	RS07B	C_j		9		pF
		RS07D	C_j		9		pF
		RS07G	C_j		9		pF
		RS07J	C_j		9		pF
		RS07K	C_j		4		pF

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

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

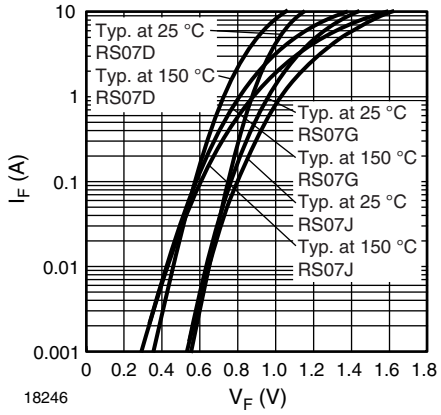


Fig. 1 - Typical Forward Characteristics

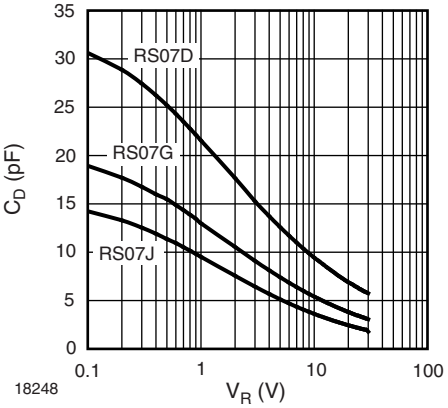


Fig. 4 - Typical Diode Capacitance vs. Reverse Voltage

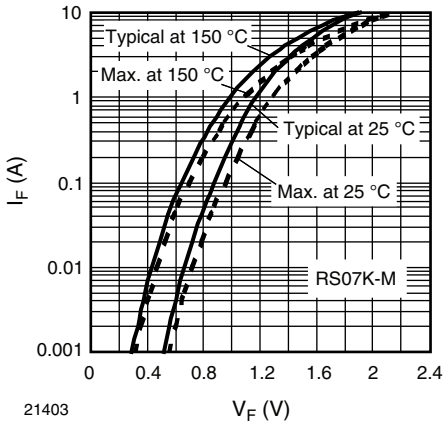


Fig. 2 - Typical Forward Characteristics

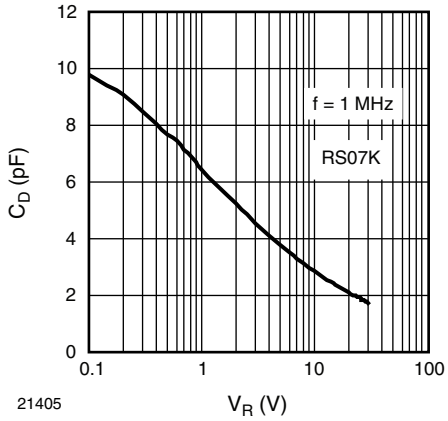


Fig. 5 - Typical Diode Capacitance vs. Reverse Voltage

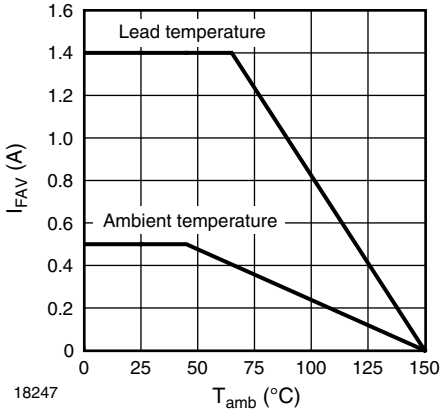


Fig. 3 - Forward Current Derating Curve

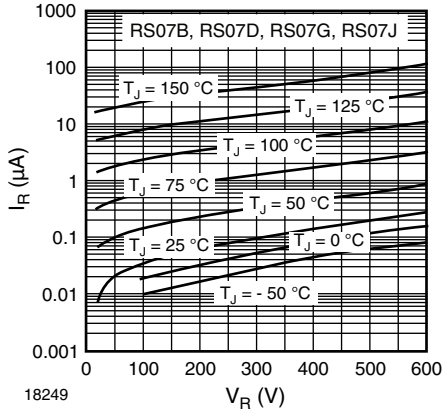


Fig. 6 - Typical Reverse Characteristics

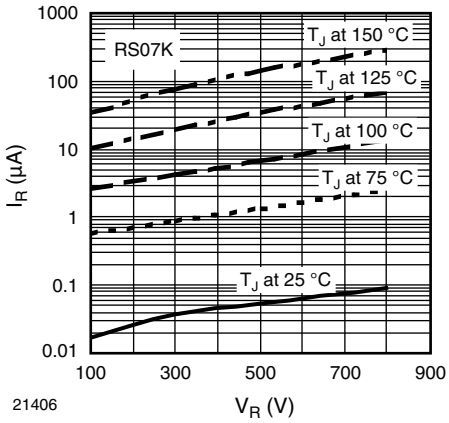
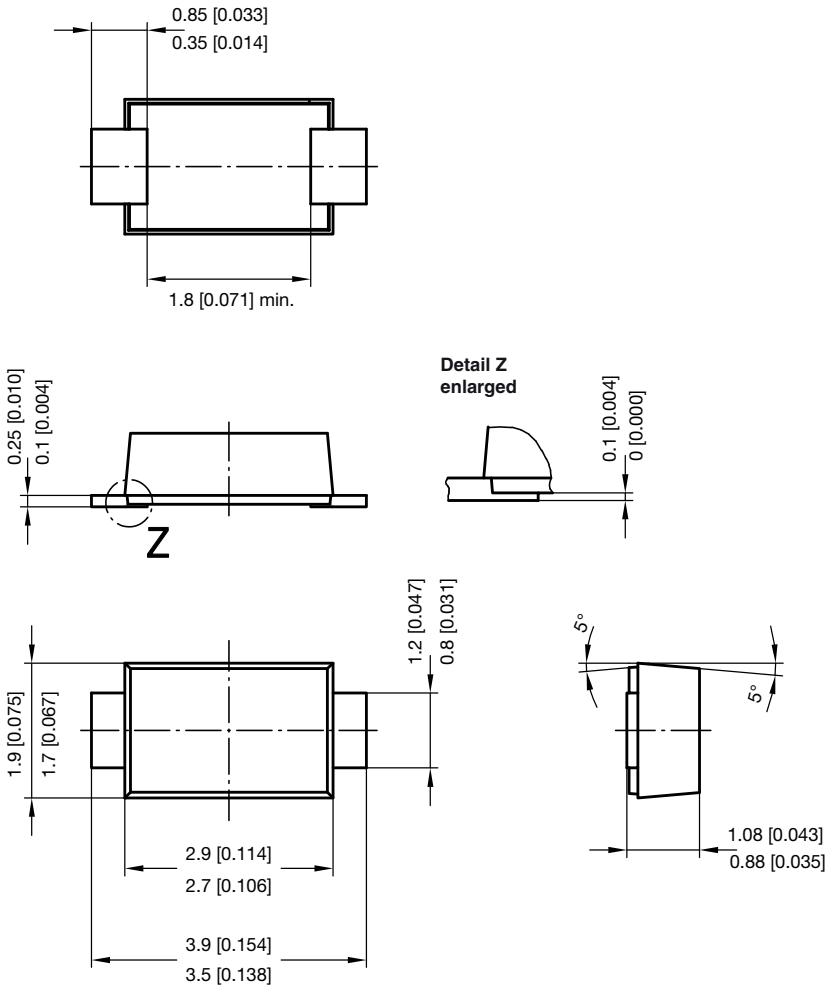


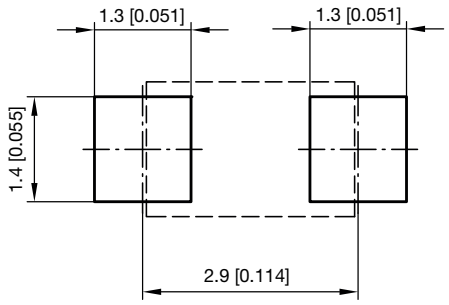
Fig. 7 - Typical Reverse Characteristics

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



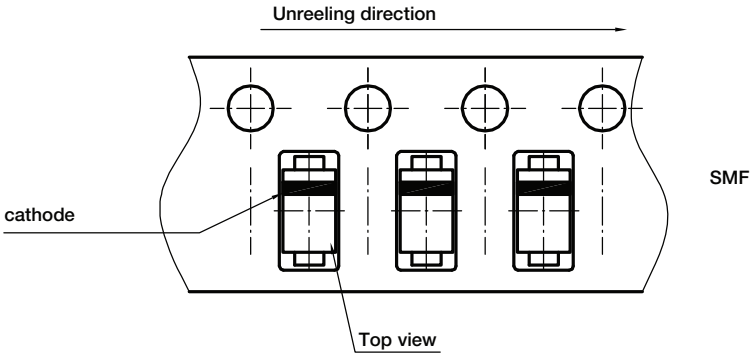
foot print recommendation:

Reflow soldering



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-219 AB)



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

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.