Surface-Mount Fast Switching Rectifiers

eSMP® Series

Top view Bottom view

SMF (DO-219AB)

Cathode ○—|◀—○ Anode

FEATURES

- Glass passivated pellet chip junction
- Ideal for automated placement
- Meets MSL level 1, per J-STD-020; LF maximum peak of 260 °C
- Wave and reflow solderable
- Compatible to SOD-123W package case outline
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.

MECHANICAL DATA

Case: SMF (DO-219AB)
Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1 A
V_{RRM}	200 V, 400 V, 600 V, 800 V, 1000 V
I_{FSM}	30 A
I_R	0.07 µA
V_F at I_F = 1 A	0.88 V
T_J max.	150 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	RS1FD	RS1FG	RS1FJ	RS1FK	RS1FM	UNIT
Device marking code		RSD	RSG	RSJ	RSK	RSM	
Max. repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Max. DC forward current (see fig. 1)	I_F (1)	1					A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	30					A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150					°C

Note

(1) Free air, mounted on recommended PCB, 2 oz. pad area

ELECTRICAL CHARACTERISTICS (T_J = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 1.0 A	T_J = 25 °C	V_F (1)	1.0	1.25	V
		T_J = 125 °C		0.88	1.15	
	I_F = 2.0 A	T_J = 25 °C		1.1	-	
		T_J = 125 °C		0.99	-	
Reverse current	Rated V_R	T_J = 25 °C	I_R (2)	0.07	5.0	µA
		T_J = 125 °C		10.8	200	
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	-	500	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	5.0	-	pF

Notes

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

(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °c unless otherwise noted)							
PARAMETER	**SYMBOL**	**RS1FD**	**RS1FG**	**RS1FJ**	**RS1FK**	**RS1FM**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)(2)	130					°C/W
	$R_{\theta JM}$ (1)	20					

Notes

(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction-to-ambient; $R_{\theta JM}$ - junction-to-mount

(2) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
RS1FM-M3/H	0.0143	H	3000	7" diameter plastic tape and reel
RS1FM-M3/I	0.0143	I	10 000	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

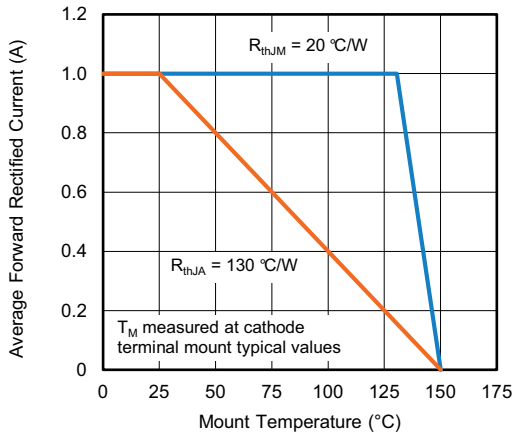


Fig. 1 - Max. Forward Current Derating Curve

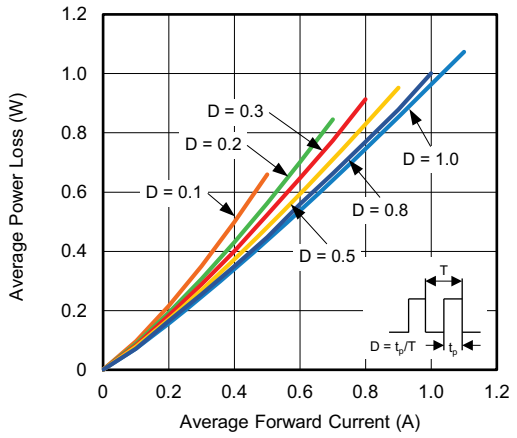


Fig. 2 - Forward Power Loss Characteristics

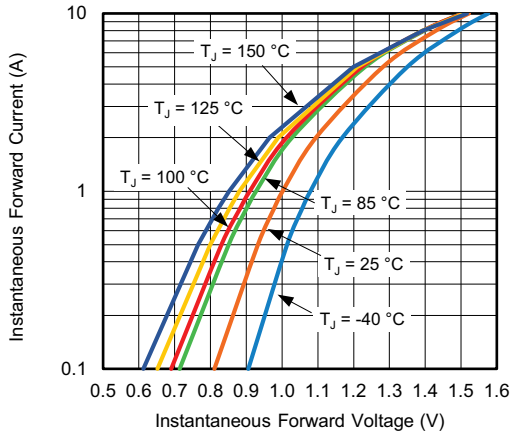


Fig. 3 - Typical Instantaneous Forward Characteristics

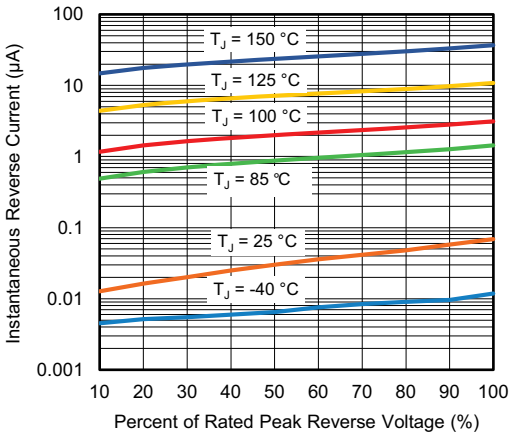


Fig. 4 - Typical Reverse Characteristics

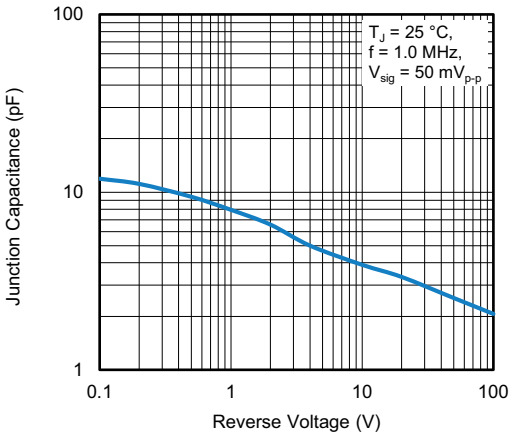


Fig. 5 - Typical Junction Capacitance

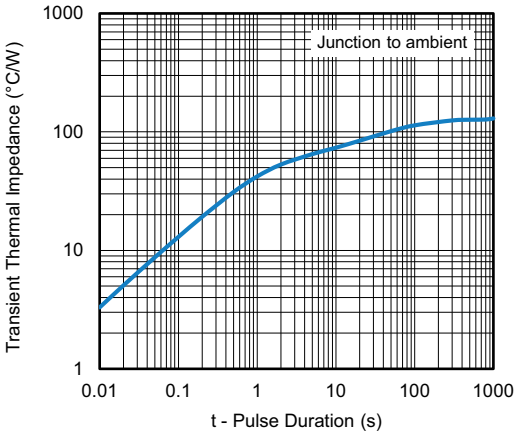
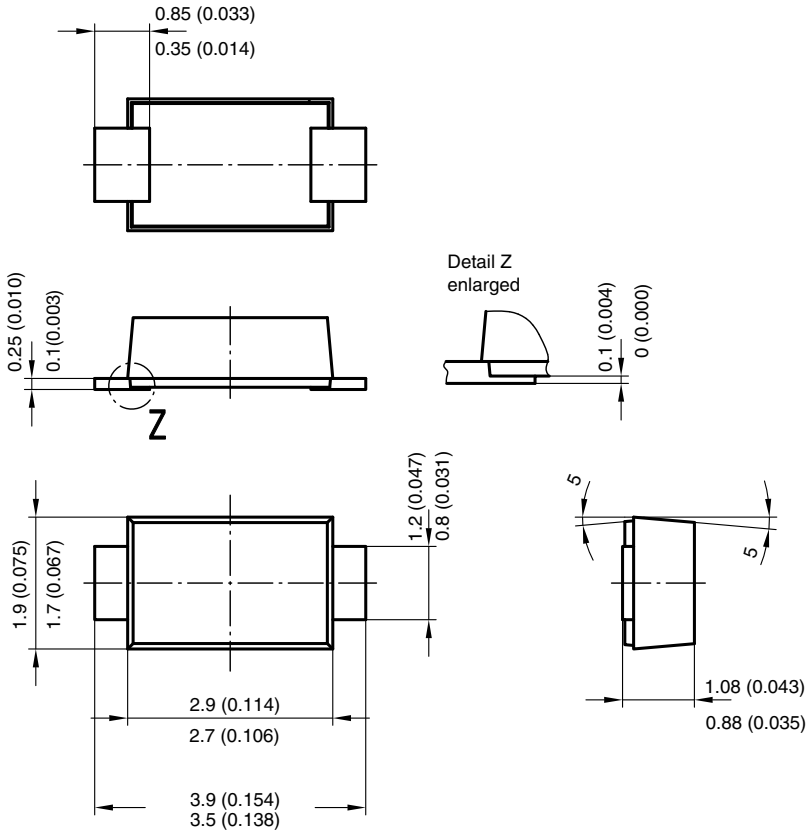
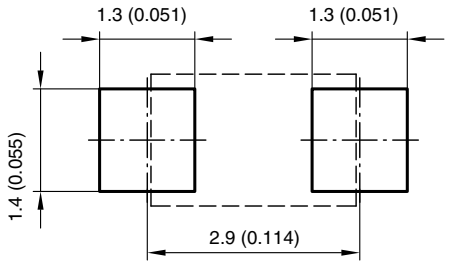


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



Foot print recommendation:



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