

Vishay General Semiconductor

COMPLIANT

HALOGEN

FREE

Surface-Mount Fast Switching Rectifiers

eSMP® Series



SMF (DO-219AB)

Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	1 A				
V_{RRM}	200 V, 400 V, 600 V, 800 V, 1000 V				
I _{FSM}	35 A				
I _R	0.2 μΑ				
V_F at $I_F = 1$ A	0.84 V				
T _J max.	150 °C				
Package	SMF (DO-219AB)				
Circuit configuration	Single				

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 <u>www.vishav.com/doc?99912</u>

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

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	RS1FLD	RS1FLG	RS1FLJ	RS1FLK	RS1FLM	UNIT
Device marking code		RLD	RLG	RLJ	RLK	RLM	
Max. repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Max. DC forward current (see fig. 1)	I _F ⁽¹⁾	1			Α		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	35			Α		
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



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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		0.96	1.2	V	
		T _J = 125 °C	V _F ⁽¹⁾	0.84	1.1		
	I _F = 2.0 A	T _J = 25 °C		1.04	-		
		T _J = 125 °C		0.93	-		
Reverse current	Rated V _R	T _J = 25 °C	I _R ⁽²⁾	0.2	5.0	μА	
		T _J = 125 °C	IR (=/	20	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		CJ	7	-	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	RS1FLD	RS1FLG	RS1FLJ	RS1FLK	RS1FLM	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$			130			°C/W
Typical trieffial resistance	R _{0JM} (1)	20				C/VV	

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			
RS1FLM-M3/H	0.0145	Н	3000	7" diameter plastic tape and reel			
RS1FLM-M3/I	0.0145	I	10 000	13" diameter plastic tape and reel			

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

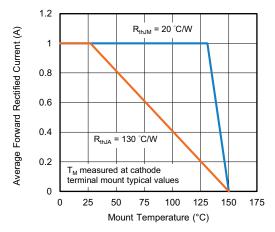


Fig. 1 - Max. Forward Current Derating Curve

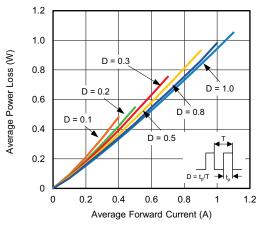


Fig. 2 - Forward Power Loss Characteristics

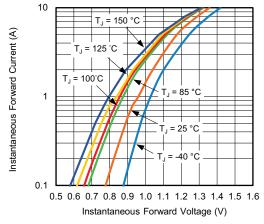


Fig. 3 - Typical Instantaneous Forward Characteristics

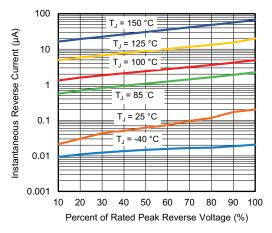


Fig. 4 - Typical Reverse Characteristics

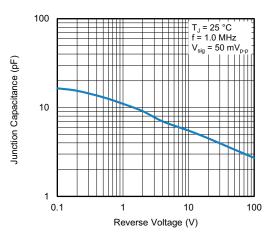


Fig. 5 - Typical Junction Capacitance

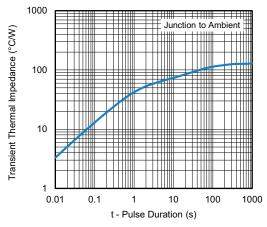
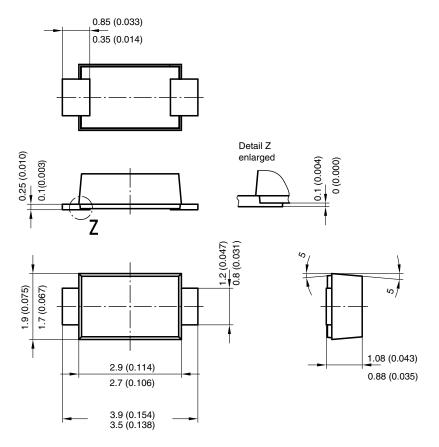


Fig. 6 - Typical Transient Thermal Impedance

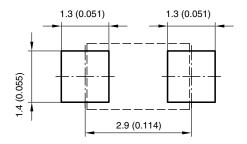
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PACKAGE OUTLINE DIMENSIONS in millimeters (inches)

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Foot print recommendation:



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