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RS1FD, RS1FG, RS1FJ, RS1FK, RS1FM

Vishay General Semiconductor

Surface-Mount Fast Switching Rectifiers



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}	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				

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.vishay.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 ($T_A = 25 \text{ °C}$ 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			Α		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	30			А		
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 ($T_J = 25 \text{ °C}$ 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	IR (-/	10.8	200		
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	-	500	ns	
Typical junction capacitance	4.0 V, 1 MHz		CJ	5.0	-	pF	

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: pulse width \leq 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °c unless otherwise noted)							
PARAMETER	SYMBOL	RS1FD	RS1FG	RS1FJ	RS1FK	RS1FM	UNIT
Typical thermal resistance	R _{0JA} (1)(2)			130			°C/W
Typical thermal resistance	R _{0JM} ⁽¹⁾	20					0/11

Notes

- ⁽¹⁾ Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance R_{0JA} junction-to-ambient; R_{0JM} junction-to-mount
- $^{(2)}$ The heat generated must be less than the thermal conductivity from junction-to-ambient: dP_D/dT_J < 1/R_{0JA}

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



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

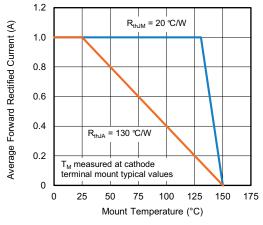


Fig. 1 - Max. Forward Current Derating Curve

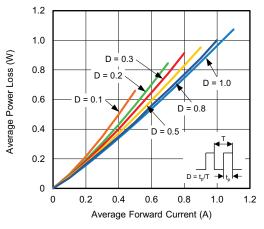


Fig. 2 - Forward Power Loss Characteristics

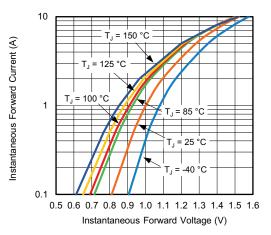
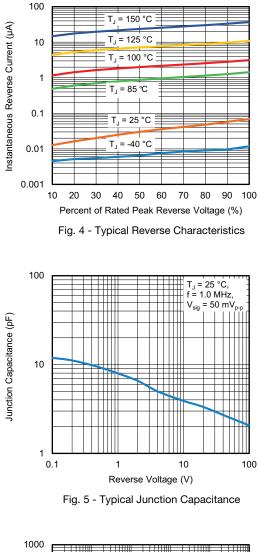


Fig. 3 - Typical Instantaneous Forward Characteristics



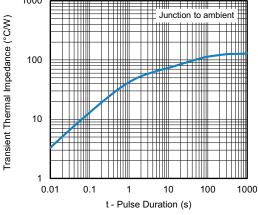


Fig. 6 - Typical Transient Thermal Impedance

Revision: 15-Oct-2020

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Document Number: 87042

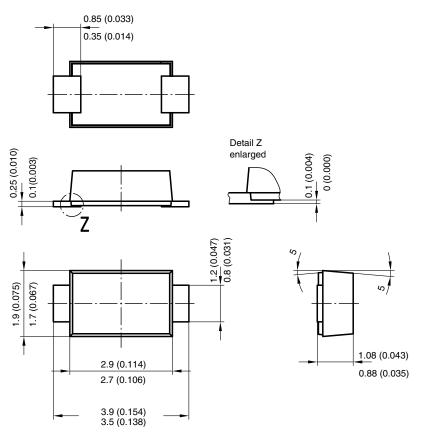
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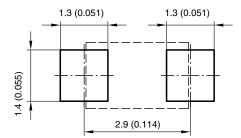
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PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



Foot print recommendation:



Created - Date: 15. February 2005 Rev. 3 - Date: 13. March 2007 Document no.: S8-V-3915.01-001 (4) 17247



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