RS1PB, RS1PD, RS1PG, RS1PJ

Vishay General Semiconductor

AUTOMOTIV

COMPLIANT

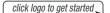
HALOGEN FREE

High Current Density Surface Mount Glass Passivated Fast Switching Rectifier



Cathode O Anode







PRIMARY CHARACTERISTICS						
I _{F(AV)}	1.0 A					
V_{RRM}	100 V, 200 V, 400 V, 600 V					
I _{FSM}	30 A					
t _{rr}	t _{rr} 150 ns, 250 ns					
I _R	1 μΑ					
V _F	1.3 V					
T _J max.	150 °C					
Package	SMP (DO-220AA)					
Circuit configuration	Single					

FEATURES

- Very low profile typical height of 1.0 mm
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Fast switching for high efficiency
- Low thermal resistance
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code; base P/NHM3
- Material categorization: for definitions of compliance please see <u>www.vishav.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: SMP (DO-220AA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Base P/NHM3_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified $\,$

("_X" denotes revision code e.g. A, B,....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	RS1PB	RS1PD	RS1PG	RS1PJ	UNIT	
Device marking code		RB	RD	RG	RJ		
Maximum repetitive peak reverse voltage	V_{RRM}	M 100 200 400 600				V	
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	1.0			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		

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	RS1PB	RS1PD	RS1PG	RS1PJ	UNIT
Maximum instantaneous forward voltage	I _F = 1.0 A		V _F ⁽¹⁾	1.3				V
Maximum reverse current at rated		T _A = 25 °C	I _R ⁽²⁾	1.0				μА
V _R voltage		T _A = 125 °C	IR (-)					
Maximum reverse recovery time	$I_F = 0.5 A, I_{rr} = 0.25 A$	_R = 1.0 A,	t _{rr}	150 25		250	ns	
Typical junction capacitance	4.0 V, 1 MH	lz	CJ	9			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	DL RS1PB RS1PD RS1PG RS1PJ				UNIT
	R _{0JA} (1)	115				
Typical thermal resistance	R _{0JL} (1)		°C/W			
	R ₀ JC (1)	20				

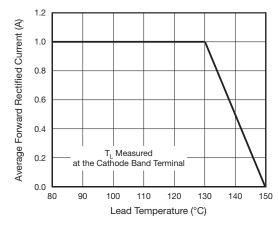
Note

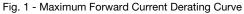
⁽¹⁾ Thermal resistance from junction to ambient and junction to lead mounted on PCB with 5.0 mm x 5.0 mm copper pad areas. R_{θJL} is measured at the terminal of cathode band. R_{θJC} is measured at the top center of the body

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
RS1PB-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel				
RS1PB-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel				
RS1PBHM3/84A (1)	0.024	84A	3000	7" diameter plastic tape and reel				
RS1PBHM3/85A (1)	0.024	85A	10 000	13" diameter plastic tape and reel				
RS1PBHM3_A/H (1)	0.024	Н	3000	7" diameter plastic tape and reel				
RS1PBHM3_A/I (1)	0.024	I	10 000	13" diameter plastic tape and reel				

Note

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





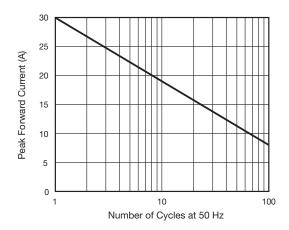


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

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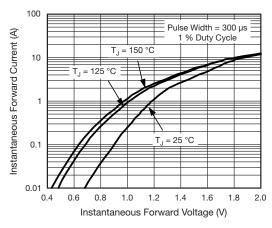


Fig. 3 - Typical Instantaneous Forward Characteristics

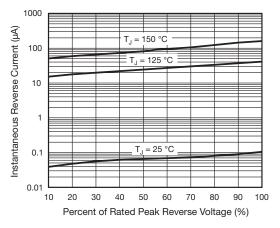


Fig. 4 - Typical Reverse Characteristics

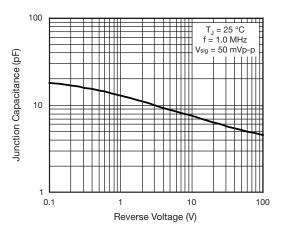


Fig. 5 - Typical Junction Capacitance

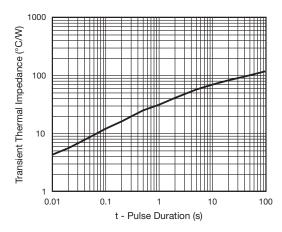
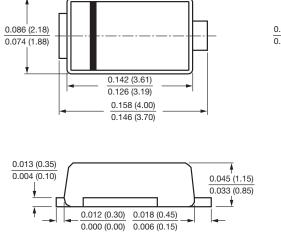


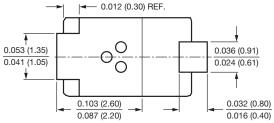
Fig. 6 - Typical Transient Thermal Impedance

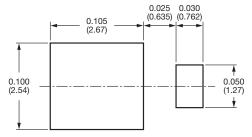
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)



Cathode Band







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