New Product



Vishay General Semiconductor

High Current Density Surface Mount Glass-Passivated Fast Switching Rectifier



DO-220AA (SMP)

$\begin{tabular}{|c|c|c|c|} \hline PRIMARY CHARACTERISTICS \\ \hline I_{F(AV)} & 1 A \\ \hline V_{RRM} & 100 V, 200 V, 400 V, 600 V \\ \hline I_{FSM} & 30 A \\ \hline I_{FSM} & 30 A \\ \hline t_{rr} & 150 ns, 250 ns \\ \hline I_R & 1 \mu A \\ \hline T_j max. & 150 \ ^{\circ}C \\ \hline \end{tabular}$

FEATURES

- Very low profile typical height of 1.0 mm
- Ideal for automated placement
- Glass passivated chip junction
- Fast switching for high efficiency
- Low thermal resistance
- High forward surge capability
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-220AA (SMP) Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

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}	100	200	400	600	V
Maximum average forward rectified current (see Fig. 1)	I _{F(AV)}		А			
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				

ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$, unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	RS1PB	RS1PD	RS1PG	RS1PJ	UNIT
Maximum instantaneous forward voltage (1)	at = 1.0 A	V _F	1.3			V	
Maximum reverse current at rated $V_{R}^{(1)}$ voltage	T _A = 25 °C T _A = 125 °C	I _R	1.0 60			μA	
Maximum reverse recovery time	at $I_F = 0.5 \text{ A}$, $I_R = 1.0 \text{ A}$, $I_{rr} = 0.25 \text{ A}$	t _{rr}	150		250	ns	
Typical junction capacitance	at 4.0 V, 1 MHz	CJ	9		pF		

Note:

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

RS1PB thru RS1PJ



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THERMAL CHARACTERISTICS (T _A = 25 °C, unless otherwise noted)							
PARAMETER	SYMBOL	RS1PB	RS1PD	RS1PG	RS1PJ	UNIT	
Typical thermal resistance ⁽¹⁾	${f R}_{ heta JA} \ {f R}_{ heta JL} \ {f R}_{ heta JC}$	115 15 20		°C/W			

Note:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. with 5.0 x 5.0 mm copper pad areas. $R_{\theta JL}$ is measured at the terminal of cathode band. $R_{\theta JC}$ is measured at the top centre of the body

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
RS1PB-E3/84A	0.024	84A	3000	7" Diameter Plastic Tape & Reel		
RS1PB-E3/85A	0.024	85A	10000	13" Diameter Plastic Tape & Reel		
RS1PBHE3/84A (1)	0.024	84A	3000	7" Diameter Plastic Tape & Reel		
RS1PBHE3/85A (1)	0.024	85A	10000	13" Diameter Plastic Tape & Reel		

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)



Figure 1. Maximum Forward Current Derating Curve



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



RS1PB thru RS1PJ

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Figure 3. Typical Instantaneous Forward Characteristics



Figure 4. Typical Reverse Characteristics



Figure 5. Typical Junction Capacitance





PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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