SE07PB, SE07PD, SE07PG, SE07PJ

Vishay General Semiconductor

ROHS

HALOGEN

FREE

Surface-Mount ESD Capability Rectifiers



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	0.7 A				
V _{RRM}	100 V, 200 V, 400 V, 600 V				
I _{FSM}	20 A				
I _R	5 μΑ				
V _F at I _F = 1.0 A	0.865 V				
T _J max.	175 °C				
Package	SMP (DO-220AA)				
Circuit configuration	Single				

FEATURES

- · Very low profile typical height of 1.0 mm
- · Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop
- Typical I_R less than 0.1 μA
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

General purpose, power line polarity protection and rail-to-rail protection in consumer and industrial applications.

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

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

J-31D-002 and JE3D 22-B102

M3 suffix meets JESD 201 class 1A whisker test **Polarity:** color band denotes the cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SE07PB	SE07PD	SE07PG	SE07PJ	UNIT
Device marking code		07B	07D	07G	07J	
Max. repetitive peak reverse voltage	V _{RRM}	100	200	400	600	V
Average forward current	I _{F(AV)}	1.0			Α	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	20				А
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175				°C

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CO	ONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Max. instantaneous	1 - 0 7 4	T _A = 25 °C	V _F ⁽¹⁾	0.965	1.05	V
forward voltage	$I_F = 0.7 A$	T _A = 125 °C	VF \''	0.865	0.95	ľ
Max. reverse current	Rated V_R $T_A = T_A $	$T_A = 25 ^{\circ}\text{C}$ $T_A = 125 ^{\circ}\text{C}$	I _R ⁽²⁾	-	5.0	μА
		T _A = 125 °C		3.7	50	
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 ≤ 40 ms

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THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	YMBOL SE07PB SE07PD SE07PG SE07PJ UNIT				UNIT
	R _{0JA} (1)	105				
Typical thermal resistance	R ₀ JL (1)		°C/W			
	R ₀ JC (1)	30				

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. $R_{\theta JL}$ - is measured at the terminal of cathode band. $R_{\theta JC}$ is measured at the top center of the body.

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS (T _A = 25 $^{\circ}$ C unless otherwise noted)							
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE		
JESD22-A114	Human body model (contact mode)	C = 100 pF, R = 1.5 kΩ		3B	> 8 kV		
JESD22-A115	Machine model (contact mode)	$C = 200 \text{ pF}, R = 0 \Omega$	V_{C}	С	> 400 V		
IEC 61000-4-2 ⁽²⁾	Human body model (contact mode)	C = 150 pF, R = 330 Ω	VC	4	> 8 kV		
	Human body model (air-discharge mode) (1)	C = 150 pF, R = 330 Ω		4	> 15 kV		

Notes

⁽²⁾ System ESD standard

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SE07PJ-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel		
SE07PJ-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel		

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

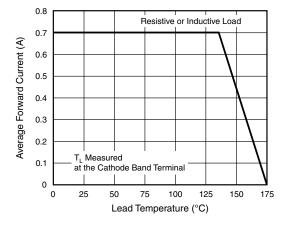


Fig. 1 - Max. Forward Current Derating Curve

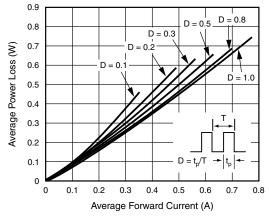


Fig. 2 - Forward Power Loss Characteristics

⁽¹⁾ Immunity to IEC 61000-4-2 air discharge mode has a typical performance > 30 kV



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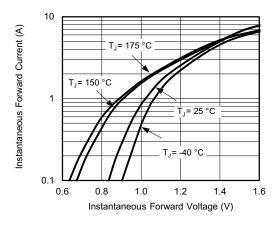


Fig. 3 - Typical Instantaneous Forward Characteristics

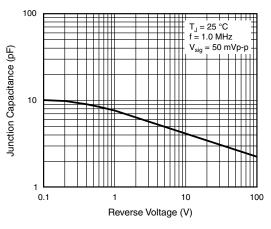


Fig. 5 - Typical Junction Capacitance

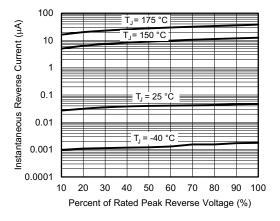
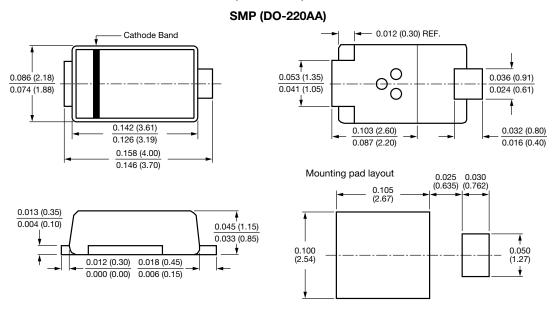


Fig. 4 - Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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