SE07PB thru SE07PJ

Vishay General Semiconductor

Surface Mount ESD Capability Rectifiers

eSMP™ Series

DO-220AA (SMP)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	0.7 A
V_{RRM}	100 V to 600 V
I_R	5 µA
V_F at I_F = 0.7 A	0.865 V
T_J max.	175 °C

TYPICAL APPLICATIONS

General purpose, polarity protection, and rail-to-rail protection in both consumer and automotive applications.

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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**

RoHS COMPLIANT
HALOGEN FREE

MECHANICAL DATA

Case: DO-220AA (SMP)

Molding compound meets UL 94 V-0 flammability rating.

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 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	
Maximum repetitive peak reverse voltage	V_{RRM}	100	200	400	600	V
Average forward current (fig. 1)	$I_{F(AV)}$	0.7				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	20				A
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 CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage (1)	I_F = 0.7 A I_F = 0.7 A	T_J = 25 °C T_J = 125 °C	V_F	0.965 0.865	1.05 0.95	V
Maximum reverse current (2)	rated V_R	T_J = 25 °C T_J = 125 °C	I_R	- 3.7	5.0 50	µA
Typical junction capacitance time	4.0 V, 1 MHz		C_J	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	SE07PB	SE07PD	SE07PG	SE07PJ	UNIT
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$ $R_{\theta JC}$	105 25 30				°C/W

Note:

(1) Thermal resistance from junction to ambient and junction to lead mounted on P.C.B. 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 °C, unless otherwise noted)					
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	C = 100 pF, R = 1.5 kΩ	V_C	H3B	> 8 kV
AEC-Q101-002	Machine model (contact mode)	C = 200 pF, R = 0 Ω		M4	> 400 V
JESD22-A114	Human body model (contact mode)	C = 150 pF, R = 1.5 kΩ		3B	> 8 kV
JESD22-A115	Machine model (contact mode)	C = 200 pF, R = 0 Ω		C	> 400 V
IEC 61000-4-2 (2)	Human body model (contact mode)	C = 150 pF, R = 150 Ω		4	> 8 kV
	Human body model (air-discharge mode) (1)	C = 150 pF, R = 150 Ω		4	> 15 kV

Notes:

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

(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)

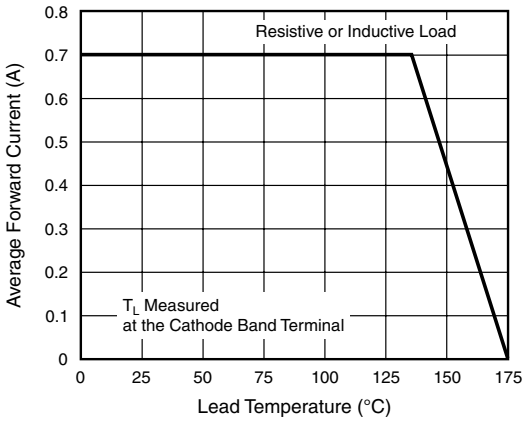

Figure 1. Maximum Forward Current Derating Curve

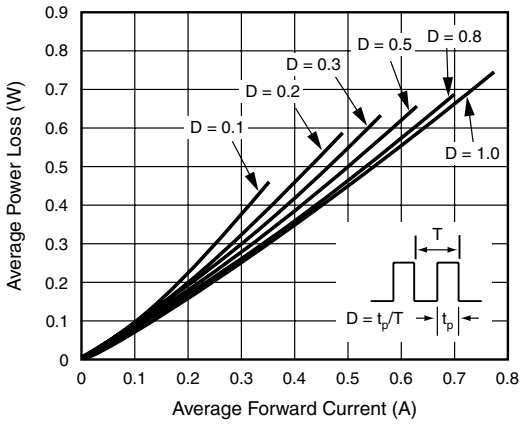

Figure 2. Forward Power Loss Characteristics

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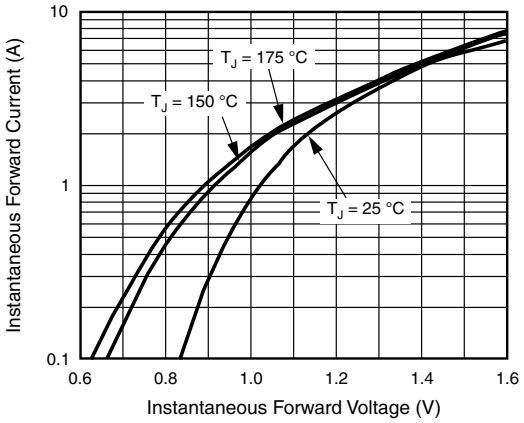


Figure 3. Typical Instantaneous Forward Characteristics

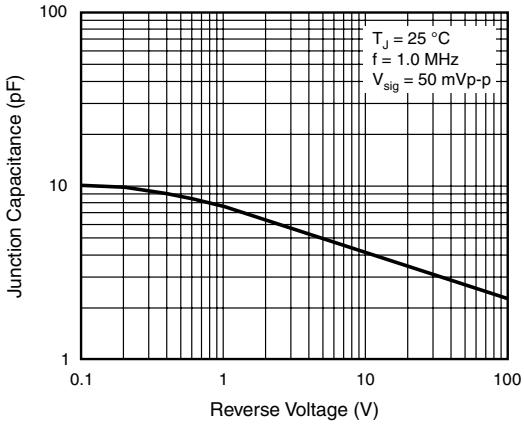


Figure 5. Typical Junction Capacitance

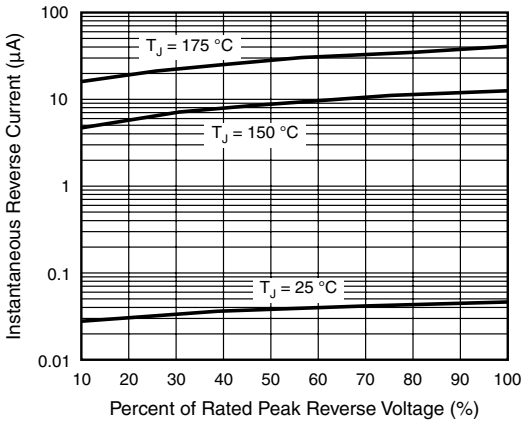
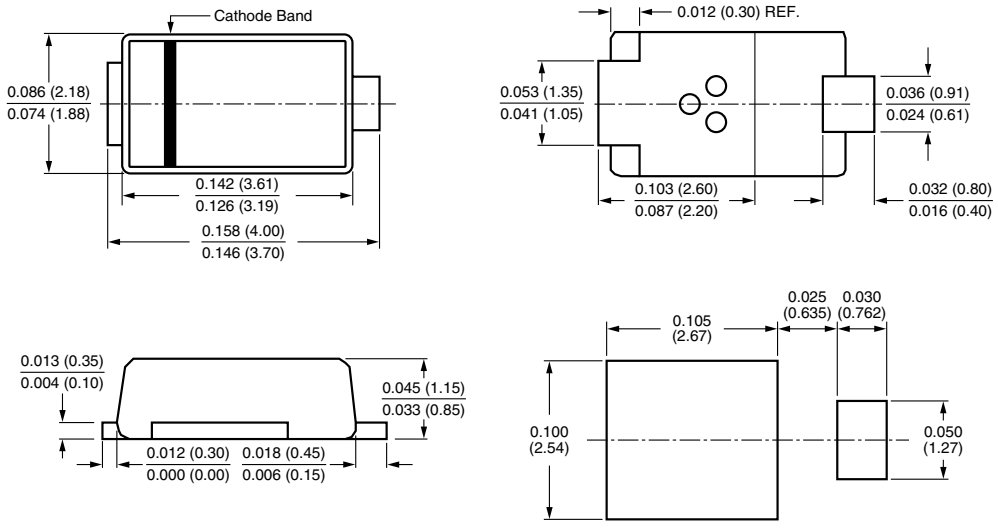


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-220AA (SMP)



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