SE20PB, SE20PD, SE20PG, SE20PJ

Vishay General Semiconductor

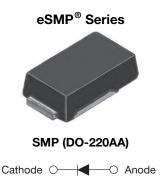
AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN

Surface-Mount ESD Capability Rectifiers



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V _{RRM}	100 V, 200 V, 400 V, 600 V				
I _{FSM}	32 A				
V_F at $I_F = 2.0$ A $(T_A = 125 ^{\circ}C)$	0.85 V				
I _R	5 μΑ				
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
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMP (DO-221AA)

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 automotive grade

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

M3 suffix meets JESD 201 class 1A whisker test, 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	SE20PB	SE20PD	SE20PG	SE20PJ	UNIT
Device marking code		20B	20D	20G	20J	
Maximum repetitive peak reverse voltage	V _{RRM}	100	200	400	600	V
Average forward current (fig. 1)	I _{F(AV)} (1)	2.0			А	
Average forward current (fig. 1)	I _{F(AV)} (2)	1.6				
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	32			Α	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175				°C

Notes

- (1) Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB
- (2) Free air, mounted on recommended copper pad area



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST C	ONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 1.0 A	T _A = 25 °C		0.90	-	V
	I _F = 2.0 A		V _F ⁽¹⁾	0.96	1.05	
	I _F = 1.0 A	- T _A = 125 °C	V _F (·)	0.78	=	
	I _F = 2.0 A			0.85	0.95	
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	-	5.0	μА
	naieu v _R	T _A = 125 °C	IR (=)	16	100	
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	1.2	-	μs
Typical junction capacitance	4.0 V, 1 MHz		CJ	13	=	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 SE20PB SE20PD SE20PJ UNIT						UNIT
Typical thermal resistance		105			°C/W	
Typical thermal resistance	R _{0JM} (2)	20			C/VV	

Notes

 $^{(1)}$ Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB; $R_{\theta JM}$ - junction to mount

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 k Ω	V _C	НЗВ	> 8 kV	

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SE20PJ-M3/84A	0.024	84A	3000	7" diameter plastic tape and reel		
SE20PJ-M3/85A	0.024	85A	10 000	13" diameter plastic tape and reel		
SE20PJHM3/84A (1)	0.024	84A	3000	7" diameter plastic tape and reel		
SE20PJHM3/85A ⁽¹⁾	0.024	85A	10 000	13" diameter plastic tape and reel		

Note

(1) AEC-Q101 qualified

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

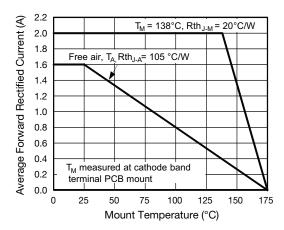


Fig. 1 - Maximum Forward Current Derating Curve

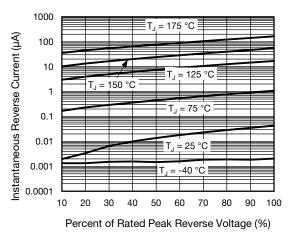


Fig. 4 - Typical Reverse Leakage Characteristics

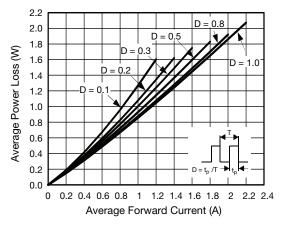


Fig. 2 - Forward Power Loss Characteristics

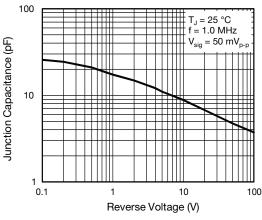


Fig. 5 - Typical Junction Capacitance

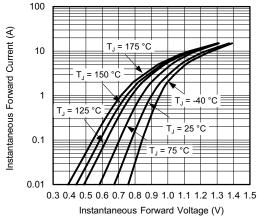


Fig. 3 - Typical Instantaneous Forward Characteristics

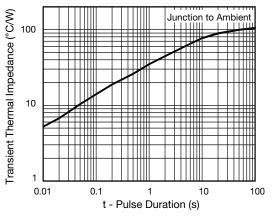


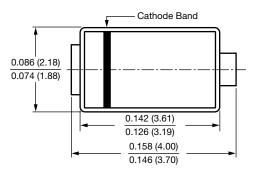
Fig. 6 - Typical Junction Capacitance

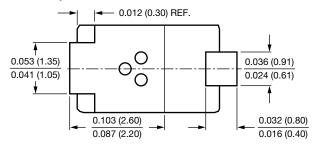
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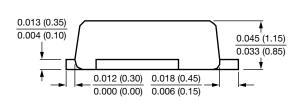
Vishay General Semiconductor

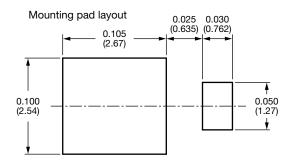
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)











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