



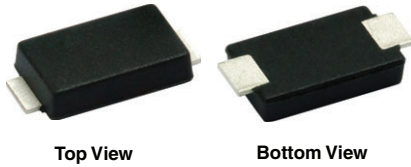
**THE DATASHEET OF  
SE20AFBHM3/6B**





Surface-Mount ESD Capability Rectifiers

eSMP® Series



SlimSMA (DO-221AC)



FEATURES

- Very low profile - typical height of 0.95 mm
Ideal for automated placement
Oxide planar chip junction
Low forward voltage drop, low leakage current
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



LINKS TO ADDITIONAL RESOURCES



TYPICAL APPLICATIONS

General purpose, power line polarity protection, in both consumer and automotive applications.

MECHANICAL DATA

Case: SlimSMA (DO-221AC)
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
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

Table with 2 columns: Parameter and Value. Includes I\_F(AV), V\_RRM, I\_FSM, V\_F at I\_F = 2.0 A, I\_R, T\_J max., Package, and Circuit configuration.

Table with 7 columns: Parameter, Symbol, SE20AFB, SE20AFD, SE20AFG, SE20AFJ, and Unit. Contains maximum ratings for various parameters across different part numbers.

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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 1.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.91	-	V
	$I_F = 2.0\text{ A}$			0.96	1.1	
	$I_F = 1.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.79	-	
	$I_F = 2.0\text{ A}$			0.86	0.98	
Reverse current	Rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	5.0	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		8	100	
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		$t_{rr}$	1.2	-	$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	12	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SE20AFB	SE20AFD	SE20AFG	SE20AFJ	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	125				$^\circ\text{C/W}$
	$R_{\theta JM}^{(2)}$	12				

**Notes**(1) Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance  $R_{\theta JA}$  - junction to ambient(2) Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB;  $R_{\theta JM}$  - junction to mount

<b>IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	$C = 100\text{ pF}, R = 1.5\text{ k}\Omega$	$V_C$	H3B	$> 8\text{ kV}$

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SE20AFJ-M3/6A	0.032	6A	3500	7" diameter plastic tape and reel
SE20AFJ-M3/6B	0.032	6B	14 000	13" diameter plastic tape and reel
SE20AFJHM3/6A <sup>(1)</sup>	0.032	6A	3500	7" diameter plastic tape and reel
SE20AFJHM3/6B <sup>(1)</sup>	0.032	6B	14 000	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified



## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

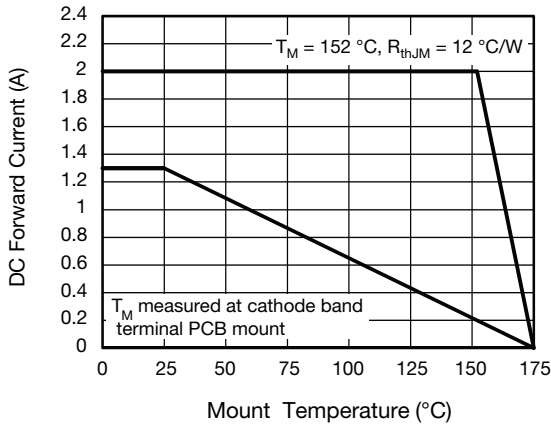


Fig. 1 - Maximum Forward Current Derating Curve

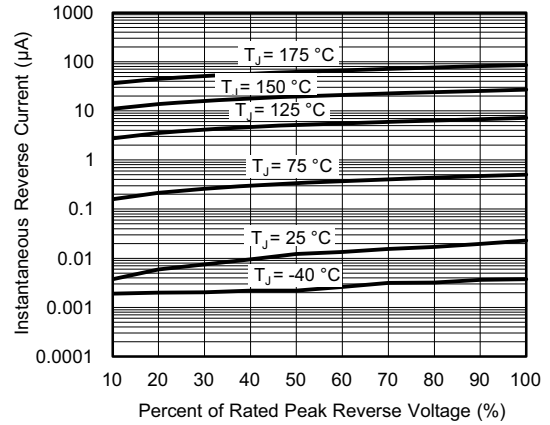


Fig. 4 - Typical Reverse Leakage Characteristics

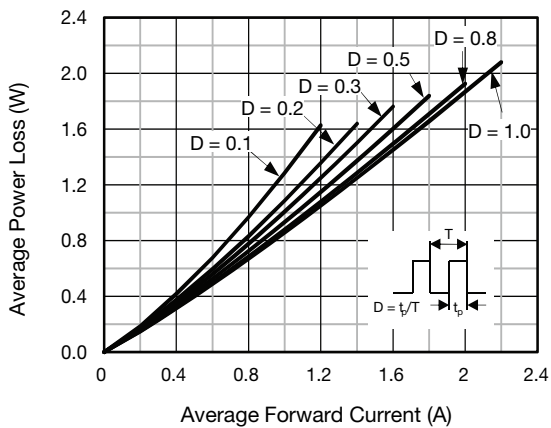


Fig. 2 - Forward Power Loss Characteristics

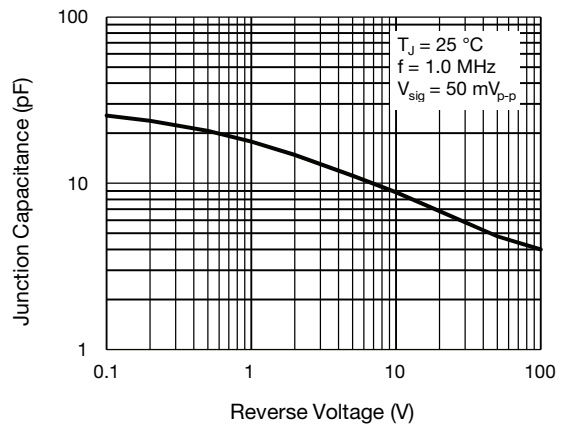


Fig. 5 - Typical Junction Capacitance

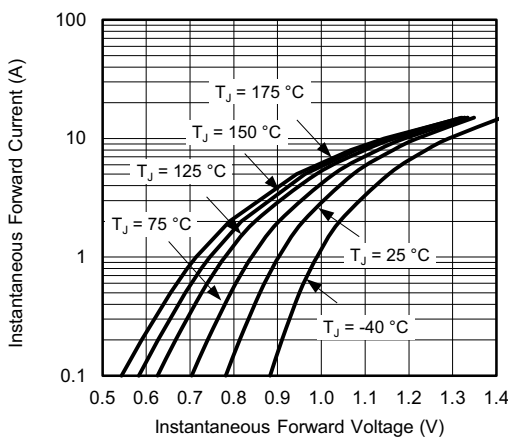


Fig. 3 - Typical Instantaneous Forward Characteristics

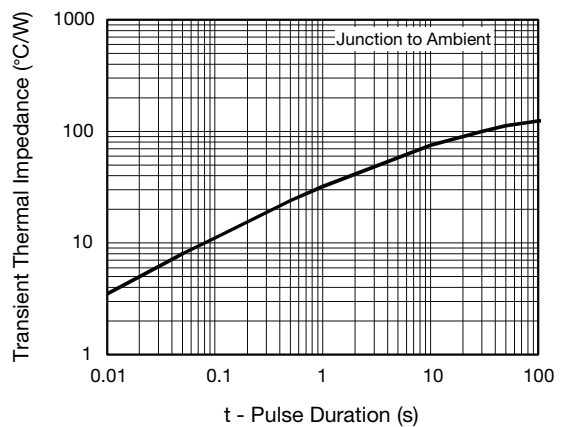


Fig. 6 - Typical Junction Capacitance

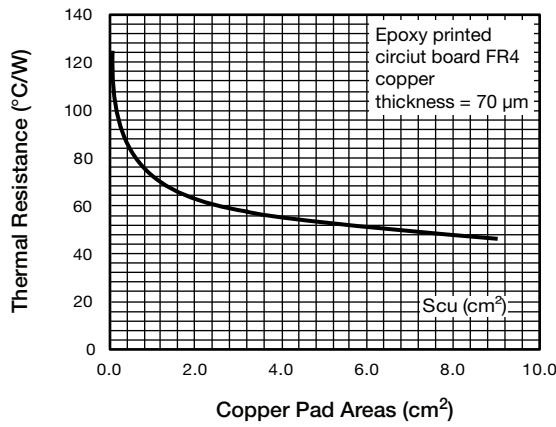
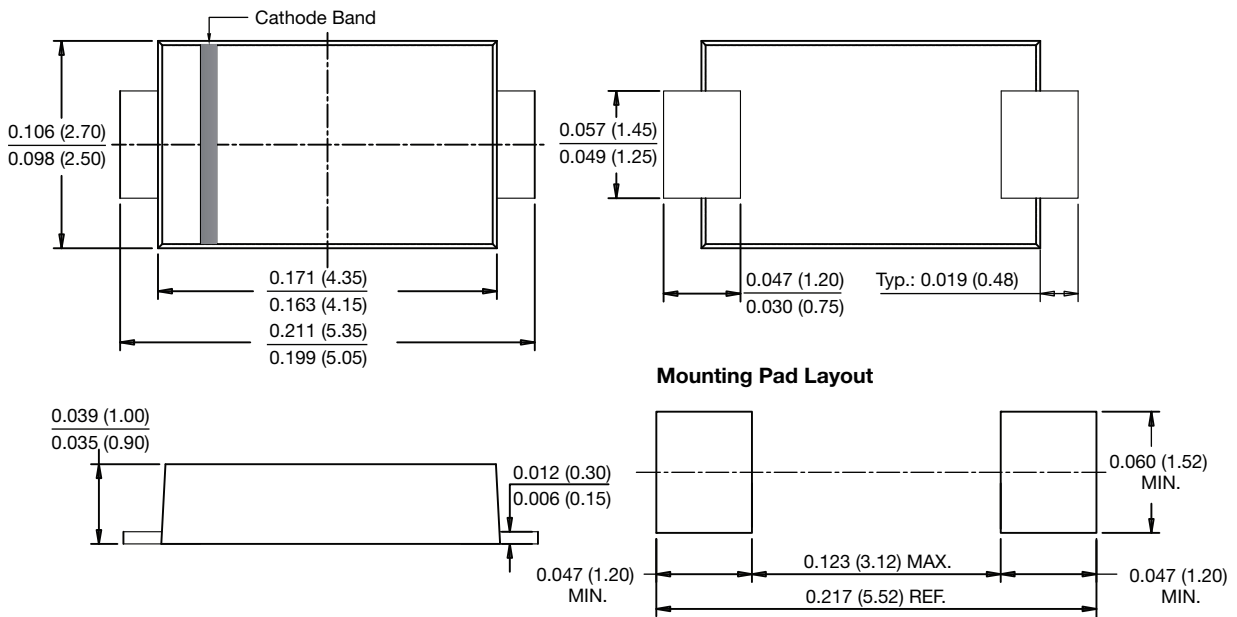


Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SlimSMA (DO-221AC)**





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