SE30AFB, SE30AFD, SE30AFG, SE30AFJ

Vishay General Semiconductor

RoHS

HALOGEN

FREE

Surface Mount ESD Capability Rectifiers

SlimSMA



Top View

Bottom View

DO-221AC

PRIMARY CHARACTERISTICS					
I _{F(AV)}	3.0 A				
V _{RRM}	100 V, 200 V, 400 V, 600 V				
I _{FSM}	40 A				
V_F at $I_F = 3.0$ A $(T_A = 125 ^{\circ}C)$	0.86 V				
I _R	10 μA				
T _J max.	175 °C				
Package	DO-221AC (SlimSMA)				
Diode variations	Single die				

TYPICAL APPLICATIONS

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

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 <u>www.vishay.com/doc?99912</u>

MECHANICAL DATA

Case: DO-221AC (SlimSMA)

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 gualified

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

M3 suffix meets JESD 201 class 2 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	SE30AFB	SE30AFD	SE30AFG	SE30AFJ	UNIT
Device marking code		S3B	S3D	S3G	S3J	
Maximum repetitive peak reverse voltage	V _{RRM}	100	200	400	600	V
Maximum DC forward current	I _F ⁽¹⁾	3.0				Α
Maximum DC forward current	I _F ⁽²⁾	1.4				
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	40			Α	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175			°C	

Notes

- (1) Mounted on 15 mm x 15 mm pad areas, 2 oz. FR4 PCB
- (2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST C	ONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 1.5 A	T _A = 25 °C		0.91	-	V
	I _F = 3.0 A		V _F (1)	0.97	1.1	
	I _F = 1.5 A	T _A = 125 °C	V _F ···/	0.79	-	
	I _F = 3.0 A			0.86	0.98	
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	=	10	μΑ
	nateu v _R	T _A = 125 °C	IR (=)	13	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}	1.5	-	μs
Typical junction capacitance	4.0 V, 1 MHz		CJ	19	-	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 SE30AFB SE30AFD SE30AFG SE30AFJ UNIT						
Typical thermal resistance		125				°C/W
Typical thermal resistance	R _{0JM} (2)	12				C/ VV

Notes

- $^{(1)}$ Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance $R_{\theta JA}$ junction to ambient
- $^{(2)}$ Mounted on 15 mm x 15 mm pad areas, 2 oz. FR4 PCB; $R_{\theta JM}$ junction to mount

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS ($T_A = 25~^{\circ}\text{C}$ 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	

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SE30AFJ-M3/6A	0.032	6A	3500	7" diameter plastic tape and reel	
SE30AFJ-M3/6B	0.032	6B	14 000	13" diameter plastic tape and reel	
SE30AFJHM3/6A (1)	0.032	6A	3500	7" diameter plastic tape and reel	
SE30AFJHM3/6B (1)	0.032	6B	14 000	13" diameter plastic tape and reel	

Note

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

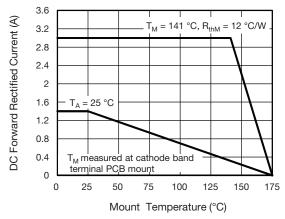


Fig. 1 - Maximum Forward Current Derating Curve

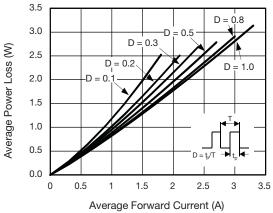


Fig. 2 - Forward Power Loss Characteristics

⁽¹⁾ AEC-Q101 qualified



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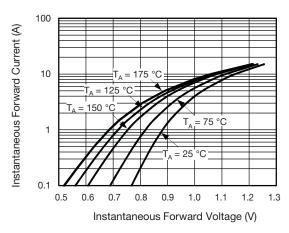


Fig. 3 - Typical Instantaneous Forward Characteristics

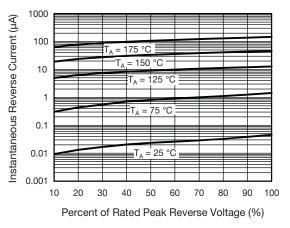


Fig. 4 - Typical Reverse Leakage Characteristics

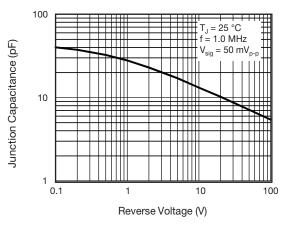


Fig. 5 - Typical Junction Capacitance

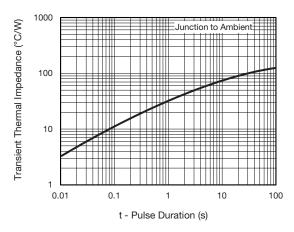


Fig. 6 - Typical Junction Capacitance

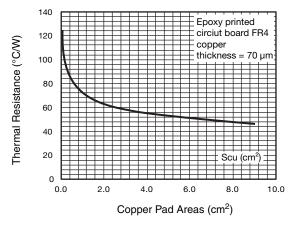


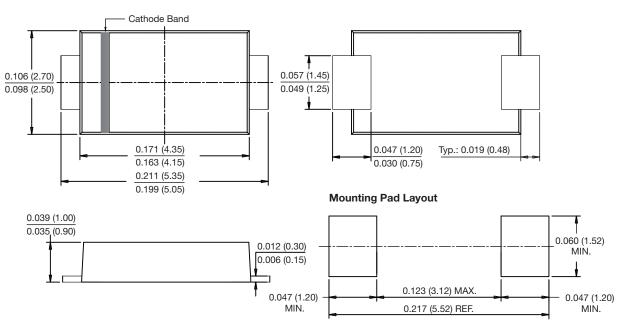
Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-221AC (SlimSMA)





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