

# Surface Mount Schottky Barrier Rectifier



## FEATURES

- Low profile package
- Ideal for automated placement
- Low forward voltage drop, low power losses
- Low leakage current
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Wave and reflow solderable
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc299912](http://www.vishay.com/doc299912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in commercial, industrial, and automotive applications.

## MECHANICAL DATA

**Case:** DO-219AB (SMF)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant

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 and HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes the cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	100 V
$I_{FSM}$	40 A
$V_F$ at $I_F = 1.0$ A ( $T_A = 125$ °C)	0.57 V
$T_J$ max.	175 °C
Package	DO-219AB (SMF)
Diode variations	Single die

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	SS1FH10	UNIT
Device marking code		110	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}^{(1)}$	1.0	A
Non-repetitive peak forward surge current 8.3 ms single half sine-wave at $T_{J(init)} = 25$ °C	$I_{FSM}$	40	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175	°C

### Note

(1) Free air, mounted on recommended copper pad area



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 0.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.65	-	V
	I <sub>F</sub> = 1.0 A			0.72	0.80	
	I <sub>F</sub> = 0.5 A	T <sub>A</sub> = 125 °C		0.51	-	
	I <sub>F</sub> = 1.0 A			0.57	0.65	
Reverse current	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	5	μA
		T <sub>A</sub> = 125 °C		65	160	
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	70	-	pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (2) Pulse test: Pulse width  $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	SS1FH10	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)(3)}$	125	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(2)(3)}$	26	

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$   
 (2) Device mounted on FR4 PCB, 2 oz. standard footprint  
 (3) Thermal resistance  $R_{\theta JA}$  - junction to ambient;  $R_{\theta JM}$  - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SS1FH10-M3/H	0.015	H	3000	7" diameter plastic tape and reel
SS1FH10-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SS1FH10HM3/H <sup>(1)</sup>	0.015	H	3000	7" diameter plastic tape and reel
SS1FH10HM3/I <sup>(1)</sup>	0.015	I	10 000	13" diameter plastic tape and reel

**Note**

- (1) AEC-Q101 qualified

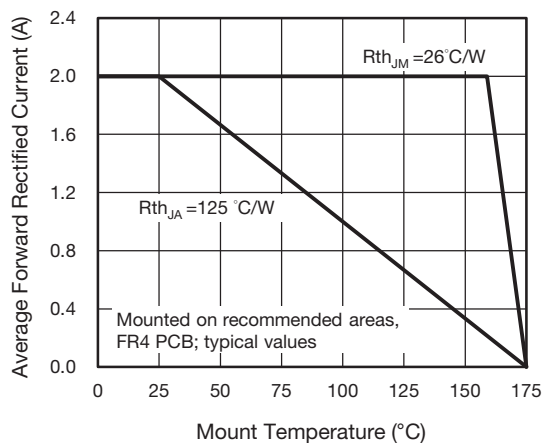
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Typical Forward Current Derating Curve

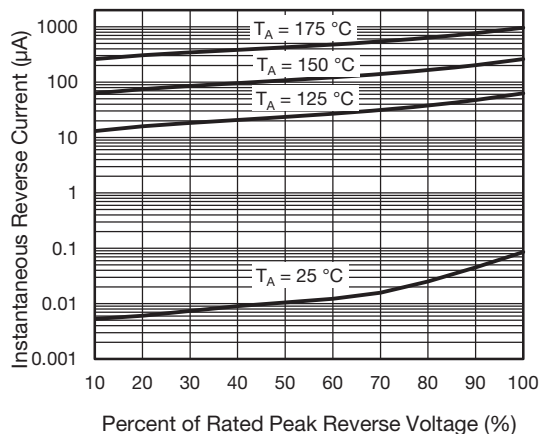


Fig. 4 - Typical Reverse Leakage Characteristics

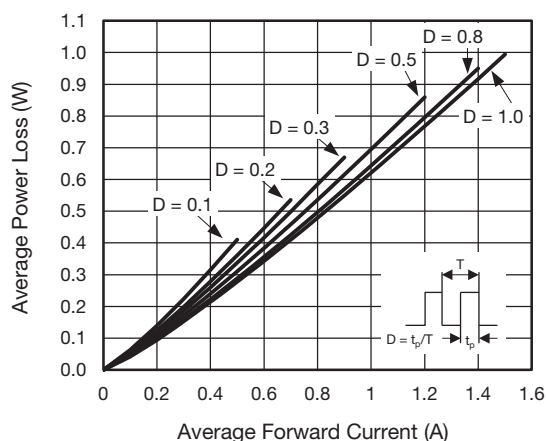


Fig. 2 - Forward Power Loss Characteristics

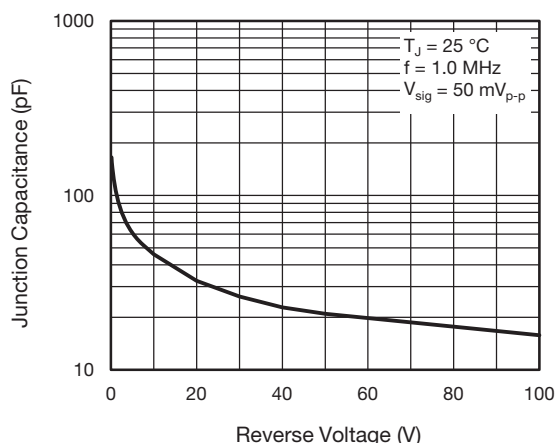


Fig. 5 - Typical Junction Capacitance

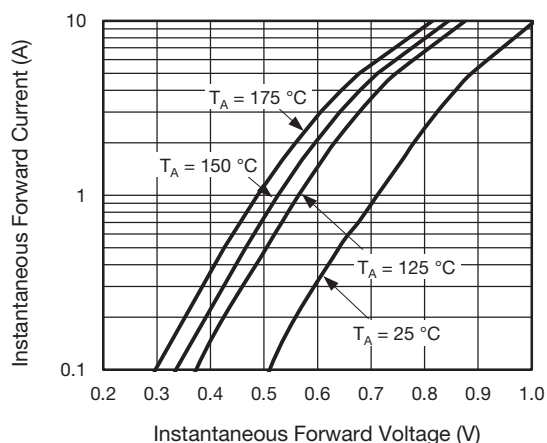


Fig. 3 - Typical Instantaneous Forward Characteristics

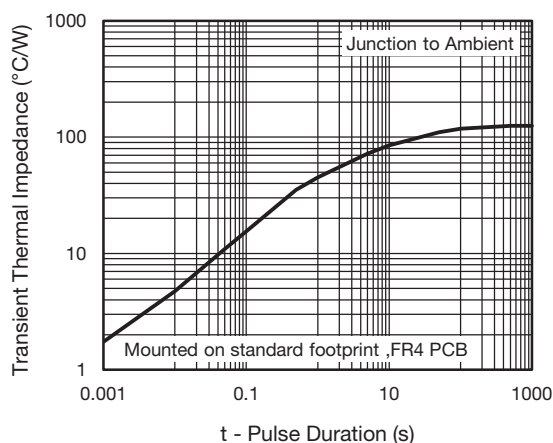
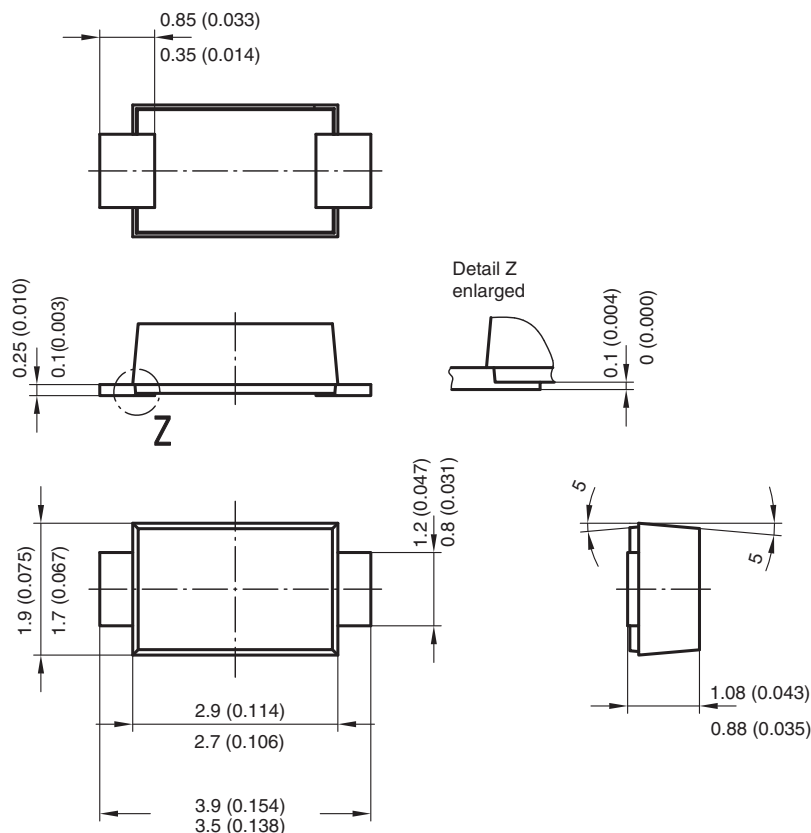


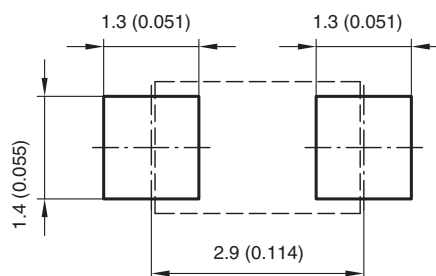
Fig. 6 - Typical Transient Thermal Impedance



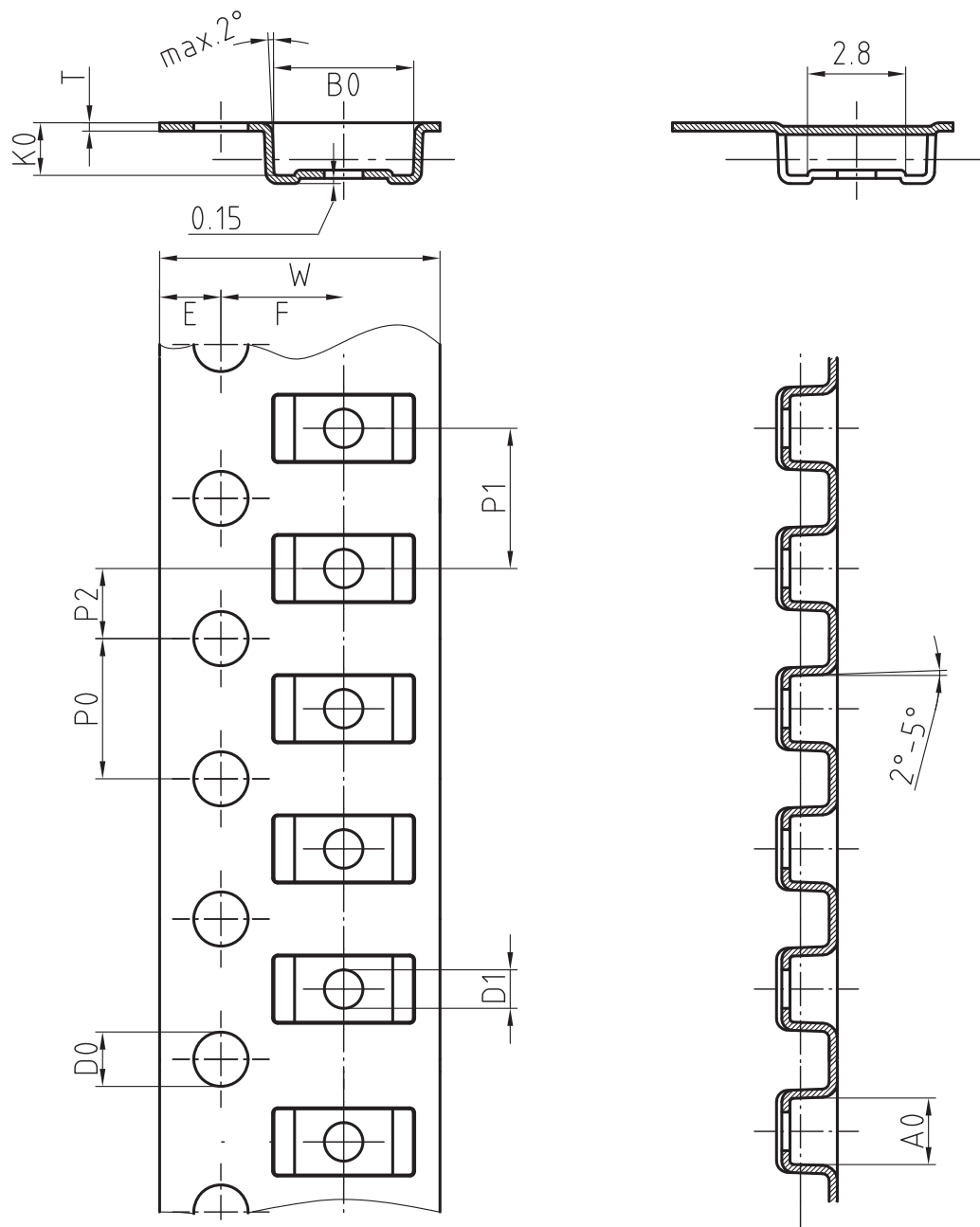
**PACKAGE OUTLINE DIMENSIONS** in millimeters (inches)



Foot print recommendation:



Created - Date: 15. February 2005  
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17247

**BLISTERTAPE DIMENSIONS** in millimeters: **DO-219AB (SMF)**


Mat:	A0	B0	K0	W	T	P0	P2	P1	D0	D1	E	F
PS	1.9	4.0	1.5	8.0	0.235	4.0	2.0	4.0	1.5	1	1.75	3.5

Document-No.: S8-V-3717.02-001 (3)

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