Surface-Mount Standard Rectifiers

TMBS® eSMP® Series



Top view Bottom view

SMF (DO-219AB)

Cathode ○—|◀—○ Anode

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	200 V, 400 V, 600 V
I_{FSM}	25 A
V_F at I_F = 1.0 A (T_A = 125 °C)	0.85 V
I_R	5 µA
T_J max.	175 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

FEATURES

- Low profile package
- 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
- 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/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT HALOGEN FREE

TYPICAL APPLICATIONS

General purpose, power line polarity protection, in commercial, industrial, and automotive applications.

MECHANICAL DATA

Case: SMF (DO-219AB)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - for halogen-free, RoHS-compliant
Base P/NHM3 - for 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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	SE10FD	SE10FG	SE10FJ	UNIT
Device marking code		AD	AG	AJ	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	V
Maximum DC forward current	$I_{F(AV)}$ (1)	1.0			A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	25			A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175			°C

Notes

(1) Free air, mounted on recommended PCB, 2 oz. pad area

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 0.5 A	T_A = 25 °C	V_F (1)	0.90	-	V
	I_F = 1.0 A			0.95	1.05	
	I_F = 0.5 A	T_A = 125 °C		0.78	-	
	I_F = 1.0 A			0.85	0.95	
Reverse current	Rated V_R	T_A = 25 °C	I_R (2)	-	5	µA
		T_A = 125 °C		6.8	50	
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	780	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	7.5	-	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**	**SE10FD**	**SE10FG**	**SE10FJ**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	130			°C/W
	$R_{\theta JM}$ (1)	20			

Notes

(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient; $R_{\theta JM}$ - 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 kΩ	V_C	H3B	> 8 kV

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SE10FJ-M3/H	0.015	H	3000	7" diameter plastic tape and reel
SE10FJ-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SE10FJHM3/H (1)	0.015	H	3000	7" diameter plastic tape and reel
SE10FJHM3/I (1)	0.015	I	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)

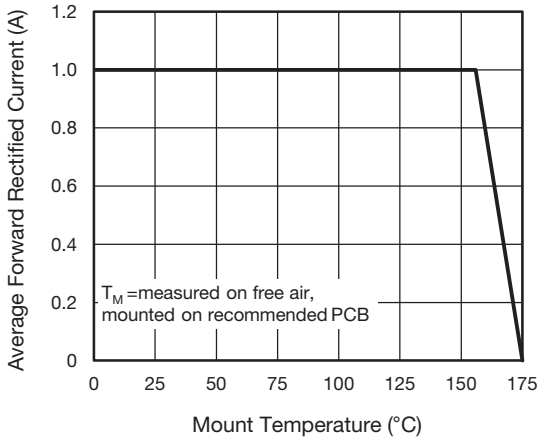

Fig. 1 - Maximum Forward Current Derating Curve

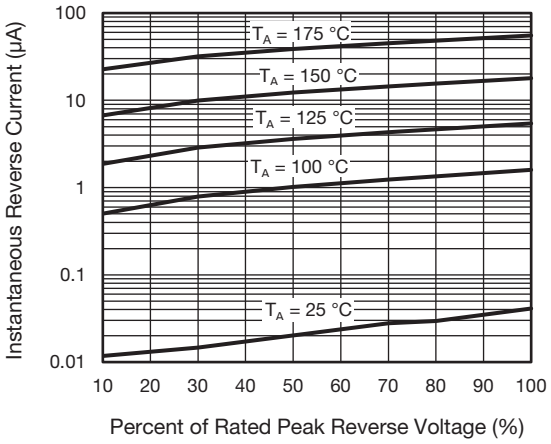

Fig. 4 - Typical Reverse Leakage Characteristics

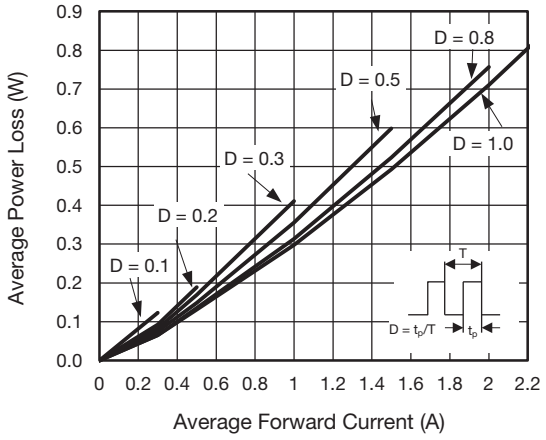

Fig. 2 - Average Power Loss Characteristics

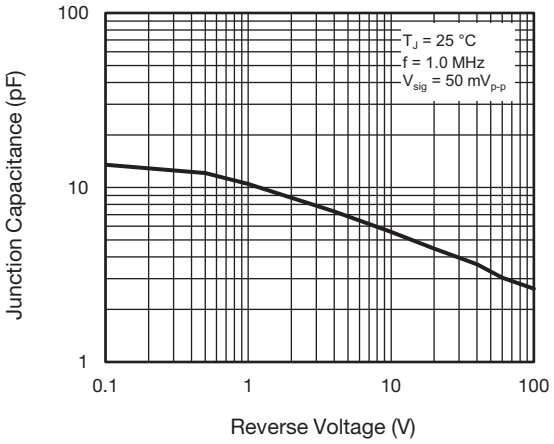

Fig. 5 - Typical Junction Capacitance

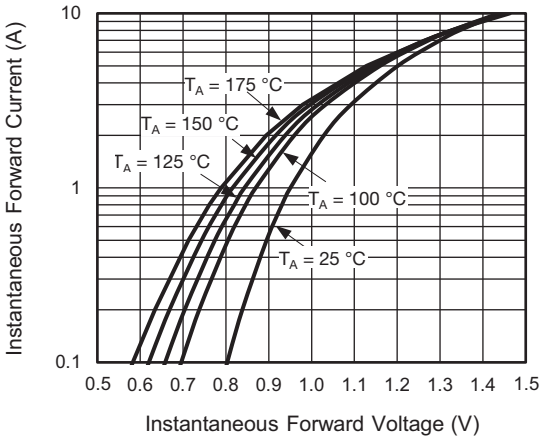

Fig. 3 - Typical Instantaneous Forward Characteristics

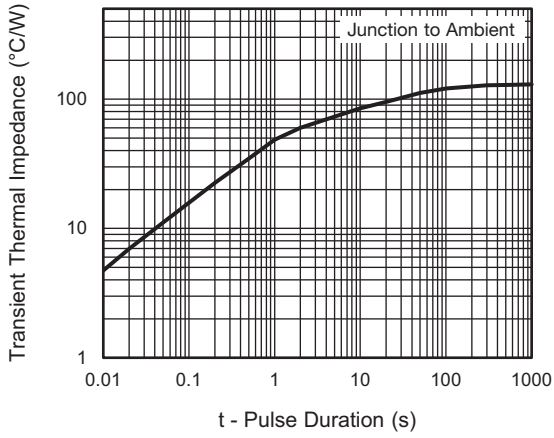

Fig. 6 - Typical Transient Thermal Impedance

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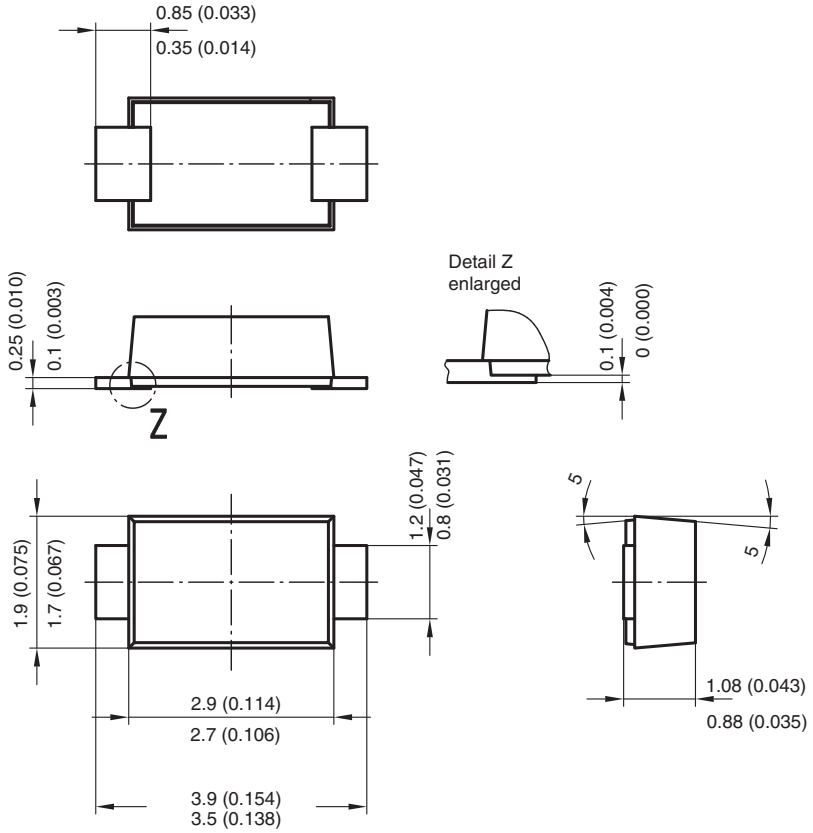
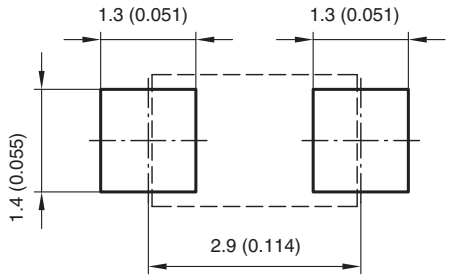
PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



Foot print recommendation:



Created - Date: 15. February 2005
Rev. 3 - Date: 13. March 2007
Document no.:S8-V-3915.01-001 (4)
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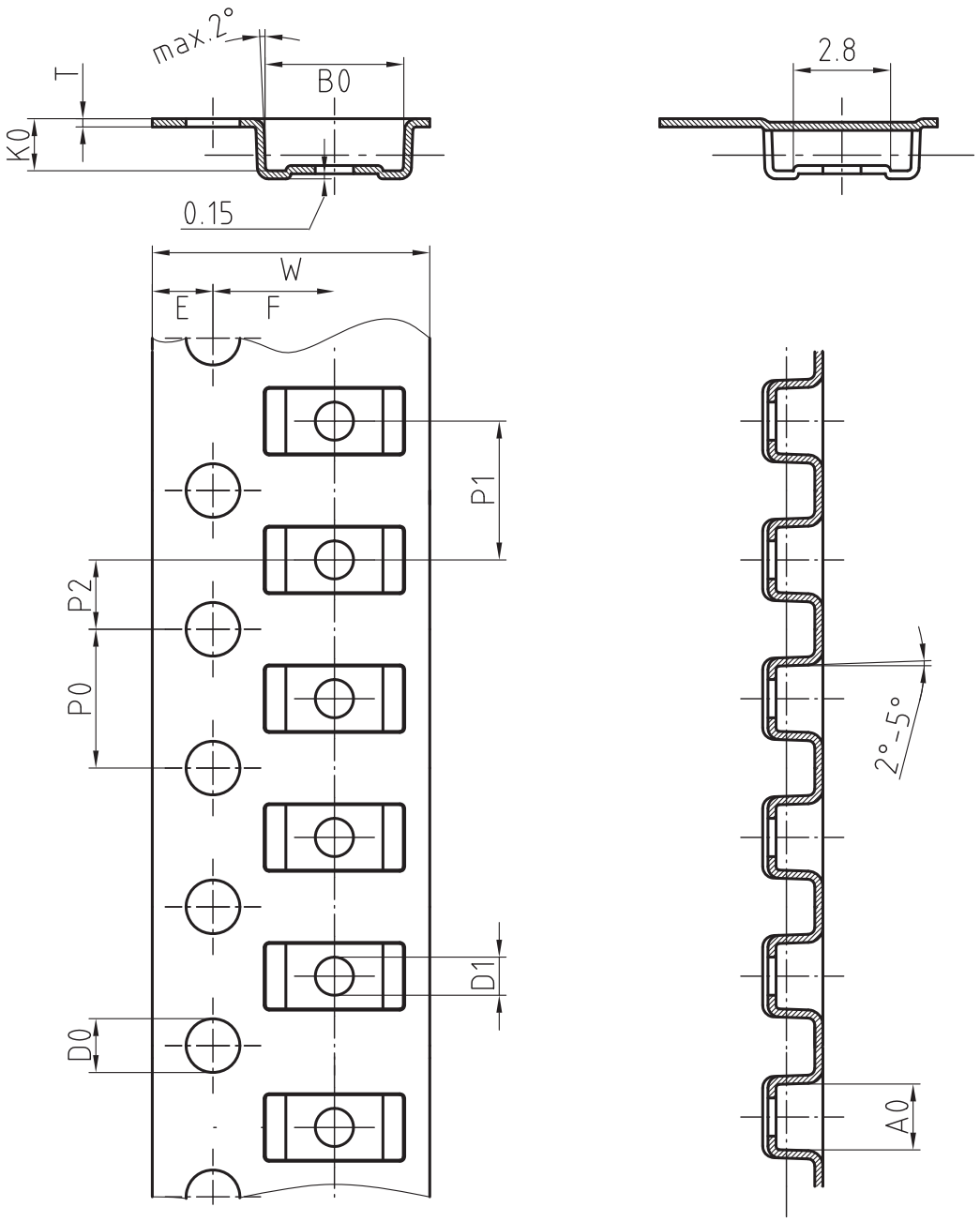
BLISTERTAPE DIMENSIONS in millimeters: **SMF (DO-219AB)**



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

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