

Surface Mount Standard Rectifiers



RoHS
COMPLIANT
HALOGEN
FREE

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
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: DO-219AB (SMF)

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

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 μ A
T_J max.	175 °C
Package	DO-219AB (SMF)
Diode variations	Single die

TYPICAL APPLICATIONS

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

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 average forward rectified 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

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	μ A
		$T_A = 125$ °C		6.8	50	
Typical reverse recovery time	$I_F = 0.5$ A, $I_R = 1.0$ A, $t_{rr} = 0.25$ A		t_{rr}	780	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	7.5	-	pF

Notes

⁽¹⁾ Pulse test: 300 μ s pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms



THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	SE10FD	SE10FG	SE10FJ	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	130			$^\circ\text{C/W}$
	$R_{\theta JM}^{(2)}$	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 ($T_A = 25\text{ }^\circ\text{C}$ 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	$> 8\text{ kV}$

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

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

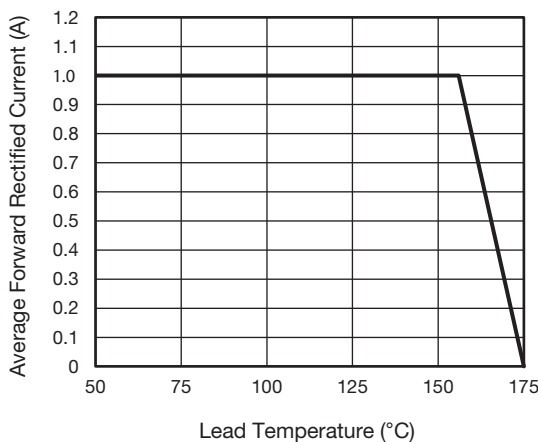


Fig. 1 - Maximum Forward Current Derating Curve

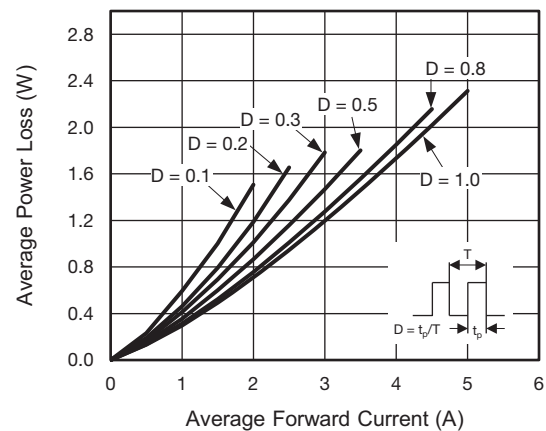


Fig. 2 - Average Power Loss Characteristics

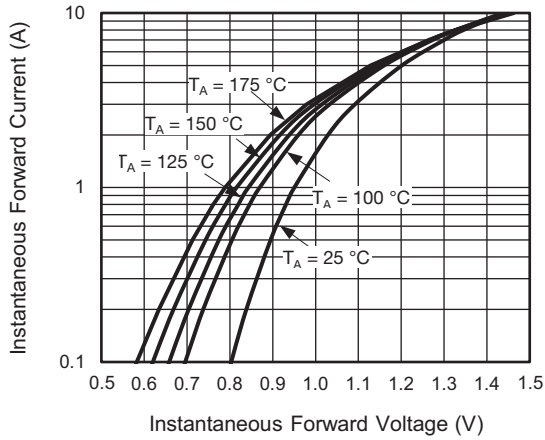


Fig. 3 - Typical Instantaneous Forward Characteristics

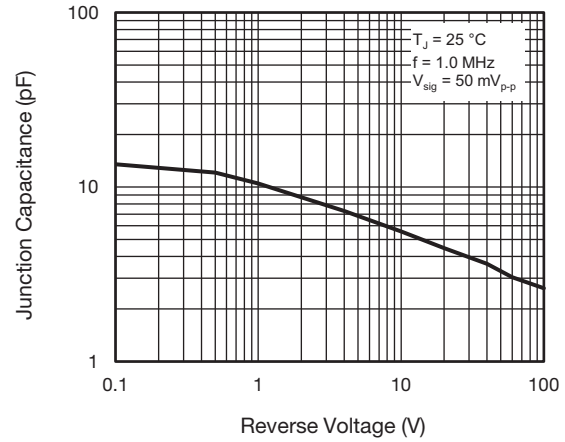


Fig. 5 - Typical Junction Capacitance

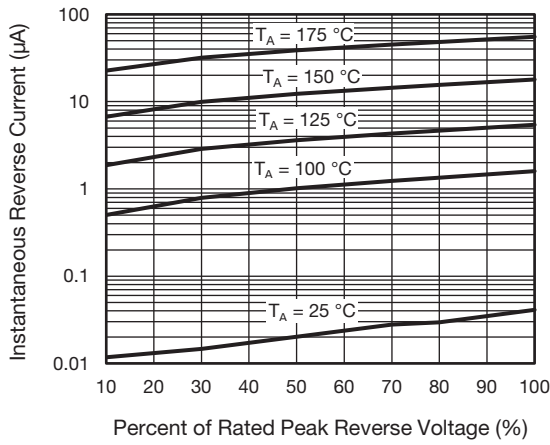


Fig. 4 - Typical Reverse Leakage Characteristics

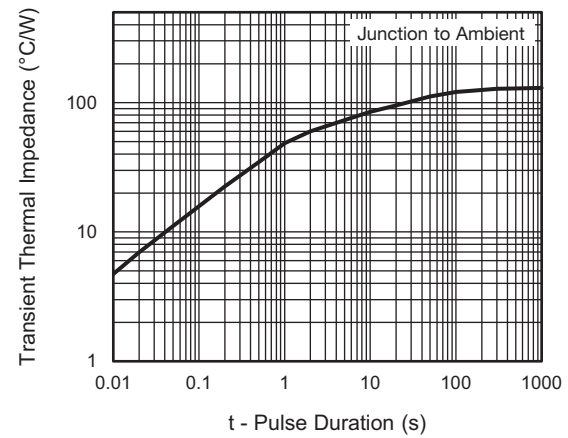
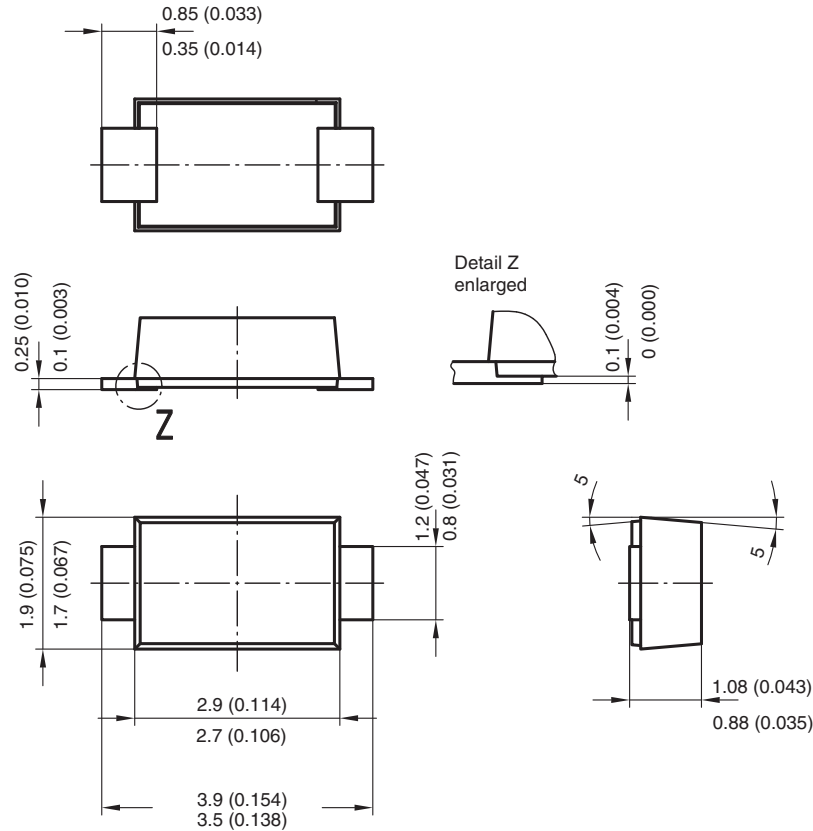


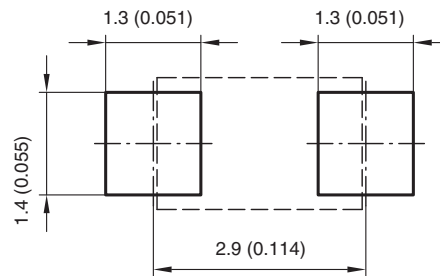
Fig. 6 - Typical Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



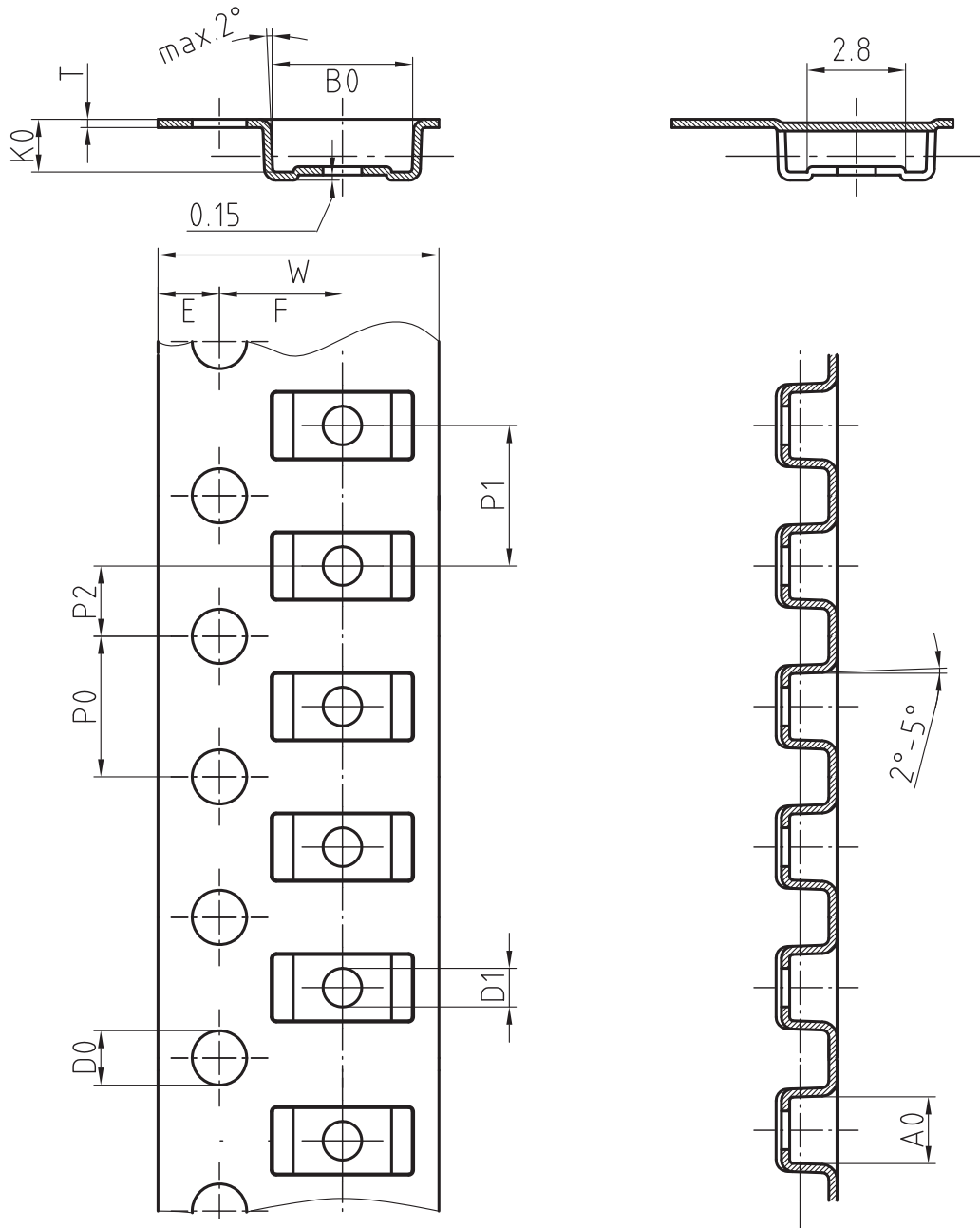
Foot print recommendation:



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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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