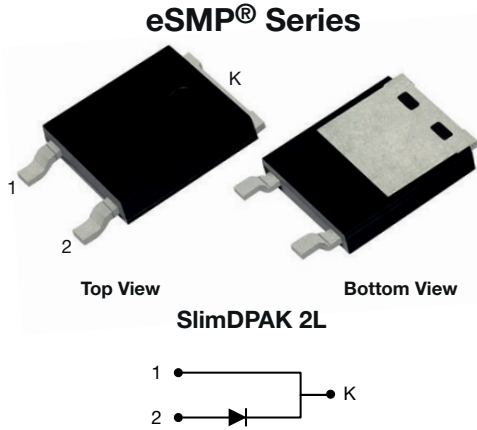


Surface-Mount ESD Capability Rectifier



FEATURES

- Creepage distance 2.8 mm typical and clearance distance 3.6 mm typical
- Very low profile - typical height of 1.3 mm
- Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop
- 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

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



TYPICAL APPLICATIONS

General purpose, power line polarity protection, in both industry and automotive on board charger applications.

MECHANICAL DATA

Case: SlimDPAK 2L

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: as marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10 A
V_{RRM}	400 V, 600 V
I_{FSM}	125 A
V_F at $I_F = 10$ A ($T_J = 125$ °C)	0.93 V
T_J max.	175 °C
Package	SlimDPAK 2L
Circuit configurations	Single

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)				
PARAMETER	SYMBOL	SE100PWTG	SE100PWTJ	UNIT
Device marking code		SE100PWTG	SE100PWTJ	
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}^{(1)}$	10		A
	$I_{F(AV)}^{(2)}$	2.7		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	125		A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175		°C

Notes

- (1) With infinite heatsink
(2) Free air, mounted on recommended copper pad area



ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Maximum Instantaneous forward voltage	$I_F = 5.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.93	-	V
	$I_F = 10.0\text{ A}$			1.01	1.14	
	$I_F = 5.0\text{ A}$	$T_J = 125\text{ }^\circ\text{C}$		0.82	-	
	$I_F = 10.0\text{ A}$			0.93	1.09	
Reverse current	Rated V_R	$T_J = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	20	μA
		$T_J = 125\text{ }^\circ\text{C}$		25	150	
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		t_{rr}	2600	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	78	-	pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
(2) Pulse test: pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	75	94	$^\circ\text{C/W}$
	$R_{\theta JM}^{(3)}$	2.2	2.8	

Notes

- (1) The heat generated must be less than thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$
(2) Thermal resistance junction to ambient to follow JEDEC[®] 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint
(3) Thermal resistance junction-to-mount to follow JEDEC[®] 51-14 transient dual interface test method (TDIM)

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
SE100PWTJ-M3/I	0.185	I	4500	13" diameter plastic tape and reel
SE100PWTJHM3/I ⁽¹⁾	0.185	I	4500	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)

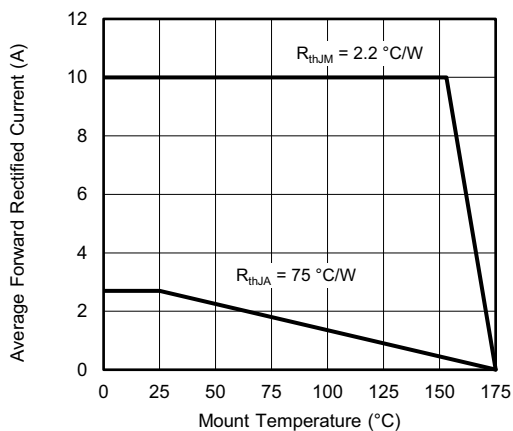


Fig. 1 - Maximum Forward Current Derating Curve

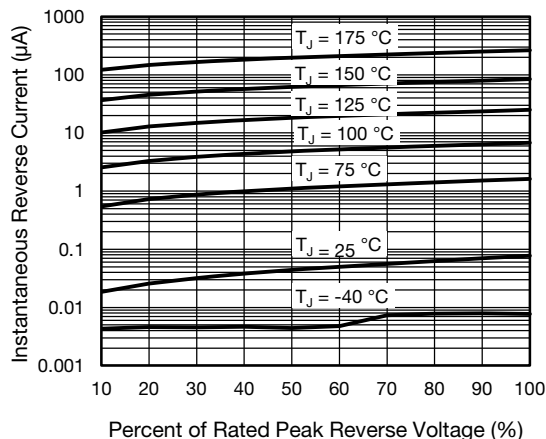


Fig. 4 - Typical Reverse Leakage Characteristics

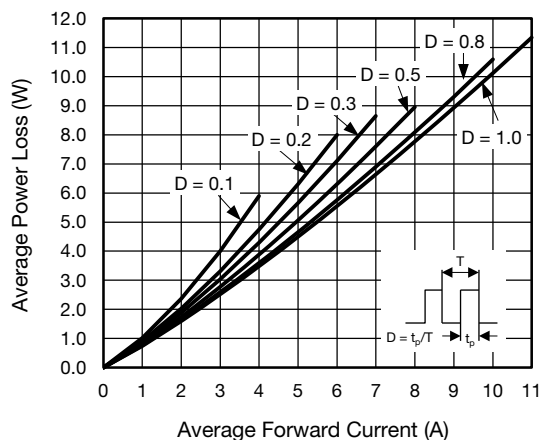


Fig. 2 - Forward Power Loss Characteristics

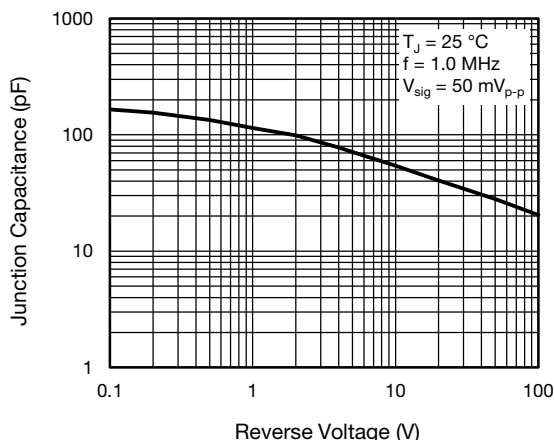


Fig. 5 - Typical Junction Capacitance

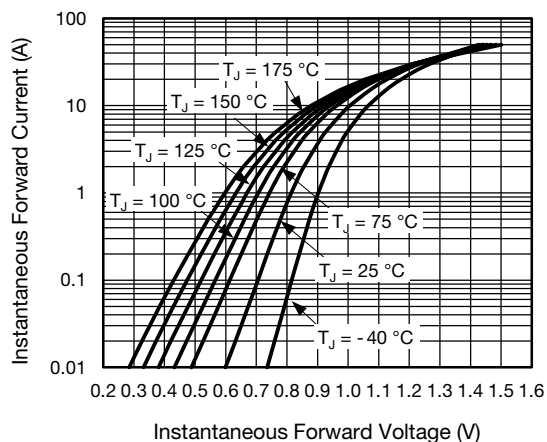


Fig. 3 - Typical Instantaneous Forward Characteristics

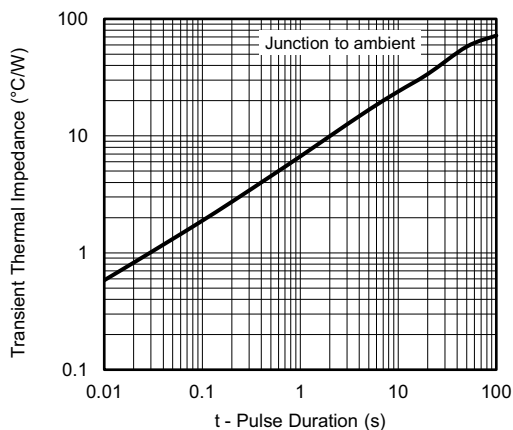
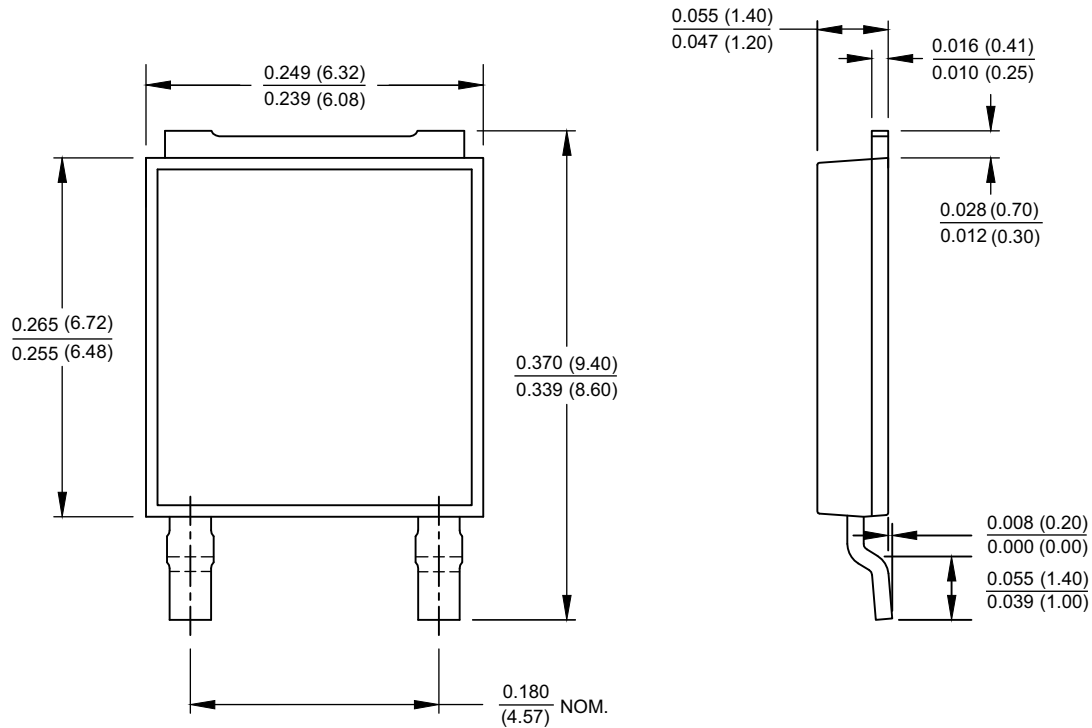


Fig. 6 - Typical Transient Thermal Impedance

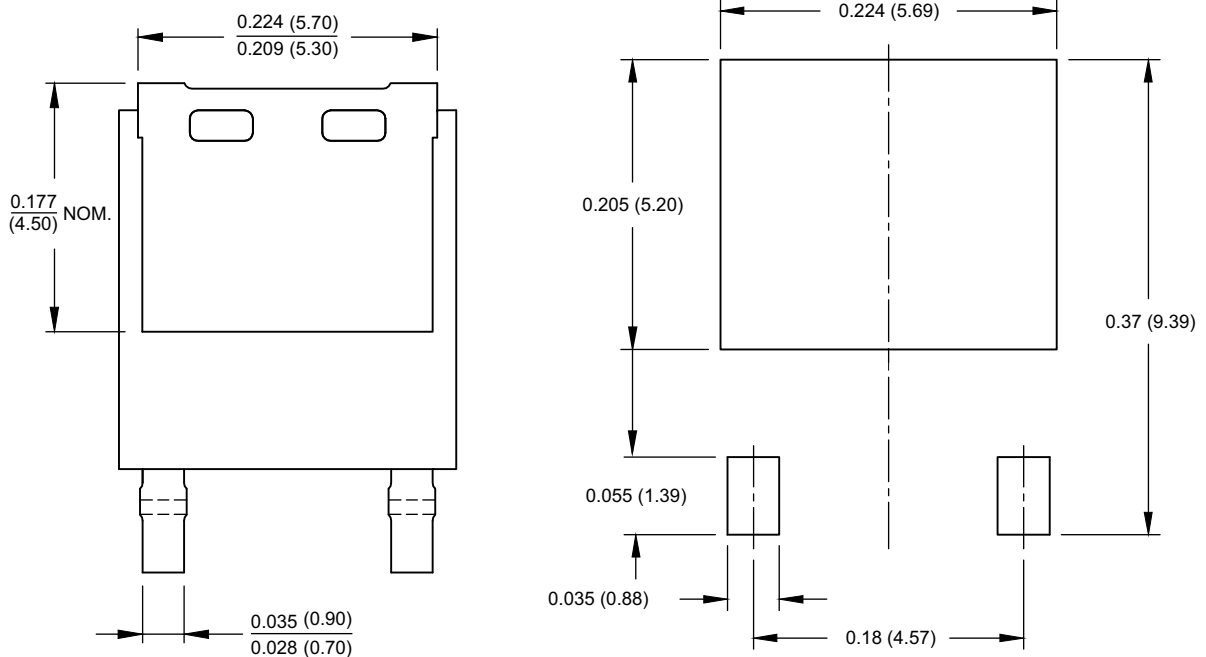


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimDPAK 2L



Mounting Pad Layout



Note

- The suggested mounting pad layout is provided for reference only, as actual pad layouts may vary depending on application



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