

AUTOMOTIVE

ROHS

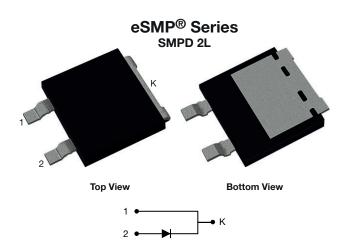
HALOGEN

FREE



Vishay General Semiconductor

Surface-Mount Low V_F Standard Rectifiers



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
I _{F(AV)}	10 A			
V_{RRM}	400 V, 600 V			
I _{FSM}	150 A			
V _F at I _F = 10 A (T _J = 125 °C)	0.83 V			
T _J max.	175 °C			
Package	SMPD 2L			
Circuit configuration	Single			

FEATURES

Creepage and clearance distance 3.6 mm minimum



- Very low profile typical height of 1.7 mm
- · Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop
- AEC-Q101 qualified available
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishav.com/doc?99912

TYPICAL APPLICATIONS

General purpose, power line polarity protection, in both consumer and automotive on board charger (OBC) applications.

MECHANICAL DATA

Case: SMPD 2L

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 qualified

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

M3 and HM3 suffix meet JESD 201 class 2 whisker test

Polarity: as marked

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SE10DTLG	SE10DTLJ	UNIT	
Device marking code		SE10DTLG	SE10DTLJ		
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	V	
Maximum DC forward current	I _F ⁽¹⁾	10		A	
	I _F ⁽²⁾	3.5			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	150		А	
Operating junction and storage temperature range	T _J , T _{STG} ⁽³⁾	-55 to +175		°C	

Notes

- (1) Mounted on infinite heatsink
- (2) Free air, mounted on recommended copper pad area
- $^{(3)}$ The heat generated must be less than the thermal conductivity junction to ambient $dP_D/dT_J < R_{thJA}$



SE10DTLG, SE10DTLJ

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ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5 A	- T _J = 25 °C	V _F ⁽¹⁾	0.87	=	V
	I _F = 10 A			0.95	1	
	$I_F = 5 A$	- T _J = 125 °C		0.73	-	
	I _F = 10 A			0.83	0.9	
Reverse current	Rated V _R	T _J = 25 °C	I _R ⁽²⁾	-	5	
	naieu v _R	T _J = 125 °C		10	50	- μΑ
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	280	-	ns
Typical junction capacitance	4.0 V, 1 MHz		CJ	70	-	pF

Notes

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

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

THERMAL CHARACTERISTICS (T _A = 25 °c unless otherwise noted)				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Typical thermal registance	R ₀ JA (1)(2)	57	71	°C/W
Typical thermal resistance	R _{0JM} (3)	1.5	1.8	

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) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance R_{0JA} junction to ambient to follow JEDEC® 51-2A
- (3) Mounted on infinite heatsink thermal resistance RthJM junction to mount to follow JEDEC® 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
SE10DTLJ-M3/I	0.51	1	2000/reel	13" diameter plastic tape and reel	
SE10DTLJHM3/I (1)	0.51	1	2000/reel	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)

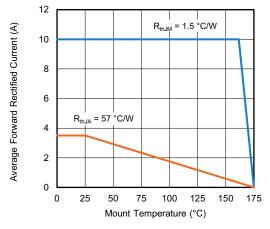


Fig. 1 - Forward Current Derating Curve

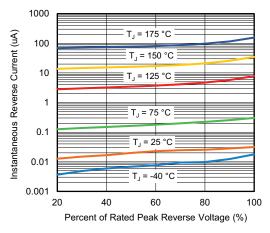


Fig. 4 - Typical Reverse Leakage Characteristics

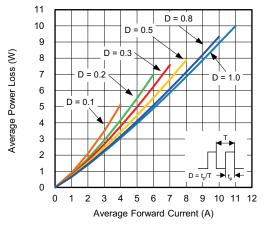


Fig. 2 - Forward Power Loss Characteristics

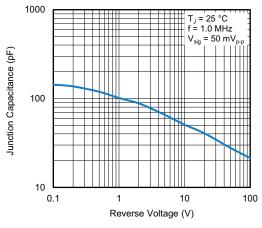


Fig. 5 - Typical Junction Capacitance

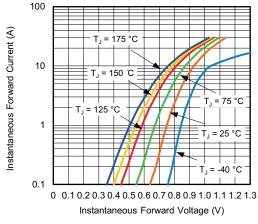


Fig. 3 - Typical Instantaneous Forward Characteristics

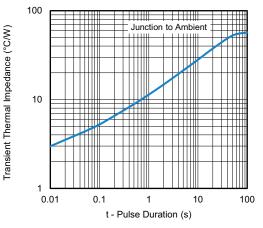


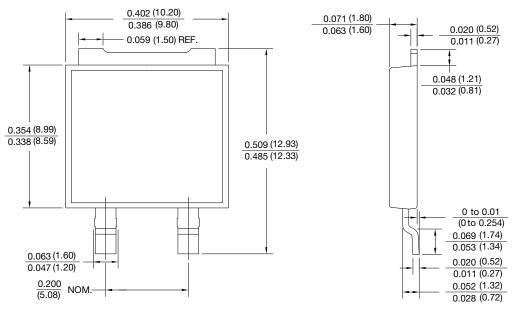
Fig. 6 - Typical Transient Thermal Impedance



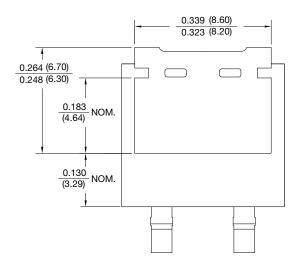
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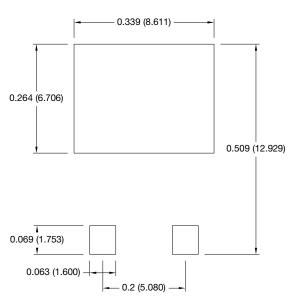
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)











Note

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



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