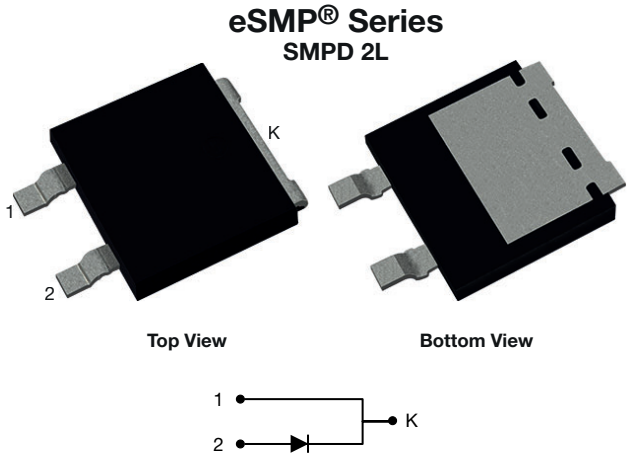
Surface-Mount High Voltage Rectifier



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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

TYPICAL APPLICATIONS

- ON Board charger (OBC)
- Charging stations
- Bridge function

LINKS TO ADDITIONAL RESOURCES

Ultra Librarian EDA / CAD

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 meets JESD 201 class 2 whisker test

Polarity: as marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	30 A
V_{RRM}	1200 V
I_{FSM}	300 A
V_F at I_F = 30 A (T_J = 150 °C)	1.01 V
I_R	10 µA
T_J max.	175 °C
Package	SMPD 2L
Circuit configuration	Single

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

PARAMETER	SYMBOL	SE30DT12	UNIT
Device marking code		SE30DT12	V
Maximum repetitive peak reverse voltage	V_{RRM}	1200	V
Maximum DC forward current	I_F (1)	30	A
	I_F (2)	3.5	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	300	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	°C

Notes

(1) With heatsink

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

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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 = 15 A	T_J = 25 °C	V_F (1)	1.03	-	V
	I_F = 30 A			1.16	1.29	
	I_F = 15 A	T_J = 150 °C		0.87	-	
	I_F = 30 A			1.01	-	
Reverse current	Rated V_R	T_J = 25 °C	I_R (2)	-	10	µA
		T_J = 150 °C		62	300	
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	3.4	-	µs
Typical junction capacitance	4.0 V, 1 MHz		C_J	132	-	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**	**SE30DT12**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)(2)	52	°C/W
	$R_{\theta JM}$ (3)	1.5	

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) 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)

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SE30DT12-M3/I	0.52	I	2000 / reel	13" diameter plastic tape and reel
SE30DT12HM3/I (1)	0.52	I	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)

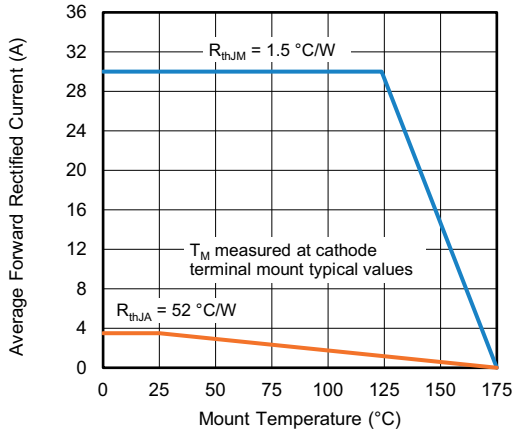


Fig. 1 - Forward Current Derating Curve

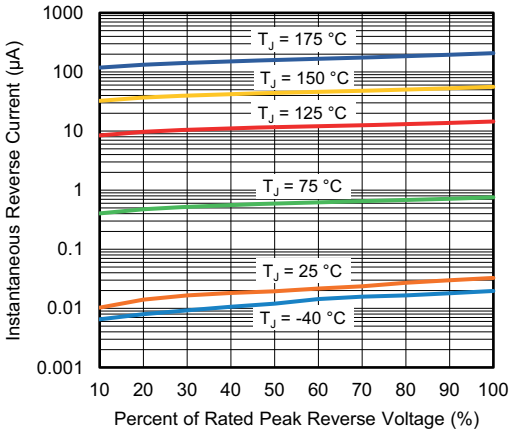


Fig. 4 - Typical Reverse Leakage Characteristics

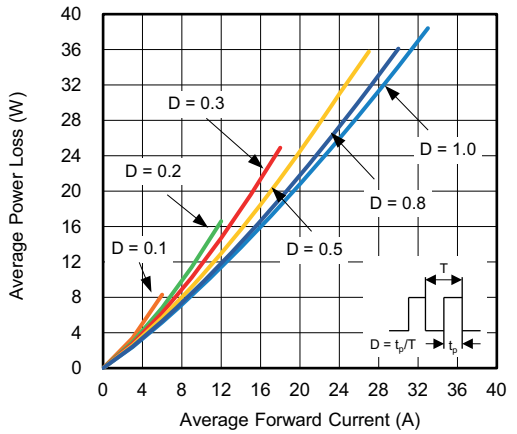


Fig. 2 - Forward Power Loss Characteristics

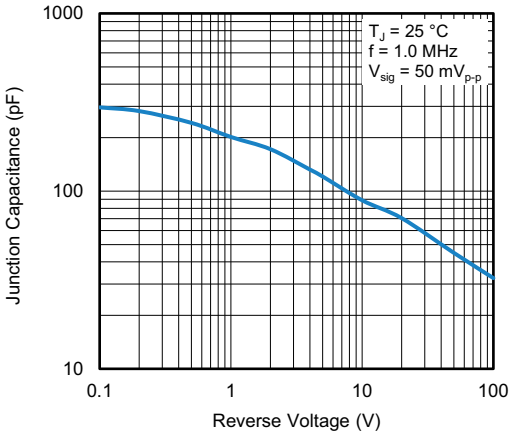


Fig. 5 - Typical Junction Capacitance

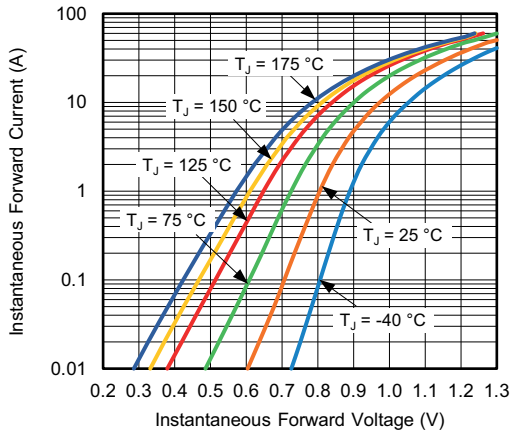


Fig. 3 - Typical Instantaneous Forward Characteristics

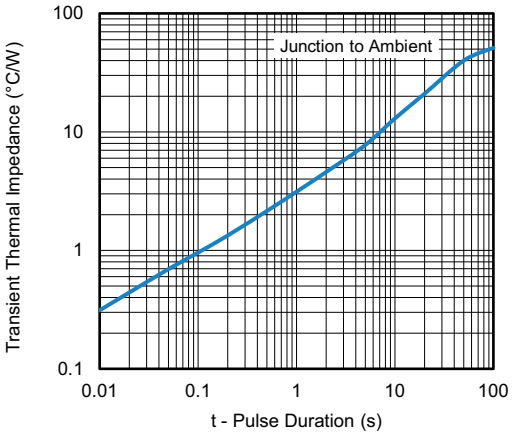
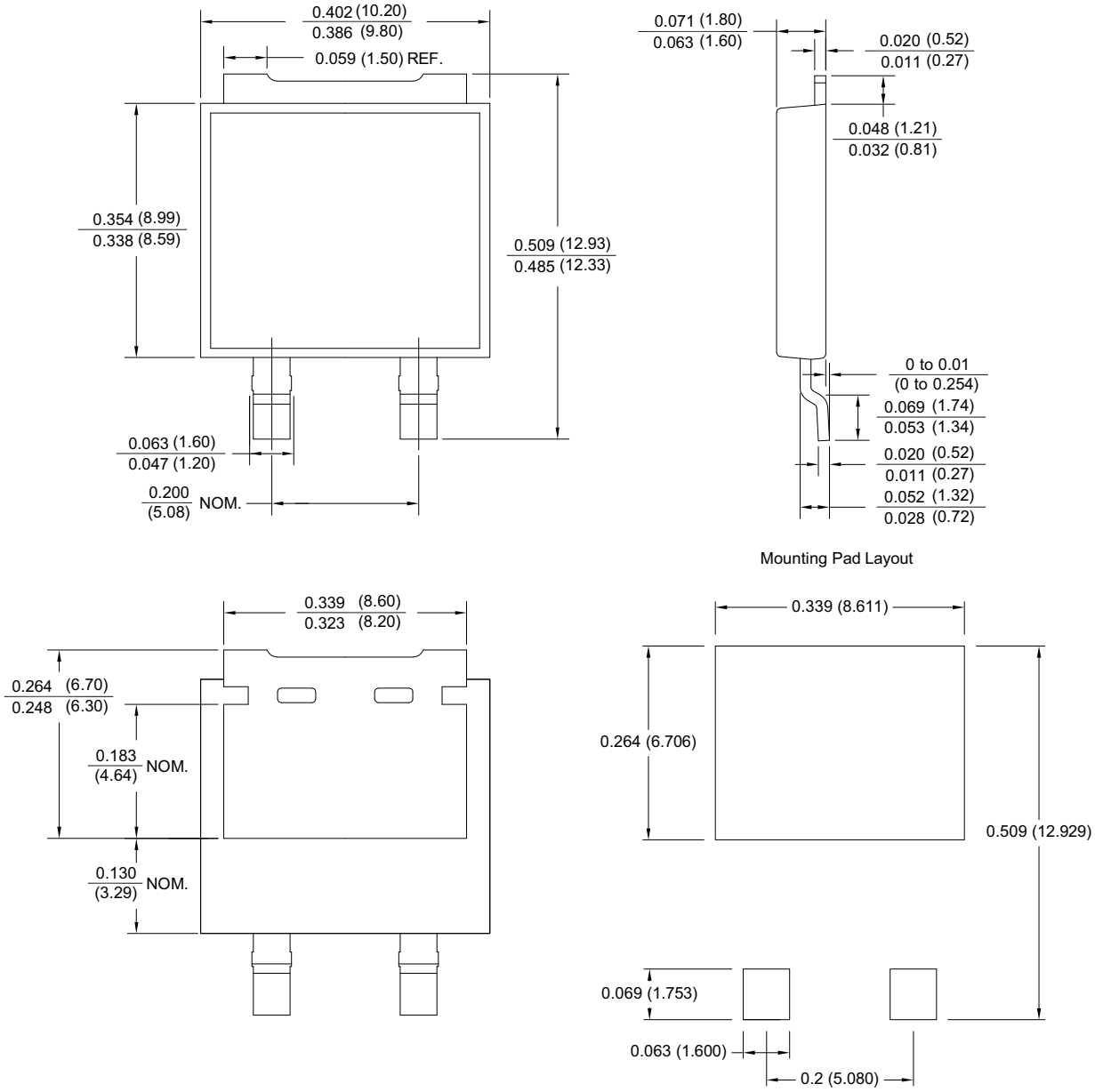


Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPD 2L



Note

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

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