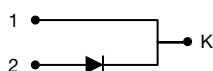
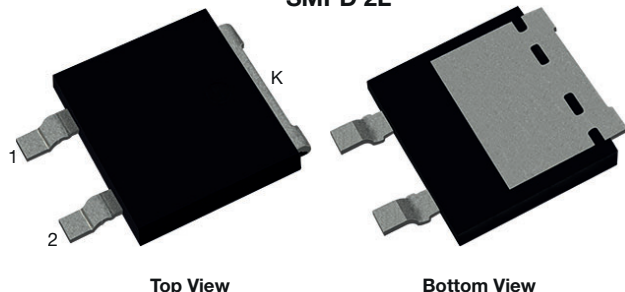


Surface-Mount Low V_F Standard Rectifiers

eSMP® Series SMPD 2L



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
- 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



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

General purpose, power line polarity protection in consumer, telecom main station, sever power infrastructures and industrial applications

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	12 A
V_{RRM}	800 V
I_{FSM}	165 A
V_F at $I_F = 12$ A ($T_J = 125$ °C)	0.86 V
T_J max.	175 °C
Package	SMPD 2L
Circuit configurations	Single

MECHANICAL DATA

Case: SMPD 2L

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and industry grade

Terminals: matte tin plated leads, solderable per J-STD-002

M3 suffix meets JESD 201 whisker class 2

Polarity: as marked

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

PARAMETER	SYMBOL	SE12DTLK	UNIT
Device marking code		SE12DTLK	
Maximum repetitive peak reverse voltage	V_{RRM}	800	V
Maximum DC forward current	$I_F^{(1)}$	12	A
	$I_F^{(2)}$	3.6	
Peak forward surge current 10 ms single halfsine-wave superimposed on rated load	I_{FSM}	165	A
Operating junction and storage temperature range	$T_J, T_{STG}^{(3)}$	-55 to +175	°C

Notes

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



ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 6 A	T _J = 25 °C	V _F ⁽¹⁾	0.87	-	V
	I _F = 12 A			0.97	1	
	I _F = 6 A	T _J = 125 °C		0.75	-	
	I _F = 12 A			0.86	-	
Reverse current	Rated V _R	T _J = 25 °C	I _R ⁽²⁾	-	5	μA
		T _J = 125 °C		14	150	
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	400	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C _J	79	-	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	$R_{\theta JA}^{(1)(2)}$	57	71	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(3)}$	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 $R_{\theta JA}$ - junction to ambient to follow JEDEC® 51-2A(3) Mounted on infinite heatsink thermal resistance $R_{\theta JM}$ - 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
SE12DTLK-M3/I	0.52	I	2000 / reel	13" diameter plastic tape and reel

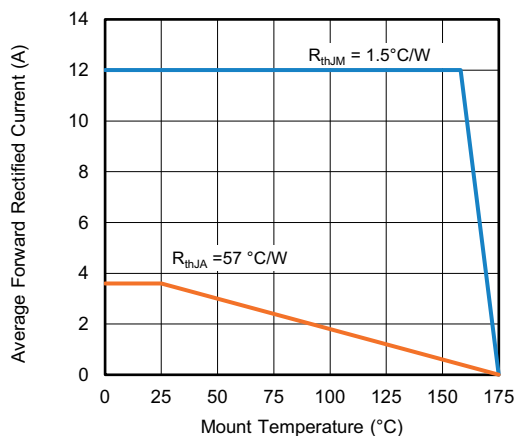
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

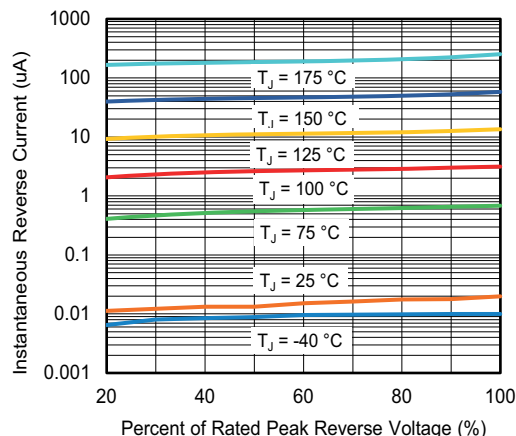


Fig. 4 - Typical Reverse Leakage Characteristics

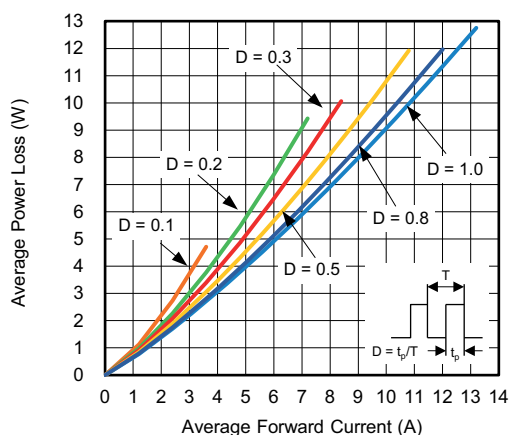


Fig. 2 - Forward Power Loss Characteristics

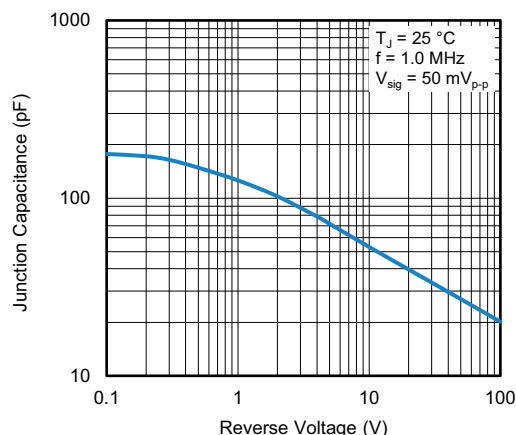


Fig. 5 - Typical Junction Capacitance

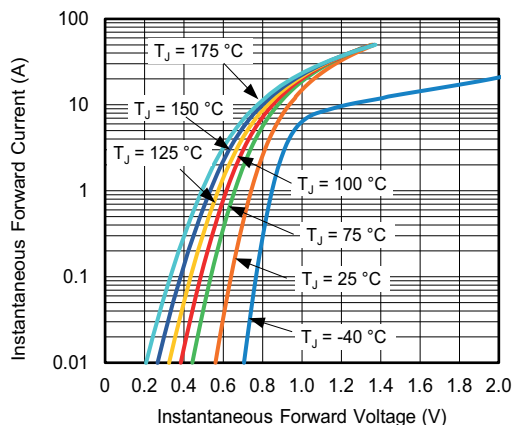


Fig. 3 - Typical Instantaneous Forward Characteristics

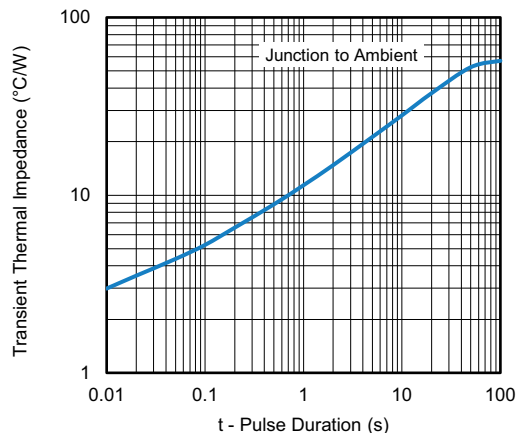
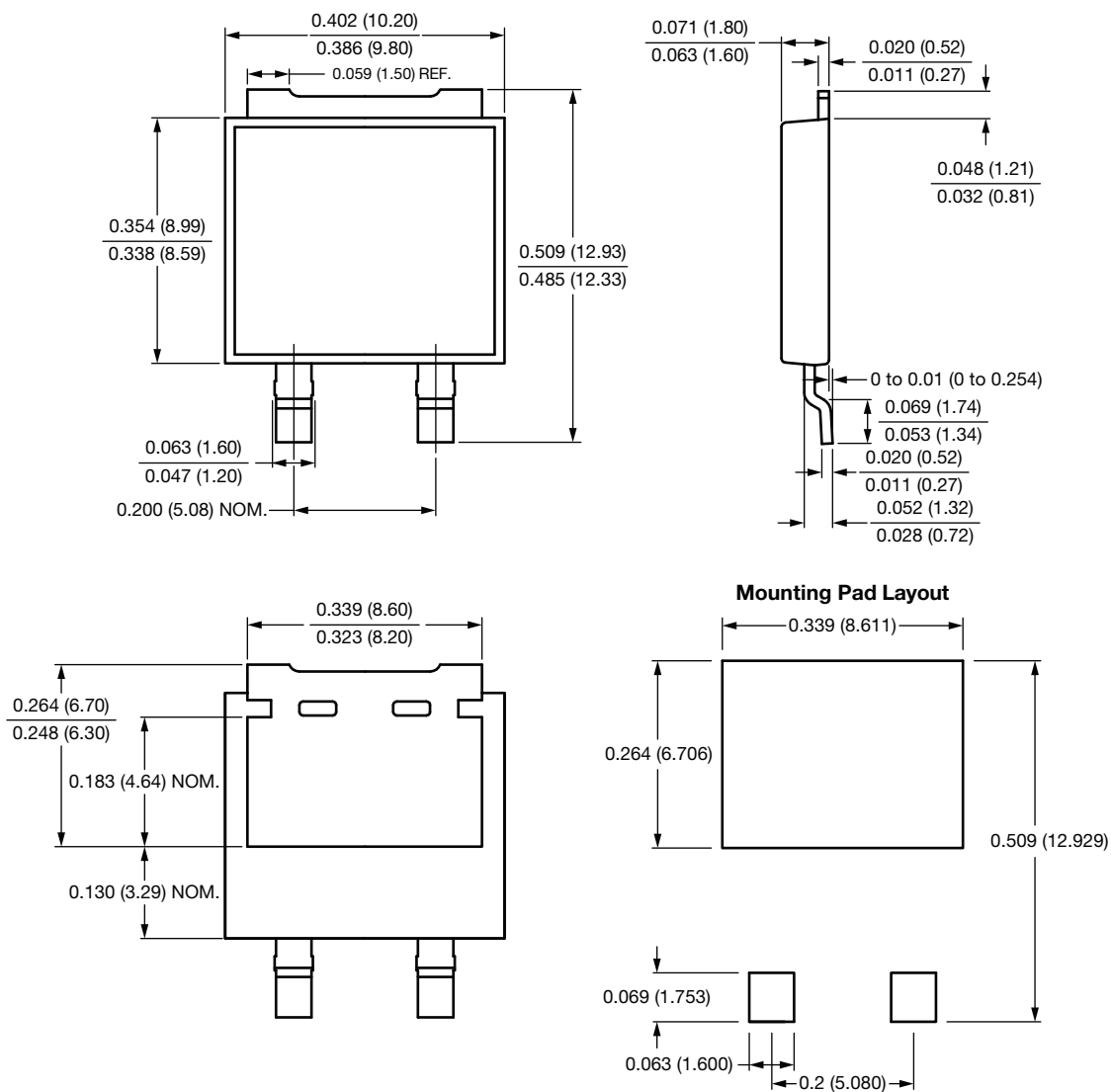


Fig. 6 - Typical Transient Thermal Impedance



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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