Surface-Mount Standard Rectifiers

eSMP® Series



Top view Bottom view

SMF (DO-219AB)



FEATURES

- Glass passivated pellet chip junction
- Low profile package
- Ideal for automated placement
- Low forward voltage drop, low leakage current
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Wave and reflow solderable
- AEC-Q101 qualified available
- Compatible to SOD-123W package case outline
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	400 V
I_{FSM}	25 A
V_F at I_F = 0.7 A (T_J = 125 °C)	0.83 V
I_R	5 µA
T_J max.	175 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMF (DO-219AB)
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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**SEG10FG**	**UNIT**
Device marking code		GG	
Maximum repetitive peak reverse voltage	V_{RRM}	400	V
Maximum DC forward current	$I_{F(AV)}$ (1)	1.0	A
Peak forward surge current 8.3 ms single half sine-wave	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

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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 = 0.1 A	T_J = 25 °C	V_F (1)	0.82	-	V
	I_F = 0.7 A			0.95	1.1	V
	I_F = 1.0 A			1.0	-	
	I_F = 0.1 A	T_J = 125 °C		0.67	-	
	I_F = 0.7 A			0.83	-	
	I_F = 1.0 A			0.88	-	
Reverse current	Rated V_R	T_J = 25 °C	I_R (2)	-	5	µA
		T_J = 125 °C		-	50	
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	1200	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	7.3	-	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**	**SEG10FG**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)(2)	130	°C/W
	$R_{\theta JM}$ (3)	14	

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)

IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS (T_A = 25 °C unless otherwise noted)					
STANDARD	**TEST TYPE**	**TEST CONDITIONS**	**SYMBOL**	**CLASS**	**VALUE**
AEC-Q101-001	Human body model (contact mode)	C = 100 pF, R = 1.5 kΩ	V_C	H3B	> 8kV
ISO-10605	Human body model (contact mode)	C = 330 pF, R = 2 kΩ	V_C	-	> 25 kV typ.

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SEG10FG-M3/H	0.029	H	3000	7" diameter plastic tape and reel
SEG10FG-M3/I	0.029	I	10 000	13" diameter plastic tape and reel
SEG10FGHM3/H (1)	0.029	H	3000	7" diameter plastic tape and reel
SEG10FGHM3/I (1)	0.029	I	10 000	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)

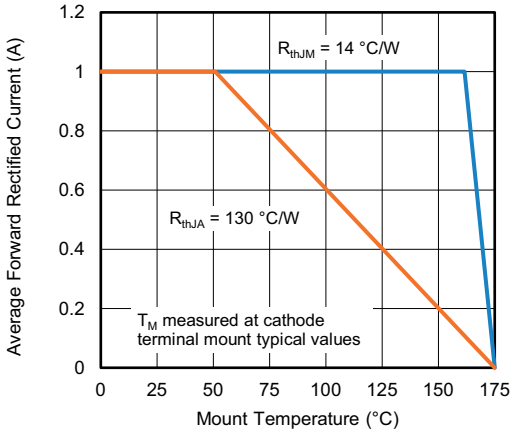


Fig. 1 - Maximum Forward Current Derating Curve

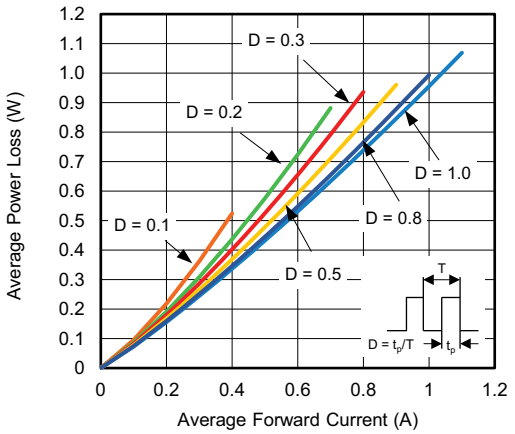


Fig. 2 - Average Power Loss Characteristics

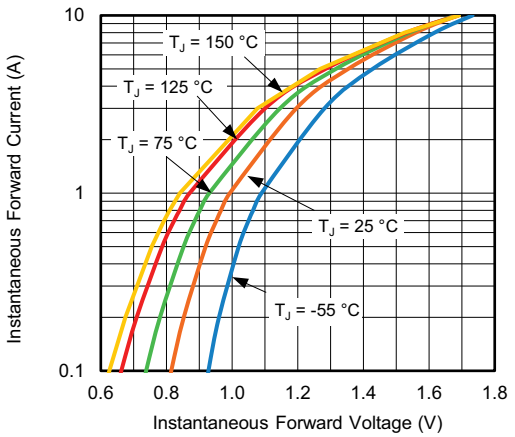


Fig. 3 - Typical Instantaneous Forward Characteristics

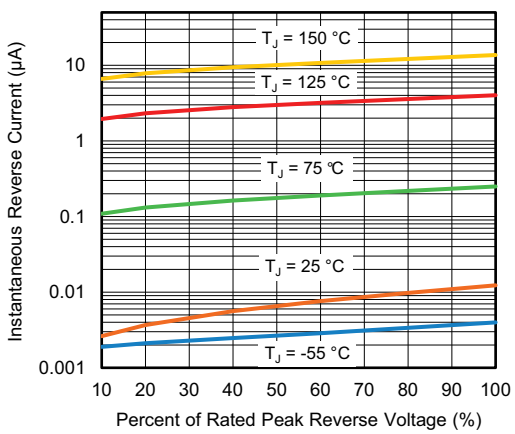


Fig. 4 - Typical Reverse Leakage Characteristics

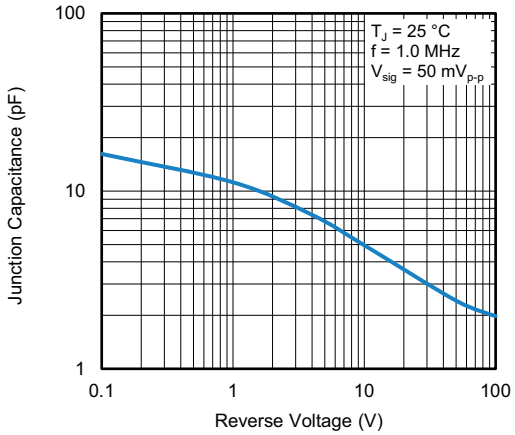


Fig. 5 - Typical Junction Capacitance

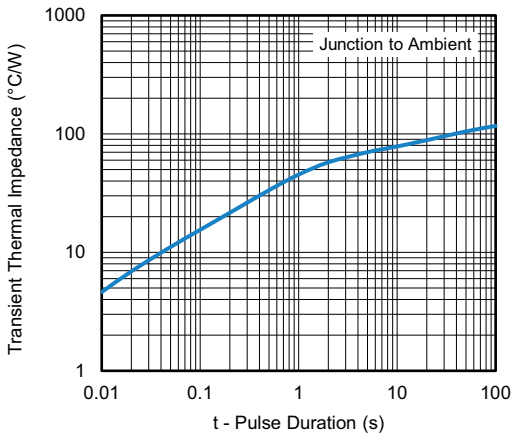


Fig. 6 - Typical Transient Thermal Impedance

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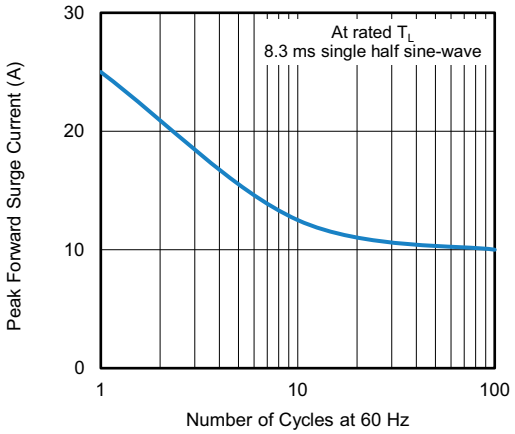
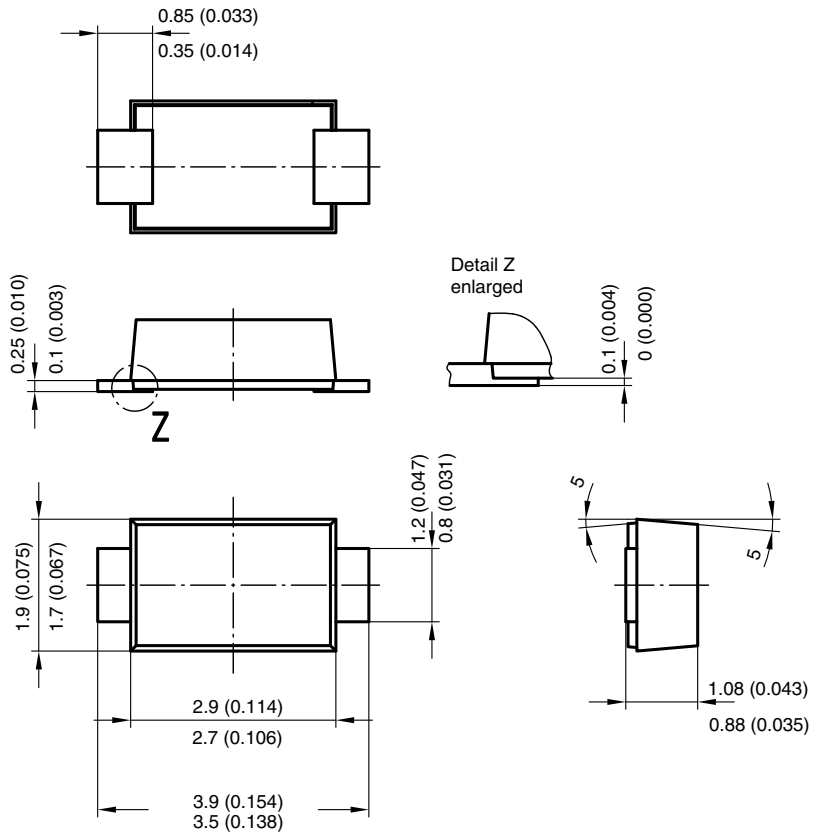


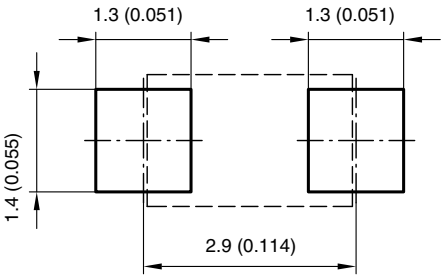
Fig. 7 - Maximum Non-Repetitive Peak Forward Surge Current
Number of Cycles

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PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



Foot print recommendation:



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