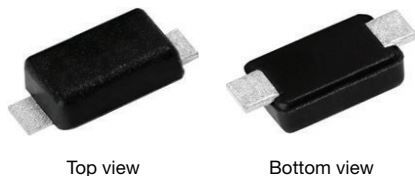


## Surface-Mount Standard Rectifiers

### eSMP® Series



**SMF (DO-219AB)**

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



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 $\mu$ A
$T_J$ max.	175 °C
Package	SMF (DO-219AB)
Circuit configuration	Single

### 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](http://www.vishay.com/doc?99912)

AUTOMOTIVE  
GRADE  
Available



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### 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	$I_{F(AV)}$ <sup>(1)</sup>	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

<sup>(1)</sup> Free air, mounted on recommended PCB, 2 oz. pad area



ELECTRICAL CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 0.1 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.82	-	V
	I <sub>F</sub> = 0.7 A			0.95	1.1	V
	I <sub>F</sub> = 1.0 A			1.0	-	
	I <sub>F</sub> = 0.1 A	T <sub>J</sub> = 125 °C		0.67	-	
	I <sub>F</sub> = 0.7 A			0.83	-	
	I <sub>F</sub> = 1.0 A			0.88	-	
Reverse current	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	5	μA
		T <sub>J</sub> = 125 °C		-	50	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	1200	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	7.3	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	SEG10FG	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)(2)}$	130	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(3)}$	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 ( $T_A = 25\text{ }^{\circ}\text{C}$ 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	$> 8\text{ kV}$
ISO-10605	Human body model (contact mode)	$C = 330\text{ pF}$ , $R = 2\text{ k}\Omega$	$V_C$	-	$> 25\text{ kV typ.}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SEG10FG-M3/H	0.015	H	3000	7" diameter plastic tape and reel
SEG10FG-M3/I	0.015	I	10 000	13" diameter plastic tape and reel
SEG10FGHM3/H <sup>(1)</sup>	0.015	H	3000	7" diameter plastic tape and reel
SEG10FGHM3/I <sup>(1)</sup>	0.015	I	10 000	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified

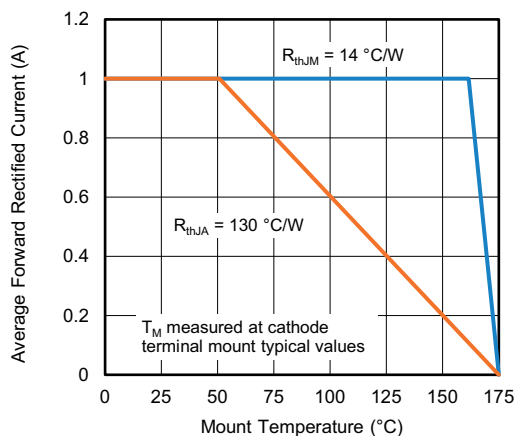
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

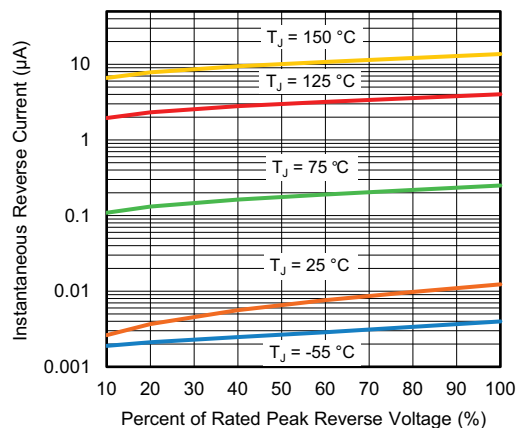


Fig. 4 - Typical Reverse Leakage Characteristics

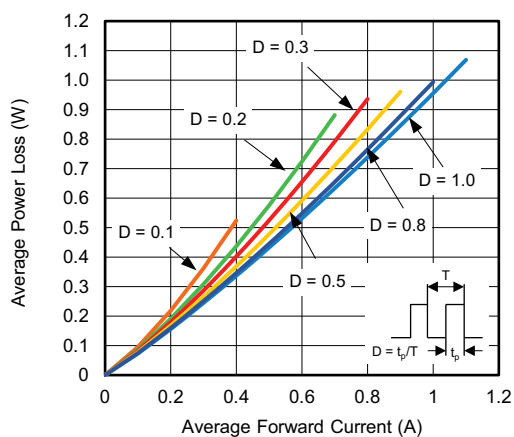


Fig. 2 - Average Power Loss Characteristics

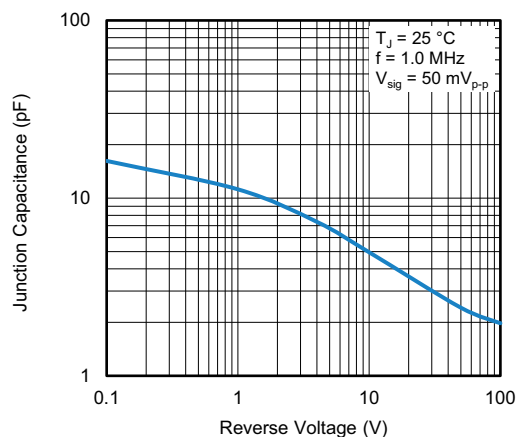


Fig. 5 - Typical Junction Capacitance

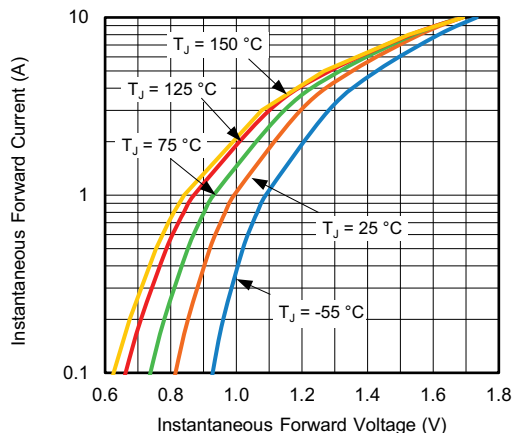


Fig. 3 - Typical Instantaneous Forward Characteristics

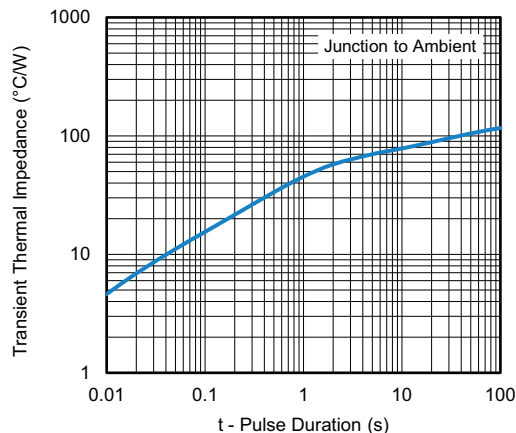


Fig. 6 - Typical Transient Thermal Impedance

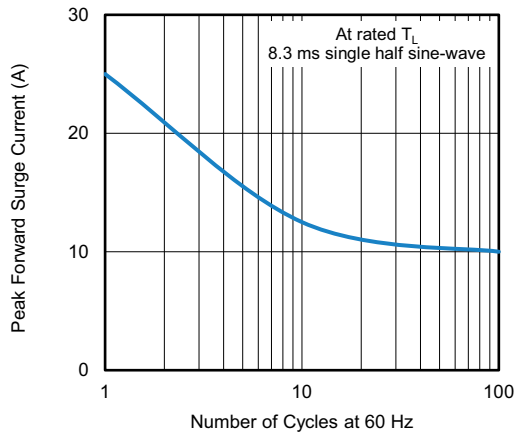
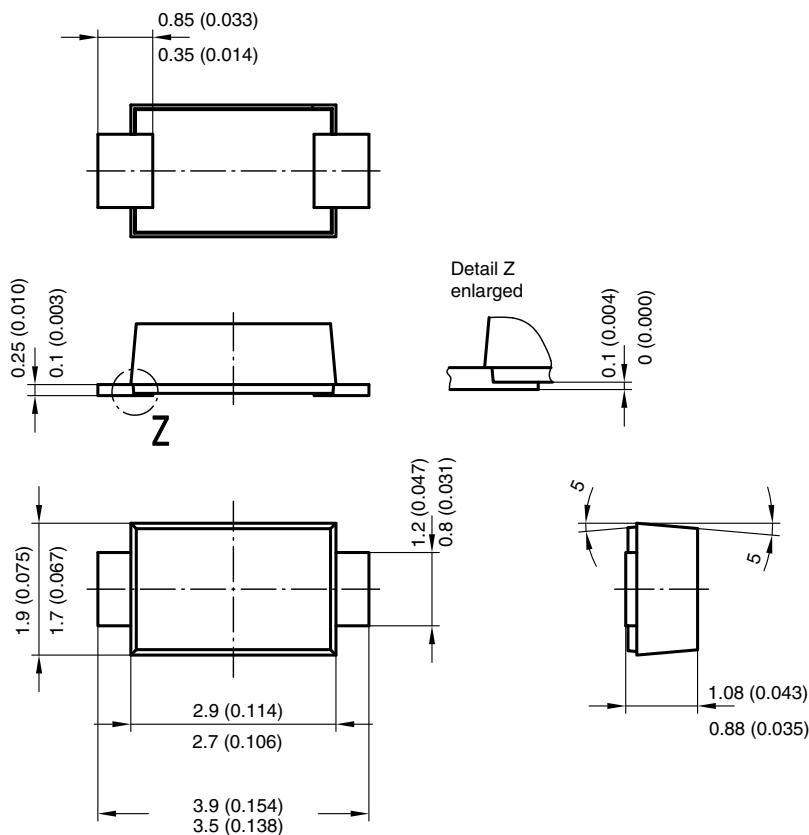
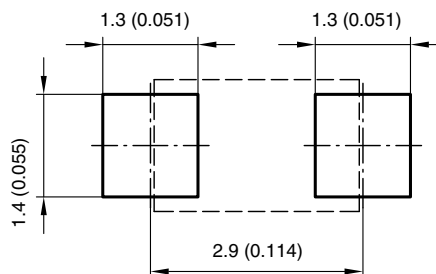


Fig. 7 - Maximum Non-Repetitive Peak Forward Surge Current  
Number of Cycles

**PACKAGE OUTLINE DIMENSIONS** in millimeters (inches)


Foot print recommendation:



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