

Surface-Mount Standard Rectifiers

eSMP® Series



Top view

Bottom view

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 μ 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


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	$I_{F(AV)}$ ⁽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



ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 0.1\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.82	-	V
	$I_F = 0.7\text{ A}$			0.95	1.1	
	$I_F = 1.0\text{ A}$			1.0	-	
	$I_F = 0.1\text{ A}$	$T_J = 125\text{ }^\circ\text{C}$		0.67	-	
	$I_F = 0.7\text{ A}$			0.83	-	
	$I_F = 1.0\text{ A}$			0.88	-	
Reverse current	Rated V_R	$T_J = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	5	μA
		$T_J = 125\text{ }^\circ\text{C}$		-	50	
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		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 $\leq 40\text{ ms}$

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	0.029	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

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

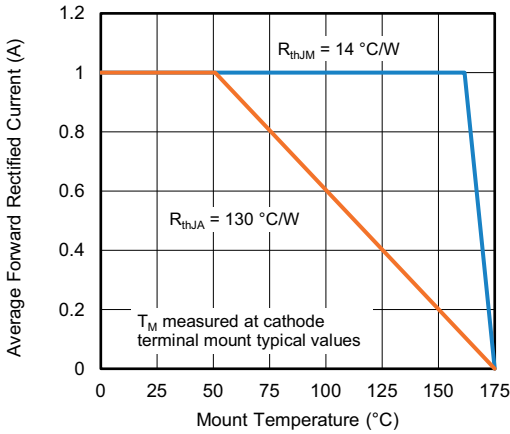


Fig. 1 - Maximum Forward Current Derating Curve

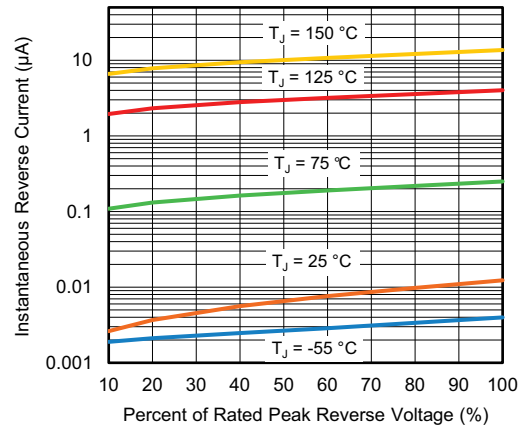


Fig. 4 - Typical Reverse Leakage Characteristics

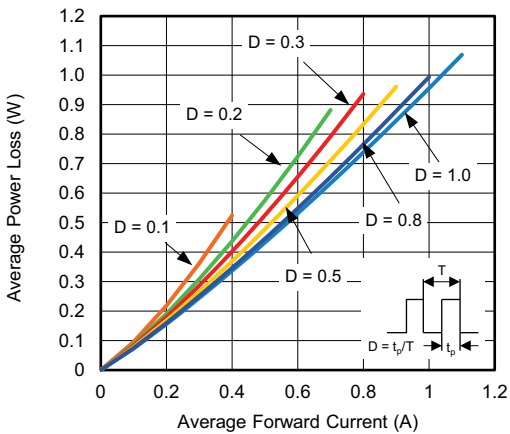


Fig. 2 - Average Power Loss Characteristics

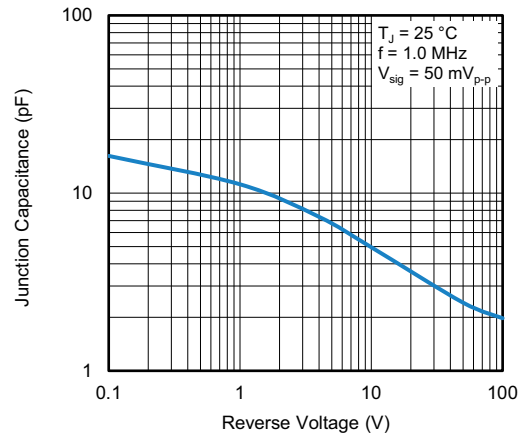


Fig. 5 - Typical Junction Capacitance

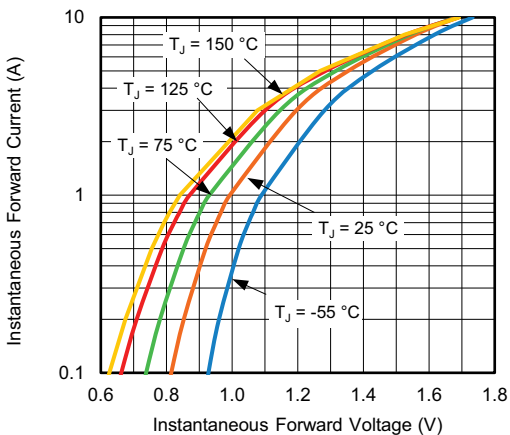


Fig. 3 - Typical Instantaneous Forward Characteristics

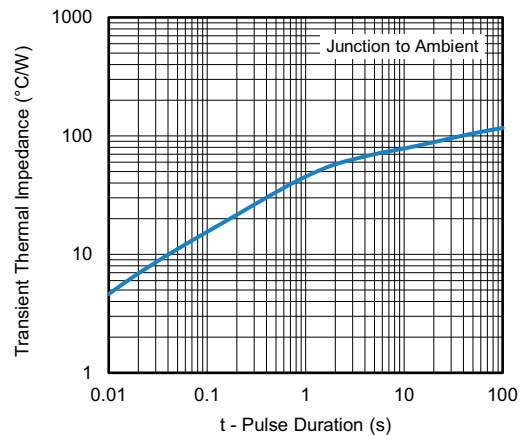


Fig. 6 - Typical Transient Thermal Impedance

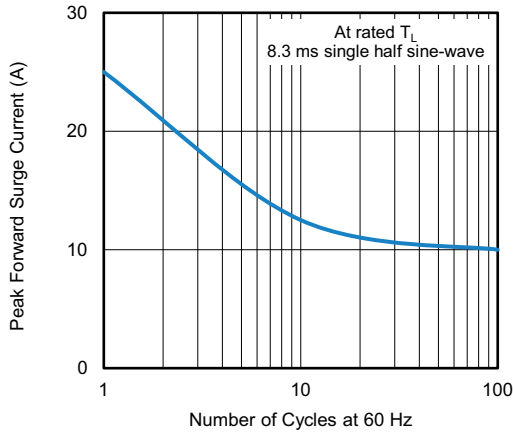
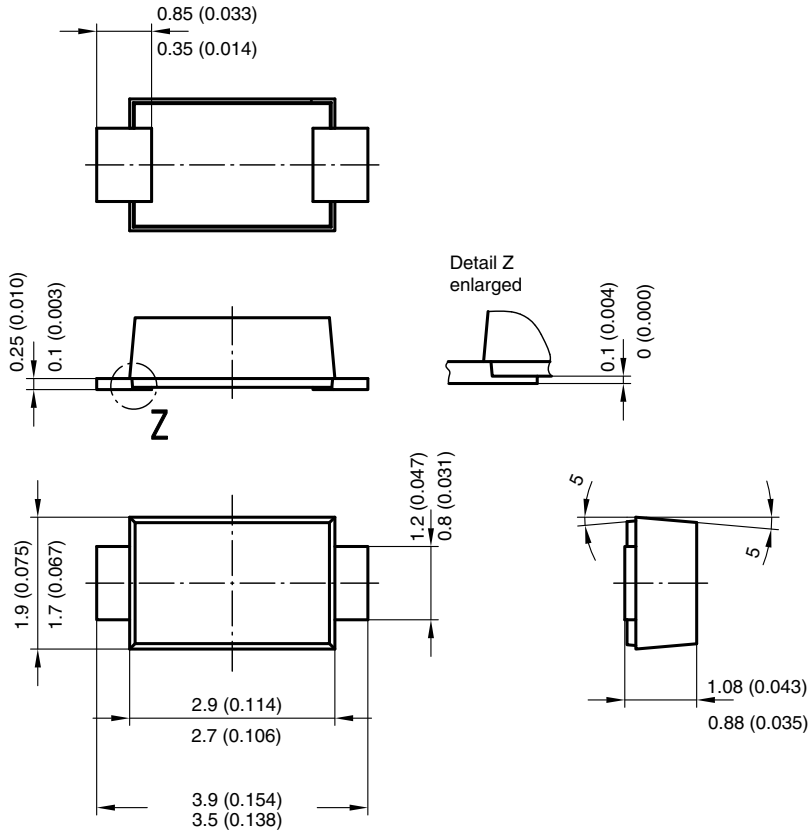
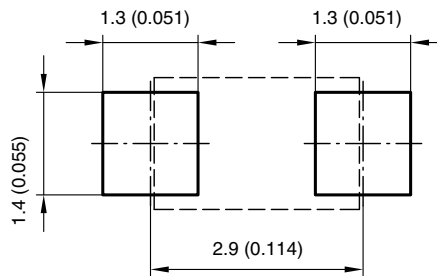


Fig. 7 - Maximum Non-Repetitive Peak Forward Surge Current
Number of Cycles

PACKAGE OUTLINE DIMENSIONS in millimeters (inches)



Foot print recommendation:



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 Document no.: S8-V-3915.01-001 (4)
 17247



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