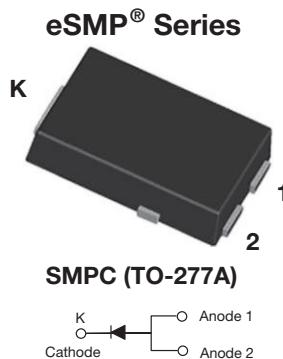


Surface-Mount ESD Capability Rectifiers



FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Oxide planar chip junction
- Low forward voltage drop
- ESD capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



DESIGN SUPPORT TOOLS


[click logo to get started](#)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	7.0 A
V_{RRM}	100 V to 600 V
I_{FSM}	120 A
I_R	10 μ A
V_F at $I_F = 7.0$ A, (125 °C)	0.87 V
T_J max.	175 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

TYPICAL APPLICATIONS

General purpose, power line polarity protection in both consumer and automotive applications.

MECHANICAL DATA

Case: SMPC (TO-277A)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade
 Base P/NHM3_X - halogen-free, RoHS-compliant and AEC-Q101 qualified
 ("_X" denotes revision code e.g. A, B,.....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
 M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	SE70PB	SE70PD	SE70PG	SE70PJ	UNIT
Device marking code		70B	70D	70G	70J	
Maximum repetitive peak reverse voltage	V_{RRM}	100	200	400	600	V
Maximum DC forward current	I_F ⁽¹⁾			7.0		A
	I_F ⁽²⁾			2.9		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}			120		A
Operating junction and storage temperature range	T_J, T_{STG}			-55 to +175		°C

Notes

(1) Mounted on 30 mm x 30 mm pad areas, 2 oz. FR4 PCB
 (2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 3.5 \text{ A}$	$T_A = 25^\circ\text{C}$	$V_F^{(1)}$	0.90	-	V	
	$I_F = 7.0 \text{ A}$			0.97	1.05		
	$I_F = 3.5 \text{ A}$	$T_A = 125^\circ\text{C}$		0.79	-		
	$I_F = 7.0 \text{ A}$			0.87	0.96		
Reverse current	rated V_R	$T_A = 25^\circ\text{C}$	$I_R^{(2)}$	0.1	10	μA	
		$T_A = 125^\circ\text{C}$		20	150		
Typical reverse recovery time	$I_F = 0.5 \text{ A}$, $I_R = 1.0 \text{ A}$, $I_{rr} = 0.25 \text{ A}$	t_{rr}		2.6	-	μs	
Typical junction capacitance	4.0 V, 1 MHz	C_J		76	-	pF	

Notes

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width $\leq 40 \text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	SE70PB	SE70PD	SE70PG	SE70PJ	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	62				$^\circ\text{C/W}$
	$R_{\theta JM}^{(2)}$	5				

Notes

(1) Free air, mounted on recommended PCB 1 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

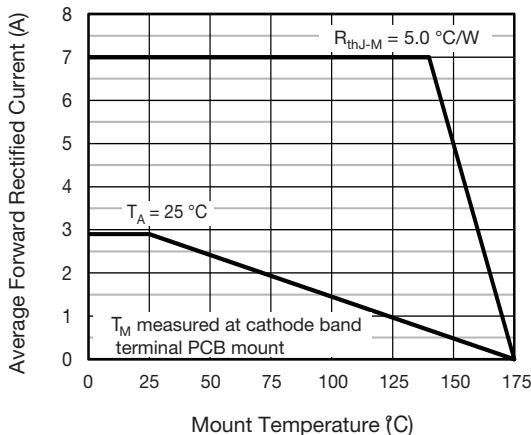
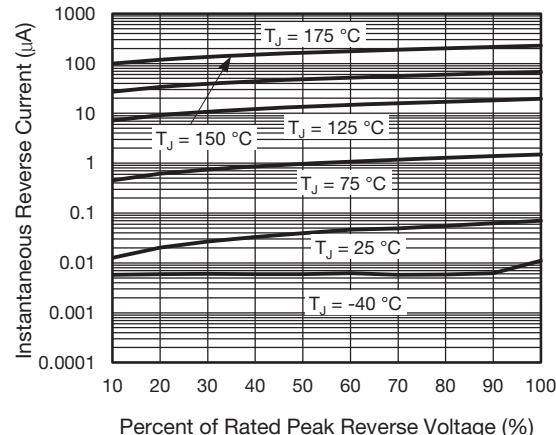
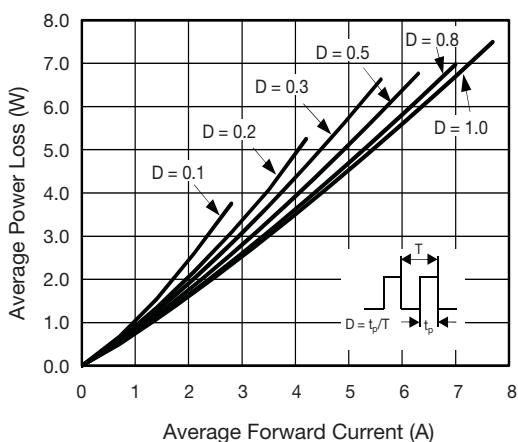
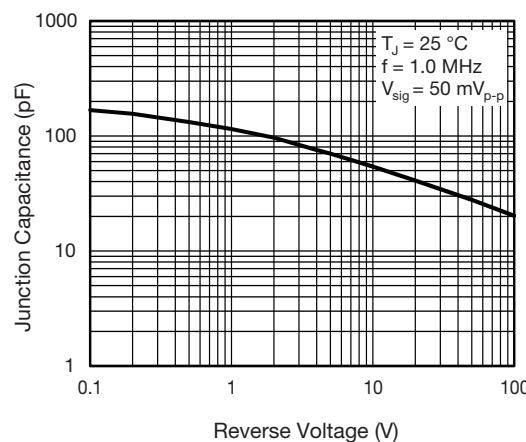
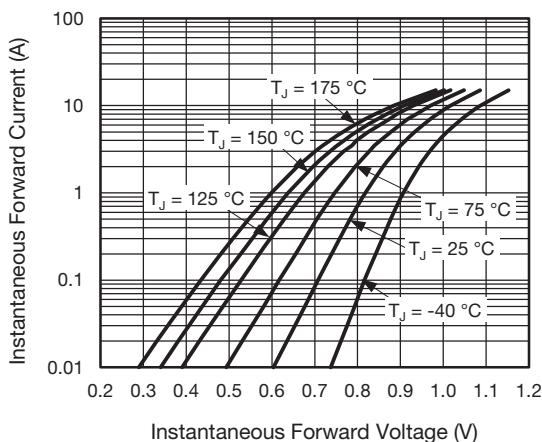
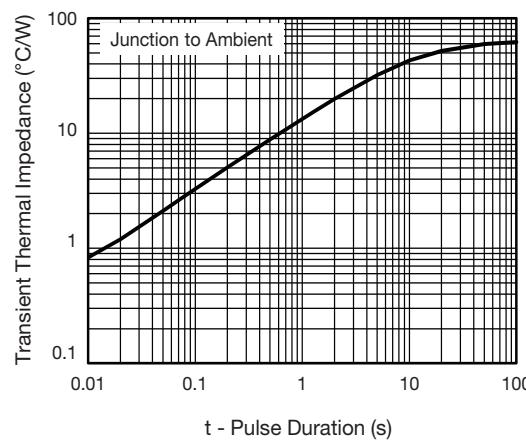
(2) Units mounted on PCB with 30 mm x 30 mm pad areas, 2 oz. FR4 PCB; $R_{\theta JM}$ - junction to mount

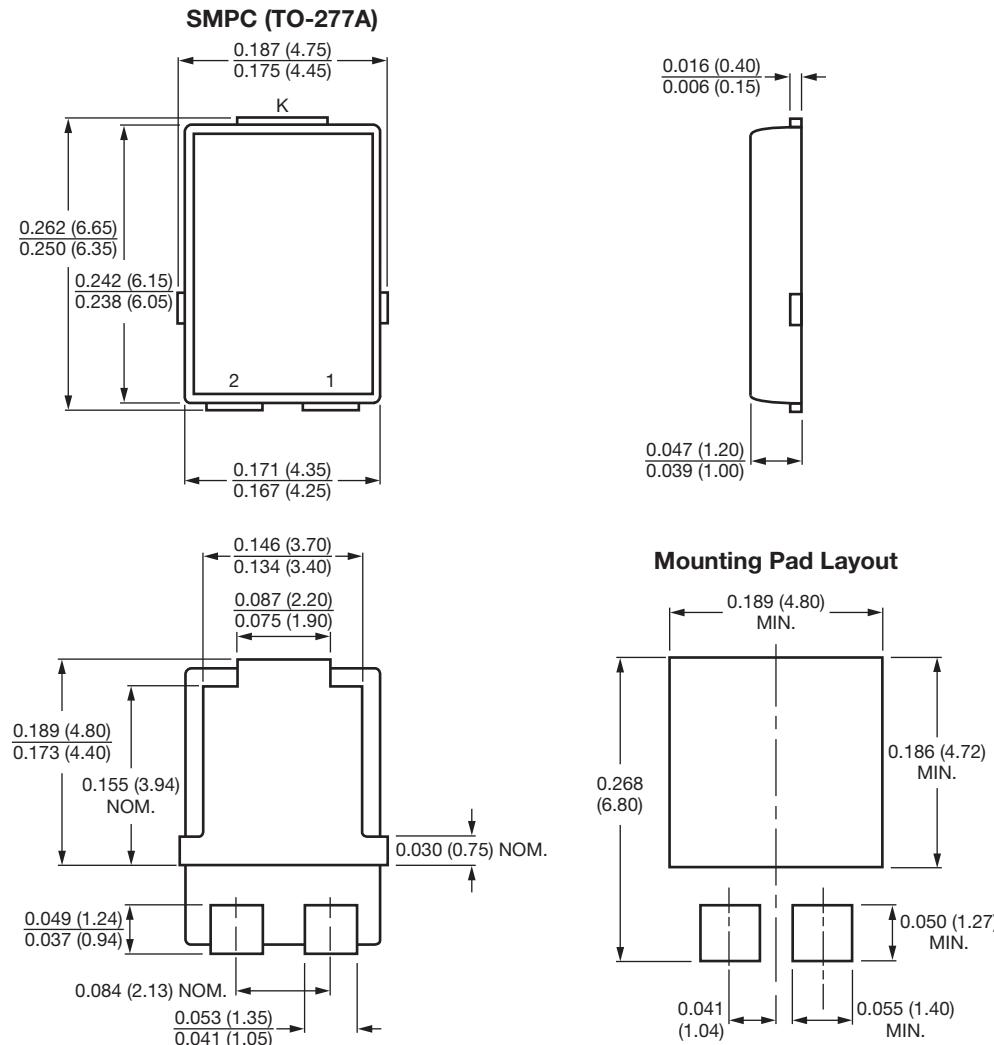
IMMUNITY TO ELECTRICAL STATIC DISCHARGE TO THE FOLLOWING STANDARDS					
$(T_A = 25^\circ\text{C}$, unless otherwise noted)					
STANDARD	TEST TYPE	TEST CONDITIONS	SYMBOL	CLASS	VALUE
AEC-Q101-001	Human body model (contact mode)	$C = 100 \text{ pF}$, $R = 1.5 \text{ k}\Omega$	V_C	H3B	$> 8 \text{ kV}$

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SE70PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
SE70PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
SE70PJHM3_A/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel
SE70PJHM3_A/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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

Fig. 1 - Maximum 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)


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