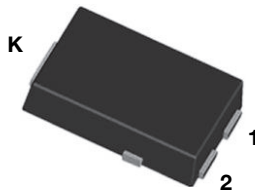
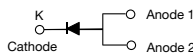


High Current Density Standard Avalanche Surface Mount Rectifiers

eSMP® Series



TO-277A (SMPC)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	200 V to 1000 V
I_{FSM}	70 A
E_{AS}	20 mJ
V_F at $I_F = 3$ A	0.90 V
T_J max.	175 °C

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	AS3PD	AS3PG	AS3PJ	AS3PK	AS3PM	UNIT
Device marking code		AS3D	AS3G	AS3J	AS3K	AS3M	
Maximum repetitive peak reverse voltage	V_{RRM}	200	400	600	800	1000	V
Maximum DC forward current (fig. 1)	$I_F^{(1)}$	3.0					A
	$I_F^{(2)}$	2.1					
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	70					A
Non-repetitive avalanche energy at $T_J = 25$ °C	$I_{AS} = 2.5$ A max.	20					mJ
	$I_{AS} = 1.0$ A typical	30					
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 175					°C

Notes

(1) Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB

(2) Free air, mounted on recommended copper pad area

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Glass passivated chip junction
- Controlled avalanche characteristics
- Low leakage current
- High forward surge capability
- AEC-Q101 qualified
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Not recommended for PCB bottom side wave mounting
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**

AUTOMOTIVE
GRADE
Available



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS compliant, and automotive grade

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

AS3PD thru AS3PM

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 1.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.92	-	V
	I _F = 3.0 A			1.00	1.10	
	I _F = 1.5 A	T _A = 125 °C		0.81	-	
	I _F = 3.0 A			0.90	0.95	
Reverse current	rated V _R	T _A = 25 °C	I _R ⁽²⁾	0.28	10	μA
		T _A = 125 °C		62	150	
Typical junction capacitance per diode	4.0 V, 1 MHz		C _J	37	-	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	AS3PD	AS3PG	AS3PJ	AS3PK	AS3PM	UNIT	
Typical thermal resistance	R _{θJA} ⁽¹⁾	80						°C/W
	R _{θJM} ⁽²⁾	5						°C/W

Notes

(1) Free air, mounted on recommended PCB 1 oz. pad area; thermal resistance R_{θJA} - junction-to-ambient(2) Units mounted on PCB with 10 mm x 10 mm copper pad areas; R_{θJM} - junction-to-mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
AS3PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
AS3PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
AS3PJHM3/86A ⁽¹⁾	0.10	86A	1500	7" diameter plastic tape and reel
AS3PJHM3/87A ⁽¹⁾	0.10	87A	6500	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)

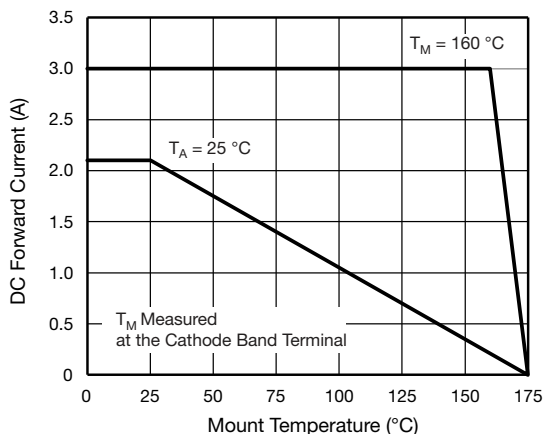


Figure 1. Maximum Forward Current Derating Curve

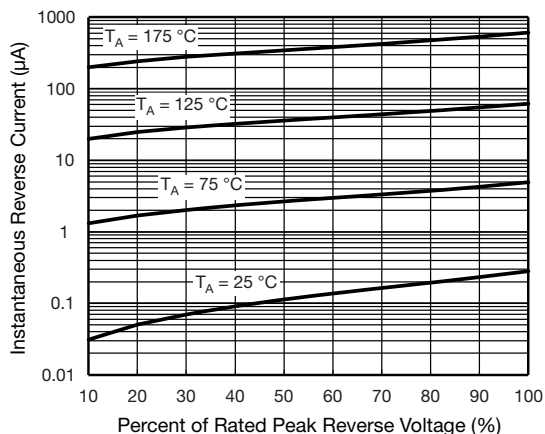


Figure 4. Typical Reverse Leakage Characteristics

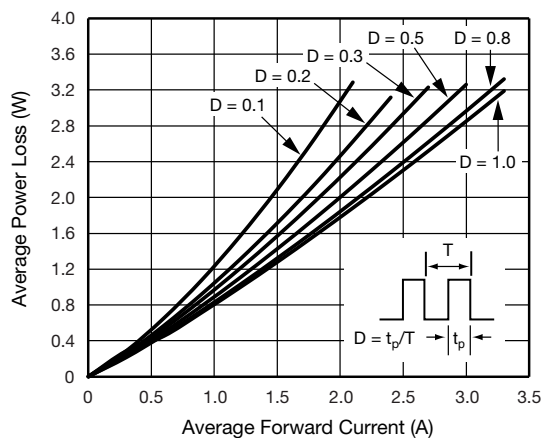


Figure 2. Forward Power Loss Characteristics

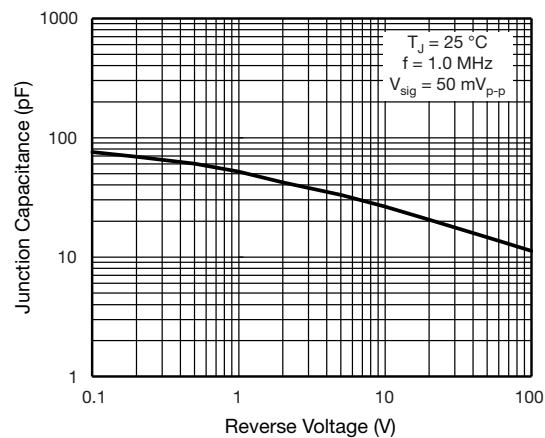


Figure 5. Typical Junction Capacitance

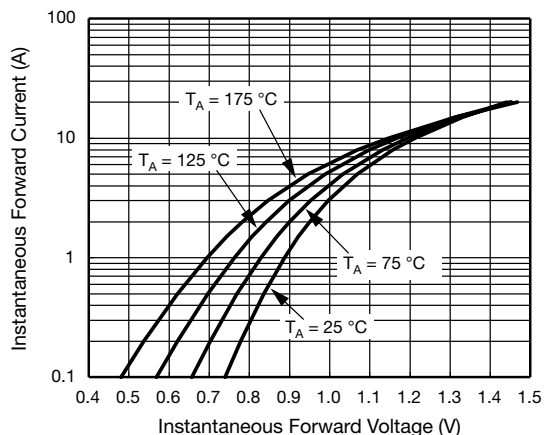


Figure 3. Typical Instantaneous Forward Characteristics

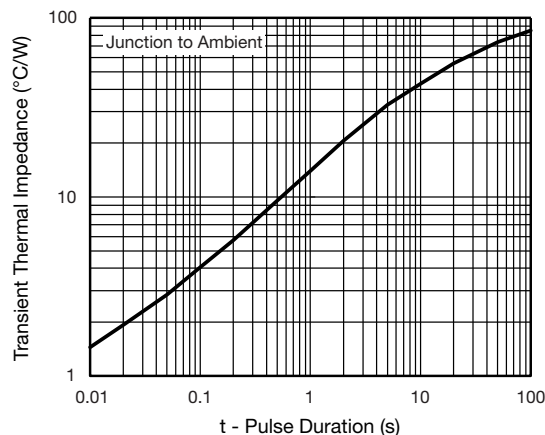


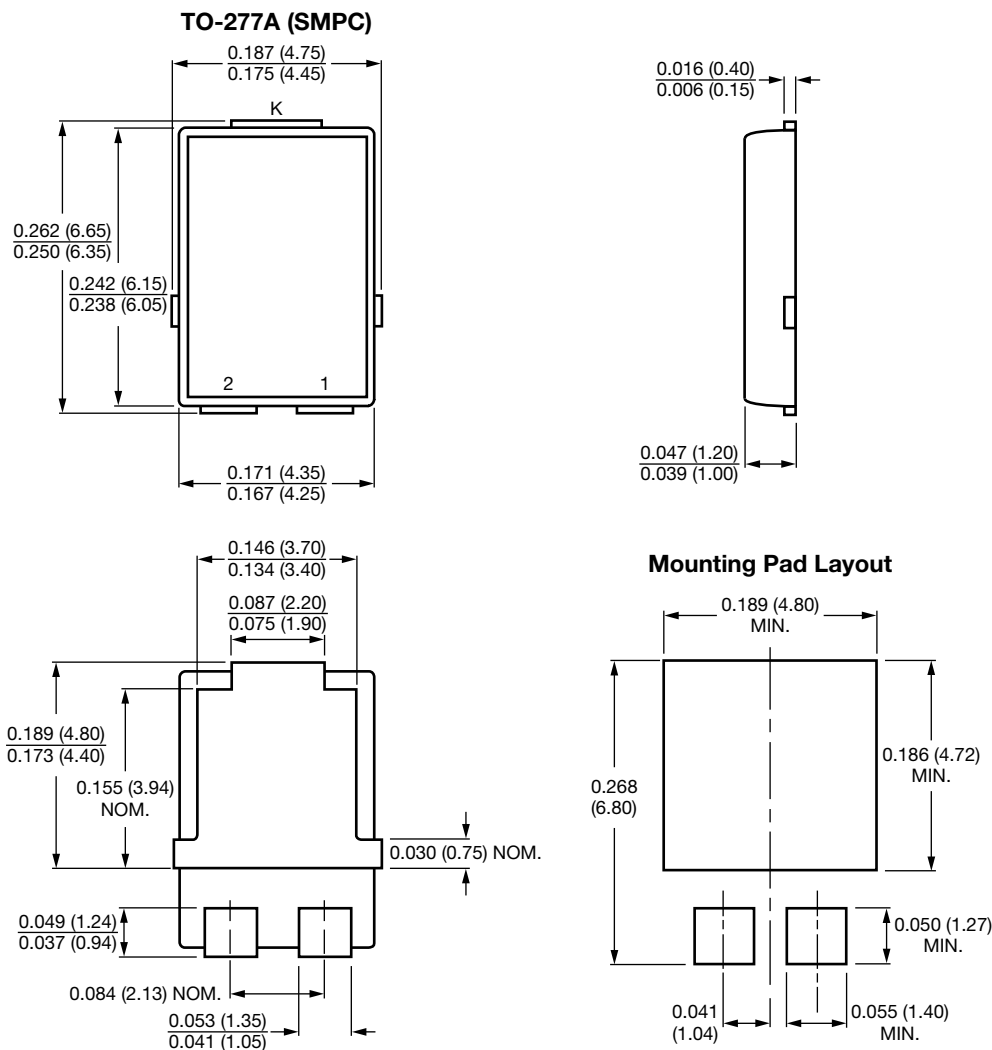
Figure 6. Typical Transient Thermal Impedance

AS3PD thru AS3PM

Vishay General Semiconductor



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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