AS3PD, AS3PG, AS3PJ, AS3PK, AS3PM

Vishay General Semiconductor

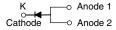
COMPLIANT

HALOGEN FREE

High Current Density Standard Avalanche Surface-Mount Rectifiers



SMPC (TO-277A)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS					
I _{F(AV)}	3.0 A				
V _{RRM} 200 V, 400 V, 600 V, 800 V, 100					
I _{FSM}	70 A				
E _{AS}	20 mJ				
V _F at I _F = 3 A	0.90 V				
T _J max.	175 °C				
Package	SMPC (TO-277A)				
Circuit configuration Single					

FEATURES

- Very low profile typical height of 1.1 mm
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Controlled avalanche characteristics
- Low leakage current
- High forward surge 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

TYPICAL APPLICATIONS

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

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	AS3PD	AS3PG	AS3PJ	AS3PK	AS3PM	UNIT
Device marking code			AS3D	AS3G	AS3J	AS3K	AS3M	
Max. repetitive peak reverse voltage		V_{RRM}	200	400	600	800	1000	V
Max. 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					Α
Non-repetitive avalanche energy I _{AS} = 2.5 A max.		_	20					I
at $T_J = 25$ °C	I _{AS} = 1.0 A typical	E _{AS}		30				- mJ
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



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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	
	$I_F = 3.0 \text{ A}$			1.00	1.10		
	$I_F = 1.5 A$	T _A = 125 °C		0.81	-		
	$I_F = 3.0 \text{ A}$			0.90	0.95		
Reverse current	rated V _R	$T_A = 25 ^{\circ}\text{C}$ $T_A = 125 ^{\circ}\text{C}$	I _R ⁽²⁾	0.28	10	μΑ	
	rated v _R	T _A = 125 °C		62	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}	1.2	-	μs	
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	37	-	pF	

Notes

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

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BOL AS3PD AS3PG AS3PJ AS3PK AS3PM UN				UNIT	
Typical thermal registance	R _{0JA} (1)	80					°C/W
Typical thermal resistance	R _{0JM} (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 10 mm x 10 mm copper pad areas, 1 oz. FR4 PCB; 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_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel			
AS3PJHM3_A/I (1)	0.10	1	6500	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)

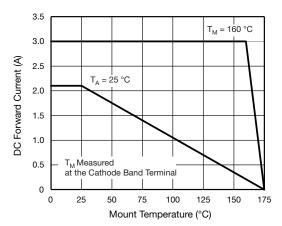


Fig. 1 - Maximum Forward Current Derating Curve

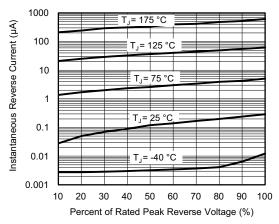


Fig. 4 - Typical Reverse Leakage Characteristics

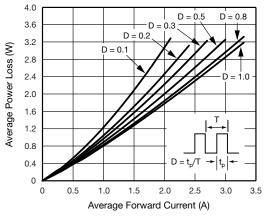


Fig. 2 - Forward Power Loss Characteristics

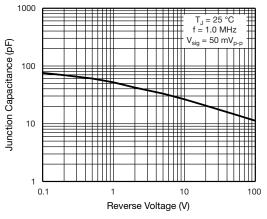


Fig. 5 - Typical Junction Capacitance

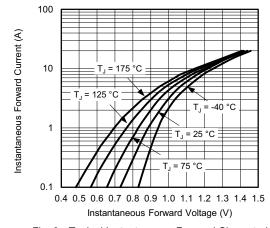


Fig. 3 - Typical Instantaneous Forward Characteristics

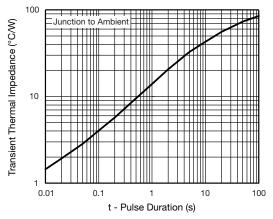
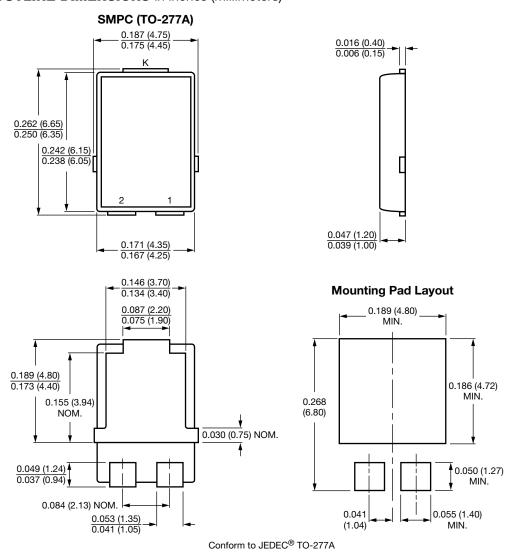


Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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