AS4PD, AS4PG, AS4PJ, AS4PK, AS4PM

Vishay General Semiconductor

COMPLIANT

HALOGEN FREE

High Current Density Standard Avalanche Surface-Mount Rectifiers





LINKS TO ADDITIONAL RESOURCES



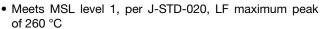
PRIMARY CHARACTERISTICS						
I _{F(AV)}	4.0 A					
V _{RRM}	200 V, 400 V, 600 V, 800 V, 1000					
I _{FSM}	100 A					
E _{AS}	20 mJ					
V _F at I _F = 4 A	0.92 V					
T _J max.	175 °C					
Package	SMPC (TO-277A)					
Circuit configuration	Single					

FEATURES





- · Glass passivated pellet chip junction
- · Controlled avalanche characteristics
- Low leakage current
- High forward surge capability



- 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	AS4PD	AS4PG	AS4PJ	AS4PK	AS4PM	UNIT
Device marking code			AS4D	AS4G	AS4J	AS4K	AS4M	
Max. repetitive peak reverse voltage		V_{RRM}	200	400	600	800	1000	V
Max. DC forward current (fig. 1)		I _F ⁽¹⁾	4.0					- A
		I _F ⁽²⁾	2.4					
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I _{FSM}	100					Α
Non-repetitive avalanche energy	I _{AS} = 2.5 A max.	F	20					
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 20 mm x 20 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	$I_F = 2.0 \text{ A}$	T _A = 25 °C	V _F ⁽¹⁾	0.962	-	V		
	$I_F = 4.0 \text{ A}$			1.044	1.10			
	$I_F = 2.0 \text{ A}$	T _A = 125 °C		0.822	-			
	$I_F = 4.0 \text{ A}$			0.922	0.98			
Reverse current	rated V _R	$T_A = 25 ^{\circ}\text{C}$ $T_A = 125 ^{\circ}\text{C}$	I _R ⁽²⁾	0.35	10	μΑ		
neverse current	rateu v _R	T _A = 125 °C		75	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}	1.8	-	μs		
Typical junction capacitance per diode	4.0 V, 1 MHz		CJ	60	-	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	AS4PD	AS4PG	AS4PJ	AS4PK	AS4PM	UNIT
Typical thermal resistance	R _{0JA} (1)	80					· °C/W
Typical trieffial 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 20 mm x 20 mm copper pad areas, 1 oz. FR4 PCB; R_{BJM} - junction to mount

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
AS4PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel				
AS4PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel				
AS4PJHM3_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel				
AS4PJHM3_A/I (1)	0.10	I	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)

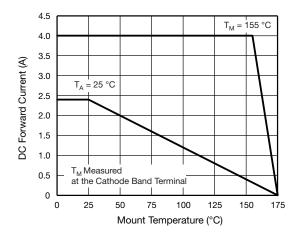


Fig. 1 - Max. Forward Current Derating Curve

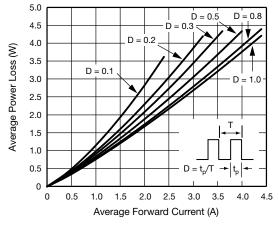


Fig. 2 - Forward Power Loss Characteristics

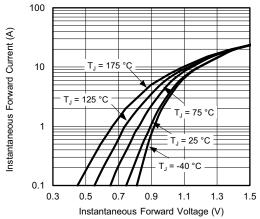


Fig. 3 - Typical Instantaneous Forward Characteristics

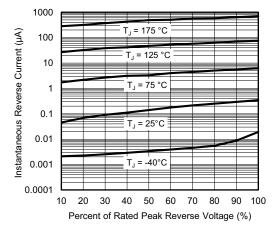


Fig. 4 - Typical Reverse Leakage Characteristics

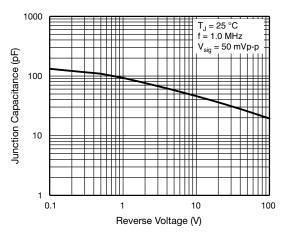


Fig. 5 - Typical Junction Capacitance

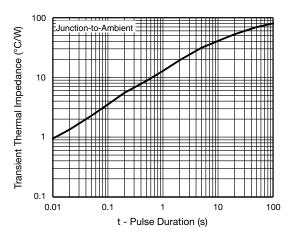
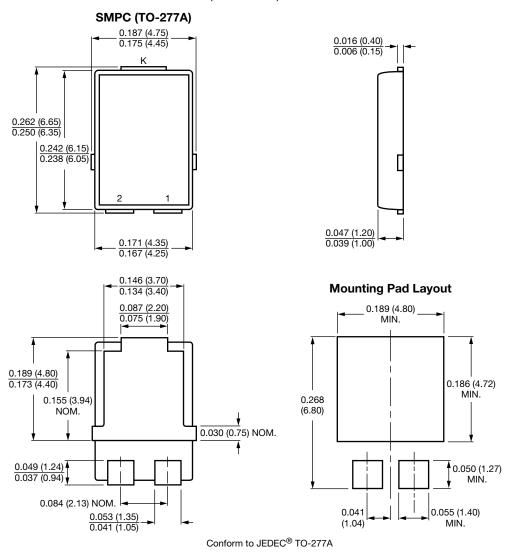


Fig. 6 - Typical Transient Thermal Impedance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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