AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN



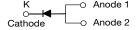
www.vishay.com

Vishay General Semiconductor

Ultrafast 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				
I _{FSM}	75 A				
t _{rr}	75 ns				
E _{AS}	20 mJ				
V_F at $I_F = 3.0$ A	1.13 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
- Fast reverse recovery time
- 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 lighting, high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, 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 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER		SYMBOL	AU3PD	AU3PG	AU3PJ	UNIT
Device marking code			AU3D	AU3G	AU3J	
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	600	V
Maximum DC forward current (fig. 1)		I _F ⁽¹⁾	3.0			А
		I _F ⁽²⁾	1.7			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I _{FSM}	45			А
Non-repetitive avalanche energy at T _J = 25 °C	$I_{AS} = 2.5 A \text{ max}.$	E _{AS}	20			- mJ
	$I_{AS} = 1.0 A \text{ typ.}$	∟AS	30			IIIJ
Operating junction and storage temperature range		T_J , T_{STG}	-55 to +175			°C

Notes

- (1) Mounted on 14 mm x 14 mm pad areas, 1 oz. FR4 PCB
- (2) Free air, mounted on recommended pad area

AU3PD, AU3PG, AU3PJ

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	1 204	T _A = 25 °C	V _F ⁽¹⁾	1.53	1.9	- V	
	$I_F = 3.0 \text{ A}$	T _A = 125 °C		1.13	1.4		
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	0.41	10	μΑ	
		T _A = 125 °C		70	250		
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	66	75	ns	
Typical junction capacitance per diode	Rated V _R = 4.0 V, 1 MHz		CJ	72	-	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	DL AU3PD AU3PG AU3PJ		UNIT	
Typical thermal resistance	R _{eJA} (1)	85			°C/W
Typical trieffilal resistance	R _{0JM} (2)	5			O/ VV

Notes

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

 $^{(2)}$ Units mounted on PCB with 14 mm x 14 mm copper pad areas; $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
AU3PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel		
AU3PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel		
AU3PJHM3_A/H (1)	0.10	Н	1500	7" diameter plastic tape and reel		
AU3PJHM3_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)

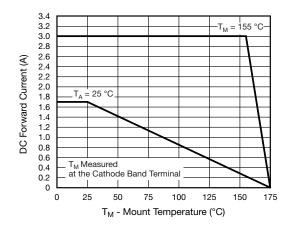


Fig. 1 - Maximum Forward Current Derating Curve

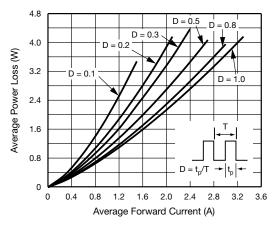


Fig. 2 - Average Power Loss Characteristics

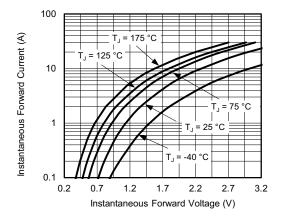


Fig. 3 - Typical Instantaneous Forward Characteristics

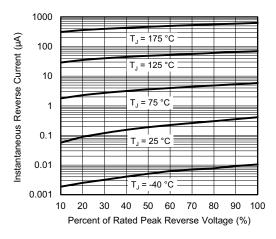


Fig. 4 - Typical Reverse Leakage Characteristics

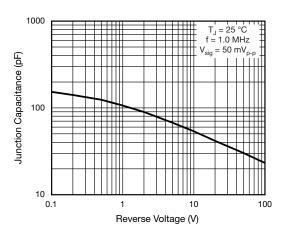


Fig. 5 - Typical Junction Capacitance

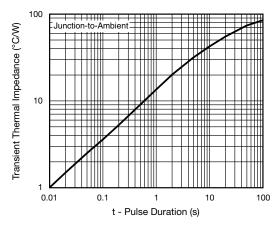
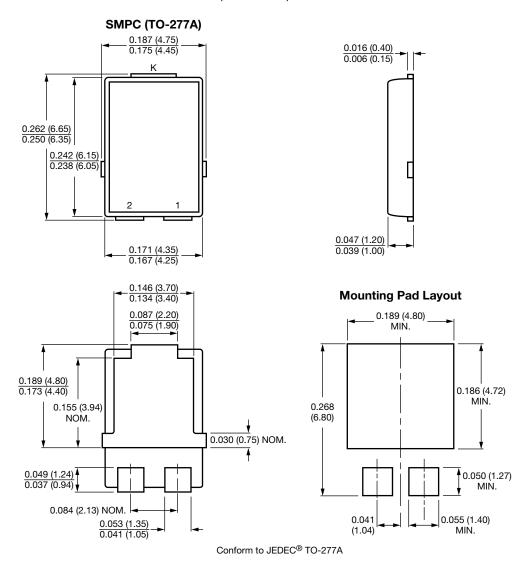


Fig. 6 - Typical Transient Thermal Impedance



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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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