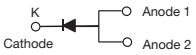
AU2PD, AU2PG, AU2PJ

Vishay General Semiconductor

Ultrafast Avalanche Surface Mount Rectifiers

eSMP® Series

TO-277A (SMPC)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	200 V, 400 V, 600 V
I_{FSM}	30 A
t_{rr}	75 ns
E_{AS}	20 mJ
V_F at I_F = 2.0 A	1.13 V
T_J max.	175 °C

TYPICAL APPLICATIONS

For use in lighting, high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive, and telecommunication.

FEATURES

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Glass passivated 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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- **Halogen-free according to IEC 61249-2-21 definition**

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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	AU2PD	AU2PG	AU2PJ	UNIT
Device marking code			AU2D	AU2G	AU2J	
Maximum repetitive peak reverse voltage		V_{RRM}	200	400	600	V
Maximum DC forward current (fig. 1)		I_F (1)	2.0			A
		I_F (2)	1.6			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load		I_{FSM}	30			A
Non-repetitive avalanche energy at T_J = 25 °C	I_{AS} = 2.5 A max.	E_{AS}	20			mJ
	I_{AS} = 1.0 A typ.		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 pad area

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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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 A	T_A = 25 °C	V_F (1)	1.48	1.9	V
		T_A = 125 °C		1.13	1.4	
Reverse current	Rated V_R	T_A = 25 °C	I_R (2)	0.3	10	µA
		T_A = 125 °C		41	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		C_J	42	-	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**	**AU2PD**	**AU2PG**	**AU2PJ**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	85			°C/W
	$R_{\theta JM}$ (2)	5			

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 10 mm x 10 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**
AU2PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
AU2PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
AU2PJHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
AU2PJHM3/86A (1)	0.10	87A	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)

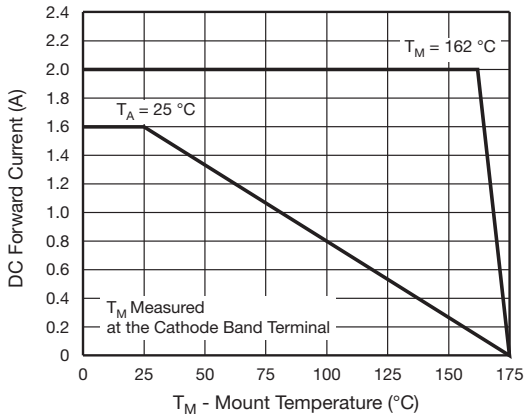

Fig. 1 - Maximum Forward Current Derating Curve

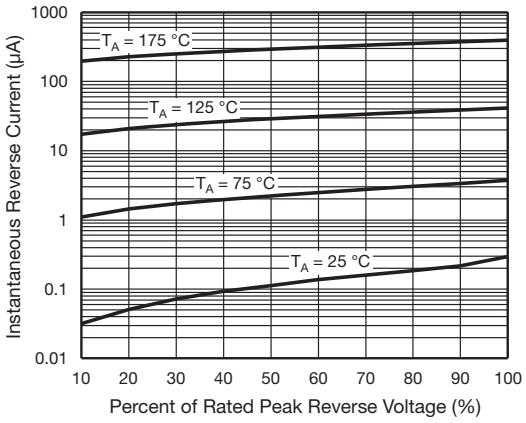

Fig. 4 - Typical Reverse Leakage Characteristics

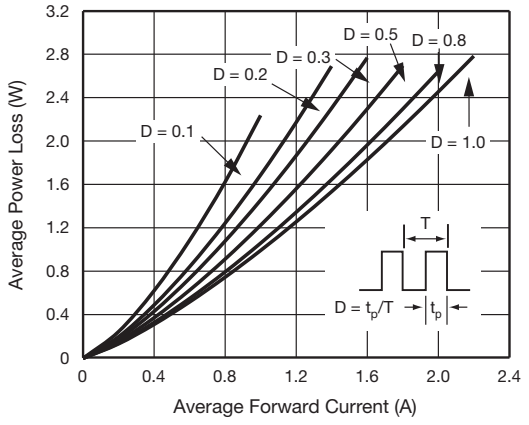

Fig. 2 - Average Power Loss Characteristics

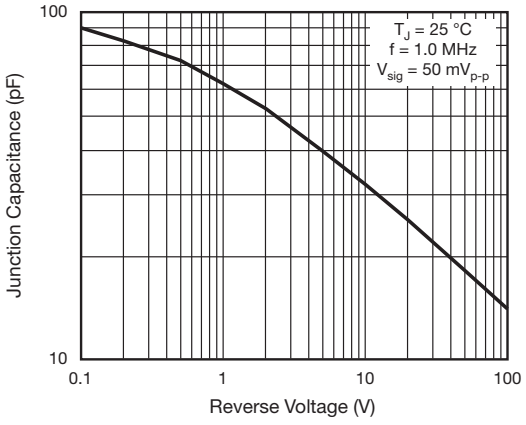

Fig. 5 - Typical Junction Capacitance

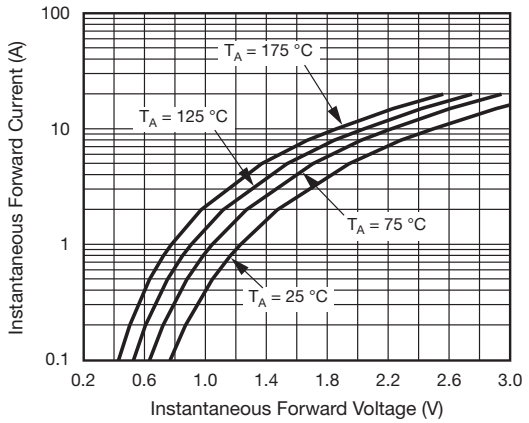

Fig. 3 - Typical Instantaneous Forward Characteristics

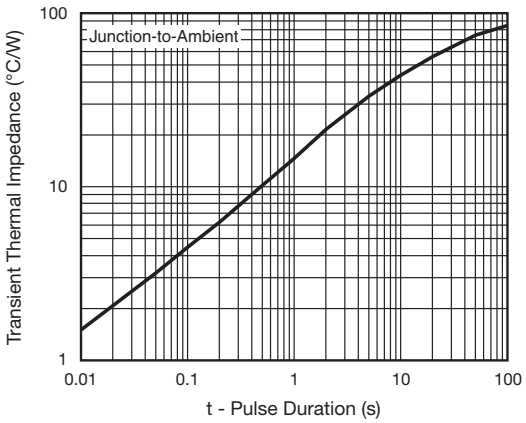

Fig. 6 - Typical Transient Thermal Impedance

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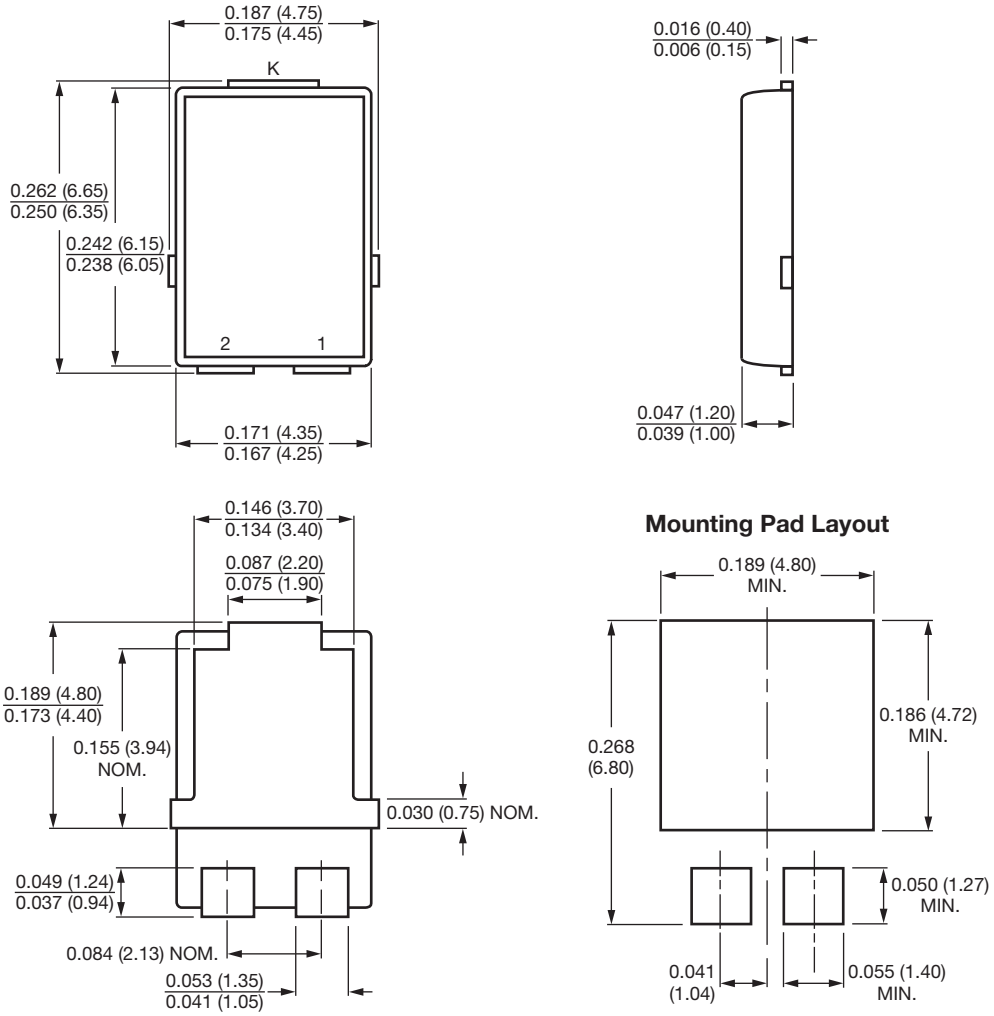
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-277A (SMPC)



Mounting Pad Layout

Conform to JEDEC TO-277A

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