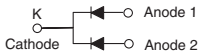
UH4PBC, UH4PCC, UH4PCD

Vishay General Semiconductor

High Current Density Surface Mount Ultrafast Rectifiers

eSMP™ Series

TO-277A (SMPC)



FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Oxide planar chip junction
- Ultrafast recovery times for high frequency
- Low forward voltage drop, low power loss
- 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**

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 2.0 A
V_{RRM}	100 V, 150 V, 200 V
I_{FSM}	40 A
t_{rr}	25 ns
V_F at I_F = 2.0 A	0.77 V
T_J max.	175 °C

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

TYPICAL APPLICATIONS

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

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

PARAMETER		SYMBOL	UH4PBC	UH4PCC	UH4PCD	UNIT
Device marking code			H4BC	H4CC	H4DC	
Maximum repetitive peak reverse voltage		V_{RRM}	100	150	200	V
Maximum average forward rectified current (fig. 1)	total devive	$I_{F(AV)}$	4.0			A
	per diode		2.0			
Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	40			A
Operating junction and storage temperature range		T_J, T_{STG}	- 55 to + 175			°C

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DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage per diode	I_F = 1.0 A	T_A = 25 °C	V_F (1)	0.84	-	V
	I_F = 2.0 A			0.93	1.05	
	I_F = 1.0 A	T_A = 125 °C		0.68	-	
	I_F = 2.0 A			0.77	0.85	
Reverse current per diode	Rated V_R	T_A = 25 °C	I_R (2)	-	5	µA
		T_A = 125 °C		6.4	25	mA
Maximum reverse recovery time per diode	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	20	25	ns
Typical reverse recovery time per diode	I_F = 1.0 A, dI/dt = 50 A/µs, V_R = 30 V, I_{rr} = 0.1 I_{RM}			24	-	
Typical softness factor (t_b/t_a)per diode	I_F = 2 A, dI/dt = 200 A/µs, V_R = 200 V, I_{rr} = 0.1 I_{RM} T_A = 125 °C		S	0.3	-	-
Typical reverse recovery current per diode			I_{RM}	5.4	-	A
Typical stored charge per diode			Q_{rr}	88	-	nC
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	21	-	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 specified)					
PARAMETER	**SYMBOL**	**UH4PBC**	**UH4PCC**	**UH4PCD**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JA}$ (1)	60			°C/W
	$R_{\theta JL}$	4			

Note

(1) Units mounted on recommended PCB 1 oz. pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
UH4PDC-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
UH4PDC-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel
UH4PDCHM3/86A (1)	0.10	86A	1500	7" diameter plastic tape and reel
UH4PDCHM3/87A (1)	0.10	87A	6500	13" diameter plastic tape and reel

Note

(1) Automotive grade

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RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

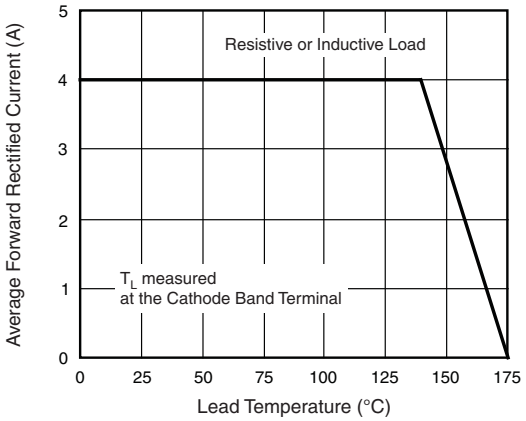

Fig. 1 - Maximum Forward Current Derating Curve

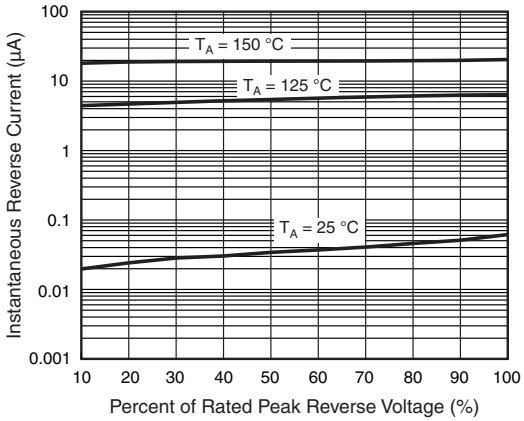

Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

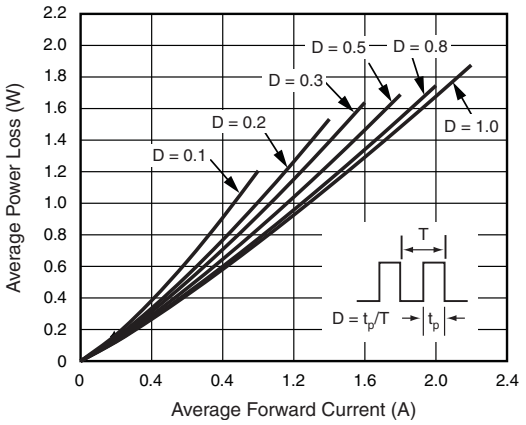

Fig. 2 - Forward Power Loss Characteristics Per Diode

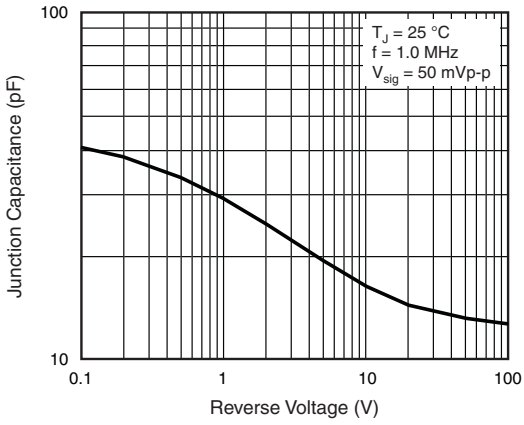

Fig. 5 - Typical Junction Capacitance Per Diode

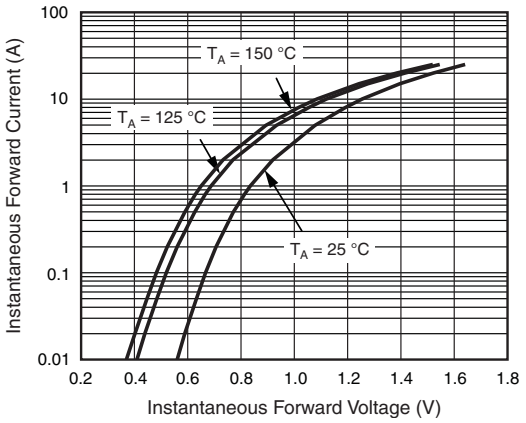

Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

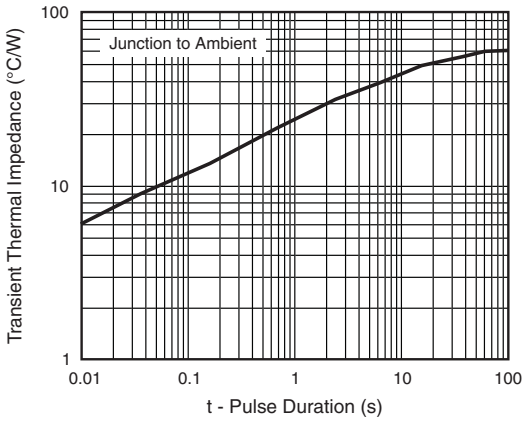

Fig. 6 - Typical Transient Thermal Impedance Per Diode

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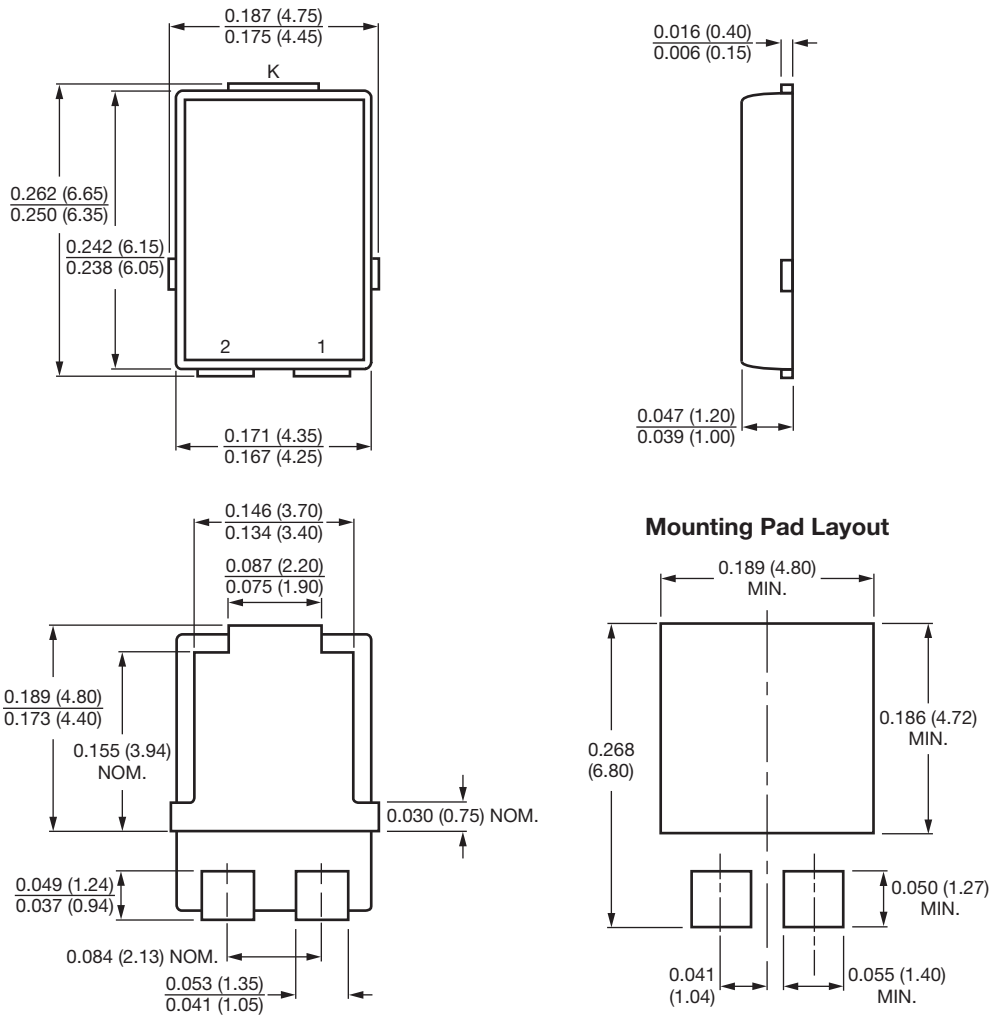
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-277A (SMPC)



Conform to JEDEC TO-277A

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