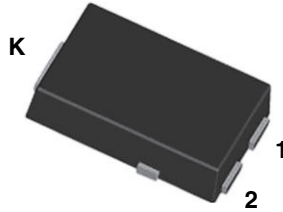


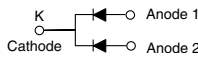


High Current Density Surface Mount Ultrafast Rectifiers

eSMP® Series



TO-277A (SMPC)



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
Package	TO-277A (SMPC)
Diode variations	Common cathode

TYPICAL APPLICATIONS

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

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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT HALOGEN FREE

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 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	UH4PBC	UH4PCC	UH4PDC	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 device	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



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	
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			S	0.3	-	-
Typical reverse recovery current per diode	I _F = 2 A, di/dt = 200 A/μs, V _R = 200 V, I _{rr} = 0.1 I _{RM}		I _{RM}	5.4	-	A
Typical stored charge per diode	T _A = 125 °C		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	UH4PDC	UNIT
Typical thermal resistance per diode	R _{θJA} ⁽¹⁾	60			°C/W
	R _{θJL}	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



RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

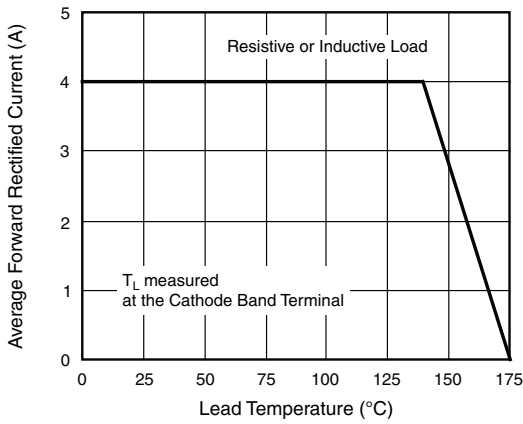


Fig. 1 - Maximum Forward Current Derating Curve

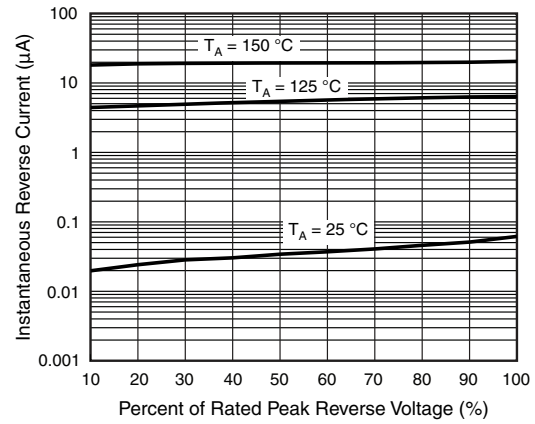


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

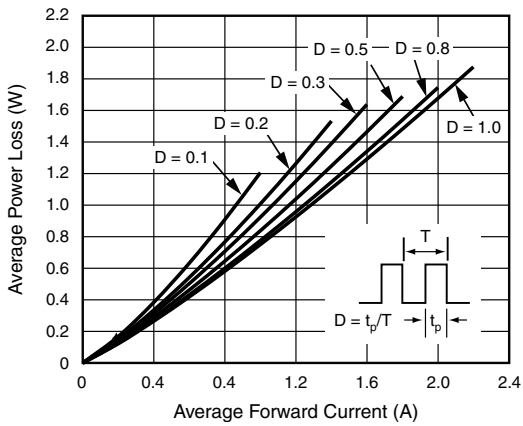


Fig. 2 - Forward Power Loss Characteristics Per Diode

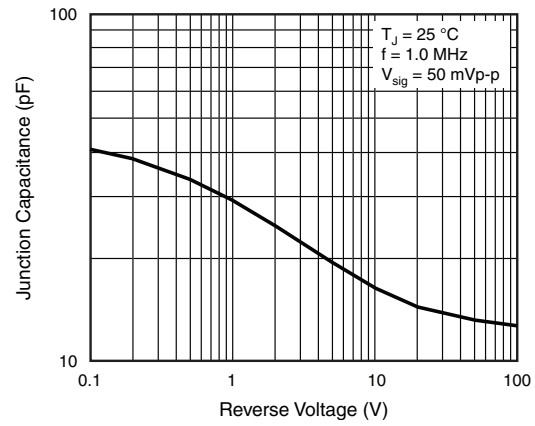


Fig. 5 - Typical Junction Capacitance Per Diode

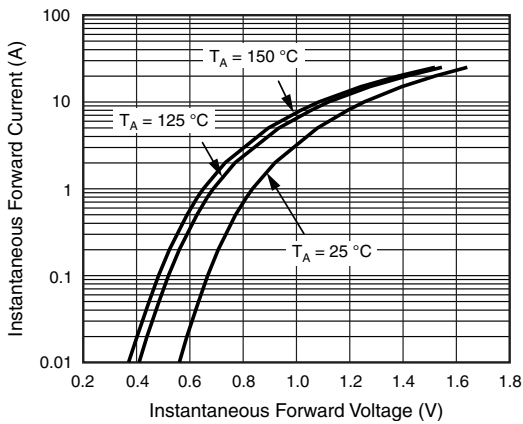


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

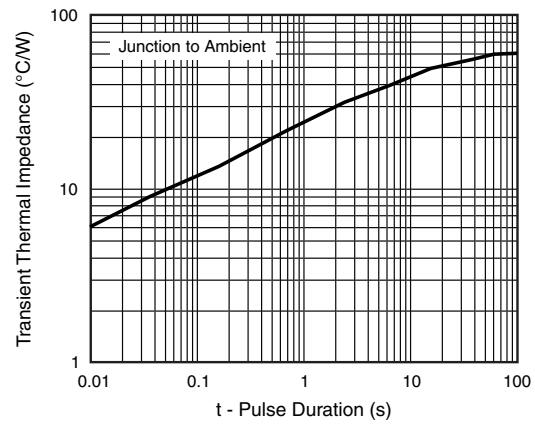
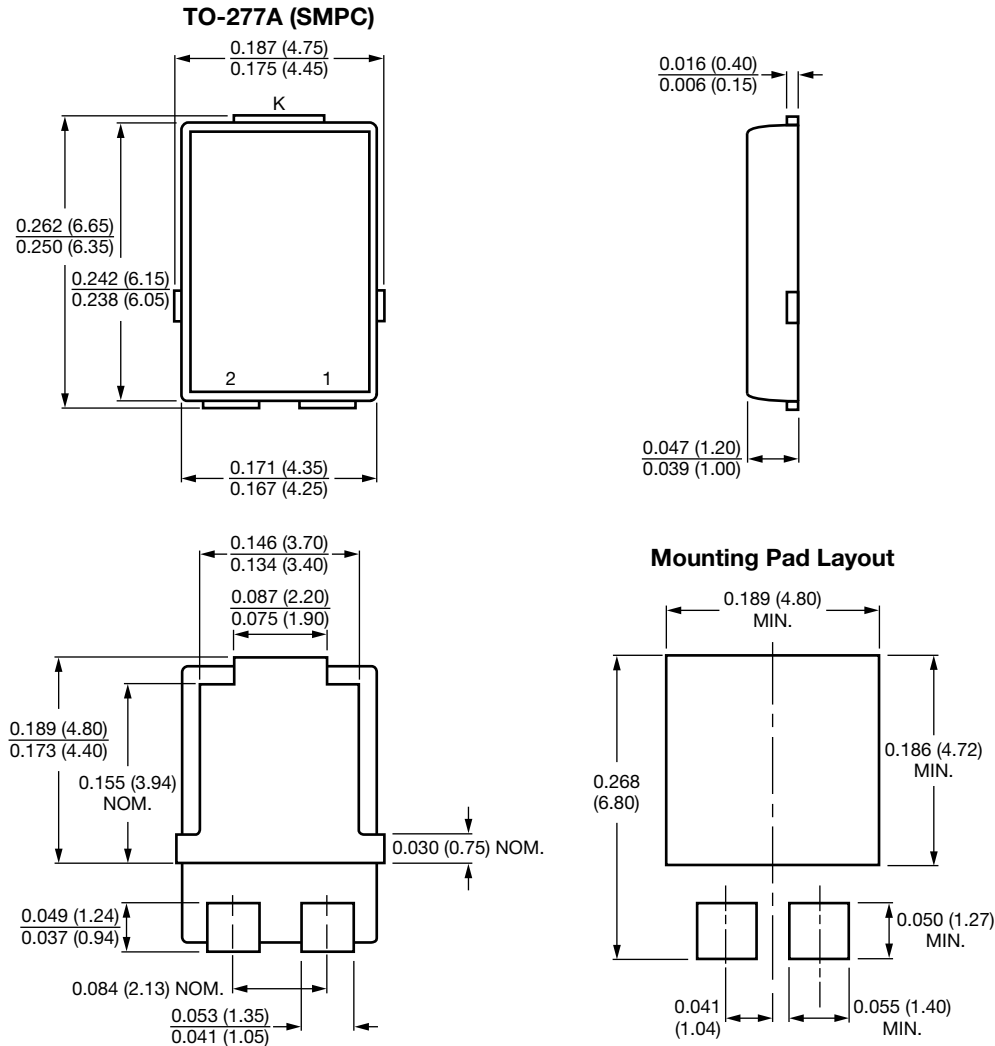


Fig. 6 - Typical Transient Thermal Impedance Per Diode



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC TO-277A



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