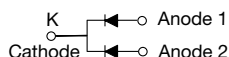


High Current Density Surface Mount Ultrafast Rectifiers

eSMP® Series



SMPC (TO-277A)



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 available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



[3D Models](#)

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 2.0 A
V_{RRM}	100 V, 150 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	SMPC (TO-277A)
Circuit configurations	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.

MECHANICAL DATA

Case: SMPC (TO-277A)

Molding compound meets UL 94 V-0 flammability rating
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
HM3 suffix meets JESD 201 class 2 whisker test

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

PARAMETER	SYMBOL	UH4PBC	UH4PCC	UNIT
Device marking code		H4BC	H4CC	
Maximum repetitive peak reverse voltage	V_{RRM}	100	150	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	4.0		A
		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** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	$I_F = 1.0\text{ A}$	$V_F^{(1)}$	0.84	-	V
	$I_F = 2.0\text{ A}$		0.93	1.05	
	$I_F = 1.0\text{ A}$		0.68	-	
	$I_F = 2.0\text{ A}$		0.77	0.85	
Reverse current per diode	Rated V_R	$I_R^{(2)}$	-	5	μA
			6.4	25	
Maximum reverse recovery time per diode	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	20	25	ns
Typical reverse recovery time per diode	$I_F = 1.0\text{ A}$, $dI/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$		24	-	
Typical softness factor (t_b/t_a) per diode	$I_F = 2\text{ A}$, $dI/dt = 200\text{ A}/\mu\text{s}$, $V_R = 200\text{ V}$, $I_{rr} = 0.1 I_{RM}$, $T_A = 125\text{ }^{\circ}\text{C}$	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		C_J	21	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	UH4PBC	UH4PCC	UNIT
Typical thermal resistance per device	$R_{\theta JA}^{(1)}$	60		$^{\circ}\text{C}/\text{W}$
	$R_{\theta JL}$	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
UH4PCCHM3_A/H ⁽¹⁾	0.10	H	1500	7" diameter plastic tape and reel
UH4PCCHM3_A/I ⁽¹⁾	0.10	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

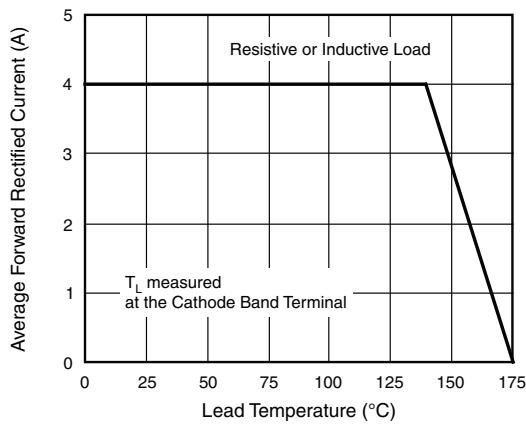
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

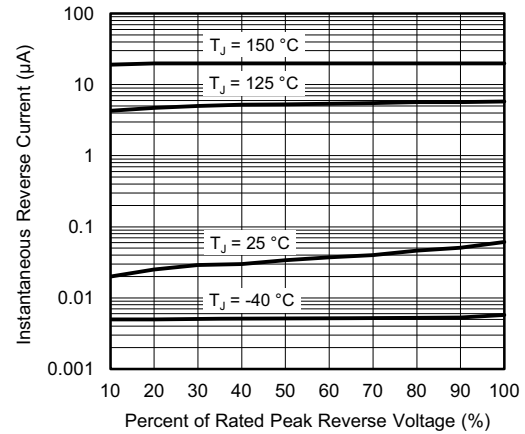


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

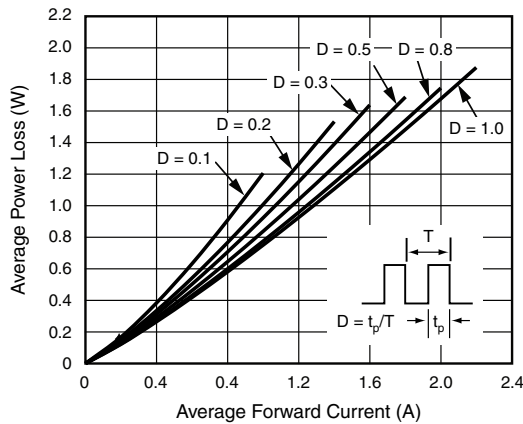


Fig. 2 - Forward Power Loss Characteristics Per Diode

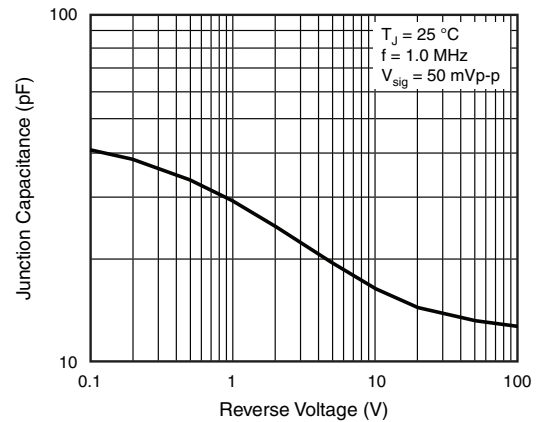


Fig. 5 - Typical Junction Capacitance Per Diode

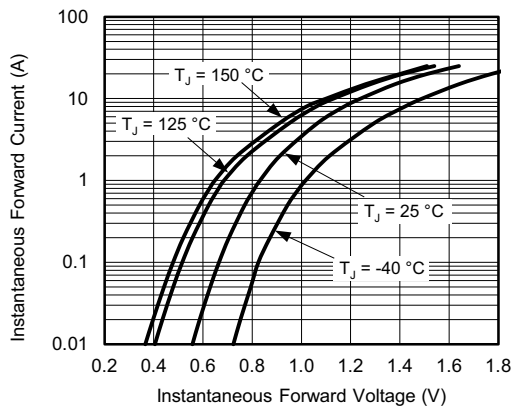


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

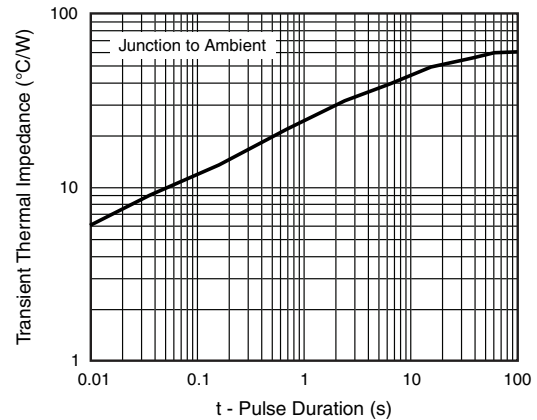
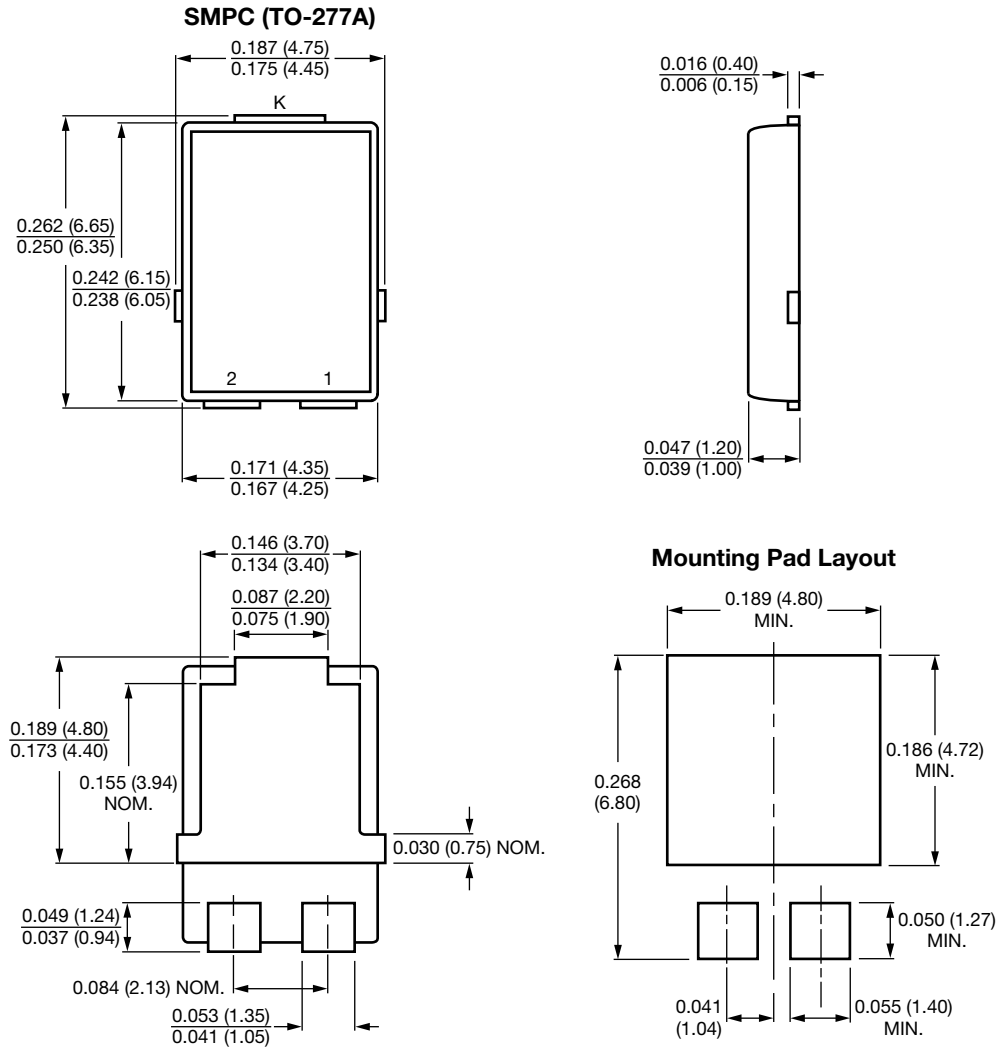


Fig. 6 - Typical Transient Thermal Impedance Per Device



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Conform to JEDEC® TO-277A



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