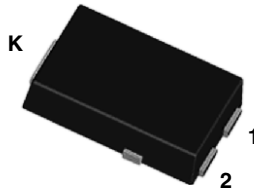
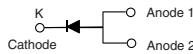


High Current Density Surface Mount Ultrafast High Voltage Rectifier

eSMP™ Series



TO-277A (SMPC)



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	6.0 A
V_{RRM}	600 V
I_{FSM}	80 A
t_{rr}	25 ns
V_F at $I_F = 6.0$ A	1.59 V
T_J max.	175 °C

TYPICAL APPLICATIONS

For use in high voltage, high frequency power factor corrections, switching mode power supplies, freewheeling diodes and secondary dc-to-dc rectification application.

FEATURES

- Very low profile - typical height of 1.1 mm
- Ideal for automated placement
- Oxide planar chip junction
- Ultrafast recovery time
- Soft recovery characteristics
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- **Halogen-free**



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: TO-277A (SMPC)

Molding compound meets UL 94V-0 flammability rating.

Base P/N-E3 - RoHS compliant, commercial grade

Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 and M3 suffix meets JESD 201 class 1A whisker test

MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	UH6PJ	UNIT
Device marking code		H6PJ	
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	6.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	80	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 175	°C



ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage ⁽¹⁾	$I_F = 3.0\text{ A}$ $I_F = 6.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	1.98 2.45	- 3.0	V
	$I_F = 3.0\text{ A}$ $I_F = 6.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		1.23 1.59	- 1.8	
Reverse current ⁽²⁾	$V_R = 600\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	I_R	- 28	10 200	μA
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A},$ $I_{rr} = 0.25\text{ A}$		t_{rr}	20	25	ns
	$I_F = 1.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s},$ $V_R = 30\text{ V}, I_{rr} = 0.1 I_{RM}$			30	45	
Typical softness factor (t_b/t_a)			S	0.88	-	-
Typical reverse recovery current	$I_F = 6\text{ A}, di/dt = 200\text{ A}/\mu\text{s},$ $V_R = 400\text{ V}, T_J = 125\text{ }^\circ\text{C}$		I_{RM}	6.1	-	A
Typical stored charge			Q_{rr}	150	-	nC
Typical forward recovery time	$I_F = 6\text{ A}, di/dt = 48\text{ A}/\mu\text{s},$ $V_F = 1.1 \times V_{F\text{ max.}}$		t_{fr}	155	-	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	30	-	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 noted)			
PARAMETER	SYMBOL	UH6PJ	UNIT
Typical thermal resistance	$R_{\theta JA}$ ⁽¹⁾	90	$^\circ\text{C}/\text{W}$
	$R_{\theta JL}$	5	

Notes:

- (1) Units mounted on recommended P.C.B. 1 oz. pad layout
(2) Pulse measurement

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
UH6PJ-E3/86A	0.10	86A	1500	7" diameter plastic tape and reel
UH6PJ-E3/87A	0.10	87A	6500	13" diameter plastic tape and reel
UH6PJ-M3/86A	0.10	86A	1500	7" diameter plastic tape and reel
UH6PJ-M3/87A	0.10	87A	6500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

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

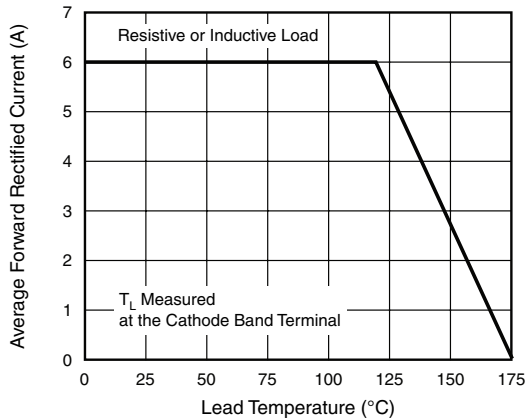


Figure 1. Maximum Forward Current Derating Curve

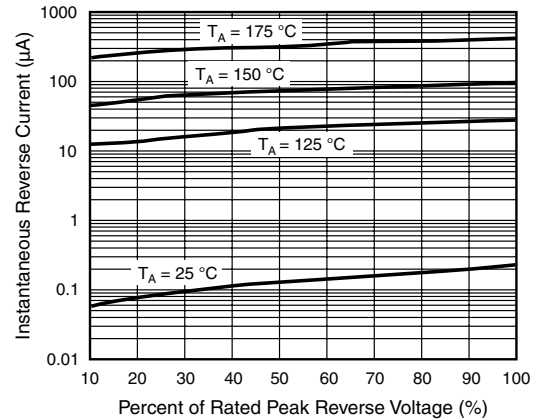


Figure 4. Typical Reverse Characteristics

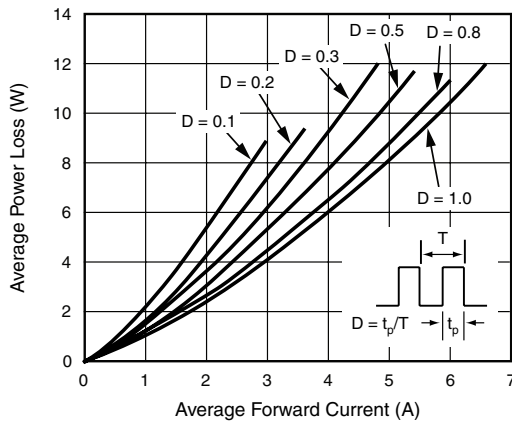


Figure 2. Forward Power Loss Characteristics

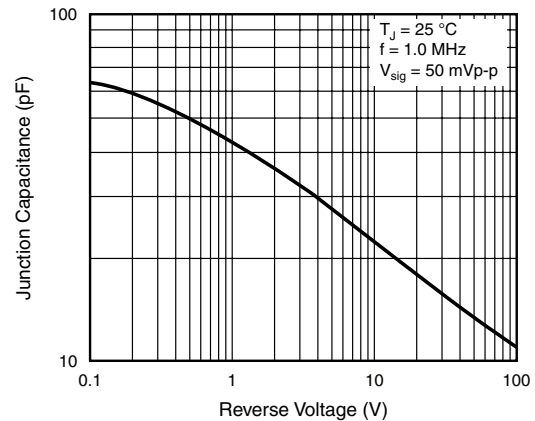


Figure 5. Typical Junction Capacitance

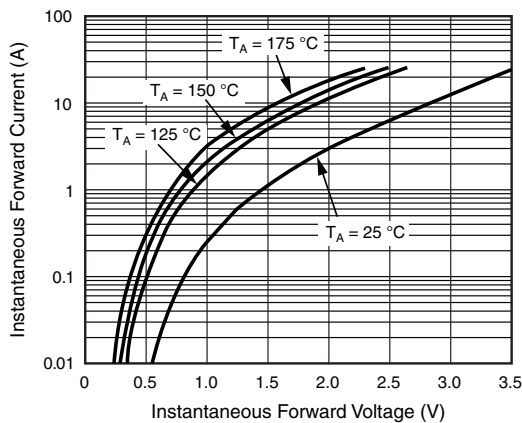
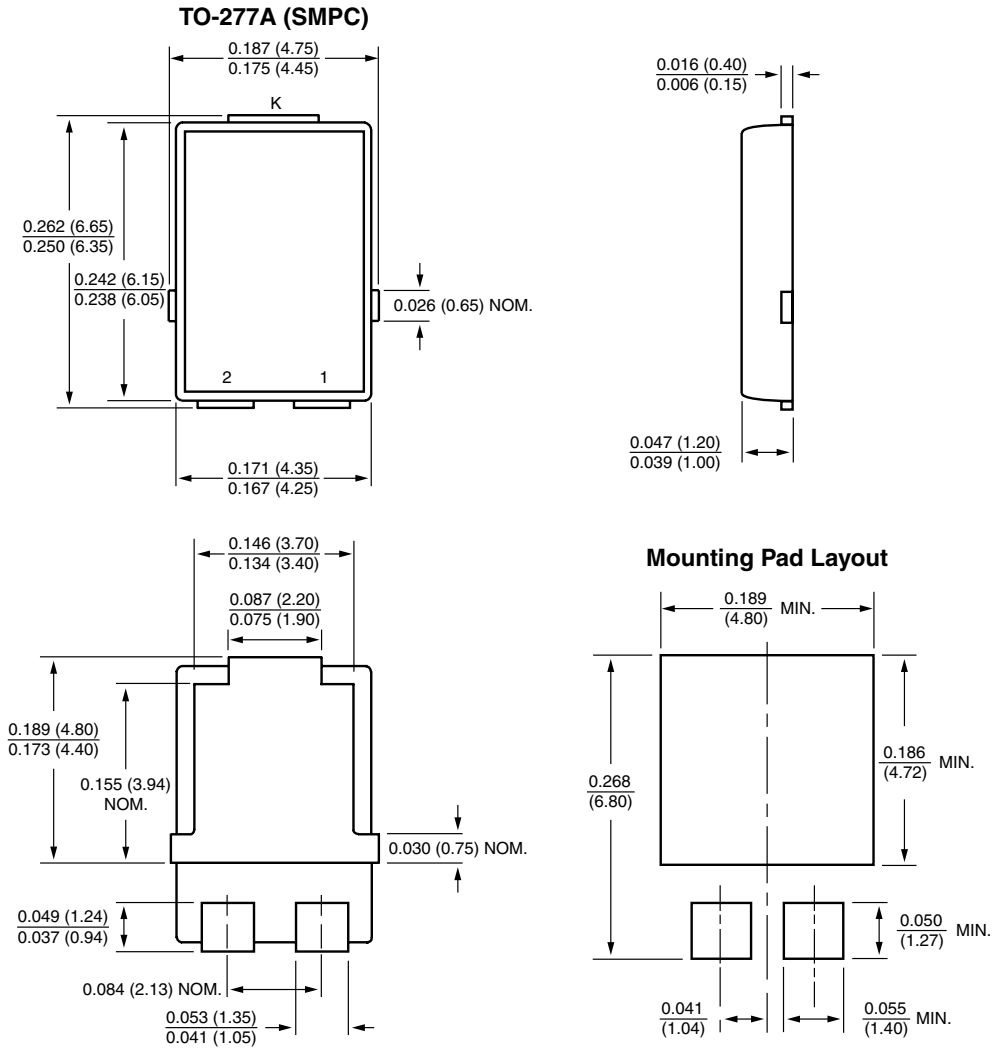


Figure 3. Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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