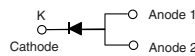


High Current Density Surface Mount Ultrafast High Voltage Rectifier

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

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

