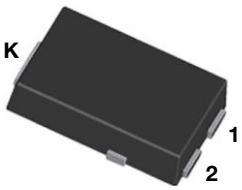
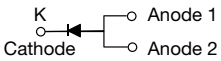
High Current Density Surface Mount Ultrafast High Voltage Rectifier

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 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
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE Available

RoHS COMPLIANT

HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

TYPICAL APPLICATIONS

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

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	1.3 V
T_J max.	175 °C
Package	SMPC (TO-277A)
Circuit configuration	Single

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_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 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 3.0 A	T_A = 25 °C	V_F (1)	1.6	-	V
	I_F = 6.0 A			1.9	3.0	
	I_F = 3.0 A	T_A = 125 °C		1.1	-	
	I_F = 6.0 A			1.3	1.8	
Reverse current	V_R = 600 V	T_A = 25 °C	I_R (2)	-	10	µA
		T_A = 125 °C		46	200	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	23	25	ns
	I_F = 1.0 A, dI/dt = 50 A/µs, V_R = 30 V, I_{rr} = 0.1 I_{RM}			33	45	
Typical softness factor (t_b/t_a)	I_F = 6 A, dI/dt = 200 A/µs, V_R = 400 V, T_J = 125 °C		S	0.3	-	-
Typical reverse recovery current			I_{RM}	6.5	-	A
Typical stored charge			Q_{rr}	150	-	nC
Typical forward recovery time	I_F = 6 A, dI/dt = 48 A/µs, V_F = 1.1 x V_F max.		t_{fr}	150	-	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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**UH6PJ**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	90	°C/W
	$R_{\theta JL}$ (2)	5	

Notes
(1) Units mounted on recommended PCB 1 oz. pad layout
(2) With heatsink

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
UH6PJHM3_A/H (1)	0.10	H	1500	7" diameter plastic tape and reel
UH6PJHM3_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 °C unless otherwise noted)

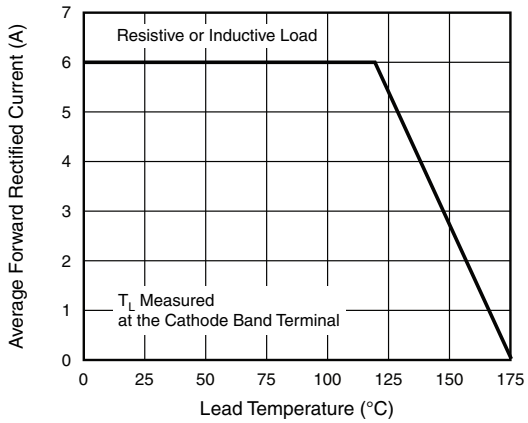


Fig. 1 - Maximum Forward Current Derating Curve

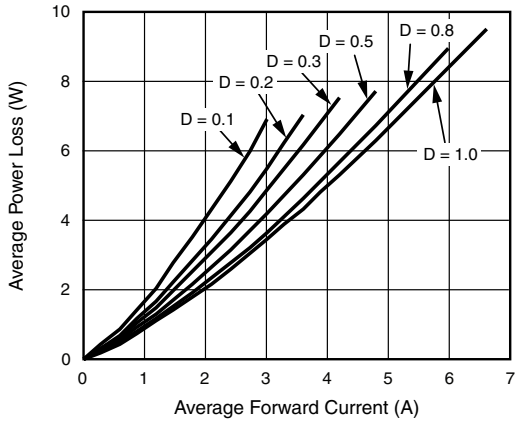


Fig. 2 - Forward Power Loss Characteristics

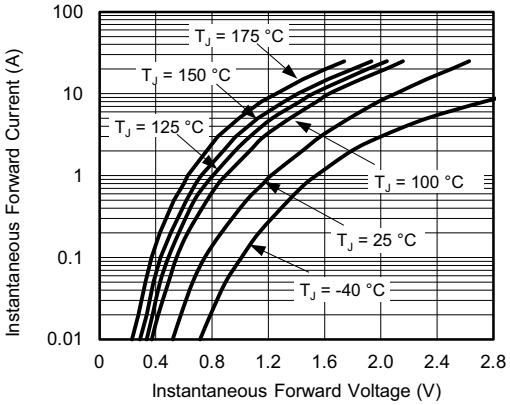


Fig. 3 - Typical Instantaneous Forward Characteristics

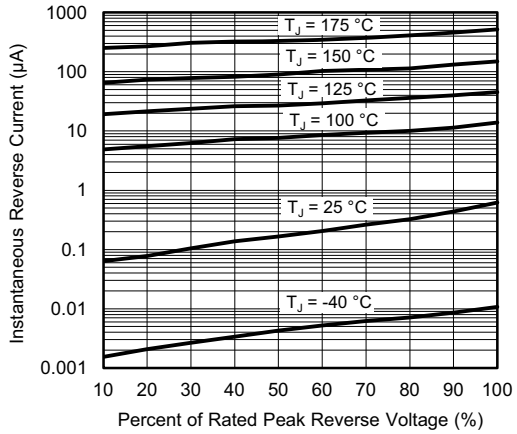


Fig. 4 - Typical Reverse Characteristics

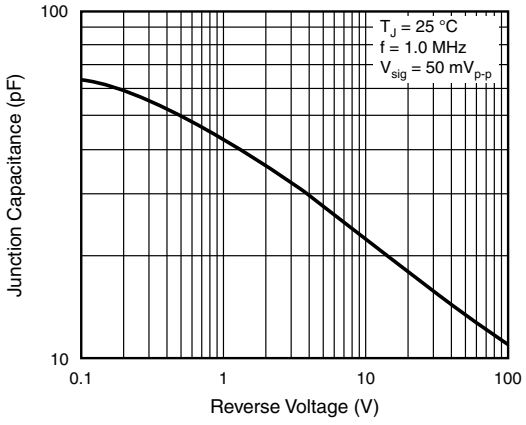
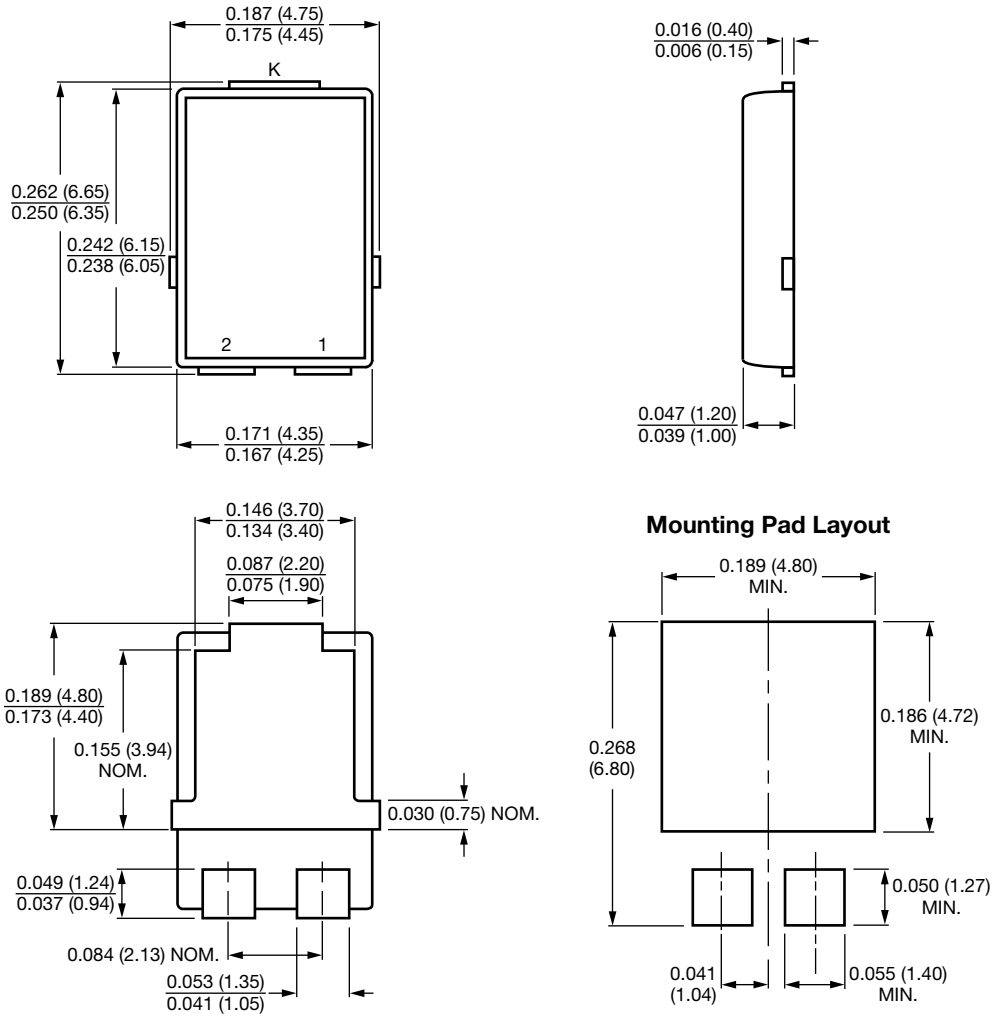


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPC (TO-277A)



Conform to JEDEC® TO-277A

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Rectifiers ***category:***

Click to view products by Vishay ***manufacturer:***

Other Similar products are found below :

70HFR40 RL252-TP 150KR30A 1N5397 NTE5841 NTE6038 SCF5000 1N4002G 1N4005-TR JANS1N6640US 481235F RRE02VS6SGTR 067907F MS306 70HF40 T110HF60 T85HFL60S02 US2JFL-TP A1N5404G-G CRS04(T5L,TEMQ) ACGRA4007-HF ACGRB207-HF CLH03(TE16L,Q) ACGRC307-HF ACEFC304-HF NTE6356 NTE6359 NTE6002 NTE6023 NTE6039 NTE6077 85HFR60 40HFR60 1N1186RA 70HF120 85HFR80 D126A45C SCF7500 D251N08B SCHJ22.5K SM100 SCPA2 SCH10000 SDHD5K VS-12FL100S10 ACGRA4001-HF D1821SH45T PR D1251S45T NTE5990 NTE6358