



STPS16L40CT

LOW DROP POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

I_{F(AV)}	2 x 8 A
V_{RRM}	40 V
T_{j (max)}	150 °C
V_{F (max)}	0.45 V

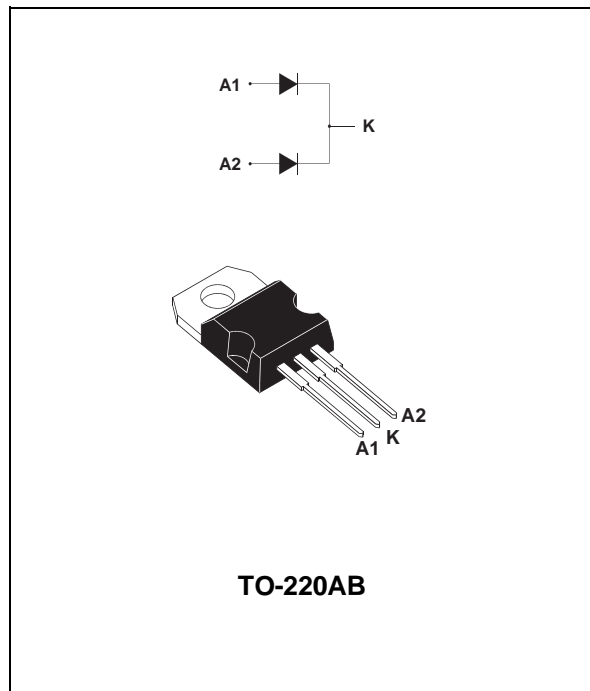
FEATURES AND BENEFITS

- LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION
- NEGLIGIBLE SWITCHING LOSSES ALLOWING HIGH FREQUENCY OPERATION
- AVALANCHE RATED

DESCRIPTION

Dual center tap Schottky barrier rectifier designed for high frequency switched mode power supplies and frequency DC to DC converters.

Packaged in TO-220AB this device is intended for use in low voltage, high frequency converters, free-wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit	
V _{RRM}	Repetitive peak reverse voltage		40	V	
I _{F(RMS)}	RMS forward current		30	A	
I _{F(AV)}	Average forward current	T _c = 140°C	Per diode	8	A
		δ = 0.5	Per device	16	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	180	A	
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs square F = 1kHz	1	A	
I _{RSM}	Non repetitive peak reverse current	t _p = 100 μs square	2	A	
T _{stg}	Storage temperature range		- 65 to + 150	°C	
T _j	Maximum operating junction temperature *		150	°C	
dV/dt	Critical rate of rise of reverse voltage		10000	V/μs	

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

STPS16L40CT

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	2.2	$^{\circ}\text{C}/\text{W}$
		Total	1.3	
$R_{th(c)}$		Coupling	0.3	

When the diodes 1 and 2 are used simultaneously :
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			0.7	mA
		$T_j = 100^{\circ}\text{C}$			15	35	mA
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 8\text{ A}$			0.5	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 8\text{ A}$		0.39	0.45	
		$T_j = 25^{\circ}\text{C}$	$I_F = 16\text{ A}$			0.63	
		$T_j = 125^{\circ}\text{C}$	$I_F = 16\text{ A}$		0.55	0.64	

Pulse test : * $t_p = 380\ \mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation :
 $P = 0.26 \times I_{F(AV)} + 0.024 I_{F(RMS)}^2$

Fig. 1: Average forward power dissipation versus average forward current (per diode).

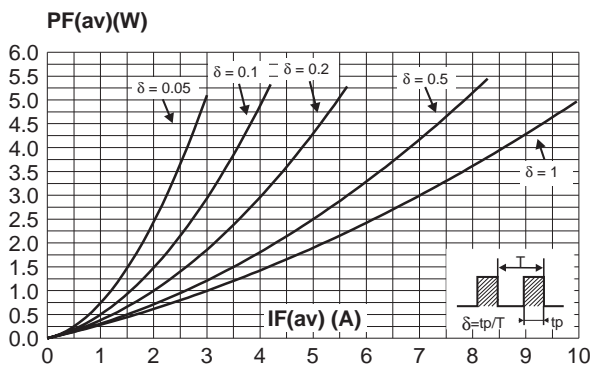


Fig. 2: Average current versus ambient temperature ($\delta = 0.5$) (per diode).

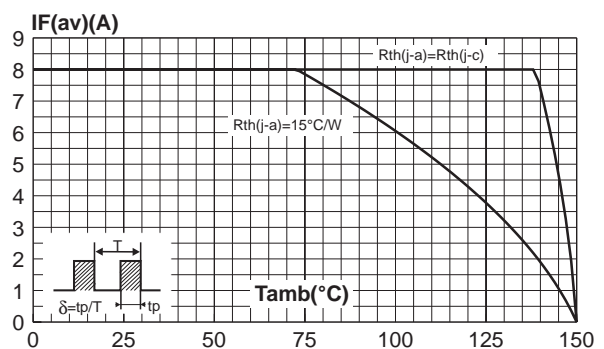


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

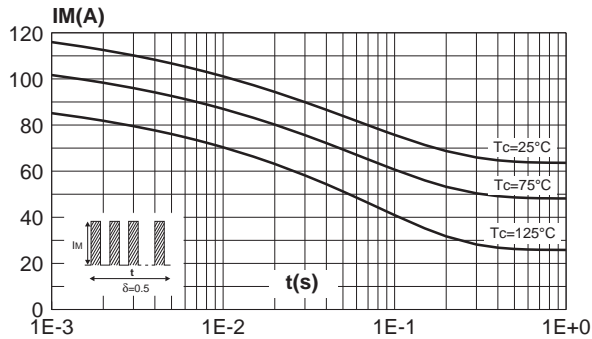


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration .

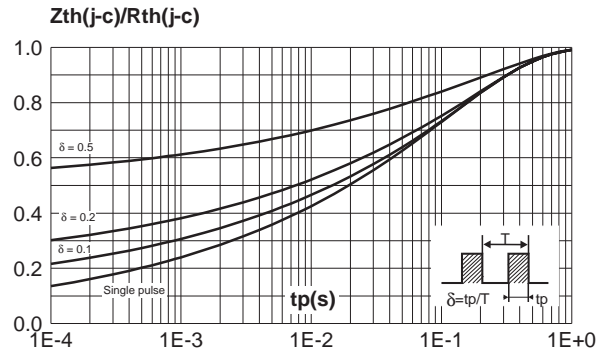


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

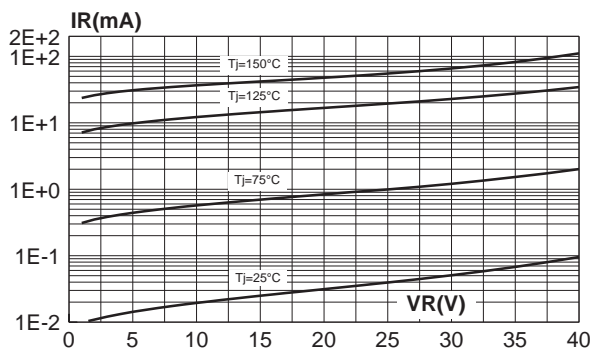


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

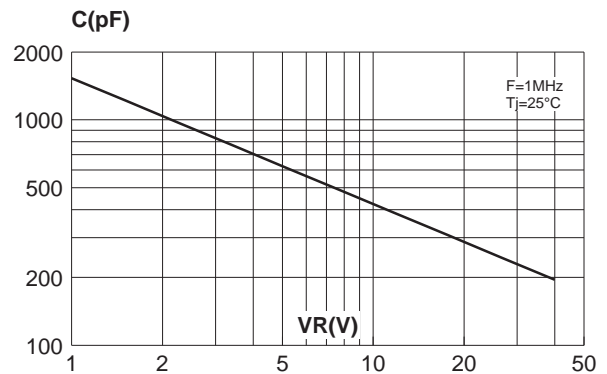
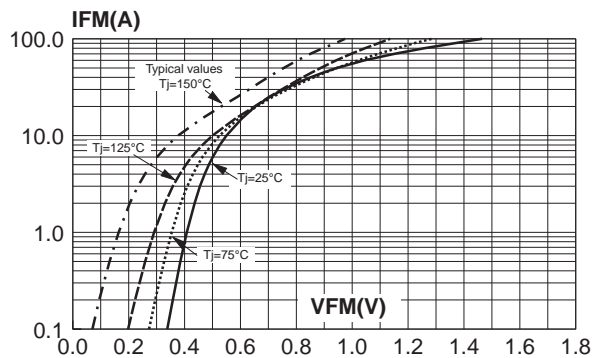


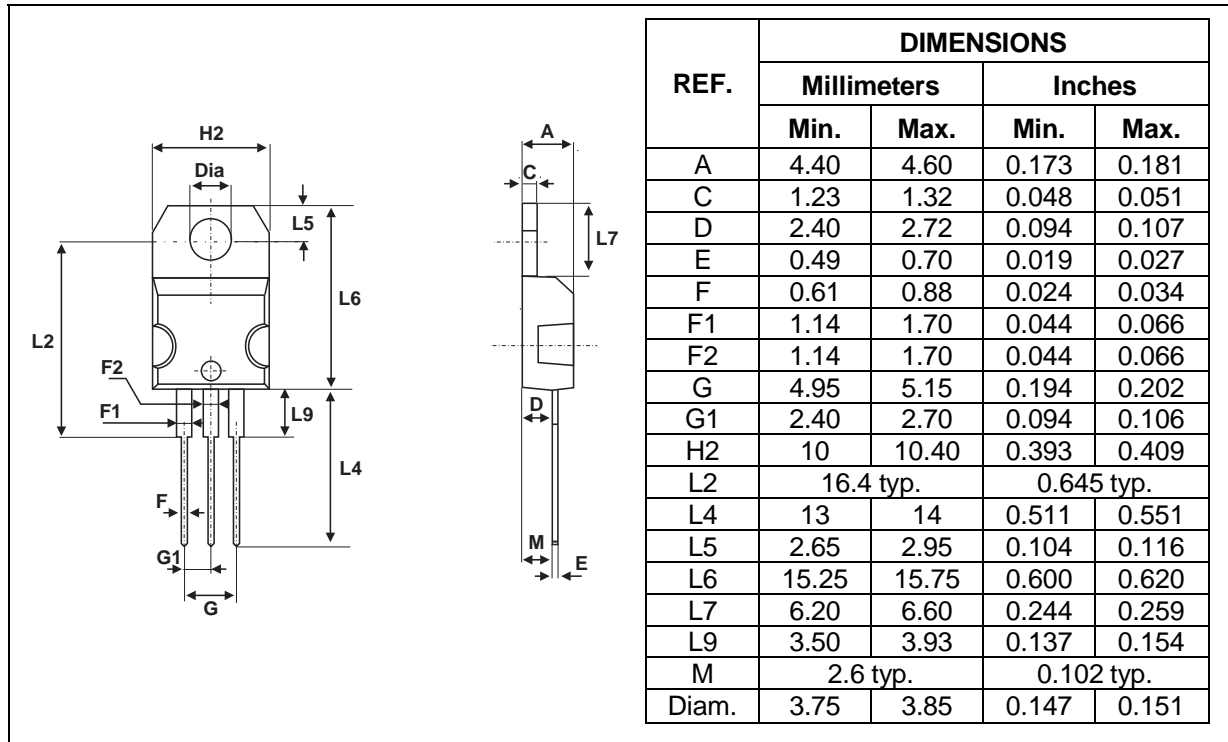
Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).



STPS16L40CT

PACKAGE MECHANICAL DATA

TO-220AB



- Cooling method : C
- Recommended torque value : 0.55 m.N
- Maximum torque value : 0.70 m.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS16L40CT	STPS16L40CT	TO-220AB	2g	50	Tube

- Epoxy meets UL94,V0

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1998 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

<http://www.st.com>