

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_F(AV)$	2 x 40A
$V_{RRM}$	100V
$V_F$ (typ)	0.63V

### PRELIMINARY DATASHEET

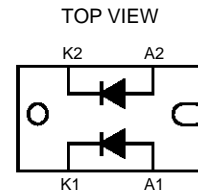
### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW CAPACITANCE
- HIGH REVERSE AVALANCHE SURGE CAPABILITY
- LOW INDUCTANCE PACKAGE

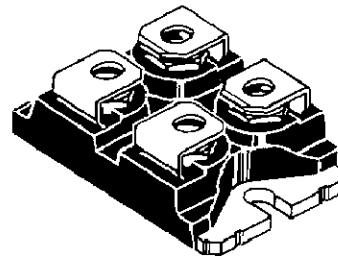
### DESCRIPTION

High voltage dual Schottky rectifier suited for switchmode power supplies and other power converters.

Packaged in ISOTOP™, this device is intended for use in medium voltage operation, and particularly, in high frequency circuitries where low switching losses and low noise are required.



STPS80100TV



Screw version

ISOTOP™  
(Plastic)

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		100	V
$I_F(RMS)$	RMS forward current	Per diode	125	A
$I_F(AV)$	Average forward current	$T_c=90^\circ C$ $V_R = 60V$ $\delta = 0.5$ Per diode	40	A
$I_{FSM}$	Surge non repetitive forward current	$t_p=10ms$ sinusoidal Per diode	700	A
$I_{RRM}$	Repetitive Peak reverse current	$t_p=2\mu s$ $F=1KHz$ Per diode	2	A
$I_{RSM}$	Non repetitive peak reverse current	$t_p=100\mu s$ Per diode	2	A
$T_{stg}$	Junction temperature range		- 65 to + 150	$^\circ C$
$T_j$	Max. Junction temperature		125	$^\circ C$
$dV/dt$	Critical rate of rise of reverse voltage		1000	$V/\mu s$

TM : ISOTOP is a trademark of SGS-THOMSON Microelectronics.

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## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case	Per diode	0.9	°C/W
		Total	0.5	
Rth (c)	Coupling		0.1	°C/W

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

## ELECTRICAL CHARACTERISTICS (Per diode)

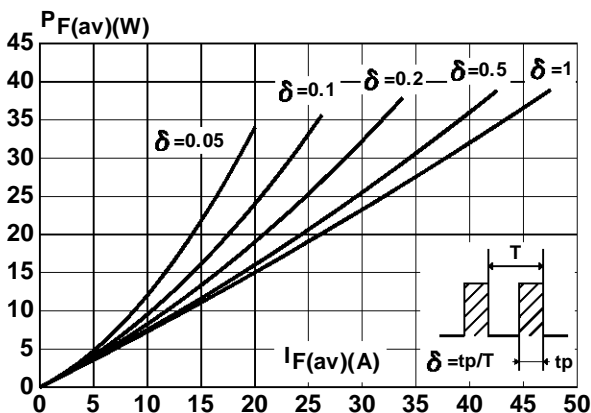
### STATIC CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$			400	$\mu\text{A}$
			$T_j = 100^\circ\text{C}$			70	mA
$V_F^{**}$	Forward voltage drop	$I_F = 80\text{ A}$	$T_j = 100^\circ\text{C}$			0.90	V
		$I_F = 40\text{ A}$	$T_j = 100^\circ\text{C}$		0.63	0.80	
		$I_F = 80\text{ A}$	$T_j = 25^\circ\text{C}$			0.99	

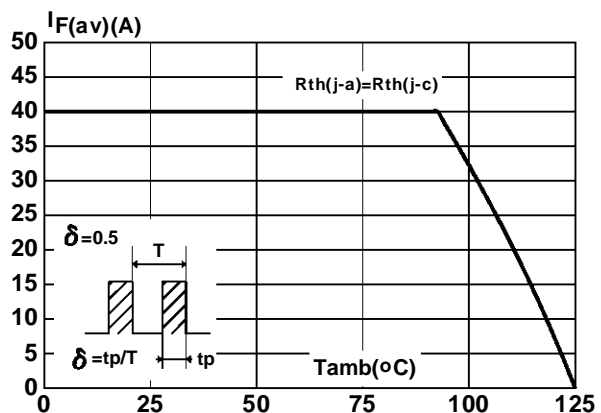
Pulse test : \*  $t_p = 5\text{ ms}$ , duty cycle < 2 %  
 \*\*  $t_p = 380\text{ }\mu\text{s}$ , duty cycle < 2 %

To evaluate the conduction losses use the following equation :  
 $P = 0.7 \times I_F(\text{AV}) + 0.0025 \times I_F^2(\text{RMS})$

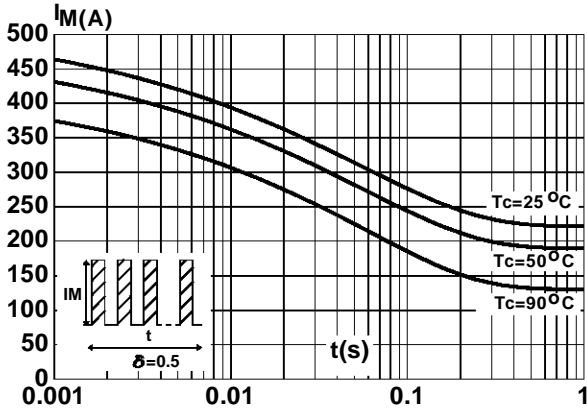
**Fig. 1** : Average forward power dissipation versus average forward current. (Per diode)



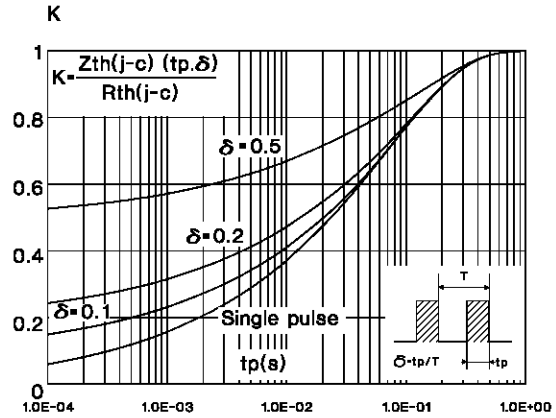
**Fig. 2** : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)



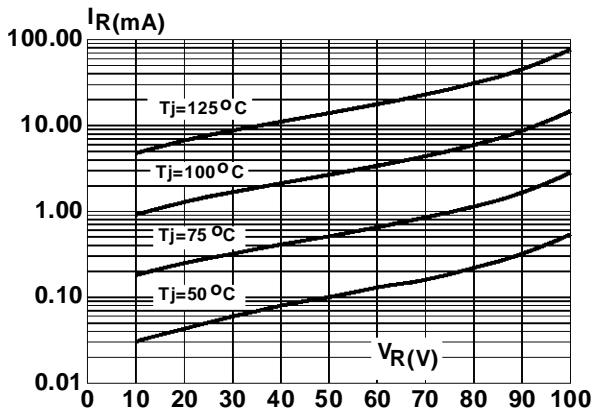
**Fig. 3** : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)



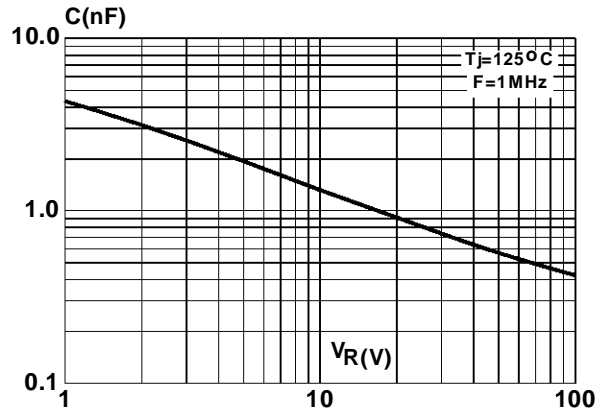
**Fig. 4** : Relative variation of thermal transient impedance junction to case versus pulse duration.



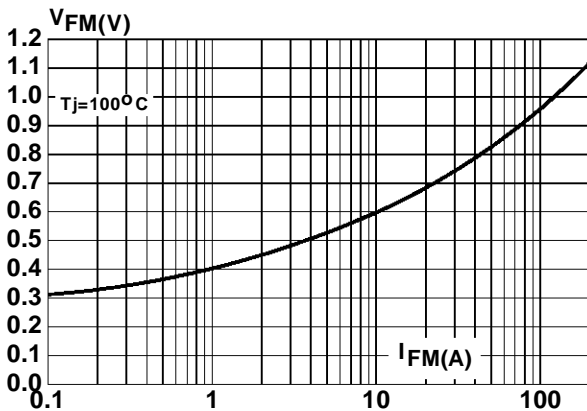
**Fig. 5** : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)



**Fig. 6** : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

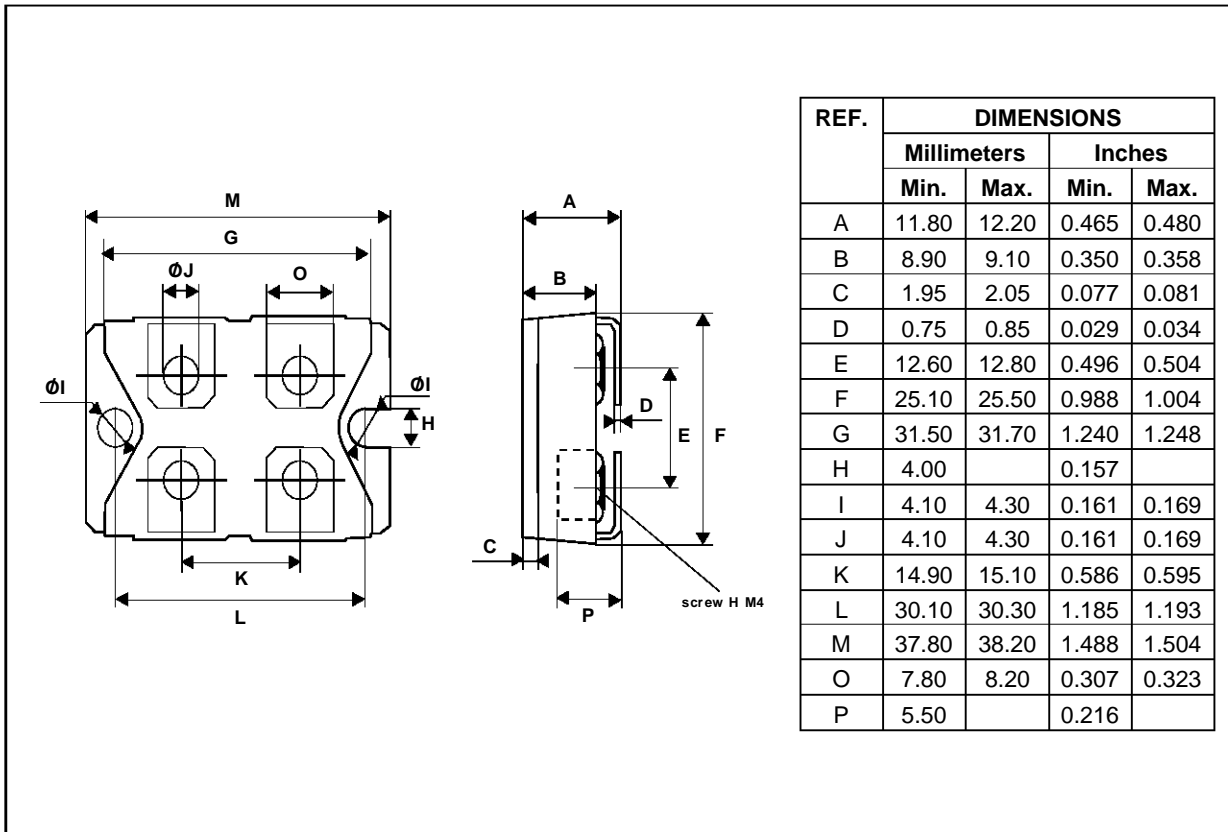


**Fig. 7** : Forward voltage drop versus forward current. (Maximum values) (Per diode)



# STPS80100TV

**PACKAGE DATA** (millimeter)  
**ISOTOP** (Plastic)



Cooling method : C  
 Marking : Type number  
 Weight : 28 g. (without screws)

Electrical isolation : 2500V(RMS)  
 Capacitance : < 45 pF  
 Inductance : < 5 nH

- Recommended torque value : 1.3 N.m (MAX 1.5 N.m) for the 6 x M4 screws. (2 x M4 screws recommended for mounting the package on the heatsink and the 4 screws given with the screw version).
- The screws supplied with the package are adapted for mounting on a board (or other types of terminals) with a thickness of 0.6 mm min and 2.2 mm max.

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