

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

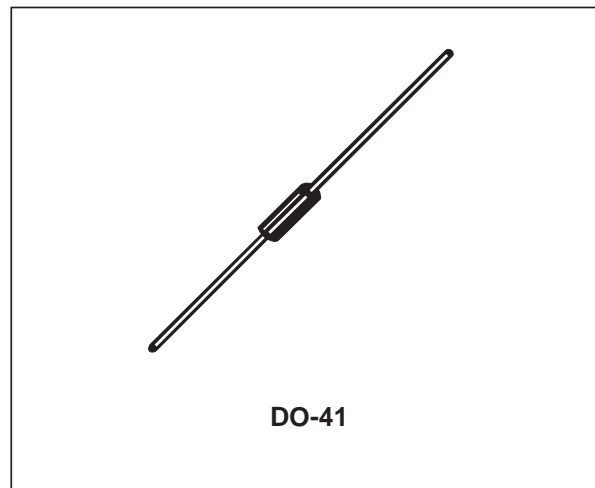
<b>I<sub>F(AV)</sub></b>	<b>2 A</b>
<b>V<sub>RRM</sub></b>	<b>100 V</b>
<b>T<sub>j</sub> (max)</b>	<b>175°C</b>
<b>V<sub>F</sub> (max)</b>	<b>0.70 V</b>

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW LEAKAGE CURRENT
- AVALANCHE CAPABILITY SPECIFIED

### DESCRIPTION

Axial Power Schottky rectifier suited for Switch Mode Power Supply and high frequency DC/DC converters. Packaged in DO-41, this device is intended for use in low voltage, high frequency inverters and small battery chargers.



### ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		100	V
I <sub>F(RMS)</sub>	RMS forward current		10	A
I <sub>F(AV)</sub>	Average forward current	T <sub>L</sub> = 120°C δ = 0.5	2	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms sinusoidal	50	A
I <sub>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs square F = 1kHz	1	A
P <sub>ARM</sub>	Repetitive peak avalanche power	t <sub>p</sub> = 1μs T <sub>j</sub> = 25°C	1500	W
T <sub>stg</sub>	Storage temperature range		- 65 to + 175	°C
T <sub>j</sub>	Maximum operating junction temperature *		175	°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

# STPS2H100

## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-a)}$	Junction to ambient	Lead length = 10 mm	100	°C/W
$R_{th(j-l)}$	Junction to lead	Lead length = 10 mm	35	

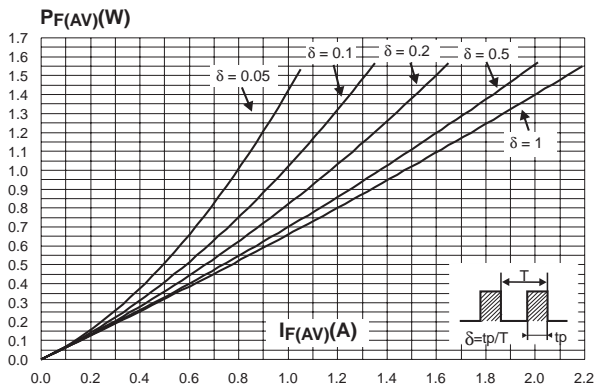
## STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit	
$I_R$ *	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			1	$\mu\text{A}$	
		$T_j = 125^\circ\text{C}$			0.2	0.5	mA	
$V_F$ **	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 2\text{ A}$			0.86	V	
		$T_j = 125^\circ\text{C}$			0.65	0.70		
		$T_j = 25^\circ\text{C}$		$I_F = 4\text{ A}$				0.92
		$T_j = 125^\circ\text{C}$				0.72		0.78

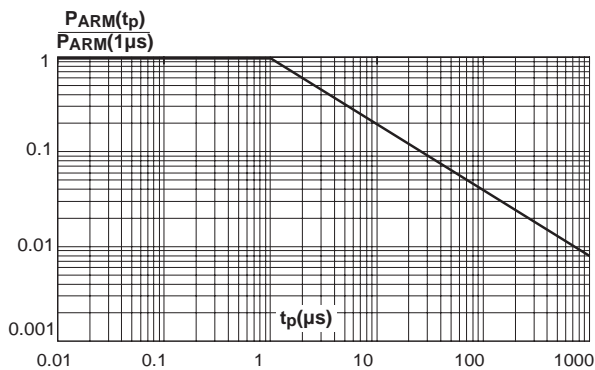
Pulse test : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$   
 \*\*  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :  
 $P = 0.62 \times I_{F(AV)} + 0.04 \times I_{F(RMS)}^2$

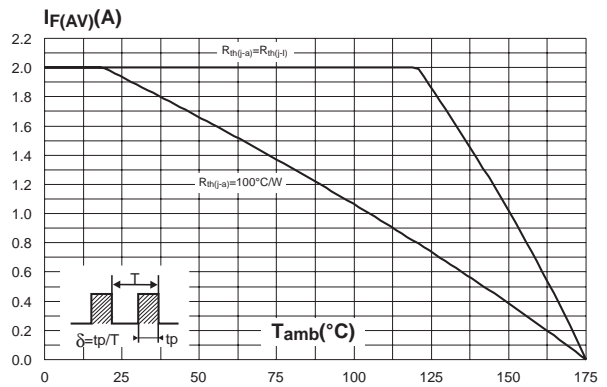
**Fig. 1:** Conduction losses versus average current.



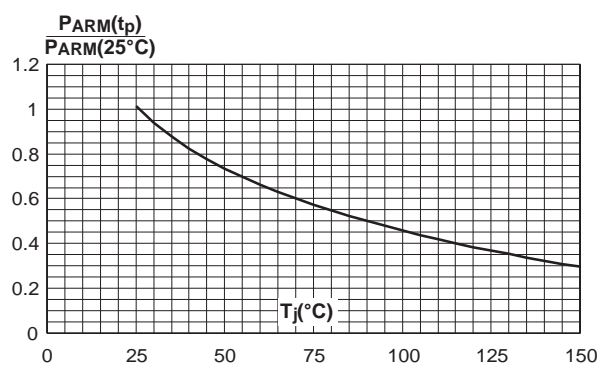
**Fig. 3:** Normalized avalanche power derating versus pulse duration.



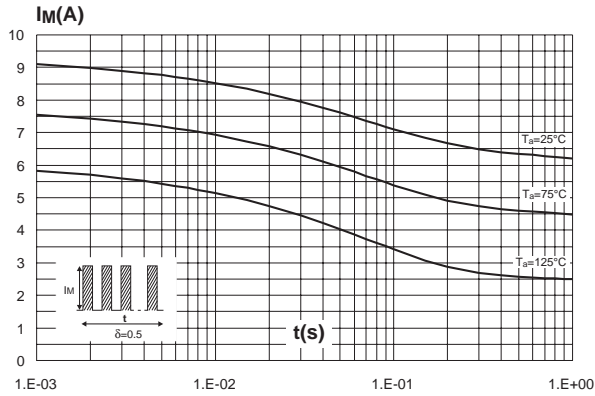
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



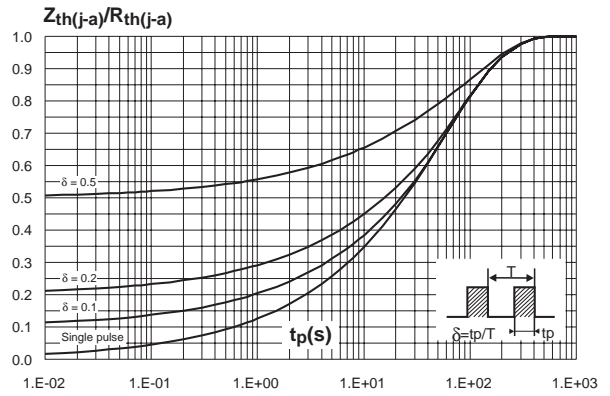
**Fig. 4:** Normalized avalanche power derating versus junction temperature.



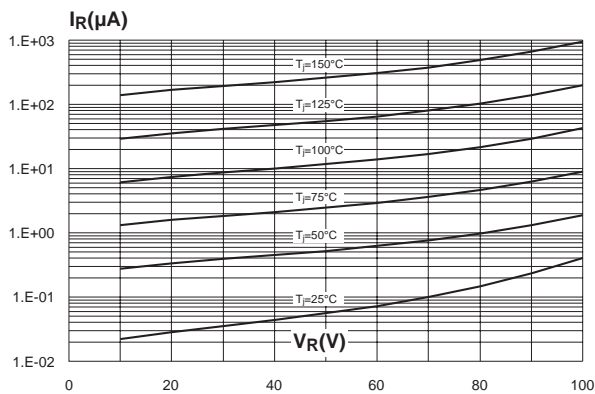
**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values).



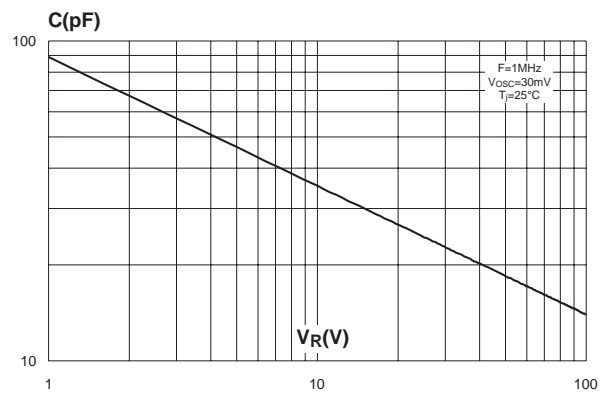
**Fig. 6:** Relative variation of thermal impedance junction to ambient versus pulse duration.



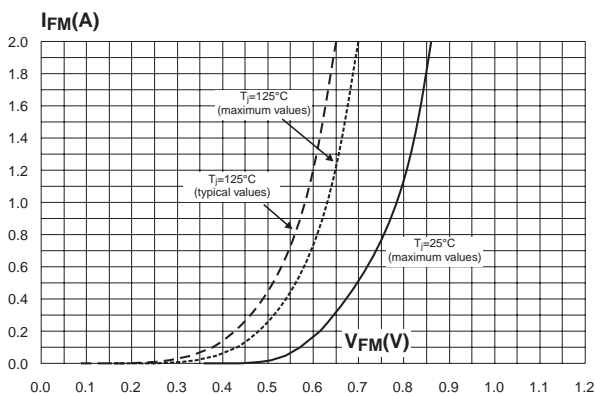
**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values).



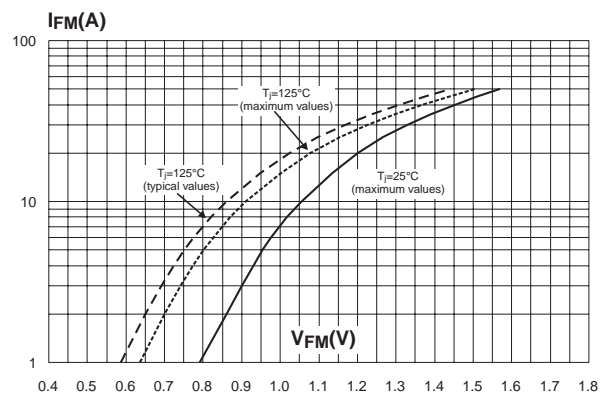
**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).



**Fig. 9-1:** Forward voltage drop versus forward current (low level).

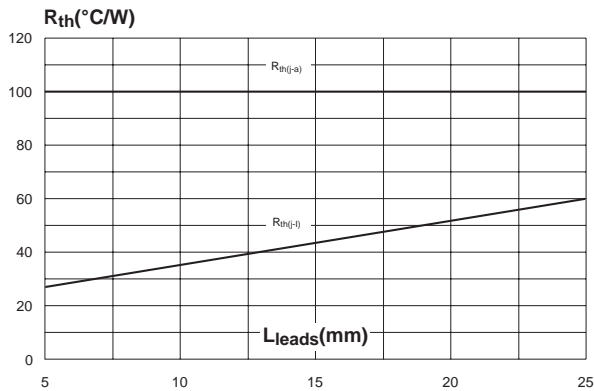


**Fig. 9-2:** Forward voltage drop versus forward current (high level).



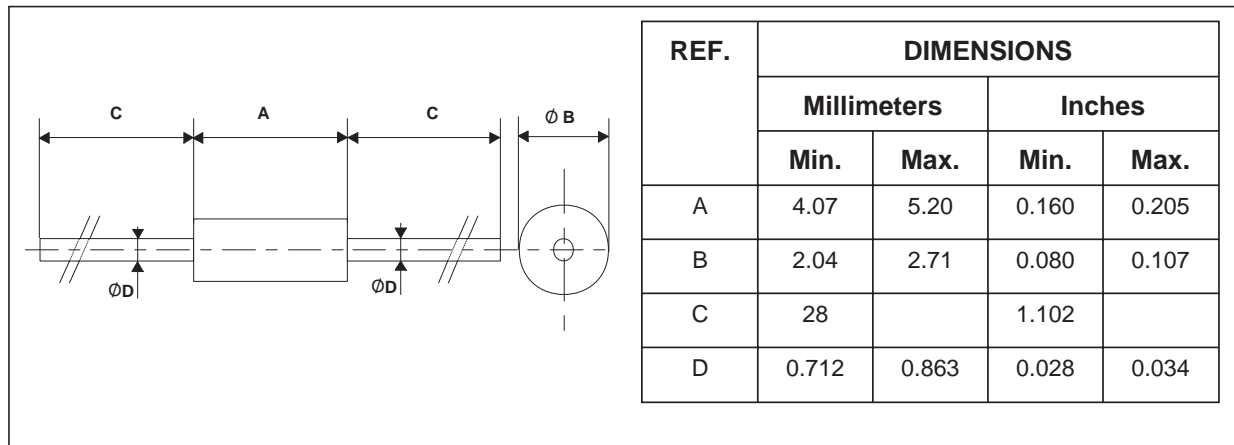
# STPS2H100

**Fig. 10:** Thermal resistance versus lead length.



## PACKAGE MECHANICAL DATA

DO-41 (plastic)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2H100	STPS2H100 cathode ring	DO-41	0.34 g	2000	Ammopack
STPS2H100RL	STPS2H100 cathode ring			5000	Tape & Reel

■ EPOXY MEETS UL94,V0

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