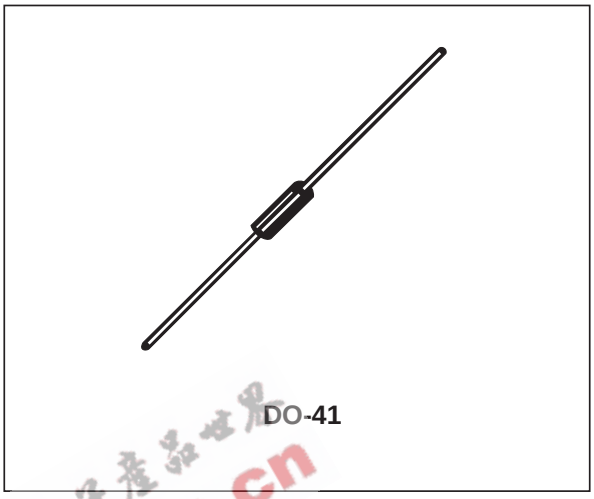
STPS2H100

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	100 V
T_j (max)	175°C
V_F (max)	0.70 V



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_{RRM}	Repetitive peak reverse voltage		100	V
$I_{F(RMS)}$	RMS forward current		10	A
$I_{F(AV)}$	Average forward current	T_L = 120°C δ = 0.5	2	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal	50	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz	1	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C	1500	W
T_{stg}	Storage temperature range		- 65 to + 175	°C
T_j	Maximum operating junction temperature *		175	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

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 lenght = 10 mm	35	

STATIC ELECTRICAL CHARACTERISTICS (per diode)

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

Pulse test : * tp = 5 ms, δ < 2%
** tp = 380 µs, δ < 2%

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

Fig. 1: Conduction losses versus average current.

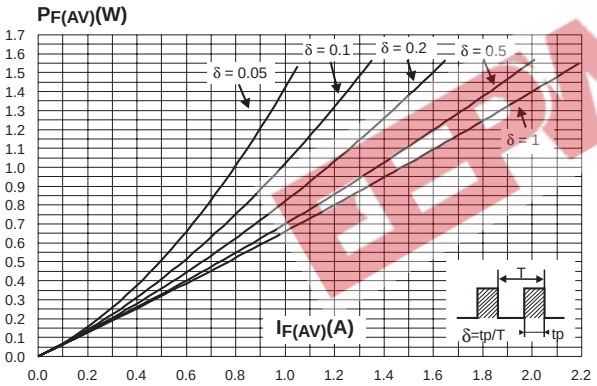


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

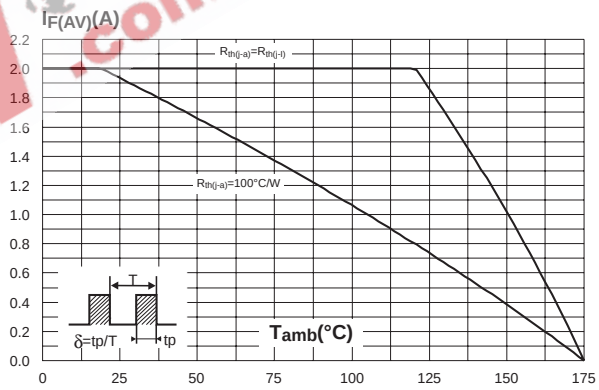


Fig. 3: Normalized avalanche power derating versus pulse duration.

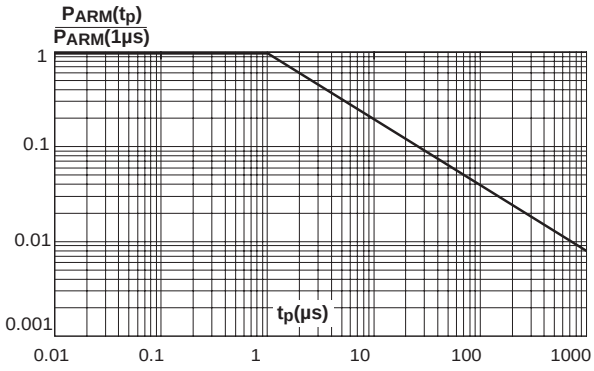


Fig. 4: Normalized avalanche power derating versus junction temperature.

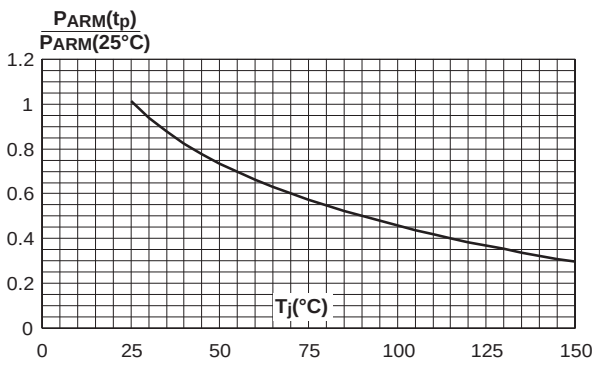


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

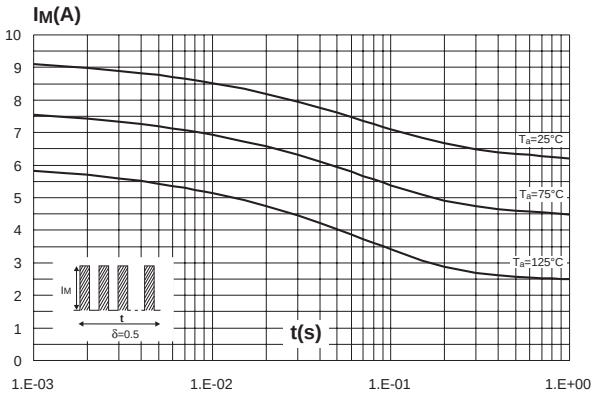


Fig. 6: Relative variation of thermal impedance junction to ambient versus pulse duration.

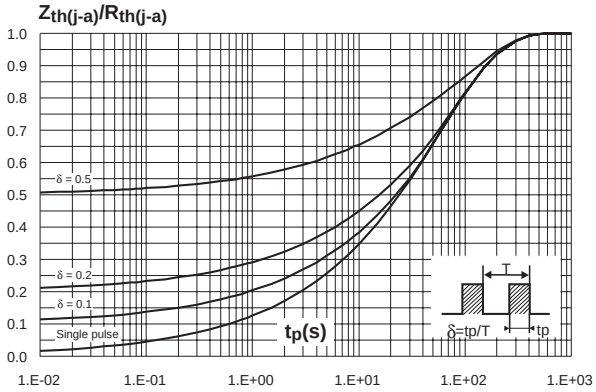


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

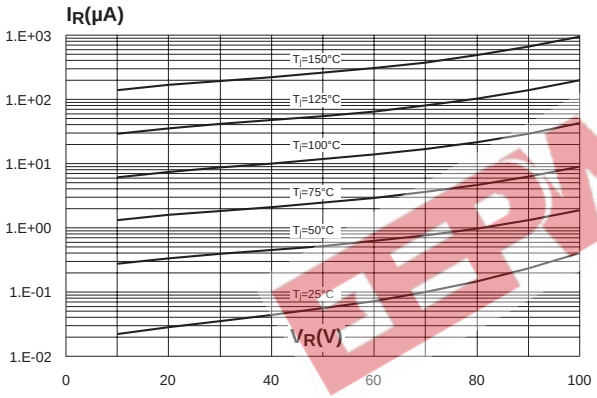


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

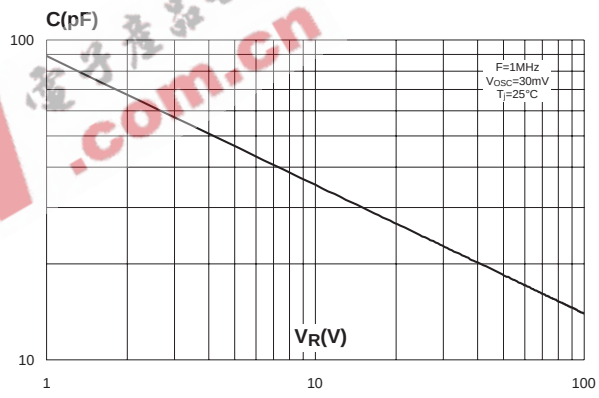


Fig. 9-1: Forward voltage drop versus forward current (low level).

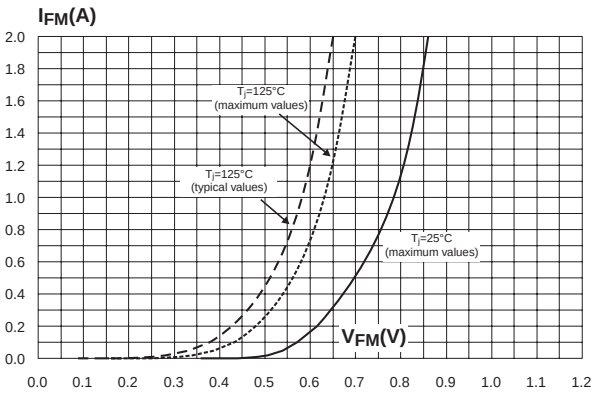


Fig. 9-2: Forward voltage drop versus forward current (high level).

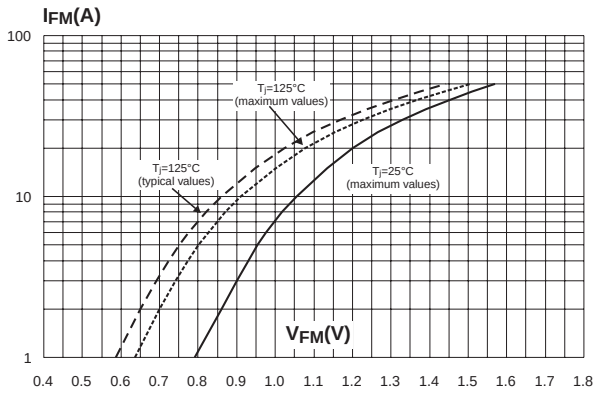
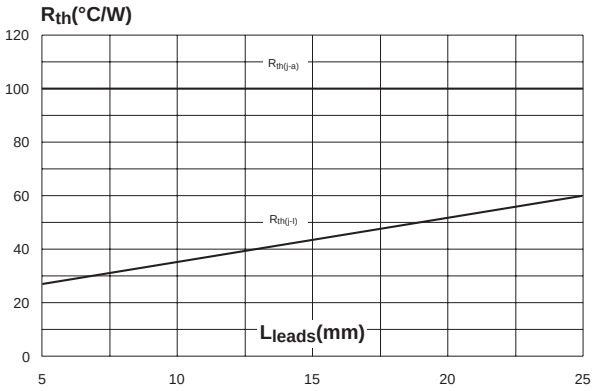
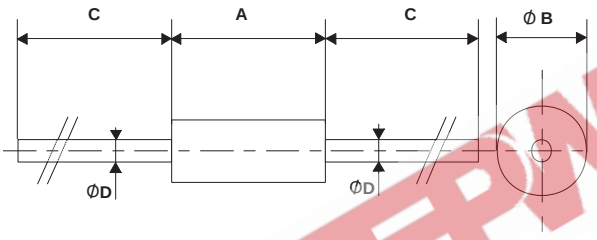


Fig. 10: Thermal resistance versus lead length.



PACKAGE MECHANICAL DATA

DO-41 (plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.07	5.20	0.160	0.205
B	2.04	2.71	0.080	0.107
C	28		1.102	
D	0.712	0.863	0.028	0.034

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