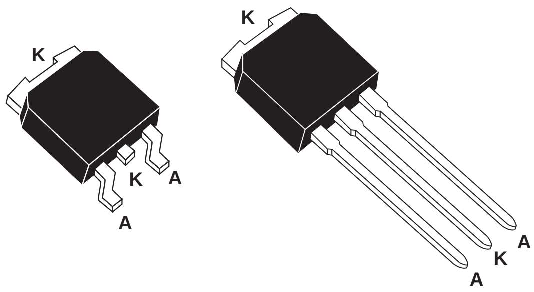
STPS1045B/H

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	**10 A**
V_{RRM}	**45 V**
V_F **(max)**	**0.57 V**



DPAK
STPS1045B

IPAK
STPS1045H

FEATURES AND BENEFITS

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

DESCRIPTION

High voltage Schottky rectifier suited for Switch Mode Power Supplies and other Power Converters.

Packaged in DPAK and IPAK, these devices are intended for use in high frequency circuitries where low switching losses are required.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		45	V
$I_{F(RMS)}$ / pin	RMS forward current / pin		7	A
$I_{F(AV)}$	Average forward current	Tc = 150°C d = 0.5	10	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	75	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs F = 1KHz	1	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C	4000	W
T_{stg}	Storage temperature range		- 65 to + 175	°C
Tj	Maximum junction temperature		175	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction to case	3	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	V_R = 45 V			100	µA
		Tj = 125°C			7	15	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 10 A			0.63	V
		Tj = 125°C	I_F = 10 A		0.5	0.57	
		Tj = 25°C	I_F = 20 A			0.84	
		Tj = 125°C	I_F = 20 A		0.65	0.72	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.015\ I_F{}^2{}_{(RMS)}$

Fig. 1: Average forward power dissipation versus average forward current.

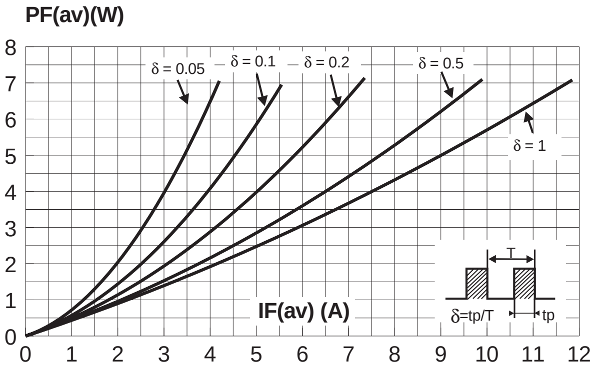


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

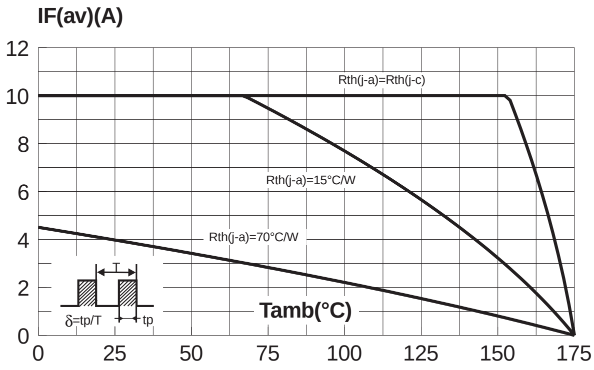


Fig. 3: Normalized avalanche power derating versus pulse duration.

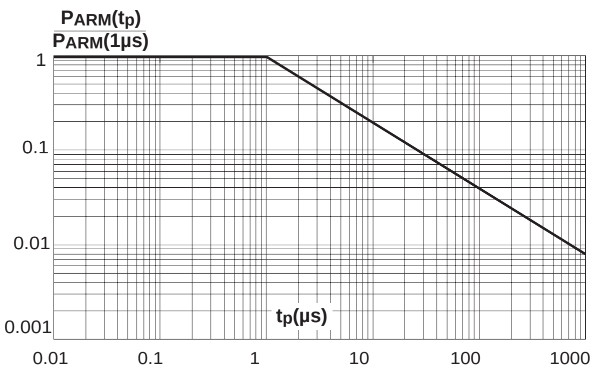


Fig. 4: Normalized avalanche power derating versus junction temperature.

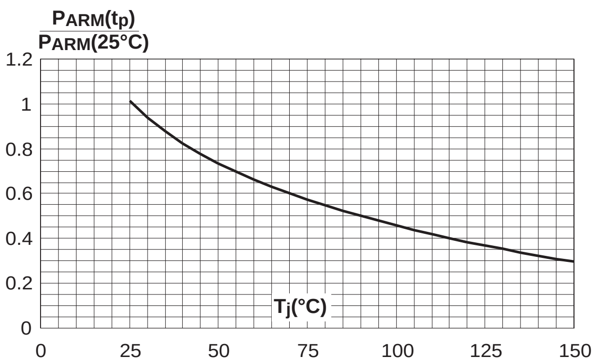


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

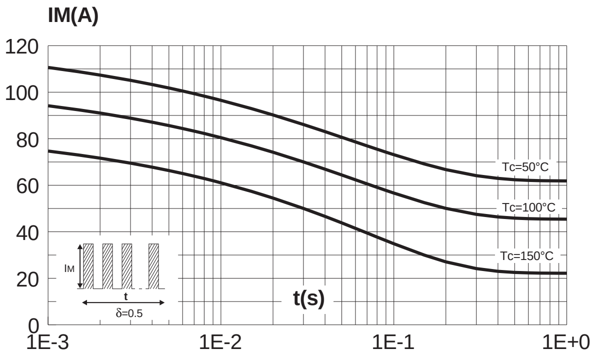


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

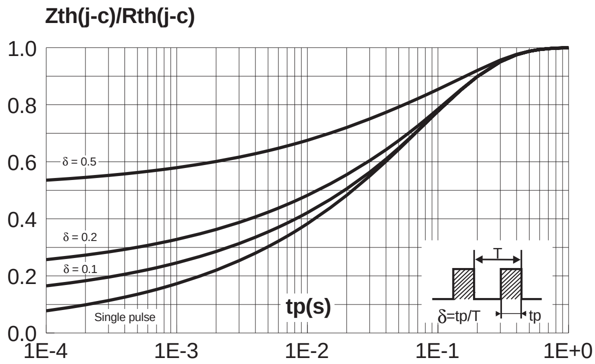


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

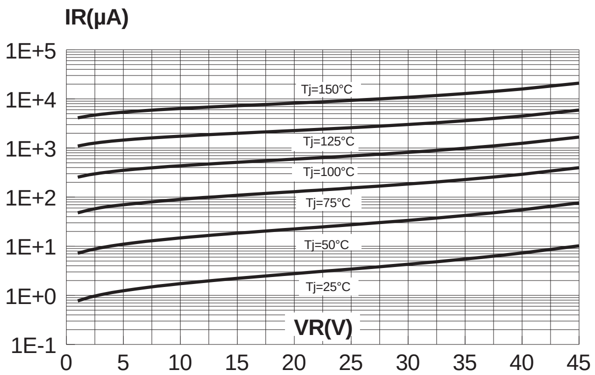


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

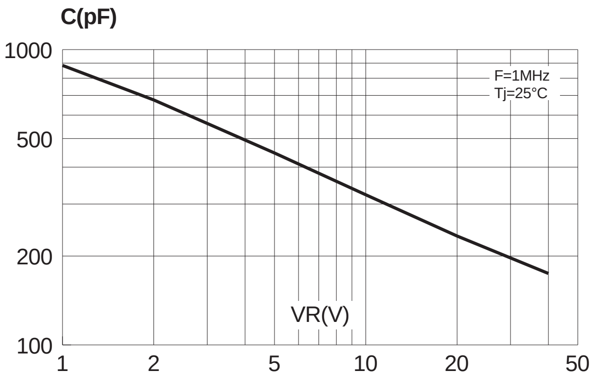


Fig. 9: Forward voltage drop versus forward current (maximum values).

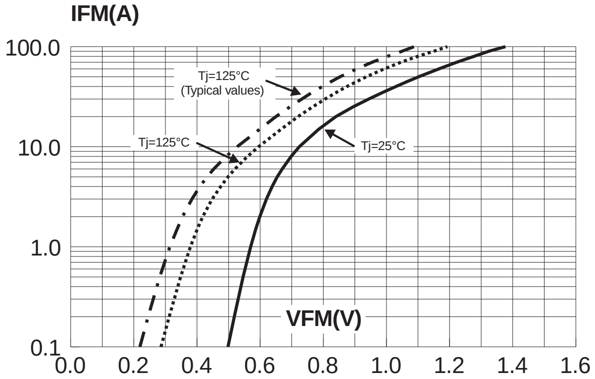
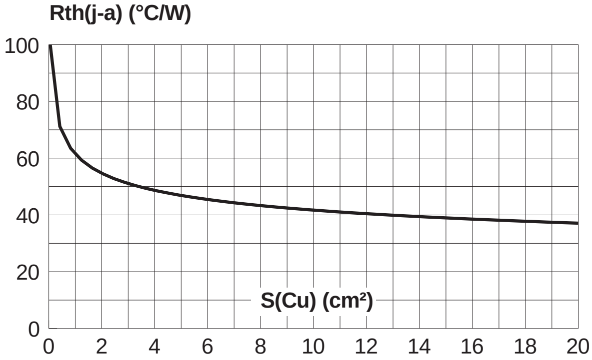
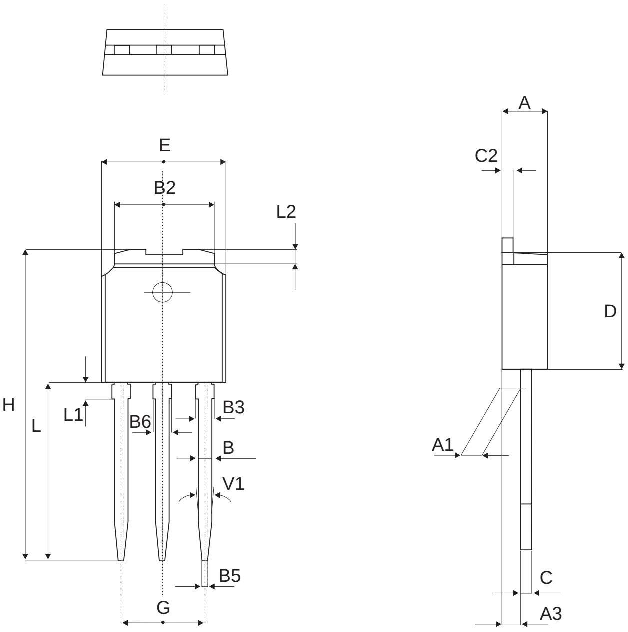


Fig. 10: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board, copper thickness: 35µm) (STPS1045B).



PACKAGE MECHANICAL DATA

IPAK

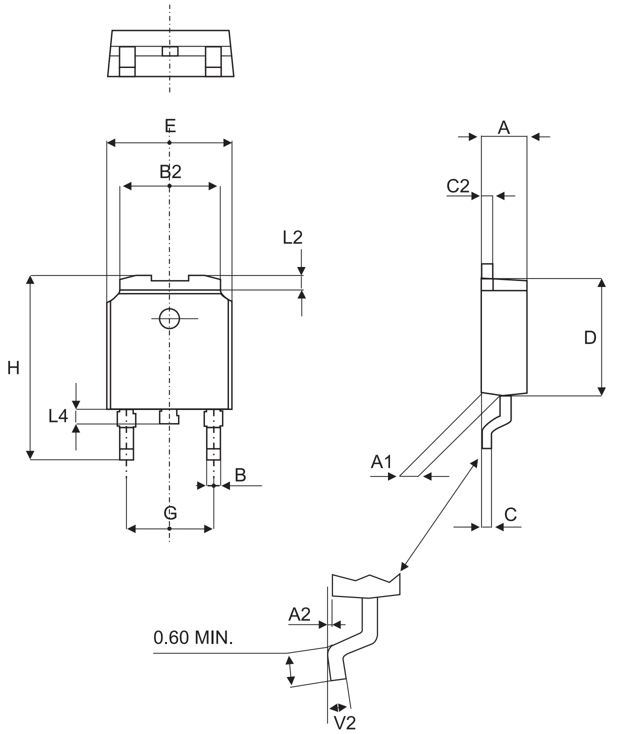


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.035	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039
V1		10°			10°	

- COOLING METHOD: BY CONDUCTION (C)

PACKAGE MECHANICAL DATA

DPAK



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.094
A1	0.90		1.10	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.90	0.025		0.035
B2	5.20		5.40	0.204		0.212
C	0.45		0.60	0.017		0.023
C2	0.48		0.60	0.018		0.023
D	6.00		6.20	0.236		0.244
E	6.40		6.60	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.10	0.368		0.397
L2		0.80			0.031	
L4	0.60		1.00	0.023		0.039
V2	0°		8°	0°		8°

- COOLING METHOD: BY CONDUCTION (C)

FOOT PRINT DIMENSIONS (in millimeters)