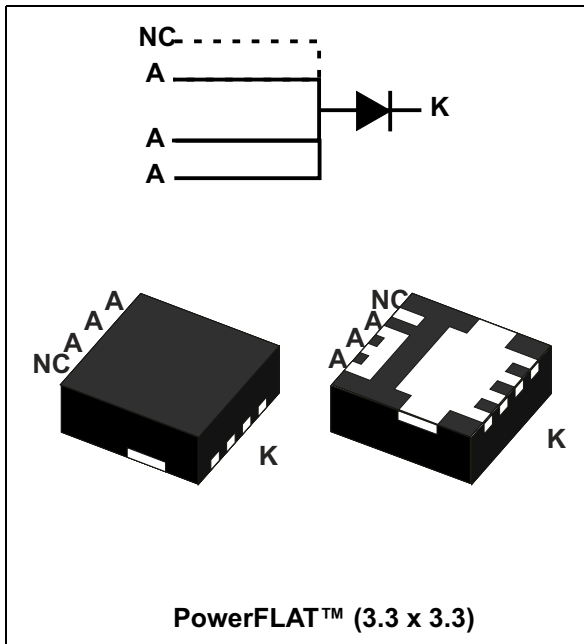


## High voltage power Schottky rectifier

Datasheet - production data



### Description

This Schottky rectifier is designed for switch mode power supply and high frequency DC to DC converters.

Packaged in PowerFLAT™, this device is intended for use in low voltage, high frequency, inverters, free-wheeling, bypass diode and polarity protection applications. Its low profile was especially designed to be used in applications with space-saving constraints.

**Table 1. Device summary**

Symbol	Value
$I_{F(AV)}$	8 A
$V_{RRM}$	100 V
$T_j (max)$	175 °C
$V_F (typ)$	0.68 V

### Features

- Very low conduction losses
- Negligible switching losses
- Extremely fast switching
- Low thermal resistance
- Avalanche capacity specified
- High junction temperature
- ECOPACK®2 compliant component

TM: PowerFLAT is a trademark of STMicroelectronics

# 1 Characteristics

**Table 2. Absolute ratings (limiting values  $T_{amb} = 25\text{ °C}$  unless otherwise specified)**

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		100	V
$I_{F(RMS)}$	Forward rms current		15	A
$I_{F(AV)}$	Average forward current, $\delta = 0.5$	$T_c = 150\text{ °C}$	8	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ ms}$ sinusoidal	100	A
$P_{ARM}^{(1)}$	Repetitive peak avalanche power	$t_p = 10\text{ }\mu\text{s}$ $T_j = 125\text{ °C}$	480	W
$T_{stg}$	Storage temperature range		-65 to +175	°C
$T_j$	Maximum operating junction temperature		175	°C

- For pulse time duration deratings, please refer to [Figure 3](#). More details regarding the avalanche energy measurements and diode validation in the avalanche are provided in the STMicroelectronics application notes AN1768, "Admissible avalanche power of Schottky diodes" and AN2025, "Converter improvement using Schottky rectifier avalanche specification".

**Table 3. Thermal resistance**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	4	°C/W

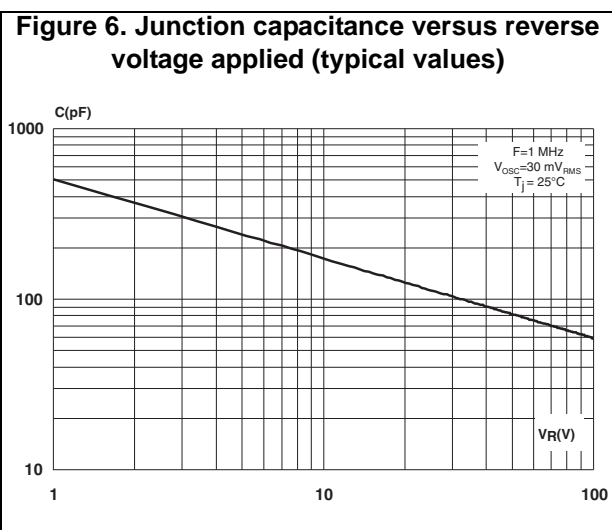
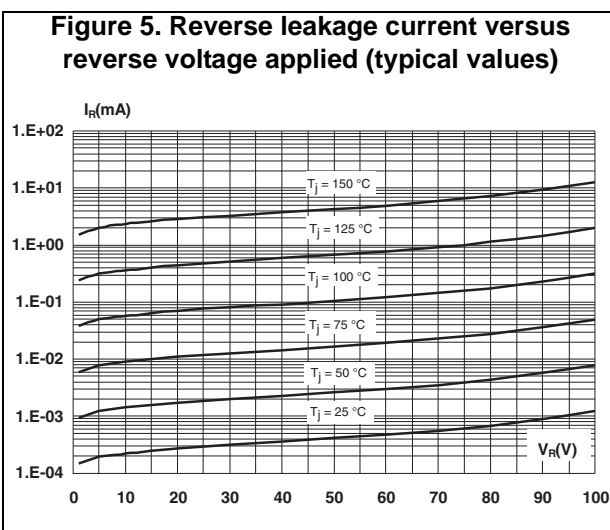
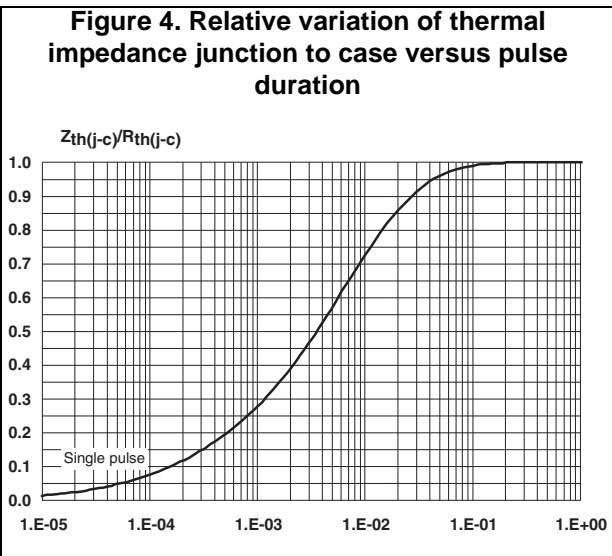
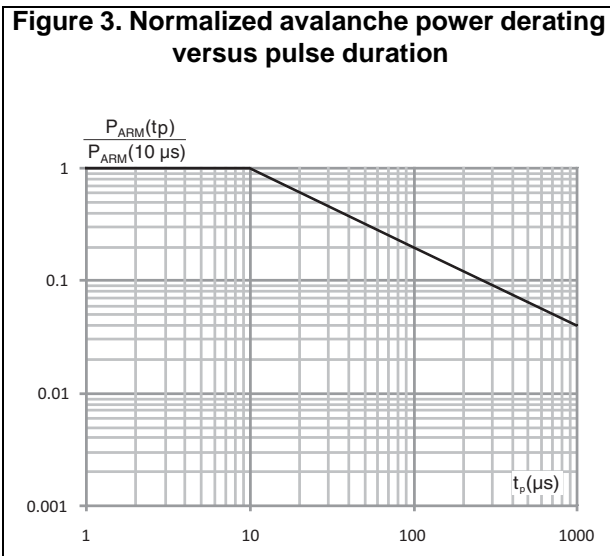
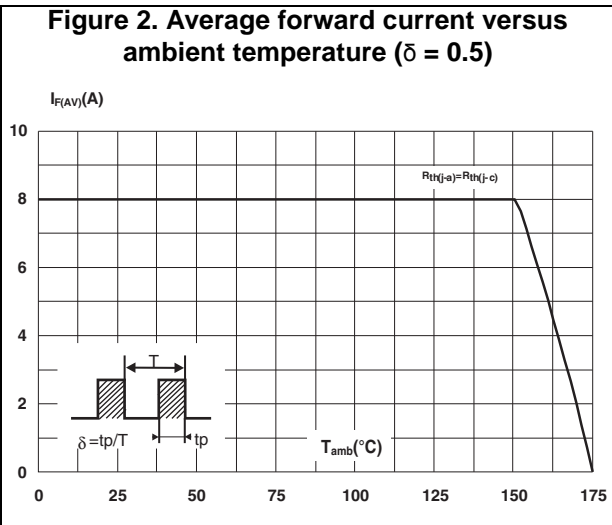
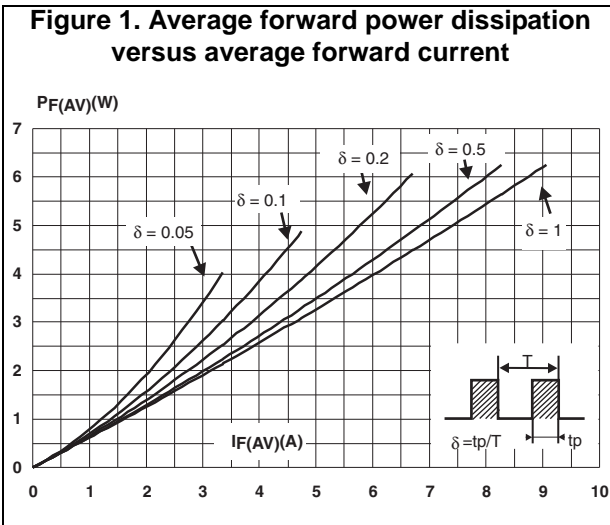
**Table 4. Static electrical characteristics**

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ °C}$	$V_R = V_{RRM}$	-		4.5	$\mu\text{A}$
		$T_j = 125\text{ °C}$		-	2	6	mA
$V_F^{(2)}$	Forward voltage drop	$T_j = 25\text{ °C}$	$I_F = 8\text{ A}$			0.82	V
		$T_j = 125\text{ °C}$		-	0.60	0.68	
		$T_j = 25\text{ °C}$	$I_F = 10\text{ A}$			0.85	
		$T_j = 125\text{ °C}$		-	0.62	0.70	
		$T_j = 25\text{ °C}$	$I_F = 16\text{ A}$			0.90	
		$T_j = 125\text{ °C}$		-	0.68	0.75	

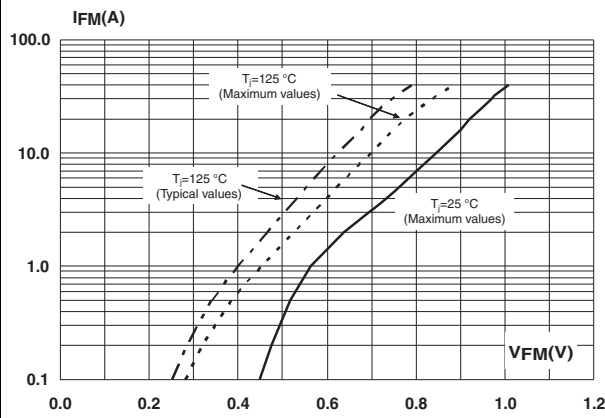
- Pulse test:  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$
- Pulse test:  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

To evaluate the conduction losses use the following equation:

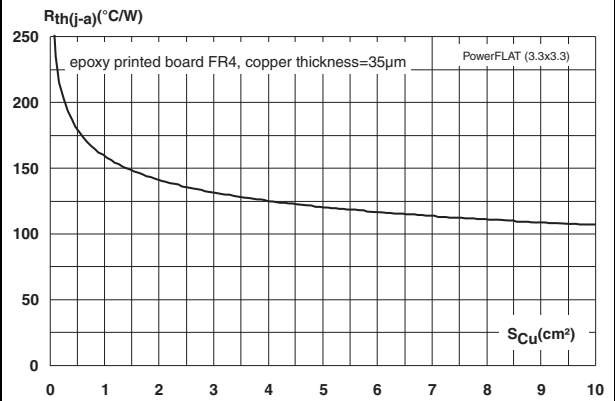
$$P = 0.61 \times I_{F(AV)} + 0.0088 \times I_{F(RMS)}^2$$



**Figure 7. Forward voltage drop versus forward current**



**Figure 8. Thermal resistance junction to ambient versus copper surface under tab**



## 2 Package information

- Epoxy meets UL94, V0
- Cooling method: by conduction (C)

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK® is an ST trademark.

### 2.1 PowerFLAT™ (3.3x3.3) package information

Figure 9. PowerFLAT™ (3.3 x 3.3) package outline

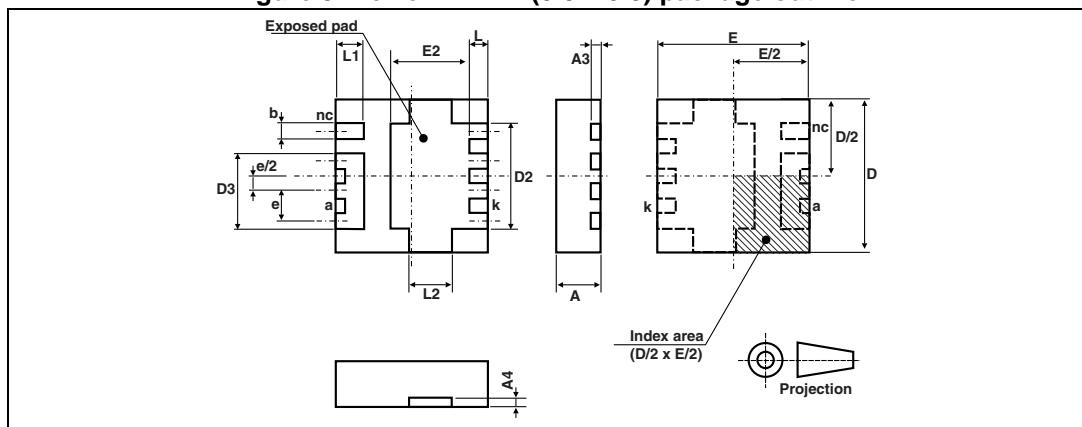
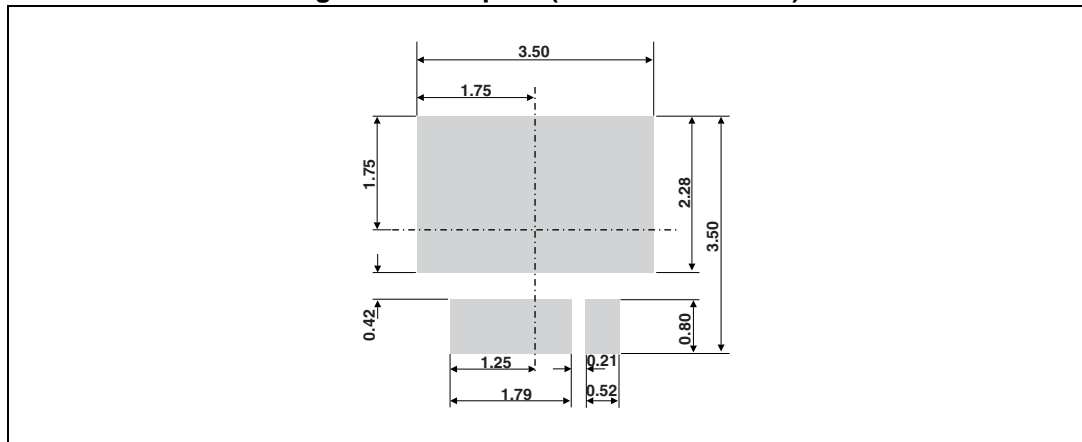


Table 5. PowerFLAT™ (3.3 x 3.3) mechanical data

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.95	1.00	1.05	0.037	0.039	0.041
A3		0.20			0.0079	
A4		0.20			0.0079	
b	0.30	0.37	0.44	0.012	0.015	0.017
D	3.20	3.30	3.40	0.126	0.130	0.134
D2	2.24	2.31	2.38	0.088	0.091	0.094
D3	1.60	1.67	1.74	0.063	0.066	0.069
e		0.65			0.026	
E	3.20	3.30	3.40	0.126	0.130	0.134
E2	1.68	1.75	1.82	0.066	0.069	0.072
L	0.31	0.38	0.45	0.012	0.015	0.018
L1	0.55	0.62	0.69	0.022	0.024	0.027
L2	0.86	0.93	1.00	0.034	0.037	0.039

Figure 10. Footprint (dimensions in mm)



### 3 Ordering information

**Table 6. Ordering information**

Order code	Marking	Package	Weight	Base qty	Delivery mode
STPS8H100DEE-TR	S8H100	PowerFLAT™ (3.3 x 3.3)	34 mg	3000	Tape and reel 13" reel

### 4 Revision history

**Table 7. Document revision history**

Date	Revision	Changes
9-Sep-2012	1	First issue.
16-Jan-2015	2	Updated order code name and reformatted to current standard.
13-Dec-2016	3	Updated restriction and order code.

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