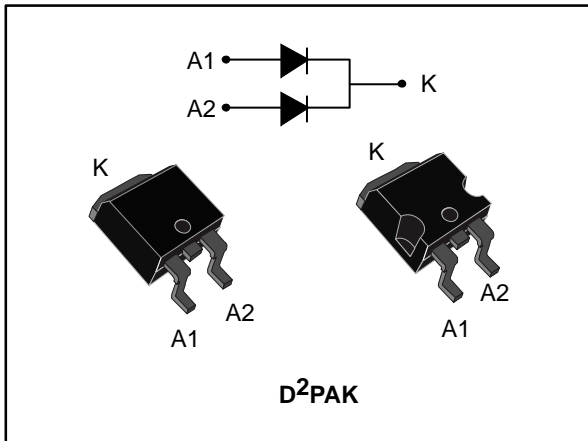


## High voltage power Schottky rectifier

Datasheet - production data



### Description

Dual center tap Schottky rectifier designed for high frequency miniature switch mode power supplies such as adaptors and on-board DC-DC converters.

Table 1: Device summary

Symbol	Value
$I_{F(AV)}$	2x 8 A
$V_{RRM}$	100 V
$T_j$ (max)	175 °C
$V_F$ (typ)	0.59 V

### Features

- Negligible switching losses
- High junction temperature capability
- Low leakage current
- Good trade off between leakage current and forward voltage drop
- Avalanche capability specified
- ECOPACK<sup>®</sup>2 compliant component for D<sup>2</sup>PAK on demand

# 1 Characteristics

**Table 2: Absolute ratings (limiting values, per diode, at 25 °C, unless otherwise specified)**

Symbol	Parameter		Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		100	V
I <sub>F(RMS)</sub>	Forward rms current		30	A
I <sub>F(AV)</sub>	Average forward current $\delta = 0.5$ , square wave	T <sub>C</sub> = 165 °C Per diode	8	A
		T <sub>C</sub> = 160 °C Per device	16	
I <sub>FSM</sub>	Surge non repetitive forward current	tp = 10 ms sinusoidal	200	A
P <sub>ARM</sub>	Repetitive peak avalanche power	tp = 10 $\mu$ s, T <sub>J</sub> = 125 °C	625	W
T <sub>stg</sub>	Storage temperature range		-65 to + 175	°C
T <sub>j</sub>	Maximum operating junction temperature <sup>(1)</sup>		+ 175	°C

**Notes:**

<sup>(1)</sup>(dP<sub>tot</sub>/dT<sub>j</sub>) < (1/R<sub>th(j-a)</sub>) condition to avoid thermal runaway for a diode on its own heatsink.

**Table 3: Thermal parameter**

Symbol	Parameter		Value	Unit
R <sub>th(j-c)</sub>	Junction to case	Per diode	1.6	°C/W
		Total	1.1	
R <sub>th(c)</sub>	Coupling		0.6	°C/W

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

**Table 4: Static electrical characteristics (per diode)**

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> <sup>(1)</sup>	Reverse leakage current	T <sub>j</sub> = 25 °C	V <sub>R</sub> = V <sub>RRM</sub>	-		3.6	$\mu$ A
		T <sub>j</sub> = 125 °C		-	1.6	5	mA
V <sub>F</sub> <sup>(2)</sup>	Forward voltage drop	T <sub>j</sub> = 25 °C	I <sub>F</sub> = 8 A	-		0.77	V
		T <sub>j</sub> = 125 °C		-	0.59	0.64	
		T <sub>j</sub> = 25 °C	I <sub>F</sub> = 16 A	-		0.88	
		T <sub>j</sub> = 125 °C		-	0.67	0.73	

**Notes:**

<sup>(1)</sup>Pulse test: t<sub>p</sub> = 5 ms,  $\delta < 2\%$

<sup>(2)</sup>Pulse test: t<sub>p</sub> = 380  $\mu$ s,  $\delta < 2\%$

To evaluate the conduction losses use the following equation:

$$P = 0.55 \times I_{F(AV)} + 0.011 I_{F(RMS)}^2$$

# 1.1 Characteristics (curves)

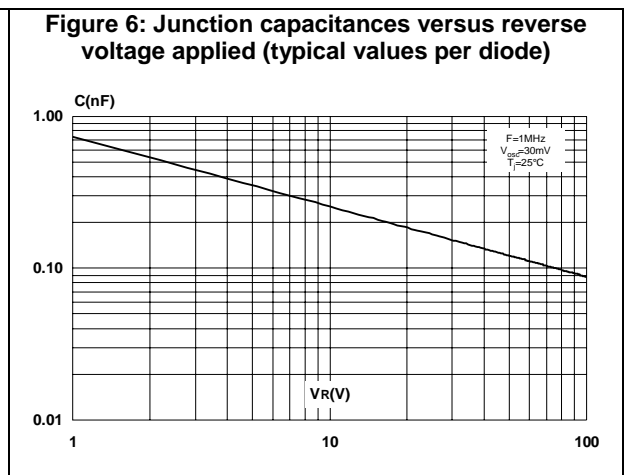
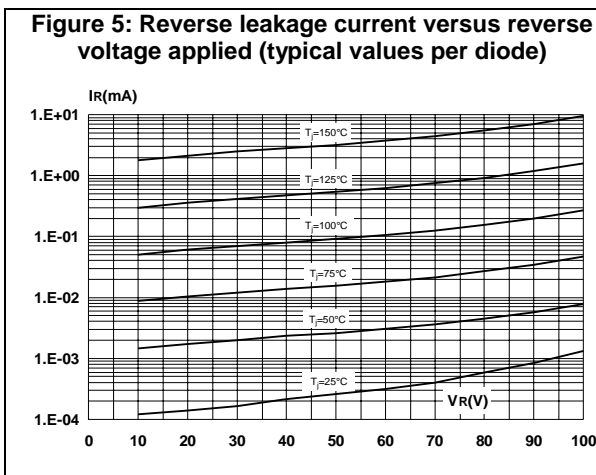
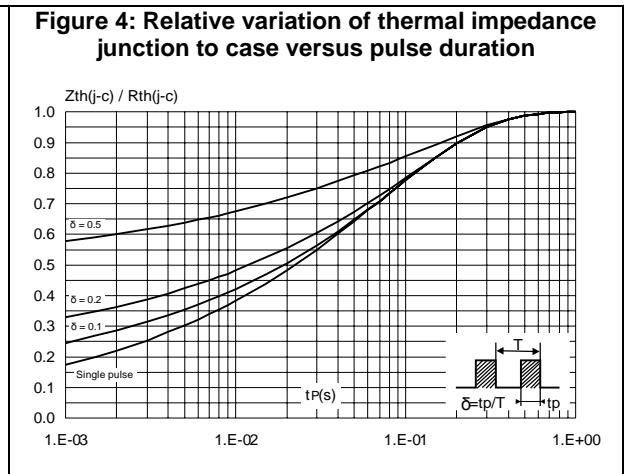
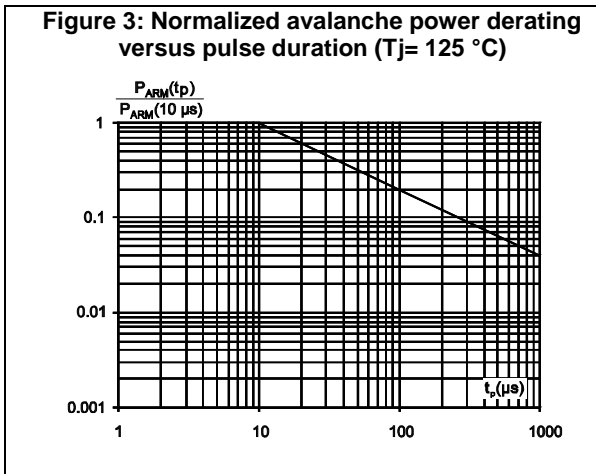
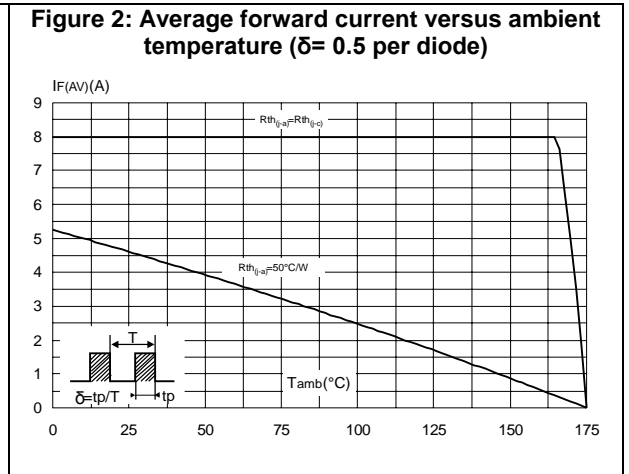
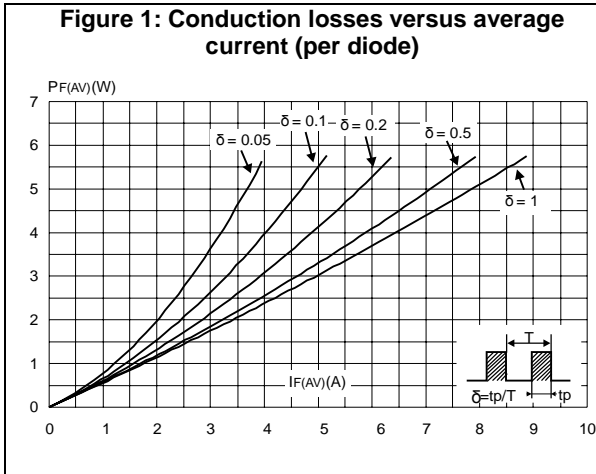


Figure 7: Forward voltage drop versus forward current (per diode)

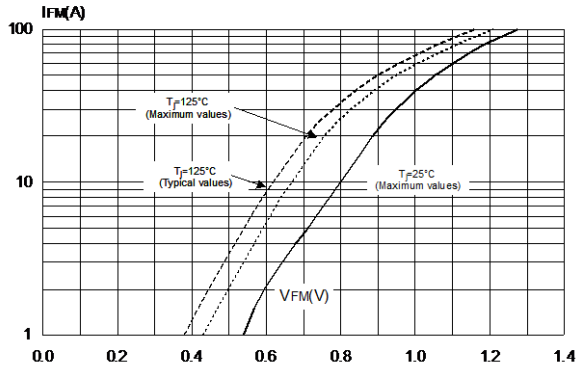
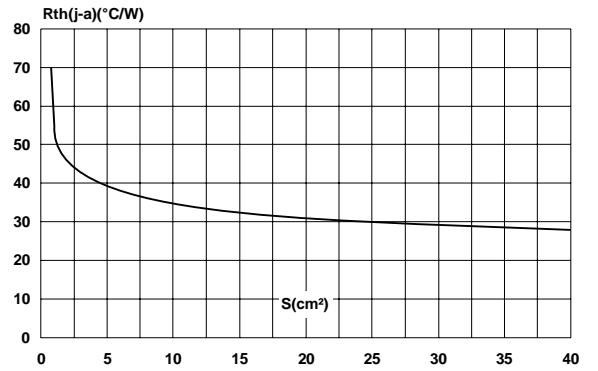


Figure 8: Thermal resistance junction to ambient versus copper surface under tab (epoxy printed board FR4,  $\epsilon_{cu} = 35 \mu\text{m}$ )



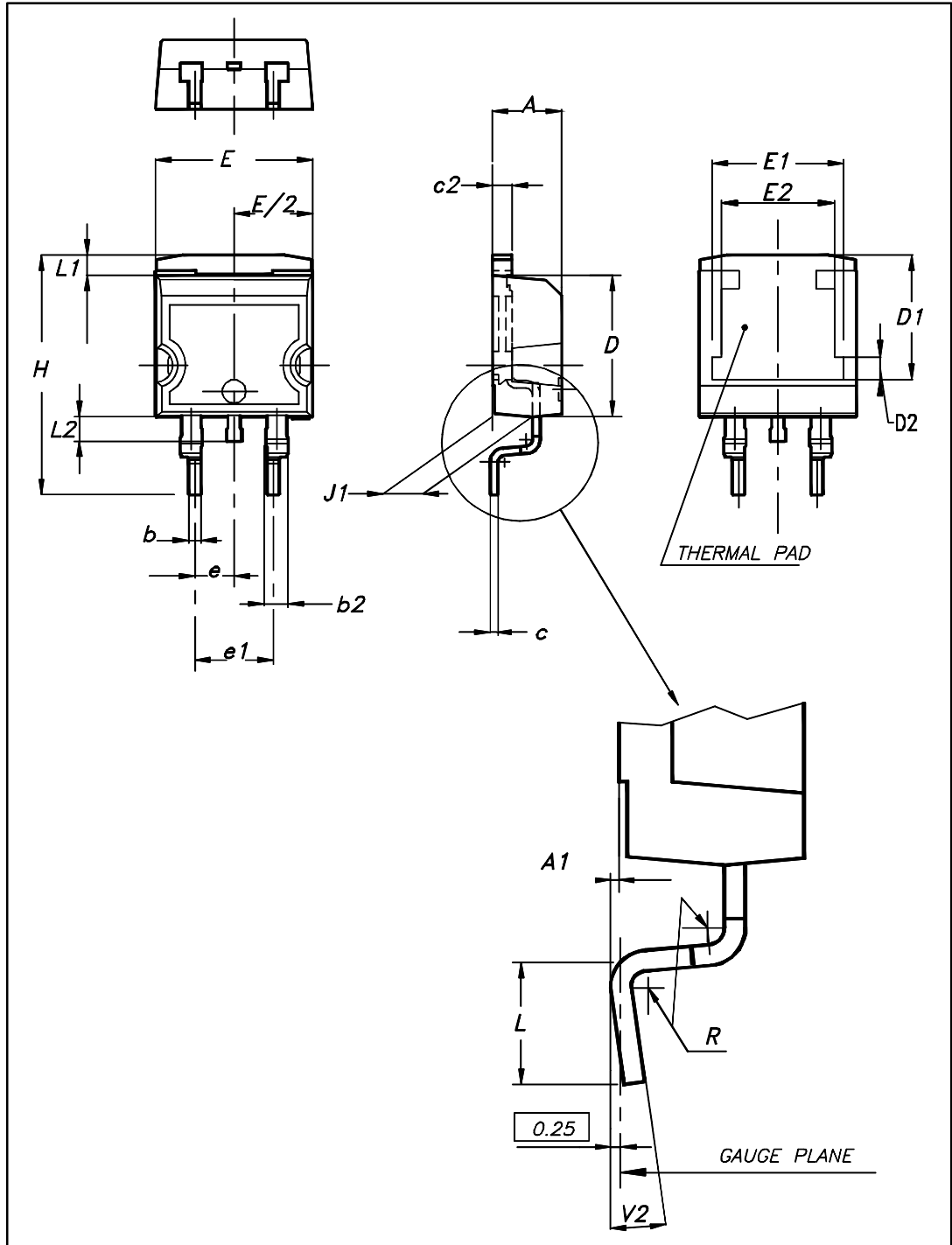
## 2 Package information

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.

- Cooling method: by conduction (C)
- Epoxy meets UL 94,V0

### 2.1 D<sup>2</sup>PAK package information

Figure 9: D<sup>2</sup>PAK package outline

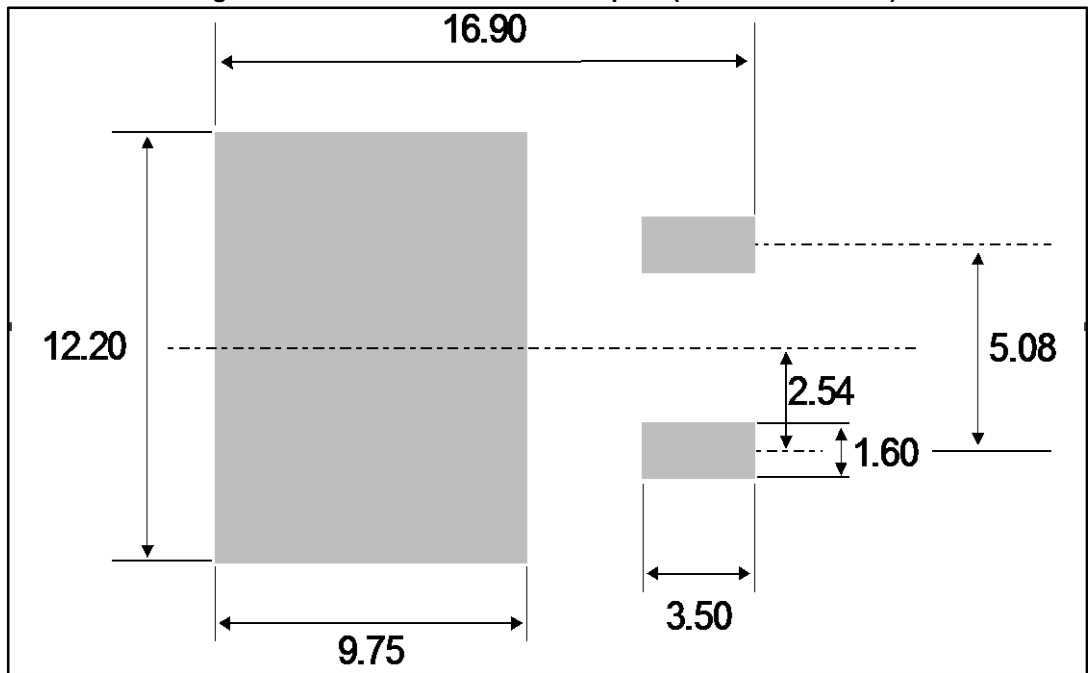


This package drawing may slightly differ from the physical package. However, all the specified dimensions are guaranteed.

Table 5: D<sup>2</sup>PAK package mechanical data

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.36	4.60	0.172	0.181
A1	0.00	0.25	0.000	0.010
b	0.70	0.93	0.028	0.037
b2	1.14	1.70	0.045	0.067
c	0.38	0.69	0.015	0.027
c2	1.19	1.36	0.047	0.053
D	8.60	9.35	0.339	0.368
D1	6.90	8.00	0.272	0.311
D2	1.10	1.50	0.043	0.060
E	10.00	10.55	0.394	0.415
E1	8.10	8.90	0.319	0.346
E2	6.85	7.25	0.266	0.282
e	2.54 typ.		0.100	
e1	4.88	5.28	0.190	0.205
H	15.00	15.85	0.591	0.624
J1	2.49	2.90	0.097	0.112
L	1.90	2.79	0.075	0.110
L1	1.27	1.65	0.049	0.065
L2	1.30	1.78	0.050	0.070
R	0.4 typ.		0.015	
V2	0°	8°	-	-

Figure 10: D<sup>2</sup>PAK recommended footprint (dimensions in mm)





### 3 Ordering information

Table 6: Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
STPS16H100CG-TR	STPS16H100CG	D <sup>2</sup> PAK	1.38g	1000	Tape and reel

### 4 Revision history

Table 7: Document revision history

Date	Revision	Changes
27-Jun-2012	2	
22-Apr-2015	3	Updated features in cover page. Minor text changes in <a href="#">Section 1: "Characteristics"</a> . Updated <a href="#">Section 2: "Package information"</a> .

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