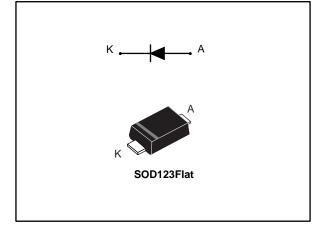


STPS2H100ZFY

Automotive high voltage power Schottky rectifier

Datasheet - production data



Features



- AEC-Q101 qualified
- High junction temperature capability
- Low leakage current
- Negligible switching losses
- Avalanche capability specified
- ECOPACK[®]2 compliant component
- PPAP capable

Description

Single chip Schottky rectifiers suited to automotive applications, such as lighting, diesel injection, or engine control unit.

Packaged in SOD123Flat, this device is especially intended for surface mounting and used in high frequency converters, free wheeling and reverse polarity protection in automotive applications.

Table 1: Device summary			
Symbol	Value		
I _{F(AV)}	2 A		
V _{RRM}	100 V		
V _F (typ.)	0.65 V		
T _j (max.)	175 °C		

October 2016

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This is information on a product in full production.

1 Characteristics

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

Symbol	Parameter	Value	Unit	
Vrrm	Repetitive peak reverse voltage $T_j = -40 \text{ °C to } +175 \text{ °C}$		100	V
I _{F(AV)}	Average forward current δ = 0.5, square wave T_{L} = 140 °C		2	А
IFSM	Surge non repetitive forward current t _p = 10 ms sinusoidal		50	А
PARM	Repetitive peak avalanche power $t_p = 10 \ \mu s, T_j = 125 \ ^{\circ}C$		105	W
T _{stg}	Storage temperature range	-65 to +175	°C	
Tj	Operating junction temperature range ⁽¹⁾ -4			C

Notes:

 $^{(1)}(dP_{tot}/dT_j) < (1/R_{th(j-a)})$ condition to avoid thermal runaway for a diode on its own heatsink.

Table 3: Thermal parameters				
Symbol	Parameter Max. value Unit			
Rth(j-l)	Junction to lead 20 °C/W			

Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit
I_ (1)	$I_{P}^{(1)}$ Reverse leakage current	Tj = 25 °C	$V_{\rm R} = V_{\rm RRM}$	-		1	μA
IR		Tj = 125 °C		-	0.2	0.5	mA
		T _j = 25 °C	IF = 2 A	-		0.86	
VF ⁽²⁾		Tj = 125 °C	IF = 2 A	-	0.65	0.70	V
V _F ⁽²⁾ Forward voltage drop	Tj = 25 °C	- 4 0	-		0.96	v	
		T _j = 125 °C	F = 4 A	-	0.75	0.83	

Table 4: Static electrical characteristics

Notes:

 $^{(1)}$ Pulse test: tp = 5 ms, δ < 2% $^{(2)}$ Pulse test: tp = 380 μ s, δ < 2%

To evaluate the conduction losses, use the following equation:

 $P = 0.57 \text{ x } I_{F(AV)} + 0.065 \text{ x } I_{F^{2}(RMS)}$

For more information, please refer to the following application notes related to the power losses.

- AN604 (Calculation of conduction losses in a power rectifier)
- AN4021 (Calculation of reverse losses in a power diode)



0.001

57

1

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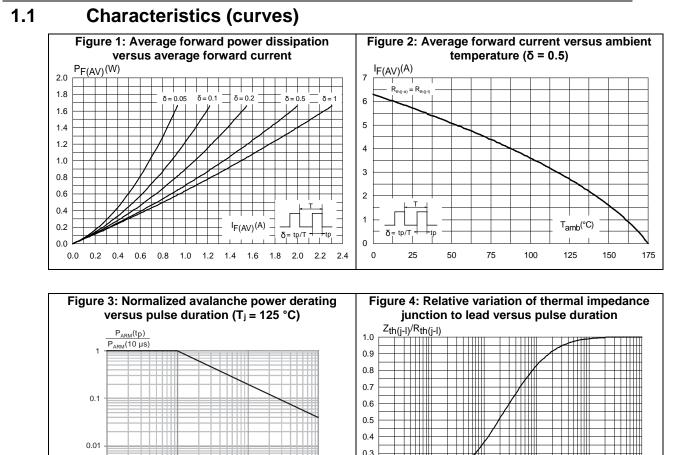
t_p(s)

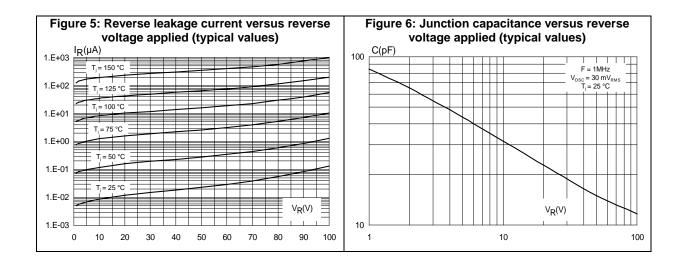
Ш

1.E+01

1.E-01

1.E-02





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1.E-03

Single pulse

0.2

0.1

0.0

1.E-04

t₀(µs)

1000

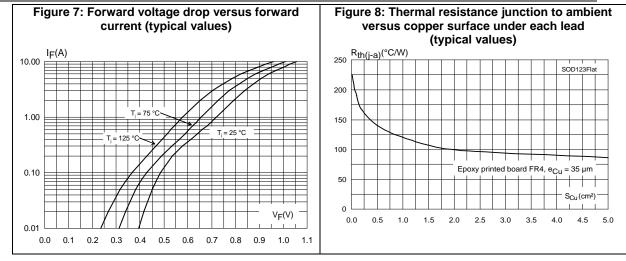
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Characteristics

STPS2H100ZFY





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*. ECOPACK[®] is an ST trademark.

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

2.1 SOD123Flat package information

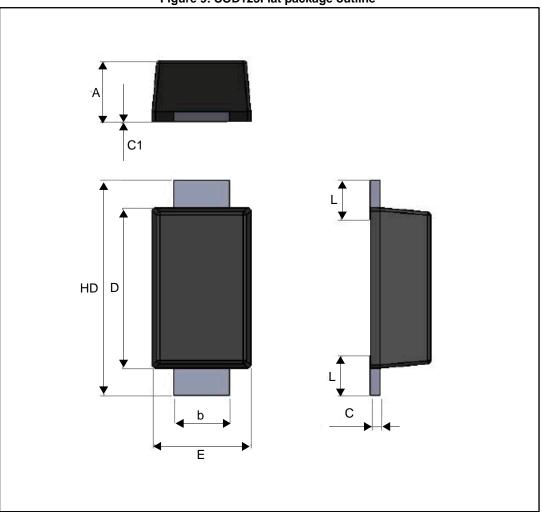


Figure 9: SOD123Flat package outline

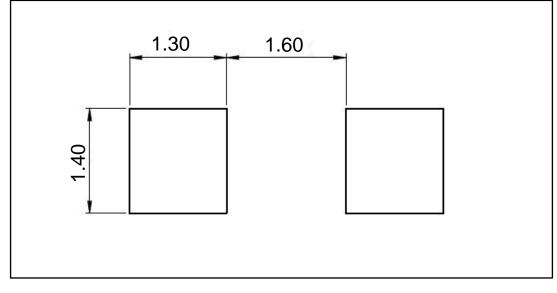


Package information

STPS2H100ZFY

Table 5: SOD123Flat package mechanical data Dimensions				
Ref.		Millimeters		
	Min.	Тур.	Max.	
A	0.86	0.98	1.10	
b	0.80	0.90	1.00	
с	0.08	0.15	0.25	
c1	0.00		0.10	
D	2.50	2.60	2.70	
E	1.50	1.60	1.80	
HD	3.30	3.50	3.70	
L	0.45	0.65	0.85	







3 Ordering information

Table 6: Ordering information					
Order code	de Marking Package Weight Base qty.		Delivery mode		
STPS2H100ZFY	2Y1	SOD123Flat	12.5 mg	3000	Tape and reel

4 Revision history

Date	Revision	Changes
20-Oct-2016	1	Initial release.



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