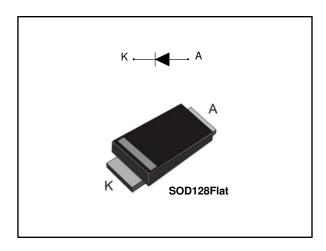
STPS360-Y



Automotive power Schottky rectifier

Datasheet - production data



Description

This high voltage Schottky barrier rectifier device is packaged in SOD128Flat and designed for high frequency miniature switched mode power supplies and on board DC to DC converters for automotive applications.

Table 1: Device summary

Symbol	Value
I _{F(AV)}	3 A
V_{RRM}	60 V
T _j (max.)	175 °C
V _F (typ.)	0.49 V

Features

- Negligible switching losses
- High junction temperature capability
- Low leakage current
- Good trade-off between leakage current and forward voltage drop
- Avalanche specification
- ECOPACK® compliant component
- AEC-Q101
- PPAP capable
- V_{RRM} guaranteed from -40 to +175 °C

Characteristics STPS360-Y

1 Characteristics

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

Symbol	F	Value	Unit	
V_{RRM}	Repetitive peak reverse vo	Itage ($T_j = -40 ^{\circ}\text{C} \text{ to } +175 ^{\circ}\text{C}$)	60	٧
I _{F(AV)}	Average forward current	T_L = 140 °C, δ = 0.5, square pulse	3	Α
IFSM	Surge non repetitive forward current	t _p = 10 ms sinusoidal	65	Α
Parm	Repetitive peak avalanche power	$t_p = 10 \ \mu s, \ T_j = 125 \ ^{\circ}C$	140	W
T _{stg}	Storage temperature range		-65 to +175	ô
T_{j}	Operating junction tempera	-40 to +175	ô	

Notes:

Table 3: Thermal parameters

Symbol	Parameter	Max. value	Unit
R _{th(j-l)}	Junction to lead	16	°C/W

Table 4: Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit
I _R ⁽¹⁾	Doverse leekage ourrent	T _j = 25 °C	V _R = 60 V	-		150	μΑ
IR ^(*)	Reverse leakage current	T _j = 125 °C		-	20	30	mA
		$T_{j} = 25 \text{ °C}$ $T_{j} = 125 \text{ °C}$ $I_{F} = 3 \text{ A}$	I- 2 A	-		0.61	
V _F ⁽²⁾	Forward valtage drap		IF = 3 A	-	0.49	0.58	V
V F(=)	Forward voltage drop	T _j = 25 °C	I _F = 6 A	-		0.80	V
		T _j = 125 °C		-	0.62	0.72	

Notes:

 $^{(1)}$ Pulse test: t_p = 5 ms, δ < 2%

 $^{(2)}$ Pulse test: t_p = 380 µs, δ < 2%

To evaluate the conduction losses, use the following equation:

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 $P = 0.44 \ x \ I_{F(AV)} + 0.047 \ x \ I_{F^2(RMS)}$

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

STPS360-Y Characteristics

1.1 Characteristics (curves)

0.5

0.0

1.0

1.5

2.0

2.5

3.0

3.5

4.0

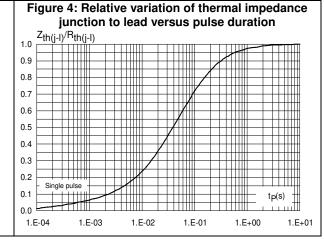
Figure 3: Normalized avalanche power derating versus pulse duration

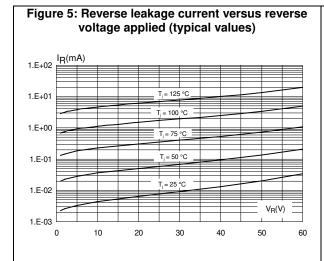
PARM(tp)
PARM(10 µs)

0.01

0.01

1 10 100 1000





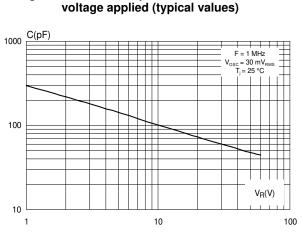


Figure 6: Junction capacitance versus reverse

Characteristics STPS360-Y

Figure 7: Forward voltage drop versus forward current (typical values) 10.00 1.00 T_j = 125 °C 0.10 0.01 0.0 0.1 0.2 0.3 0.5 0.6 0.4 0.7 8.0 0.9

Figure 8: Thermal resistance junction to ambient versus copper surface under each lead (typical values, epoxy printed board FR4, e_{cu}=35 μm)
R_{th(j-a)}(°C/W) 200 150 100 50 $S_{\text{Cu}}(\text{cm}^2)$ 0 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

STPS360-Y Package information

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
- Lead-free package

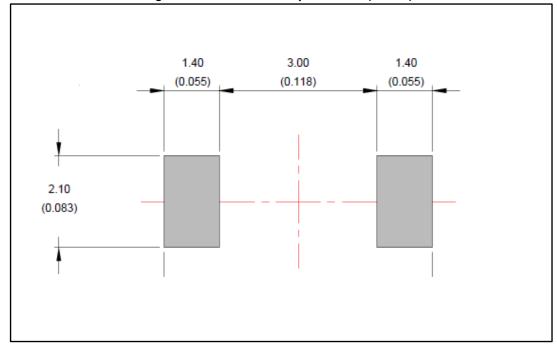
2.1 SOD128Flat package information

Figure 9: SOD128Flat package outline

Table 5: SOD128Flat package mechanical data

- and or				
	Dimensions			
Ref.	Millimeters		Inc	hes
	Min.	Max.	Min.	Max.
Α	0.93	1.03	0.037	0.041
b	1.69	1.81	0.067	0.071
С	0.10	0.22	0.004	0.009
D	2.30	2.50	0.091	0.098
E	4.60	4.80	0.181	0.189
E1	3.70	3.90	0.146	0.154
L	0.55	0.85	0.026	0.033
L1	0.30 typ.		0.012	2 typ.
L2	0.45 typ.		0.018 typ.	

Figure 10: SOD128Flat footprint in mm (inches)



STPS360-Y Ordering information

3 Ordering information

Table 6: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS360AFY	360FY	SOD128Flat	26.4 mg	3000	Tape and reel

4 Revision history

Table 7: Document revision history

Date	Revision	Changes
07-Jun-2016	1	Initial release.

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