

# STPS2L60-Y

## Automotive power Schottky rectifier

## Features

- AEC-Q101 qualified
- Negligible switching losses
- Low forward voltage drop
- Surface mount miniature package
- Avalanche capability specified
- ECOPACK<sup>®</sup>2 compliant component

## Description

This power Schottky rectifier is suited to switched mode power supplies and high frequency DC to DC converters for automative applications.

Packaged in SMA, this device is especially intended for use in low voltage, high frequency inverters and small battery chargers.



### Table 1. Device summary

Symbol	Value
I <sub>F(AV)</sub>	2 A
V <sub>RRM</sub>	60 V
T <sub>j</sub> (max)	150 °C
V <sub>F</sub> (max)	0.55 V

## 1 Characteristics

Symbol	Parameter	Value	Unit	
V <sub>RRM</sub>	Repetitive peak reverse voltage	60	V	
I <sub>F(RMS)</sub>	Forward rms voltage	10	А	
I <sub>F(AV)</sub>	Average forward current $T_L = 115 \ ^{\circ}C \ \delta = 0.5$		2	А
I <sub>FSM</sub>	Surge non repetitive forward current	75	А	
P <sub>ARM</sub>	Repetitive peak avalanche power	1600	W	
T <sub>stg</sub>	Storage temperature range	-65 to +150	°C	
Тj	Operating junction temperature range <sup>(1)</sup> -40 to +			°C
dV/dt	Critical rate of rise of reverse voltage 10000			V/µs

1.  $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$  condition to avoid thermal runaway for a diode on its own heatsink

### Table 3.Thermal resistance

Symbol	Test conditions	Value	Unit
R <sub>th(j-l)</sub>	Junction-lead	25	°C/W

### Table 4. Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit
IR <sup>(1)</sup> Reverse leakage current	T <sub>j</sub> = 25 °C	$V_{R} = V_{RRM}$			100	μΑ	
	T <sub>j</sub> = 100 °C			2	10	mA	
V <sub>F</sub> <sup>(1)</sup> Forward voltage drop	T <sub>j</sub> = 25 °C	I <sub>F</sub> = 2 A			0.60		
	T <sub>j</sub> = 125 °C			0.51	0.55	v	
	Forward voltage drop	T <sub>j</sub> = 25 °C	I <sub>F</sub> = 4 A			0.77	
		T <sub>j</sub> = 125 °C			0.62	0.67	

1. Pulse test:  $t_p = 380 \ \mu s, \ \delta < 2\%$ 

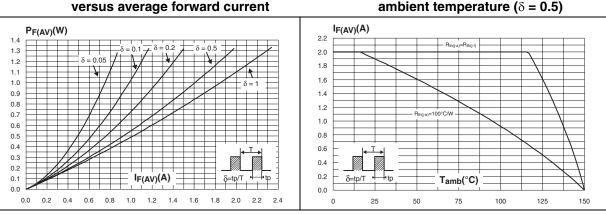
To evaluate the conduction losses use the following equation: P = 0.43 x  $I_{F(AV)}$  + 0.06  ${I_F}^2_{(RMS)}$ 

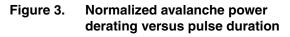


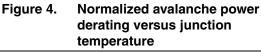
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Average forward current versus

# Figure 1. Average forward power dissipation Figure 2. versus average forward current







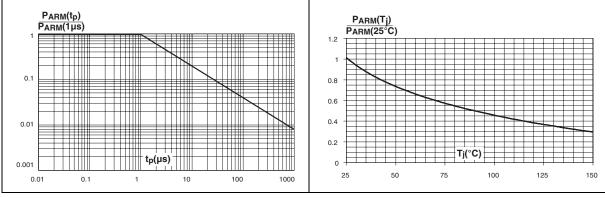
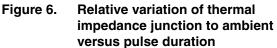
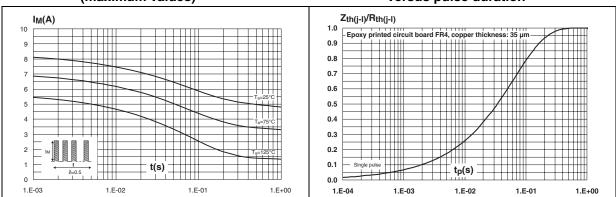
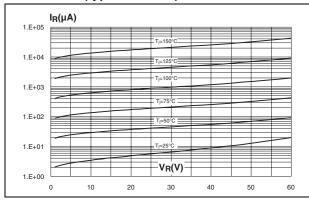


Figure 5. Non repetitive surge peak forward current versus overload duration (maximum values)





# Figure 7. Reverse leakage current versus reverse voltage applied (typical values)



#### Figure 9. Forward voltage drop versus forward current (maximum values, low level)

# Figure 8. Junction capacitance versus reverse voltage applied (typical values)

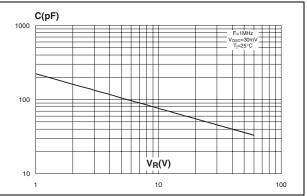
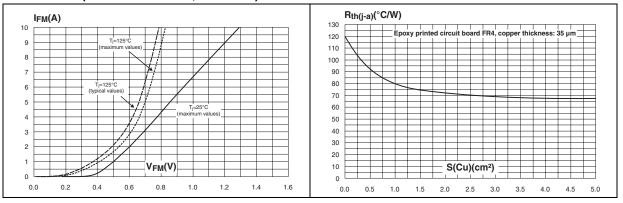


Figure 10. Thermal resistance junction to ambient versus copper surface under each lead





## 2 Package information

- Epoxy meets UL94, V0
- Lead-free package

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

Table 5. SMA dimensions

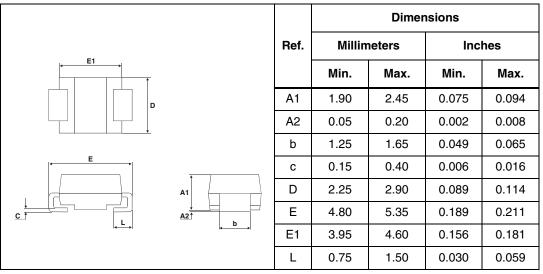
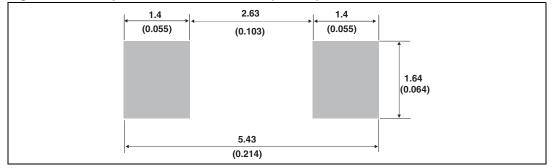


Figure 11. Footprint, dimensions in mm (inches)





# **3** Ordering information

## Table 6.Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
STPS2L60AY	S26Y	SMA	0.068 g	5000	Tape and reel

# 4 Revision history

## Table 7.Document revision history

Date	Revision	Changes
02-Nov-2011	1	Initial release.



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