

STPS30H60C-Y

Automotive power Schottky rectifier

Features

- Very small conduction losses
- Negligible switching losses
- Extremely fast switching
- AEC-Q101 qualified

Description

30 A dual center tab Schottky rectifier suitable for automotive applications.

Package in PowerSO-20 (slug up), this device is especially intented for use in a low voltage applications.

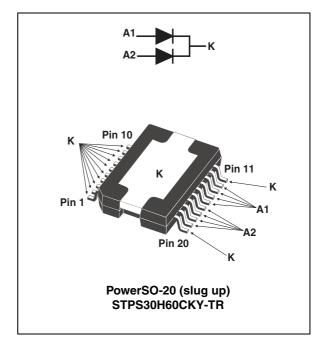


Table 1. Device summary

Symbol	Value
I _{F(AV)}	2 x 15 A
V_{RRM}	60 V
T _{j(max)}	150 °C
V _{F(max)}	0.645 V

Characteristics STPS30H60C-Y

1 Characteristics

Table 2. Absolute rating (limiting value, per diode)

Symbol	Parameter				Value	Unit	
V _{RRM}	Repetitive peak reverse voltage			ge		V	
IF _(RMS) ⁽¹⁾	Forward rms current				45	Α	
IE(1)			$T_c = 140 ^{\circ}\text{C}, \delta = 0.5$ square pulse		15	А	
II-(AV)	IF _(AV) ⁽¹⁾ Average forward current	$T_c = 135$ °C, $\delta = 0.5$ square pulse		Per device	30	7	
I _{FSM} ⁽¹⁾	Surge non repetitive forward current $t_p = 10 \text{ ms Sinusoidal}$			250	Α		
T _{stg}	Storage temperature range			-65 to +175	°C		
T _j	Operating junction temperature range			-40 to +150	°C		
T _R	Recommended reflow soldering temperature range				245 +0/-5	°C	

^{1.} All anode pins (A1, A2) must be connected

Table 3. Thermal parameters

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case	er diode er device	0.95 0.61	°C/W
R _{th(c)}	Coupling		0.27	°C/W

When diodes 1 and 2 are used simultaneously:

 $\Delta T_{j(diode\ 1)} = P_{(diode\ 1)}\ x\ R_{th(j\text{-}c)(Per\ diode)} + P_{(diode\ 2)}\ x\ R_{th(c)}$

Table 4. Static electrical characteristics (per diode)

Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit
I _R ⁽¹⁾ Reverse leakage	T _j = 25 °C	V - V			150	μΑ	
'R`	'R' current	T _j = 125 °C	$V_R = V_{RRM}$			45	mA
V _F ^{(1) (2)} Forward vol		T _j = 25 °C	I _F = 15 A			0.580	
	Forward voltage drop	T _j = 125 °C	I _F = 15 A			0.515	V
	Forward voltage drop	T _j = 25 °C	I _F = 30 A			0.700	V
		T _j = 125 °C	I _F = 30 A			0.645	

^{1.} Pulse test : $tp = 380 \mu s$, d < 2%

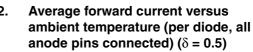
To evaluate the maximum conduction losses use the following equation:

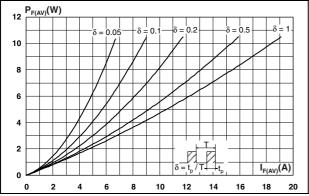
 $P = 0.385 \times I_{F(AV)} + 0.00867 \times I_{F}^{2}_{(RMS)}$

^{2.} All anode pins (A1, A2) must be connected

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Figure 1. Average forward power dissipation Figure 2. versus average forward current (per diode, all anode pins connected)





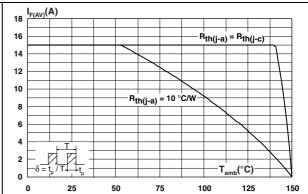
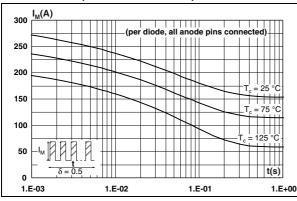


Figure 3. Non repetitive surge peak forward current versus overload duration (maximum values)

Figure 4. Relative variation of thermal impedance junction to case versus pulse duration



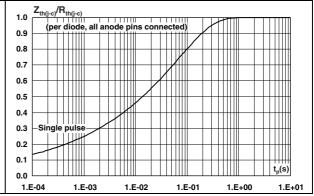
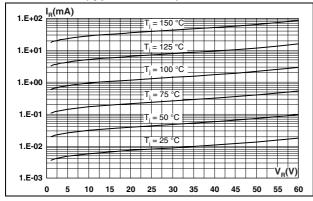
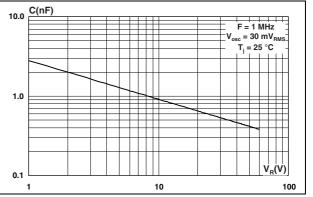


Figure 5. Reverse leakage current versus reverse voltage applied (per diode) (typical values)

Figure 6. Junction capacitance versus reverse voltage applied (per diode) (typical values)

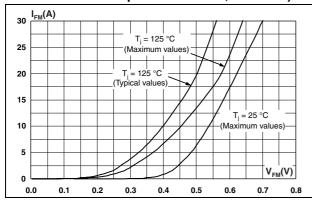




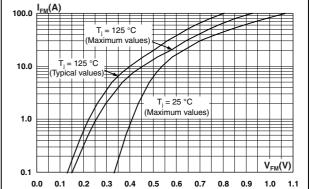
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Figure 7. Forward voltage drop versus forward current (per diode, all anode pins connected, low level)

Figure 8. Forward voltage drop versus forward current (per diode, all anode pins connected, high level)



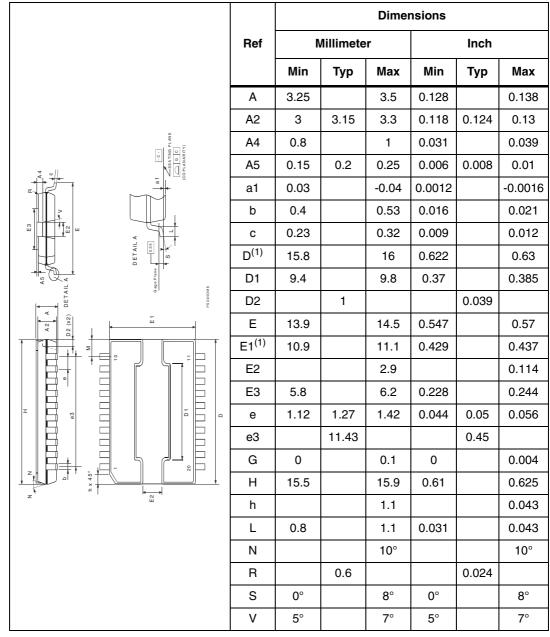
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2 Package information

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.

Table 5. PowerSO-20 (slug up) dimensions



^{1.} These measurements do not include mold flash or protrusions.

Mold flash or protrusions shall not exceed 0.15 mm (0.006"). Critical dimensions: E, a1, e, and G.

Ordering information STPS30H60C-Y

3 Ordering information

 Table 6.
 Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
STPS30H60CKY-TR PS30H60CY P		PowerSO-20	1.93 g	600	Tape and reel

4 Revision history

Table 7. Document revision history

Date	Revision	Changes
02-Dic-2010	1	First issue.

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