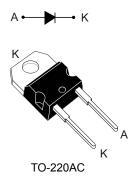


STPS10L60

Datasheet

60 V power Schottky rectifier



Features

- Low forward voltage drop
- Negligible switching losses
- Low thermal resistance
- Avalanche capability specified
- ECOPACK[®]2 compliant

Applications

- Switching diode
- SMPS
- DC/DC converter
- Lighting

Description

This Schottky rectifier is designed for switched mode power supplies (SMPS) and high frequency DC to DC converters.

Packaged in TO-220AC, the STPS10L60 is optimized for use in DC/DC converters.

Product status link			
STPS10L60			
Product summary			
Symbol Value			
I _{F(AV)} 10 А			
V_{RRM} 60 V			
T _j (max.) 150 °C			
V_F (typ.) 0.48 ∨			

1 Characteristics

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Table 1. Absolute ratings (limiting values, at 25 °C unless otherwise specified)

Symbol	Parame	Value	Unit	
V _{RRM}	Repetitive peak reverse voltage		60	V
I _{F(RMS)}	Forward rms current	Forward rms current		А
I _{F(AV)}	Average forward current $T_c = 135 \text{ °C}, \delta = 0.5$		10	А
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal	220	А
P _{ARM}	Repetitive peak avalanche power $t_p = 10 \ \mu s, T_j = 125 \ ^{\circ}C$		417	W
T _{stg}	Storage temperature range		-65 to +175	°C
Tj	Maximum operating junction temperature ⁽¹⁾		150	°C

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

Table 2. Thermal resistance parameters

Symbol	Parameter	Max. value	Unit	
R _{th(j-c)}	Junction to case	1.6	°C/W	

Table 3. Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit
	Poveraa lookago eurrant	T _j = 25 °C	V _R = V _{RRM}	-		350	μA
1 _R ⁽¹⁾	Reverse leakage current	T _j = 125 °C		-	65	95	mA
		T _j = 25 °C	I _F = 10 A	-		0.60	
VF ⁽²⁾		T _j = 125 °C		-	0.48	0.56	V
VF ⁽⁻⁾	V _F ⁽²⁾ Forward voltage drop	T _j = 25 °C	I _F = 20 A	-		0.74	V
		T _j = 125 °C		-	0.62	0.70]

1. $t_p = 5 ms, \, \delta < 2\%$

2. $t_p = 380 \ \mu s, \ \delta < 2\%$

To evaluate the conduction losses, use the following equation:

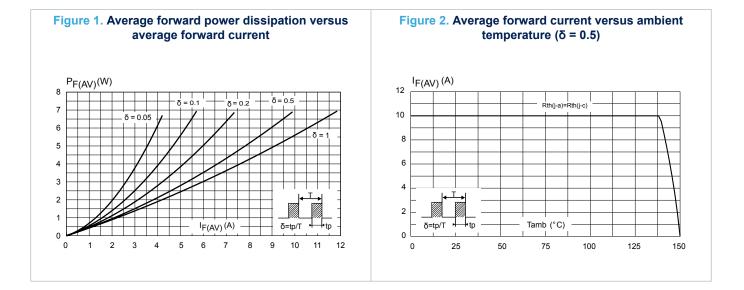
 $P = 0.42 \text{ x } I_{F(AV)} + 0.014 \text{ x } I_{F}^{2}(RMS).$

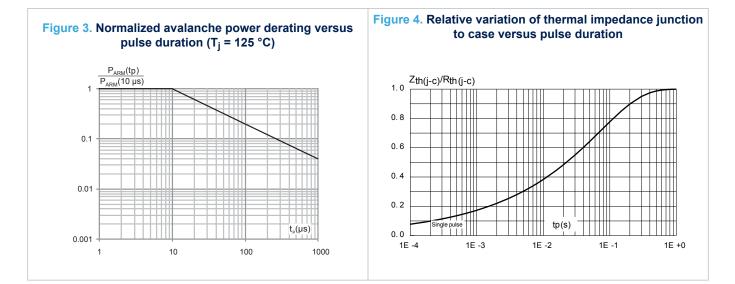
For more information, please refer to the following application notes related to the power losses :

- AN604: Calculation of conduction losses in a power rectifier
- AN4021: Calculation of reverse losses on a power diode



1.1 Characteristics (curves)







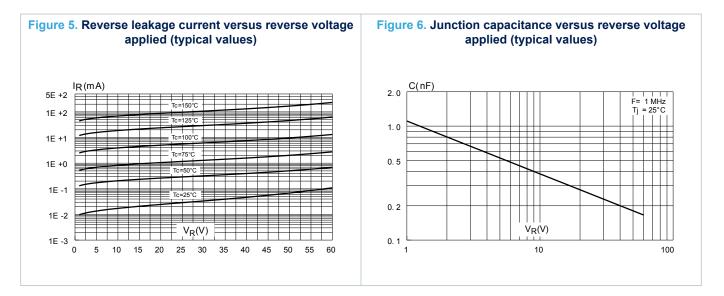
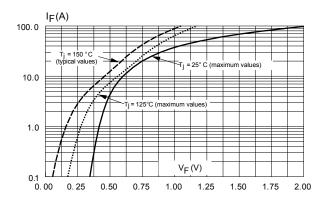


Figure 7. Forward voltage drop versus forward current.



2 Package information

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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.

2.1 TO-220AC package information

- Cooling method: by conduction (C)
- Epoxy meets UL94,V0
- Recommended torque value: 0.55 N·m
- Maximum torque value: 0.70 N·m

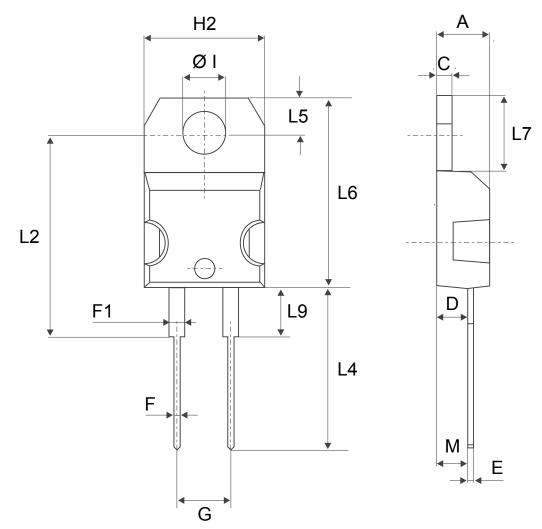


Figure 8. TO-220AC package outline

	Dimensions				
Ref.	Millim	ieters	Inches		
	Min.	Max.	Min.	Max.	
А	4.40	4.60	0.173	0.181	
С	1.23	1.32	0.048	0.051	
D	2.40	2.72	0.094	0.107	
E	0.49	0.70	0.019	0.027	
F	0.61	0.88	0.024	0.034	
F1	1.14	1.70	0.044	0.066	
G	4.95	5.15	0.194	0.202	
H2	10.00	10.40	0.393	0.409	
L2	16.40) typ.	0.645 typ.		
L4	13.00	14.00	0.511	0.551	
L5	2.65	2.95	0.104	0.116	
L6	15.25	15.75	0.600	0.620	
L7	6.20	6.60	0.244	0.259	
L9	3.50	3.93	0.137	0.154	
М	2.6	2.6 typ.		typ.	
Diam	3.75	3.85	0.147	0.151	

Table 4. TO-220AC package mechanical data



3 Ordering Information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
STPS10L60D	STPS10L60D	TO-220AC	1.86 g	50	Tube

Revision history

Table 6. Document revision history

Date	Version	Changes	
July-2003	4B	Previous release.	
		Removed TO-220FPAC package.	
	8 5	Removed figure 4, 5.1, 5.2 and 6.2.	
25-May-2018		Updated Table 1. Absolute ratings (limiting values, at 25 °C unless otherwise specified) and Section 1.1 Characteristics (curves).	
	Minor text changes to improve readability.		



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