

STPS2L60

POWER SCHOTTKY RECTIFIER

Table 1: Main Product Characteristics

I _{F(AV)}	2 A
V _{RRM}	60 V
T _j (max)	150°C
V _F (max)	0.55 V

FEATURES AND BENEFITS

- Negligible switching losses
- Low forward voltage drop
- Surface mount miniature package
- Avalanche capability specified

SMA DO-41 (JEDEC DO-214AC) STPS2L60A STPS2L60

DESCRIPTION

Axial and Surface Mount Power Schottky rectifiers suited to Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in SMA and DO-41, this device is especially intended for use in low voltage, high frequency inverters and small battery chargers.

Table 2: Order Codes

Part Number	Marking
STPS2L60A	S26
STPS2L60	STPS2L60
STPS2L60RL	STPS2L60

Table 3: Absolute Ratings (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			60	V
I _{F(RMS)}	RMS forward voltage			10	Α
I=	Avorage ferward current	SMA	$T_L = 115^{\circ}C$ $\delta = 0.5$	2	Α
IF(AV)	Average forward current	DO-41	$T_L = 110^{\circ}C$ $\delta = 0.5$		
I _{FSM}	Surge non repetitive forward current tp = 10ms sinusoidal			75	Α
P _{ARM}	Repetitive peak avalanche power tp = 1µs Tj = 25°C			1600	W
T _{stg}	Storage temperature range			-65 to + 150	°C
T _j	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/µs

^{*:} $\frac{dPtot}{dTj} > \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

Table 4: Thermal Resistance

Symbol	Parameter			Value	Unit
B.,	Junction to lead		SMA	25	°C/W
H _{th(j-l)}	Junction to lead	Lead length = 10 mm	DO-41	30	C/VV

Table 5: Static Electrical Characteristics

Symbol	Parameter	Tests conditions		Min.	Тур	Max.	Unit
I _R *	I _R * Reverse leakage current	T _j = 25°C	$V_R = V_{RRM}$			100	μΑ
'H	Theverse leakage current	T _j = 100°C	VR - VRRM		2	10	mA
	V _F ** Forward voltage drop	$T_j = 25^{\circ}C$	I _F = 2A			0.60	
V _F **		T _j = 125°C			0.51	0.55	V
roiward voitage drop	T _j = 25°C	I _F = 4A			0.77	V	
		$T_j = 125^{\circ}C$	i = +/\		0.62	0.67	

Pulse test: * tp = 380 μ s, δ < 2%

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

Figure 1: Average forward power dissipation versus average forward current

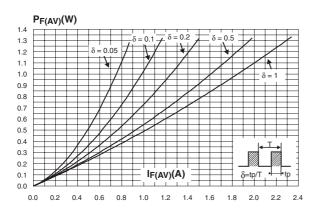


Figure 3: Normalized avalanche power derating versus pulse duration

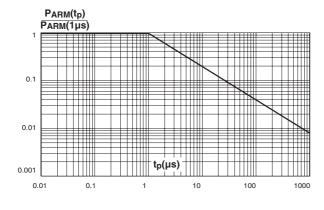


Figure 2: Average forward current versus ambient temperature ($\delta = 0.5$)

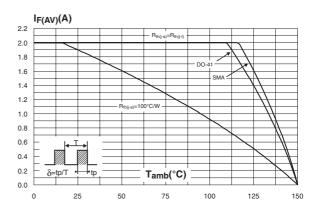
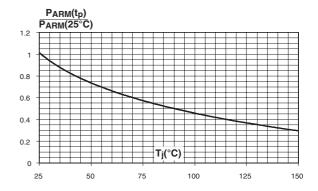


Figure 4: Normalized avalanche power derating versus junction temperature



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

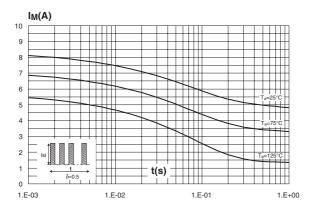


Figure 7: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board, e(Cu)=35µm, recommended pad layout) (SMA)

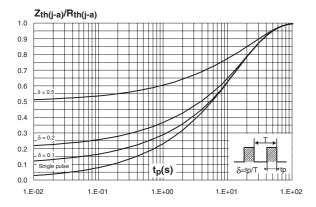


Figure 9: Reverse leakage current versus reverse voltage applied (typical values)

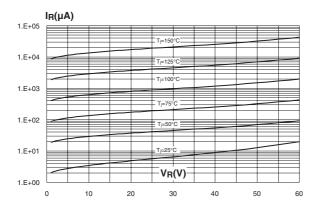


Figure 6: Non repetitive surge peak forward current versus overload duration (maximum values) (DO-41)

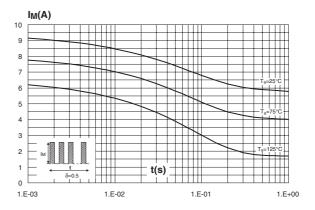


Figure 8: Relative variation of thermal impedance junction to ambient versus pulse duration (DO-41)

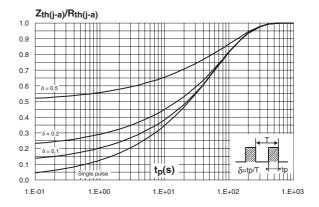
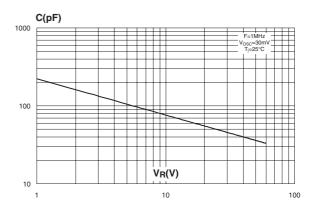


Figure 10: Junction capacitance versus reverse voltage applied (typical values)



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Figure 11: Forward voltage drop versus forward current (maximum values, low level)

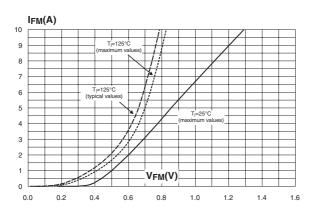


Figure 13: Thermal resistance versus lead length (DO-41)

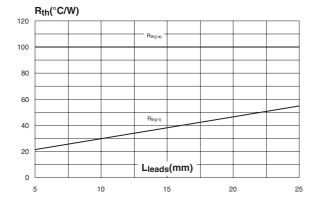
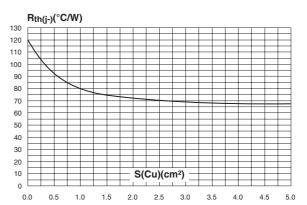
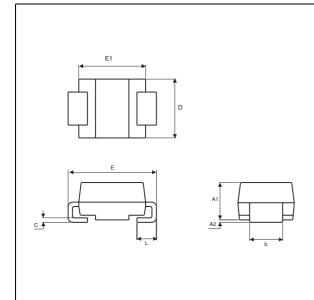


Figure 12: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm) (SMA)



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Figure 14: SMA Package Mechanical Data



	DIMENSIONS					
REF.	Millin	neters	Inc	hes		
	Min.	Max.	Min.	Max.		
A1	1.90	2.03	0.075	0.080		
A2	0.05	0.20	0.002	0.008		
b	1.25	1.65	0.049	0.065		
С	0.15	0.41	0.006	0.016		
Е	4.80	5.60	0.189	0.220		
E1	3.95	4.60	0.156	0.181		
D	2.25	2.95	0.089	0.116		
L	0.75	1.60	0.030	0.063		

Figure 15: SMA Foot Print Dimensions (in millimeters)

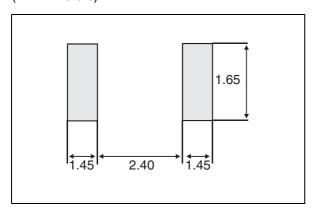
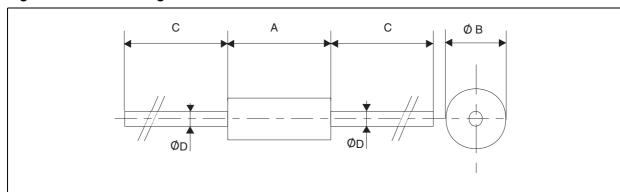


Figure 16: DO-41 Package Mechanical Data



	DIMENSIONS				
REF.	Millimeters		Inc	nes	
	Min.	Max.	Min.	Max.	
Α	4.07	5.20	0.160	0.205	
В	2.04	2.71	0.080	0.107	
С	28		1.102		
D	0.712	0.863	0.028	0.034	

Table 6: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2L60A	S26	SMA	0.068 g	5000	Tape & reel
STPS2L60	STPS2L60	DO-41	0.34 g	2000	Ammopack
STPS2L60RL	STPS2L60	DO-41	0.34 g	5000	Tape & reel

- Band indicates cathode
- Epoxy meets UL94, V0

Table 7: Revision History

Date	Revision	Description of Changes
Jul-2003	2A	Last update.
Aug-2004	3	SMA package dimensions update. Reference A1 max. changed from 2.70mm (0.106inc.) to 2.03mm (0.080).

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