

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1 A
V_{RRM}	60 V
$T_j (max)$	150°C
$V_F (max)$	0.56 V

FEATURES AND BENEFITS

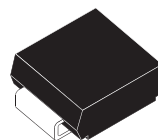
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP

DESCRIPTION

Axial and Surface Mount Power Schottky rectifier suited for Switch Mode Power Supplies and high frequency DC to DC converters. Packaged in DO-41 and SMA, this device is intended for use in low voltage, high frequency inverters and small battery chargers.



DO-41
STPS1L60



SMA
STPS1L60A

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			60	V
I _{F(RMS)}	RMS forward current			10	A
I _{F(AV)}	Average forward current	T _L = 130°C δ = 0.5	SMA	1	A
		T _L = 120°C δ = 0.5	DO-41		
I _{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal		40	A
T _{stg}	Storage temperature range			- 65 to + 150	°C
T _j	Maximum junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th}(j-a)}$ thermal runaway condition for a diode on its own heatsink

STPS1L60/A

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-a)}$	Junction to ambient	Lead length = 10 mm	DO-41	100	$^{\circ}\text{C/W}$
			SMA	120	
$R_{th(j-l)}$	Junction to leads	Lead length = 10 mm	DO-41	45	
			SMA	30	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = 60\text{V}$			50	μA
		$T_j = 100^{\circ}\text{C}$			1.5	5	mA
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 1\text{A}$			0.57	V
		$T_j = 100^{\circ}\text{C}$				0.56	
		$T_j = 125^{\circ}\text{C}$			0.5	0.54	
		$T_j = 25^{\circ}\text{C}$	$I_F = 2\text{A}$			0.75	
		$T_j = 100^{\circ}\text{C}$				0.68	
		$T_j = 125^{\circ}\text{C}$			0.6	0.66	

Pulse test : * $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation:

$$P = 0.44 \times I_{F(AV)} + 0.12 \times I_F^2(RMS)$$

Fig. 1: Average forward power dissipation versus average forward current.

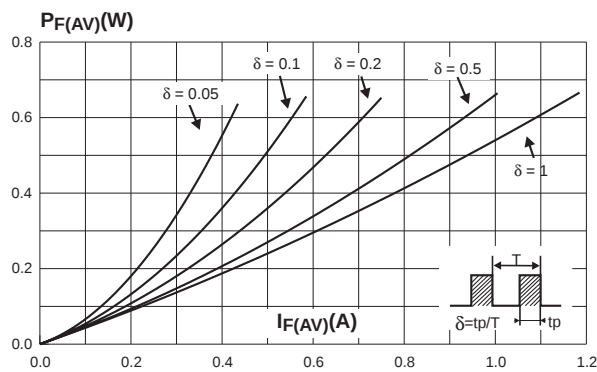


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (DO-41).

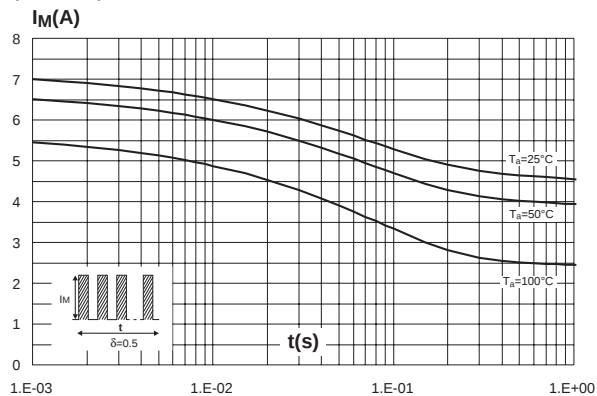


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

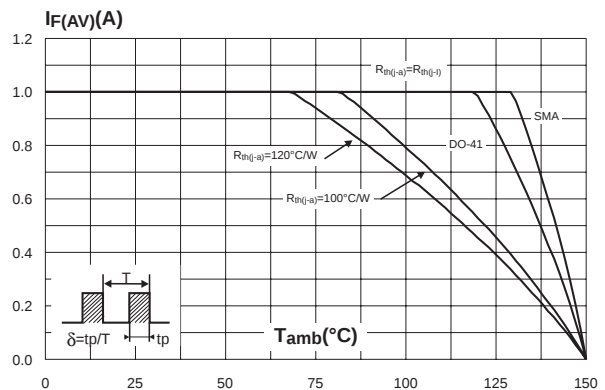


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (SMA).

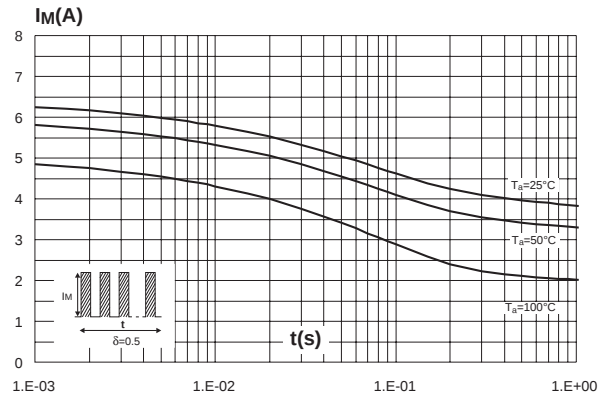


Fig. 4-1: Relative variation of thermal impedance junction to ambient versus pulse duration (DO-41).

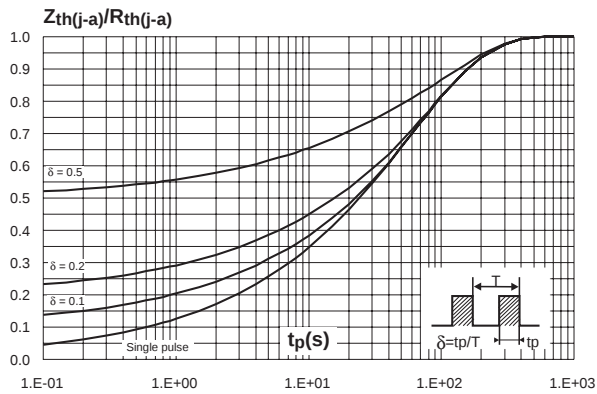


Fig. 4-2: Relative variation of thermal impedance junction to ambient versus pulse duration (SMA).

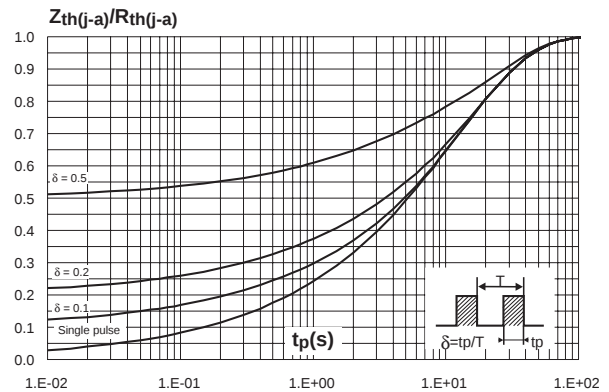


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

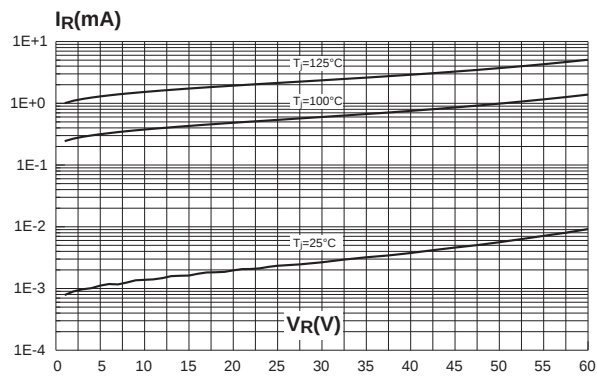


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

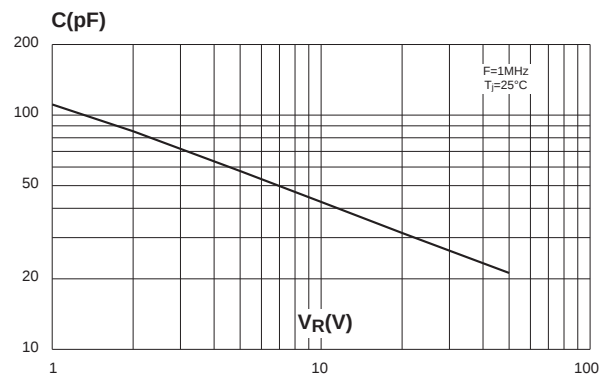


Fig. 7-1: Forward voltage drop versus forward current (low level, maximum values) (DO-41).

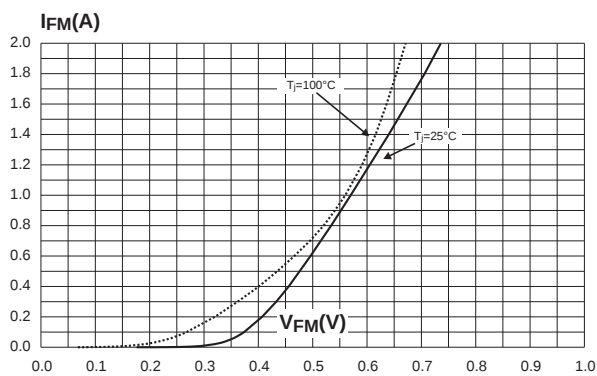
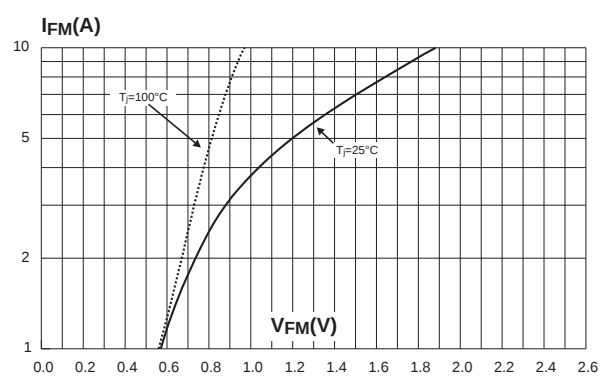


Fig. 7-2: Forward voltage drop versus forward current (high level, maximum values) (SMA).



STPS1L60/A

Fig. 8: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, Cu: 35μm) (SMA).

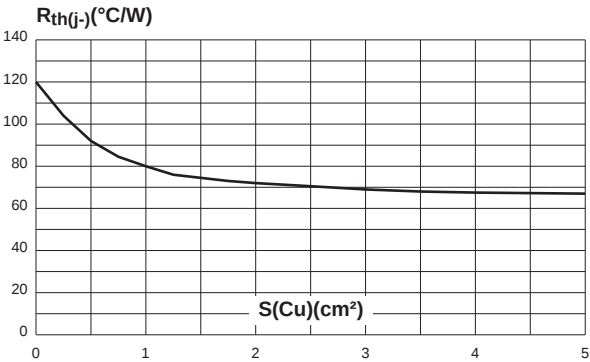
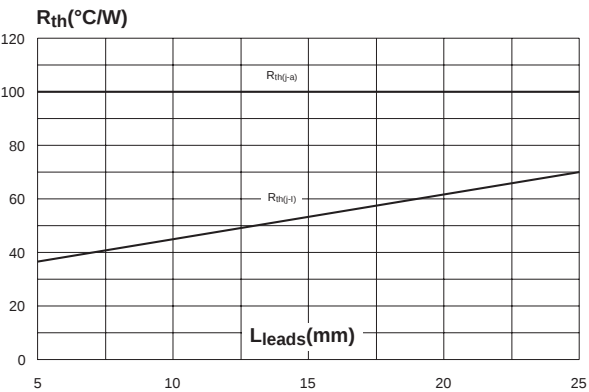
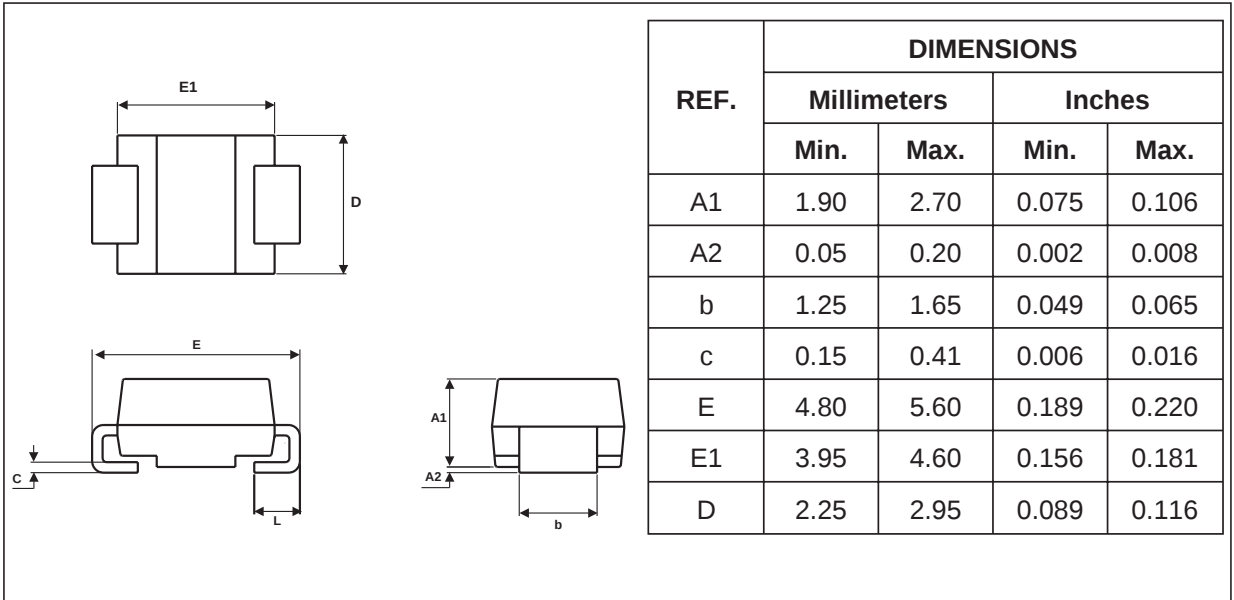


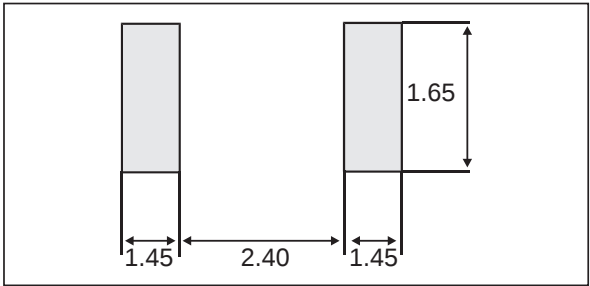
Fig. 9: Thermal resistance versus lead length (DO-41).



PACKAGE MECHANICAL DATA SMA (JEDEC DO-214AC)

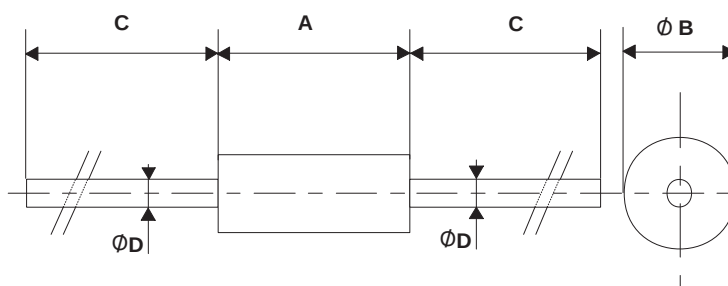


FOOT PRINT DIMENSIONS (in millimeters)



PACKAGE MECHANICAL DATA

DO-41 plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.07	5.20	0.160	0.205
B	2.04	2.71	0.080	0.107
C	28		1.102	

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS1L60	Partnumber cathode ring	DO-41	0.34g	2000	Ammopack
STPS1L60RL	Partnumber cathode ring	DO-41	0.34g	5000	Tape & Reel
STPS1L60A	GB6	SMA	0.068 g	5000	Tape & Reel

- Epoxy meets UL94,V0

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