New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

STPS5L40

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	5 A
V_{RRM}	40 V
Tj (max)	150°C
V_F (max)	0.44 V

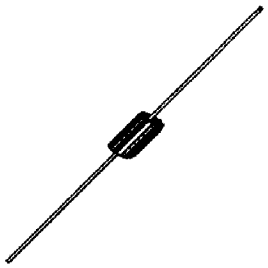
FEATURES AND BENEFITS

- Negligible switching losses
- Low forward voltage drop for higher efficiency.
- Low thermal resistance

DESCRIPTION

Axial Power Schottky rectifier suited for Switch Mode Power Supplies and high frequency inverters.

Packaged in DO-201AD, this device is intended for use in low voltage output for small battery chargers & consumer SMPS such as DVD and Set-Top-Box..



DO-201AD
STPS5L40

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		40	V
$I_{F(RMS)}$	RMS forward current		15	A
$I_{F(AV)}$	Average forward current	Tl = 100°C δ = 0.5	5	A
I_{FSM}	Surge non repetitive forward current	Half wave, single phase tp = 10 ms	150	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum operating junction temperature *		150	°C
dV/dt	Critical rate of rise of reverse voltage (rated V_R, Tj = 25°C)		10000	V/µs

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

THERMAL PARAMETERS

Symbol	Parameter		Value	Unit
$R_{th(j-a)}$	Junction to ambient		75	°C/W
$R_{th(j-l)}$	Junction to leads	Lead length = 10 mm	15	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			0.2	mA
		Tj = 100°C			8	25	
		Tj = 125°C			25	75	
V_F *	Forward voltage drop	Tj = 25°C	I_F = 5 A		0.44	0.50	V
		Tj = 100°C			0.40	0.46	
		Tj = 125°C			0.38	0.44	

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation:

$P = 0.34 \times I_{F(AV)} + 0.028 \times I_F{}^2{}_{(RMS)}$

Fig. 1: Conduction losses versus average current.

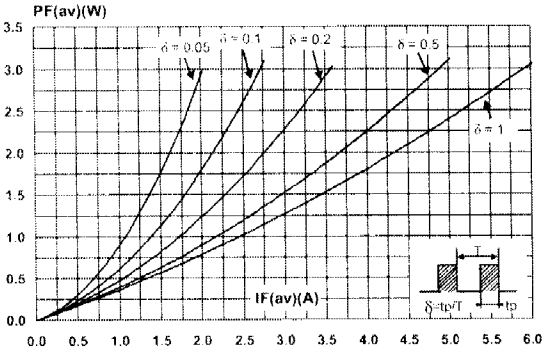


Fig. 2: Average forward current versus ambient temperature (δ = 0.5).

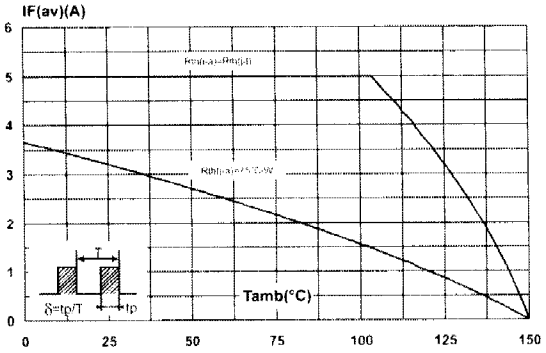


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

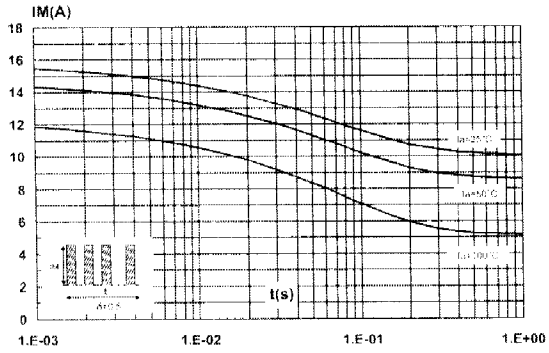
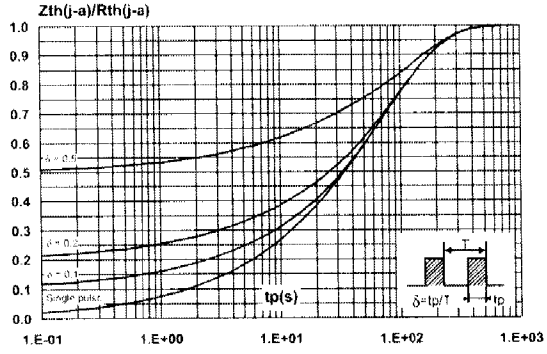
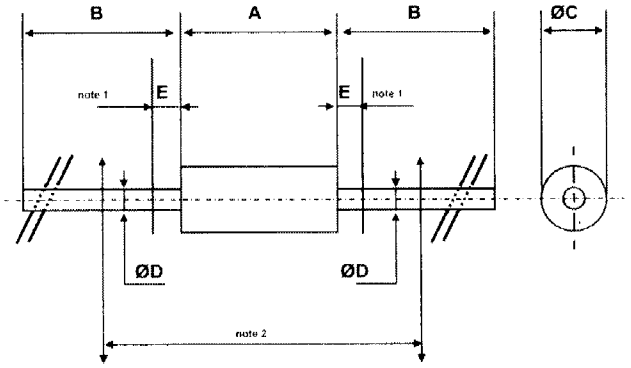


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.



PACKAGE MECHANICAL DATA

DO-201AD plastic



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter Ø D is not controlled over zone E
B	25.40		1.000		
Ø C		5.30		0.209	2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
Ø D		1.30		0.051	
E		1.25		0.049	