



LOW DROP POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	2 A
V_{RRM}	40 V
T_j (max)	150 °C
V_F (max)	0.34 V

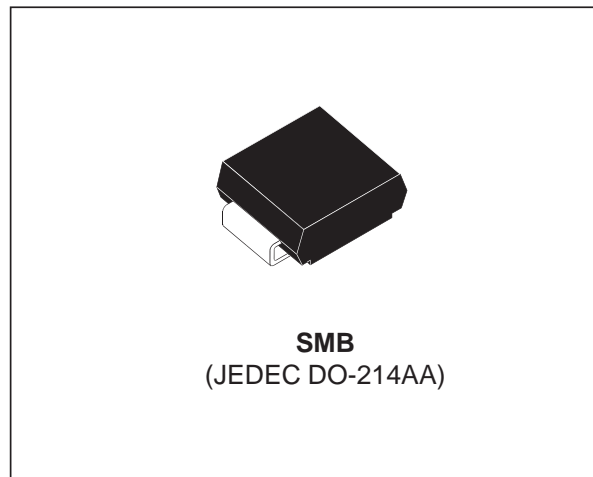
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- SURFACE MOUNT MINIATURE PACKAGE

DESCRIPTION

Single chip Schottky rectifiers suited to Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in SMB, this device is especially intended for surface mounting and used in low voltage, high frequency inverters, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
V _{RRM}	Repetitive peak reverse voltage	40	V
I _{F(RMS)}	RMS forward current	8	A
I _{F(AV)}	Average forward current	2	A
I _{FSM}	Surge non repetitive forward current	75	A
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

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

STPS2L40U

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to lead	SMB	20	$^{\circ}\text{C}/\text{W}$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = 40\text{ V}$		220	μA
		$T_j = 100^{\circ}\text{C}$			20	mA
		$T_j = 125^{\circ}\text{C}$		38	80	mA
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 1\text{ A}$		0.39	V
		$T_j = 125^{\circ}\text{C}$		0.25	0.28	
		$T_j = 25^{\circ}\text{C}$	$I_F = 2\text{ A}$		0.43	V
		$T_j = 125^{\circ}\text{C}$		0.31	0.34	
		$T_j = 25^{\circ}\text{C}$	$I_F = 4\text{ A}$		0.5	V
		$T_j = 125^{\circ}\text{C}$		0.39	0.45	

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

To evaluate the maximum conduction losses use the following equation :
 $P = 0.22 \times I_{F(AV)} + 0.06 I_{F(RMS)}^2$

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

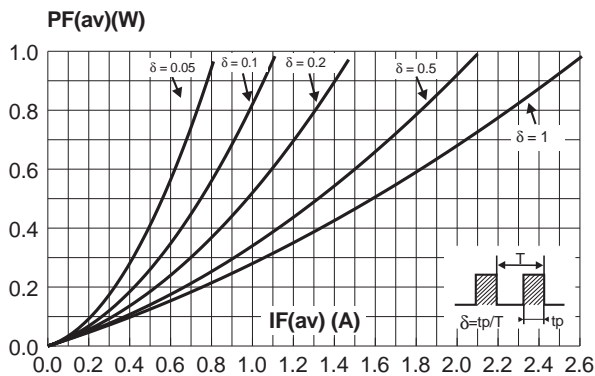


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values)

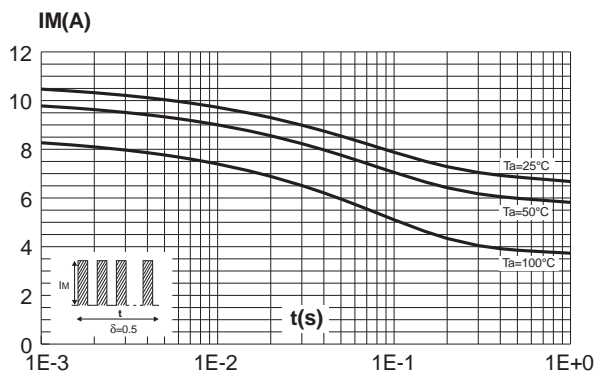


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

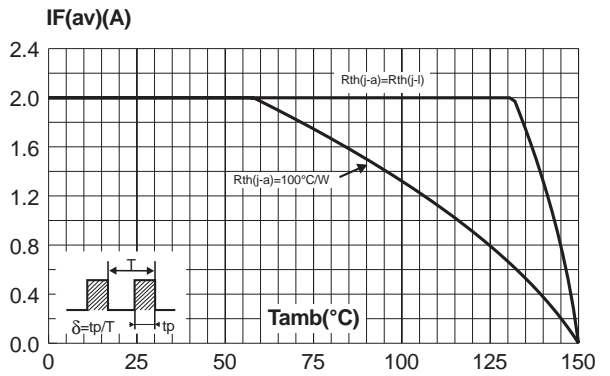


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

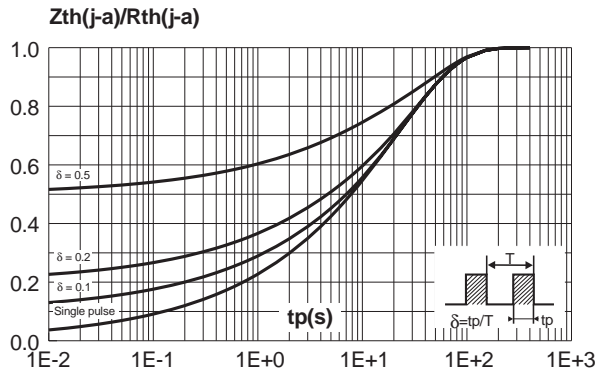


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

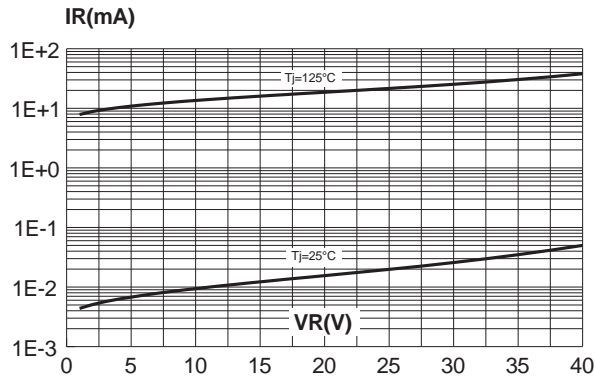


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

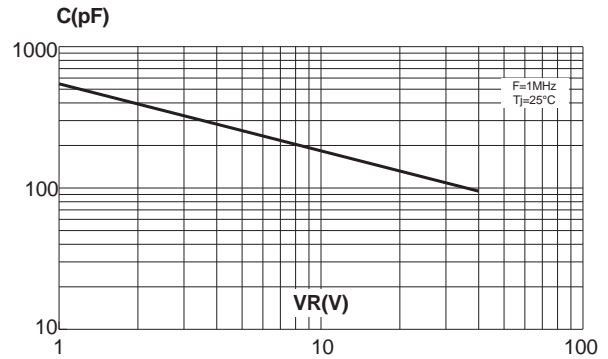


Fig. 7-1: Forward voltage drop versus forward current (maximum values, high level).

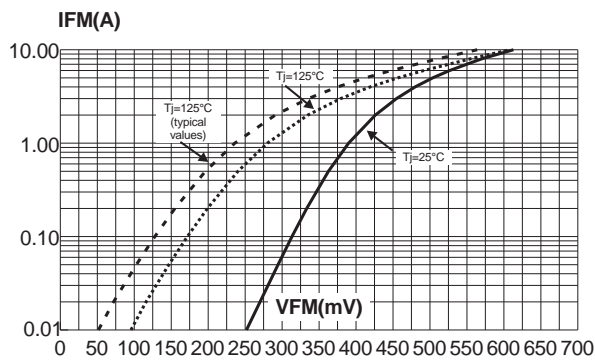


Fig. 7-2: Forward voltage drop versus forward current (maximum values, low level).

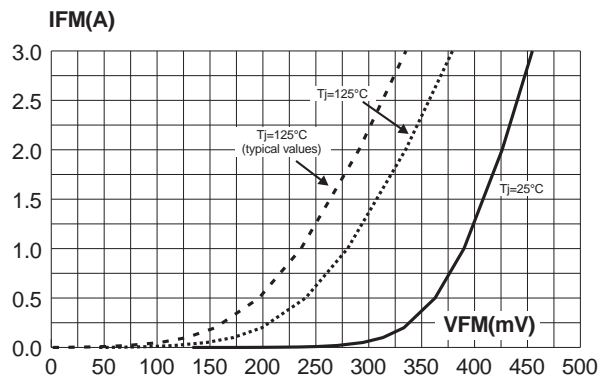
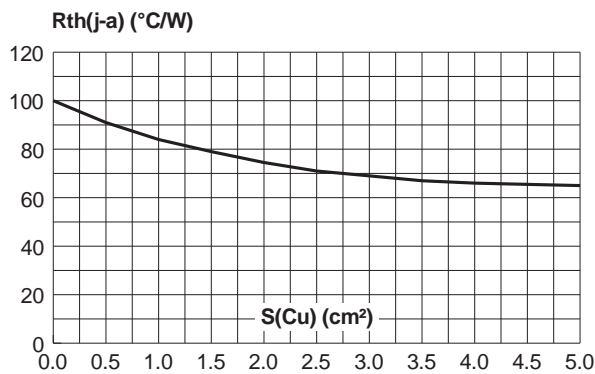


Fig. 8: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness $s(\text{Cu}) = 35\mu\text{m}$)

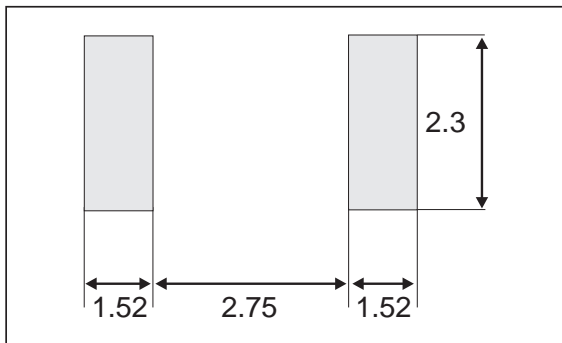


STPS2L40U

PACKAGE MECHANICAL DATA SMB

	DIMENSIONS				
	REF.	Millimeters		Inches	
		Min.	Max.	Min.	Max.
	A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008	
b	1.95	2.20	0.077	0.087	
c	0.15	0.41	0.006	0.016	
E	5.10	5.60	0.201	0.220	
E1	4.05	4.60	0.159	0.181	
D	3.30	3.95	0.130	0.156	
L	0.75	1.60	0.030	0.063	

FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS2L40U	GD4	SMB	0.107g	2500	Tape & reel

- Band indicates cathode
- Epoxy meets UL94,V0

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