

POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(av)}$	30 A
V_{RRM}	40 V
$V_F(\text{max})$	0.50 V

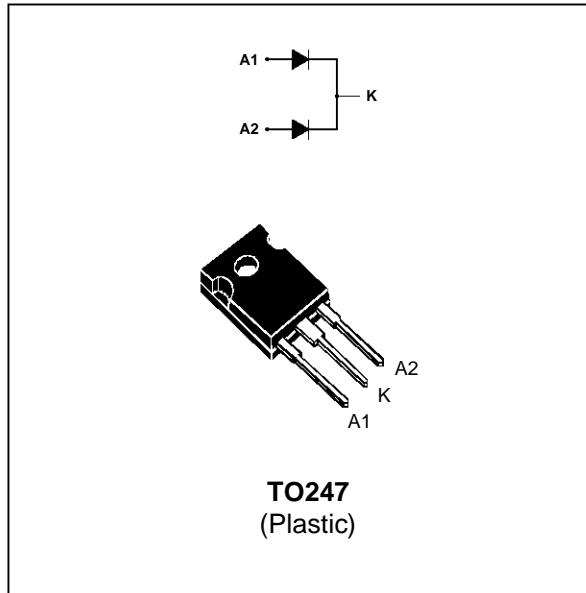
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE

DESCRIPTION

Dual center tap schottky rectifier suited for switchmode power supply and high frequency DC to DC converters.

Packaged in TO247 this device is intended for use 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
V_{RRSM}	Repetitive Peak Surge Reverse Voltage $t_p = 0.5\text{ms}$ $\delta = 0.025$		45	V
$I_{F(\text{RMS})}$	RMS Forward Current		30	A
$I_{F(\text{AV})}$	Average Forward Current	$t_c = 110^\circ\text{C}$ $\delta = 0.5$	15 0	A
I_{FSM}	Surge Non Repetitive Forward Current	$t_p = 10\text{ ms}$ Sinusoidal	220	A
I_{RRM}	Peak Repetitive Reverse Current	$t_p = 2\ \mu\text{s}$ $F = 1\text{KHz}$	1	A
T_{stg} T_j	Storage and Junction Temperature Range		- 55 to + 150	°C
dV/dt	Critical rate of rise Reverse Voltage		1000	V/ μs

STPS30L40CW

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{TH(j-c)}$	Junction-case	1.60 0.85	°C/W
$R_{TH(c)}$	Coupling	0.10	°C/W

When the diodes 1 and 2 are used simultaneously :
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{TH}(\text{Per diode}) + P(\text{diode 2}) \times R_{TH(c)}$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			1	mA
		$T_j = 100^\circ\text{C}$			20	75	mA
V_F **	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 15 \text{ A}$			0.55	V
		$T_j = 125^\circ\text{C}$	$I_F = 15 \text{ A}$		0.42	0.5	

Pulse test : * $t_p = 5 \text{ ms}$, $\delta < 2 \%$

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

To evaluate the conduction losses use the following equation :

$$P = 0.330 \times I_{F(AV)} + 0.011 I_{F}^2(\text{RMS})$$

junction capacitance (typical value): $C = 2500 \text{ pF}$ $T_j = 25^\circ\text{C}$, $F = 1 \text{ MHz}$, $V_R = 0 \text{ V}$

Fig. 1: Average forward power dissipation versus average forward current. (Per diode)

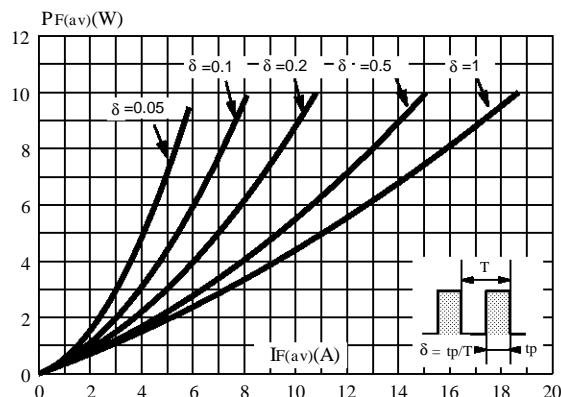


Fig. 2: Average current versus ambient temperature.(duty cycle : 0.5) (Per diode)

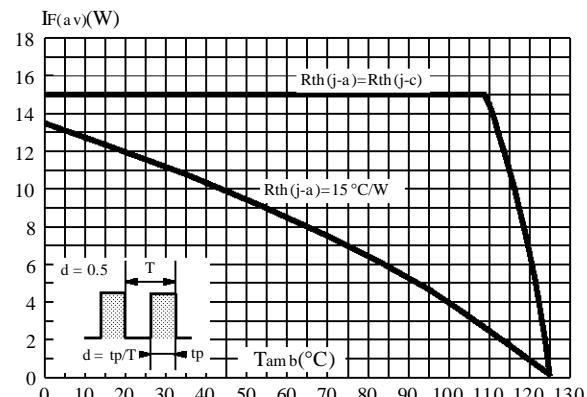


Fig. 3: Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode)

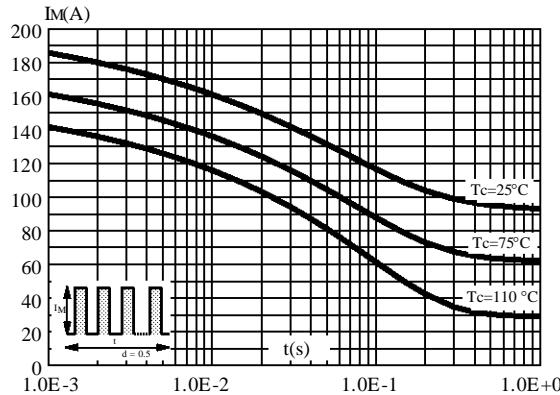


Fig. 5: Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

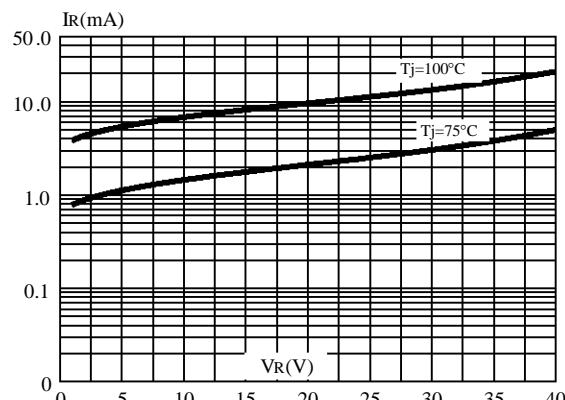


Fig. 7: Forward voltage drop versus forward current. (Maximum values) (Per diode)

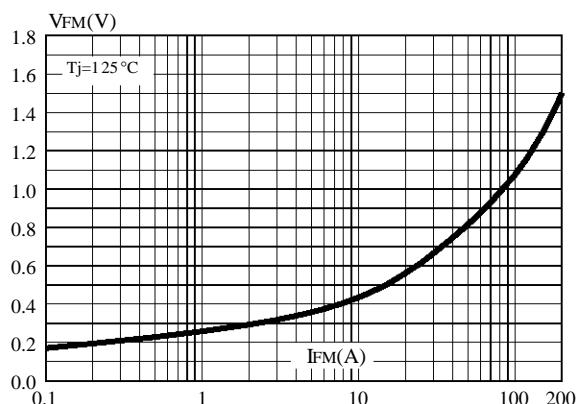


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

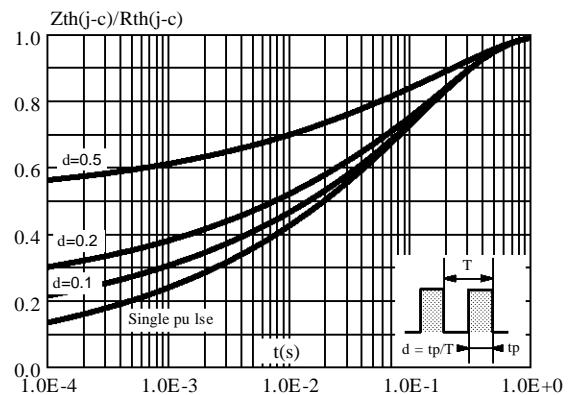
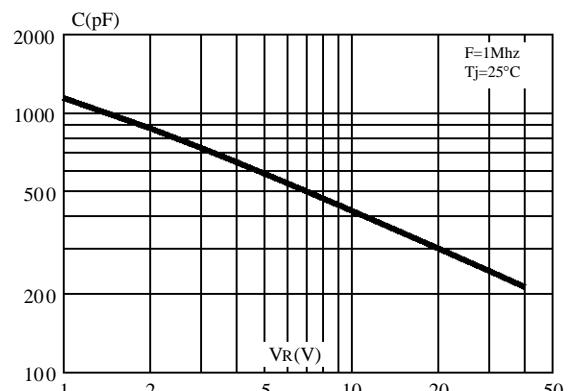
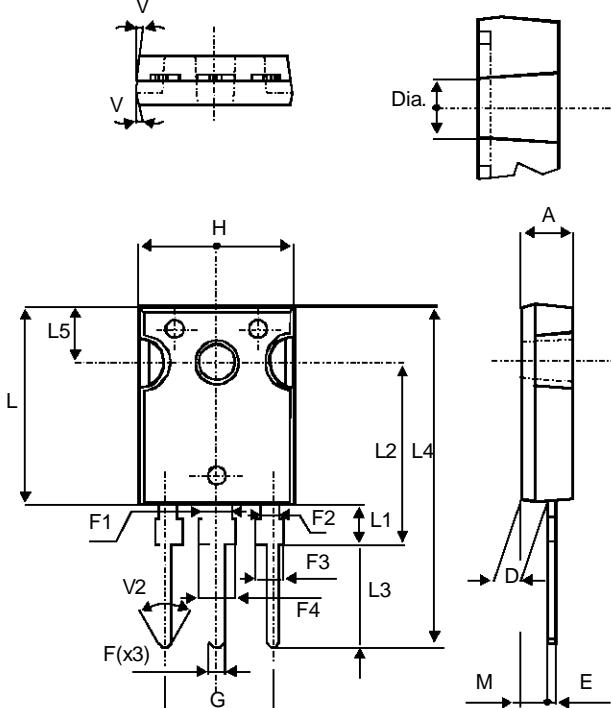


Fig. 6: Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)



STPS30L40CW

PACKAGE MECHANICAL DATA TO247



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	4.70	5.30		0.190	0.210	
D	2.20	2.60		0.086	0.102	
E	0.40	0.80		0.015	0.031	
F	1.00	1.40		0.039	0.055	
F1	3.00			0.118		
F2	2.00			0.078		
F3		2.00	2.40		0.078	0.094
F4		3.00	3.40		0.118	0.133
G	10.90			0.429		
H	15.30	15.90		0.602	0.625	
L	19.70	20.30		0.775	0.799	
L1	3.70	4.30		0.145	0.169	
L2	18.50			0.728		
L3	10.50			0.413		
L4	34.60			1.362		
L5	5.50			0.216		
M	2.00	3.00		0.078	0.118	
V	5°			5°		
V2	60°			60°		
Dia.	3.55	3.65		0.139	0.143	

Cooling method : C

Marking : Type number

Weight : 4.4 g

Recommended torque value : 0.8m.N

Maximum torque value : 1.0m.N

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