

## LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

### MAJOR PRODUCTS CHARACTERISTICS

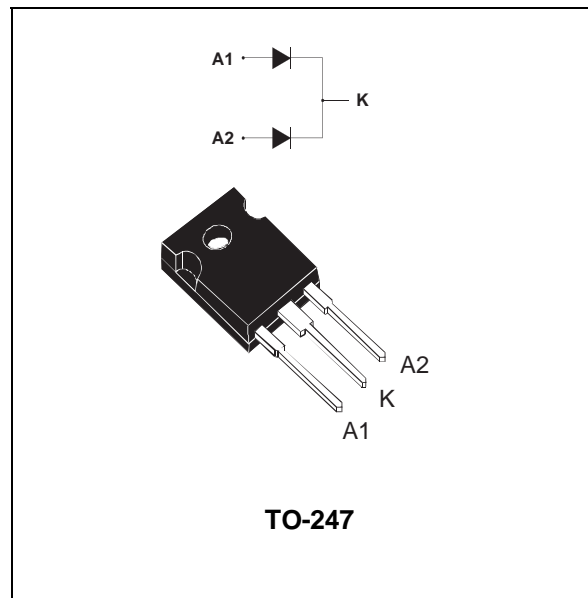
$I_{F(AV)}$	2 x 20 A
$V_{RRM}$	15 V
$V_F(\text{max})$	0.33 V

### FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION AND REDUCED HEATSINK SIZE
- REVERSE VOLTAGE SUITED TO OR-RING OF 3V, 5V and 12V RAILS

### DESCRIPTION

Dual center tap schottky rectifier packaged in TO-247, this device is especially intended for use as OR-ing diode in fault tolerant power supplies equipment.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
$V_{RRM}$	Repetitive peak reverse voltage		15	V	
$I_{F(RMS)}$	RMS forward current		30	A	
$I_{F(AV)}$	Average forward current	T <sub>case</sub> = 85°C δ = 0.5 V <sub>R</sub> = 15V	Total	40	A
			Per diode	20	
$I_{FSM}$	Surge non repetitive forward current	tp = 10 ms Sinusoidal	310	A	
$I_{RRM}$	Peak repetitive reverse current	tp = 2 μs F = 1kHz	2	A	
$I_{RSM}$	Non repetitive peak reverse current	tp = 100 μs	3	A	
$E_{as}$	Non repetitive avalanche energy	T <sub>a</sub> = 25°C I <sub>as</sub> = 2A L = 6mH	9	mJ	
$I_{ar}$	Repetitive avalanche current	- V <sub>a</sub> = 3x V <sub>R</sub> typ. - Current decaying linearly to 0 in 1μs - Frequency limited by T <sub>j</sub> max	2	A	
T <sub>stg</sub>	Storage temperature range		- 65 to + 150	°C	
T <sub>j</sub>	Maximum junction temperature		125		
dV/dt	Critical rate of rise of reverse voltage		10000	V/μs	

# STPS40L15CW

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case	Per diode	1.6
		Total	0.85
R <sub>th(c)</sub>	Coupling	0.1	°C/W

## ELECTRICAL CHARACTERISTICS

### STATIC CHARACTERISTICS PER DIODE

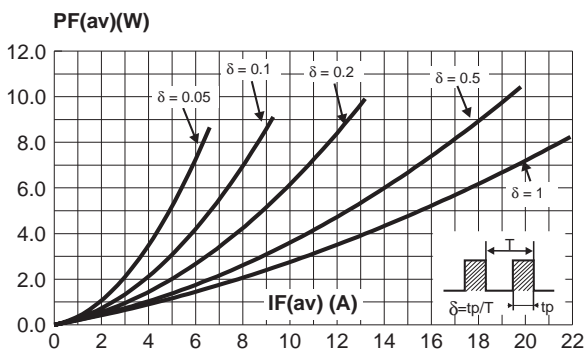
Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>		6	mA
		T <sub>j</sub> = 100°C		200	670	
V <sub>F</sub> **	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 19 A		0.41	V
		T <sub>j</sub> = 25°C	I <sub>F</sub> = 40 A		0.52	
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 19 A	0.28	0.33	
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 40 A	0.42	0.50	

Pulse test : \* tp = 380 μs, δ < 2%

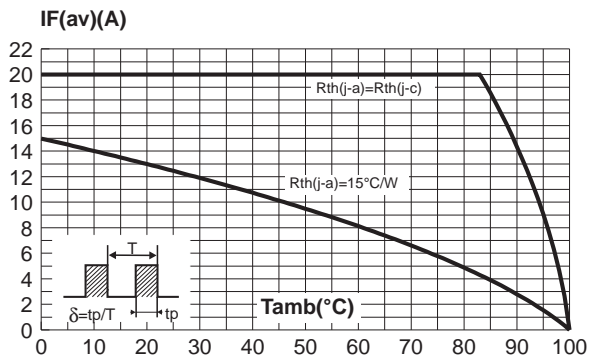
To evaluate the conduction losses use the following equation :

$$P = 0.18 \times I_{F(AV)} + 0.008 I_{F(RMS)}^2$$

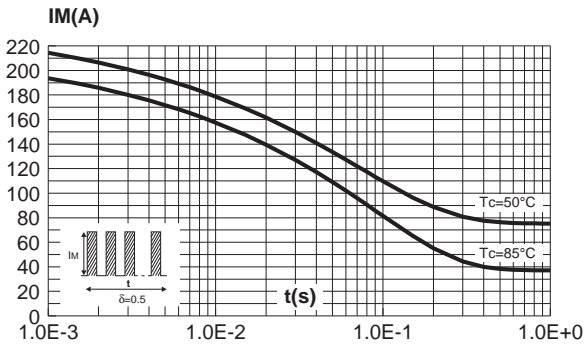
**Fig. 1:** Average forward power dissipation versus average forward current. (Per diode)



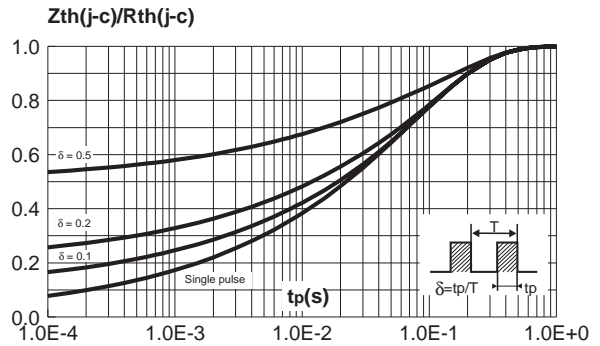
**Fig. 2:** Average forward current versus ambient temperature. (δ=0.5) (per diode)



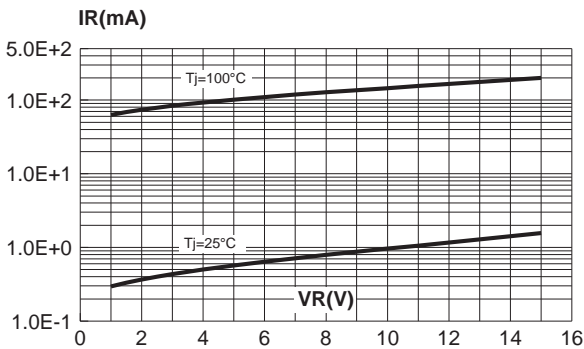
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values per diode).



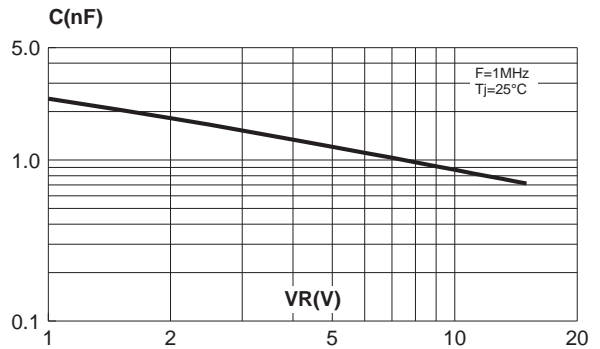
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse duration (per diode).



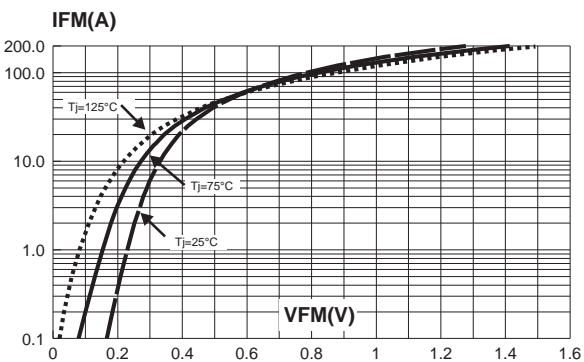
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values per diode).



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

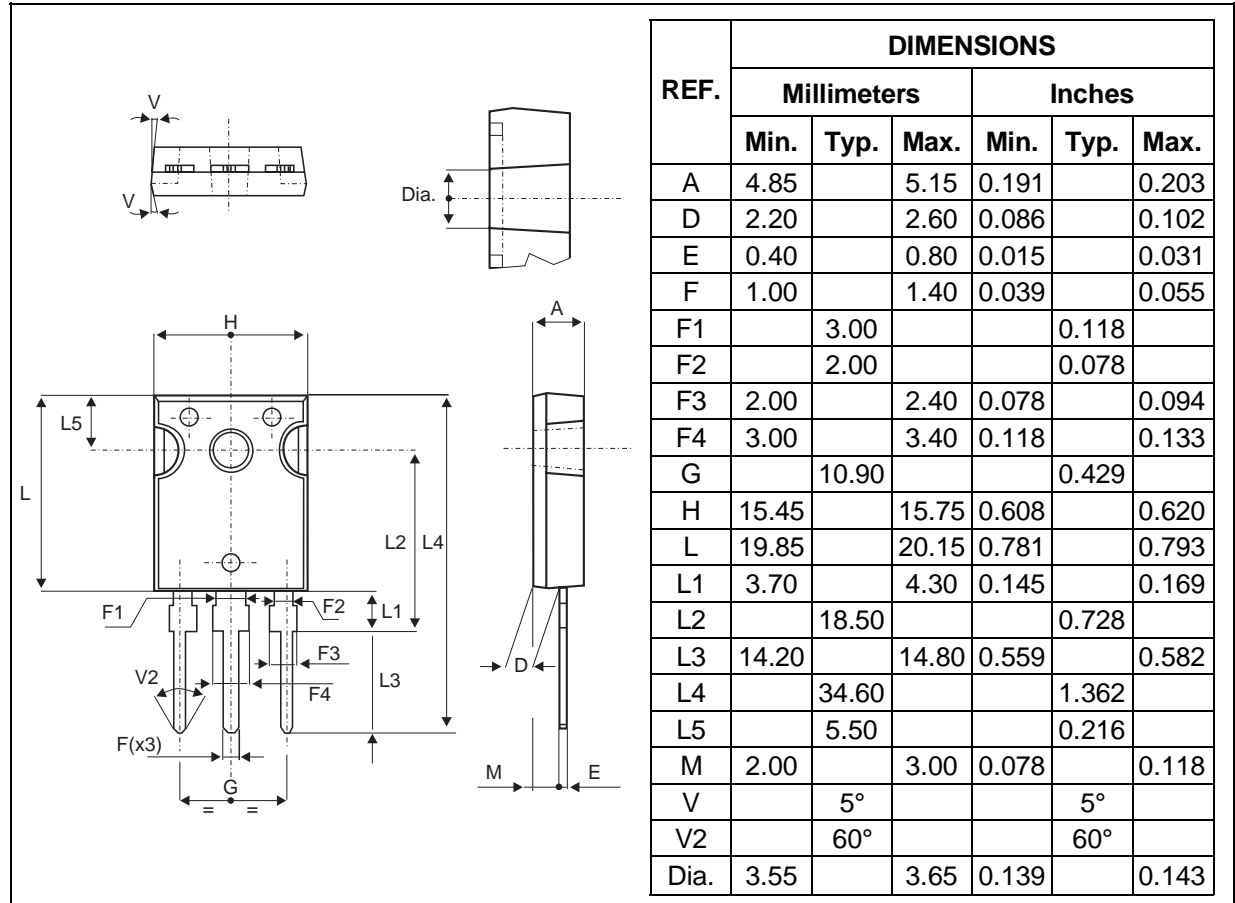


**Fig. 7:** Forward voltage drop versus forward current (typical values per diode).



# STPS40L15CW

## PACKAGE MECHANICAL DATA TO-247



- **Marking:** STPS40L15CW
- Cooling method : C
- Weight : 4.4 g
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

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