



STPS40L15CW

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAJOR PRODUCT CHARACTERISTICS

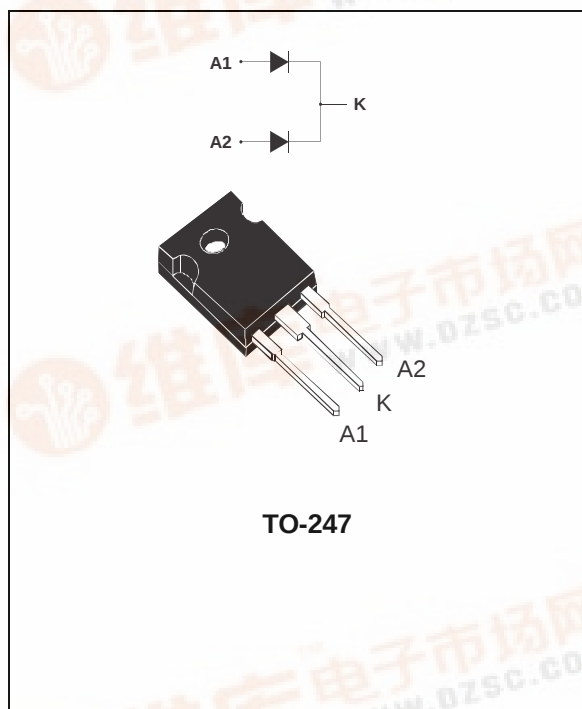
$I_F(AV)$	2 x 20 A
V_{RRM}	15 V
$T_j(max)$	150°C
$V_F(max)$	0.33 V

FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION AND REDUCED HEATSINK SIZE
- REVERSE VOLTAGE SUITED TO OR-ing 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 supply equipments.



ABSOLUTE RATINGS (limiting values, per diode)

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	Tcase = 140°C δ = 1	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
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

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	1.6	$^{\circ}\text{C/W}$
		Total	0.85	
$R_{th(c)}$		Coupling	0.1	$^{\circ}\text{C/W}$

STATIC ELECTRICAL CHARACTERISTICS (Per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			6	mA
		$T_j = 100^{\circ}\text{C}$			200	500	
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 19\text{ A}$			0.41	V
		$T_j = 25^{\circ}\text{C}$	$I_F = 40\text{ A}$			0.52	
		$T_j = 125^{\circ}\text{C}$	$I_F = 19\text{ A}$		0.28	0.33	
		$T_j = 125^{\circ}\text{C}$	$I_F = 40\text{ A}$		0.42	0.50	

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

To evaluate the conduction losses use the following equation :

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

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

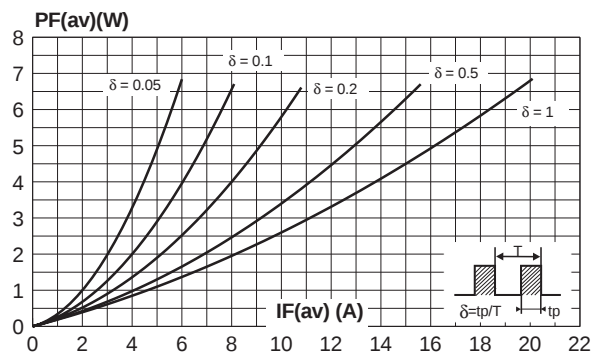


Fig. 2: Average forward current versus ambient temperature ($\delta=1$, per diode).

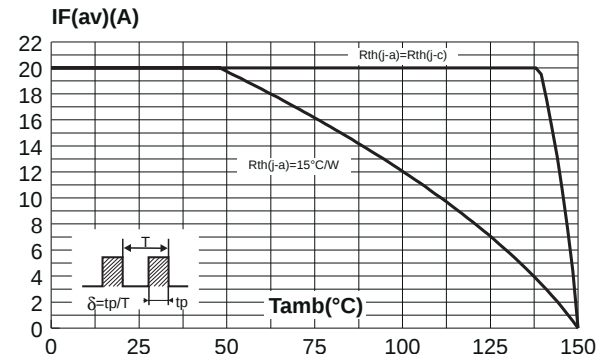


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values per diode).

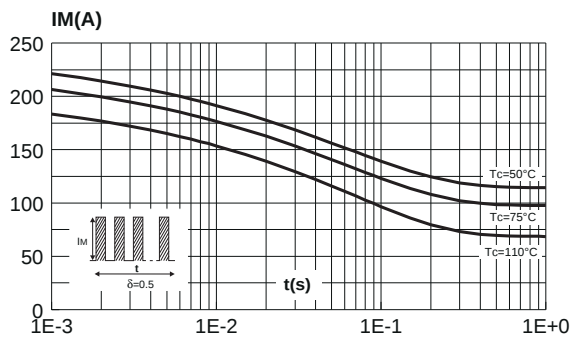


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

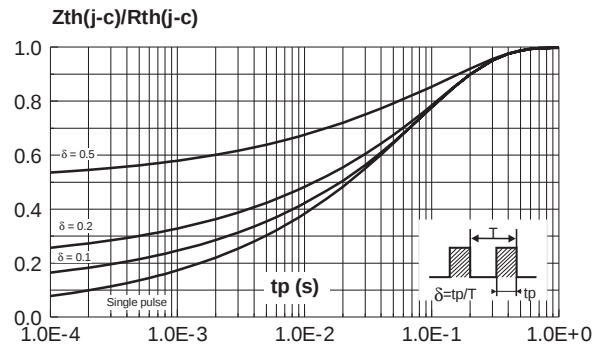


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values per diode).

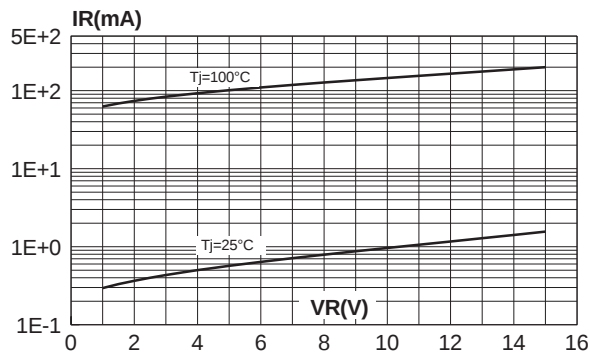


Fig. 6: Junction capacitance versus reverse voltage applied (typical values per diode).

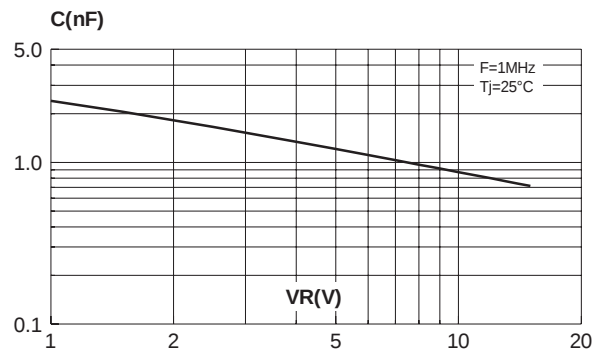


Fig. 7: Forward voltage drop versus forward current (typical values per diode).

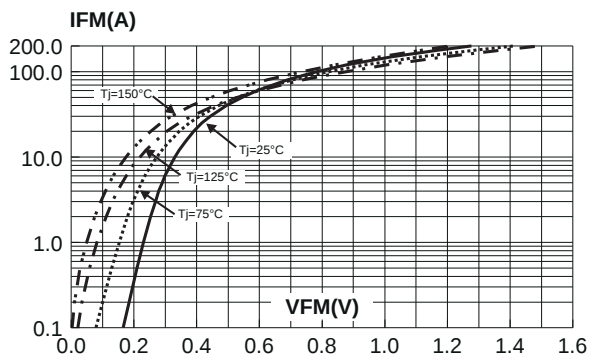
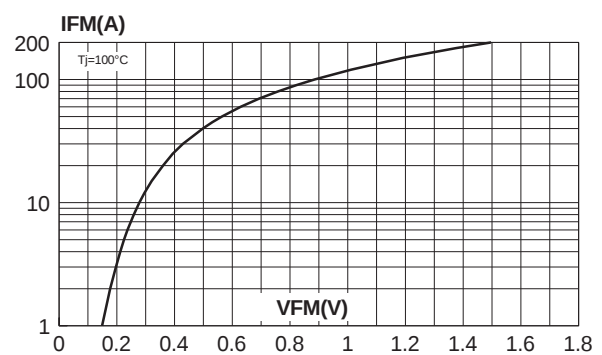
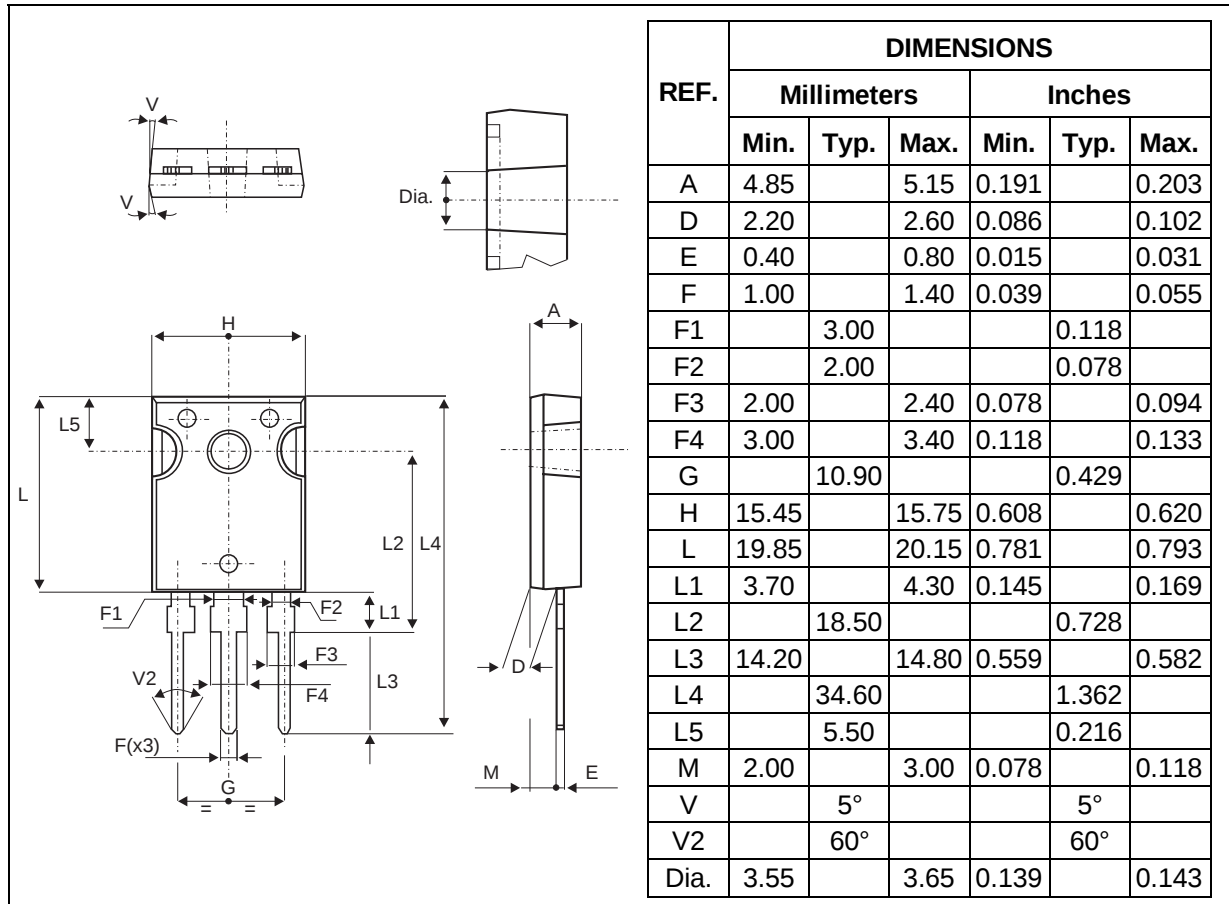


Fig. 8: Forward voltage drop versus forward current (typical maximum per diode).



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PACKAGE MECHANICAL DATA TO-247



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS40L15CW	STPS40L15CW	TO-247	4.4 g.	30	Tube

- Cooling method : by conduction (C)
- Recommended torque value : 0.8 N.m.
- Maximum torque value : 1.0 N.m.
- Epoxy meets UL94,V0

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