



STPS40L15CW/CT

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAJOR PRODUCT CHARACTERISTICS

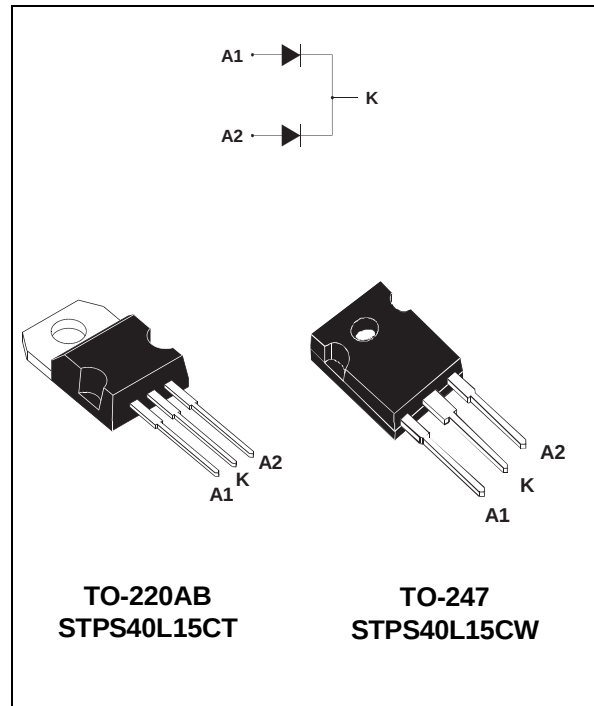
$I_{F(AV)}$	2 x 20 A
V_{RRM}	15 V
$T_j \text{ (max)}$	150°C
$V_F \text{ (max)}$	0.33 V

FEATURES AND BENEFITS

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

DESCRIPTION

Dual center tap schottky rectifier packaged in TO-220AB and 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 :

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

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

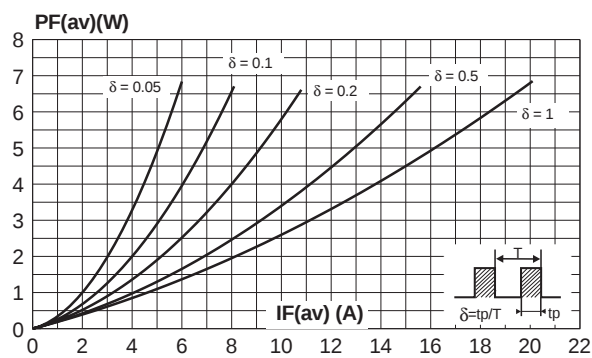


Fig. 2: Average forward current versus ambient temperature ($\delta=1$, per diode).

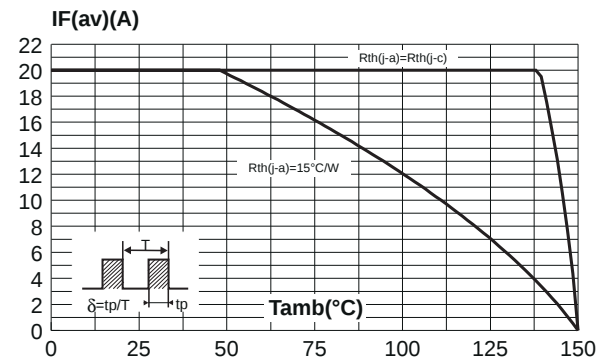


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values per diode).

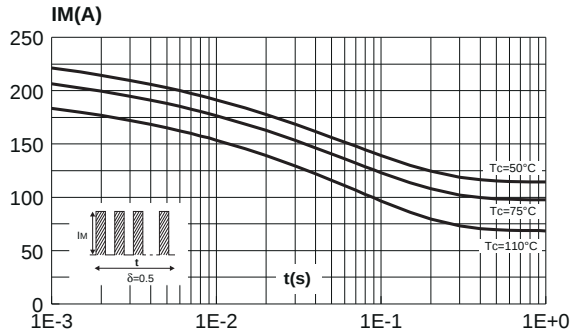


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

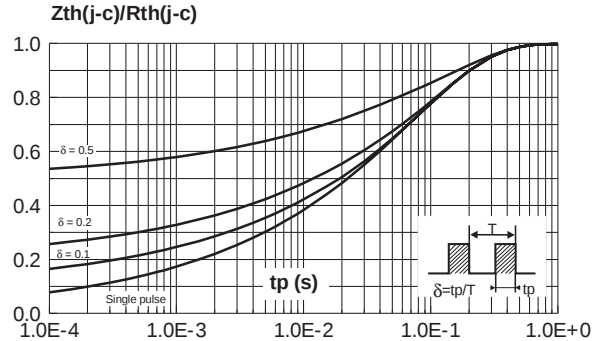


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values per diode).

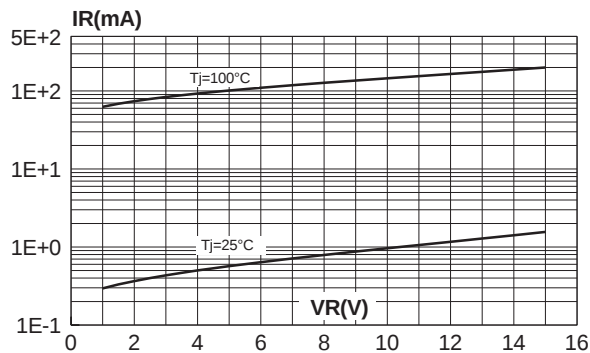


Fig. 6: Junction capacitance versus reverse voltage applied (typical values per diode).

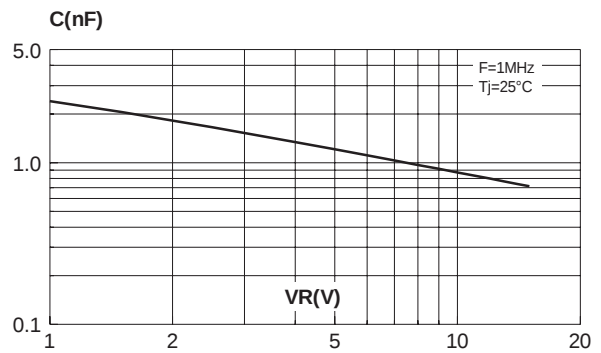


Fig. 7: Forward voltage drop versus forward current (typical values per diode).

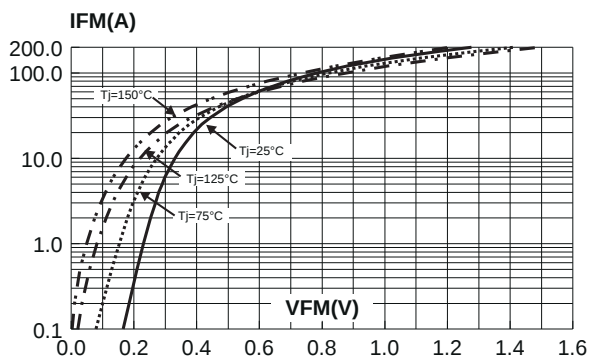
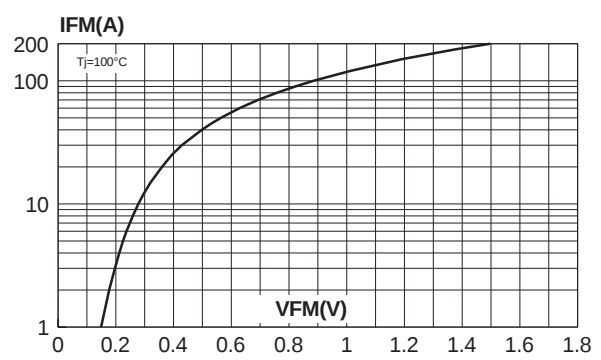


Fig. 8: Forward voltage drop versus forward current (typical maximum per diode).



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PACKAGE MECHANICAL DATA
TO-220AB

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

The image shows two views of a TO-220AB package. The top view (left) shows a rectangular package with a central circular feature. Dimensions labeled include H2 (width), Dia (hole diameter), L5 (height from top to base), L6 (height from base to mounting tab), L9 (height from mounting tab to lead), L4 (height from lead to base), F2 (width of mounting tab), F1 (width of lead), F (width of lead), G1 (width of lead), and G (width of lead). The side view (right) shows the package profile with dimensions A (total height), C (height from top to base), L7 (height from base to mounting tab), D (width of mounting tab), M (width of lead), and E (width of lead).

- Cooling method: C
- Recommended torque value: 0.55 m.N
- Maximum torque value: 0.70 m.N

PACKAGE MECHANICAL DATA
TO-247

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
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	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
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
- Recommended torque value: 0.8 m.N
- Maximum torque value: 1.0 m.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS40L15CW	STPS40L15CW	TO-247	4.4 g.	30	Tube
STPS40L15CT	STPS40L15CT	TO-220AB	2g	50	Tube

- Epoxy meets UL94,V0

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