

LOW DROP OR-ing POWER SCHOTTKY RECTIFIERS

MAIN PRODUCT CHARACTERISTICS

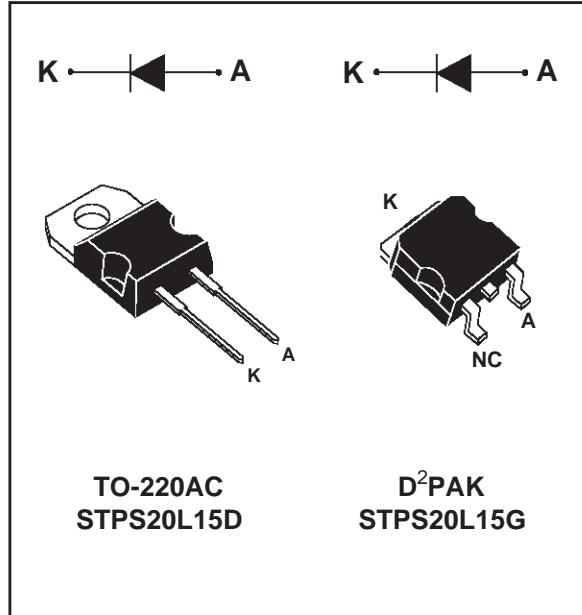
$I_{F(AV)}$	20 A
V_{RRM}	15 V
V_F (max)	0.33 V

FEATURES AND BENEFITS

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

DESCRIPTION

Packaged in TO-220AC or D²PAK, this device is especially intended for use as an OR-ring 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	20	A	
I_{FSM}	Surge non repetitive forward current	310	A	
I_{RRM}	Repetitive peak reverse current	2	A	
I_{RSR}	Non repetitive peak reverse current	3	A	
E_{as}	Non repetitive avalanche energy	9	mJ	
I_{ar}	Repetitive avalanche current	- Va = 3x VR typ. - Current decaying linearly to 0 in 1μs - frequency limited by Tj max	2	A
T_{stg} T_j	Storage temperature range Maximum junction temperature	-65 to +150 125	°C	
dV/dt	Critical rate of rise of reverse voltage	10000	V/μs	

STPS20L15D/G

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case	1.6	°C/W

STATIC ELECTRICAL CHARACTERISTICS (Per Diode)

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = 15V			6	mA
		T _j = 100°C	V _R = 15V		200	670	
V _F *	Forward voltage drop	T _j = 25°C	I _F = 19 A			0.41	V
		T _j = 25°C	I _F = 40 A			0.52	
		T _j = 125°C	I _F = 19 A		0.28	0.33	
		T _j = 125°C	I _F = 40 A		0.42	0.50	

Pulse test : * tp = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.19 \times I_{F(AV)} + 8.5 \cdot 10^{-3} \times I_{F}^2(RMS)$$

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

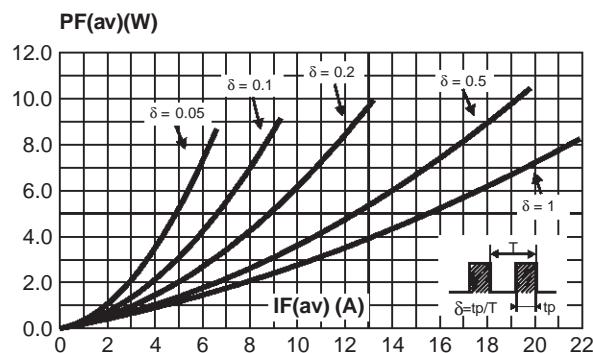


Fig. 2: Average forward current versus ambient temperature (δ = 0.5).

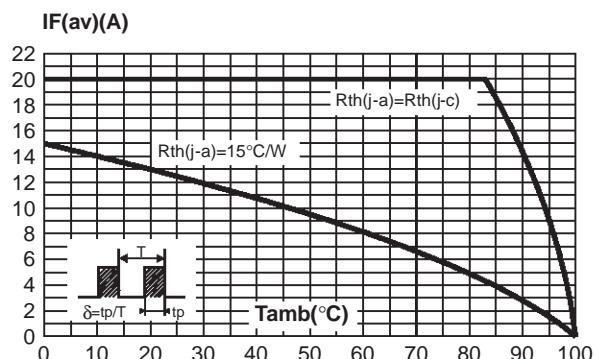


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

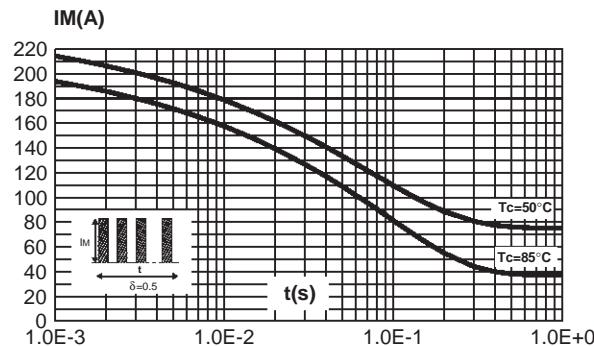


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

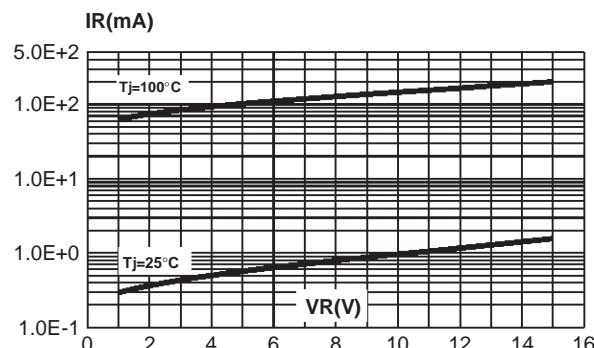


Fig. 7: Forward voltage drop versus forward current (maximum values).

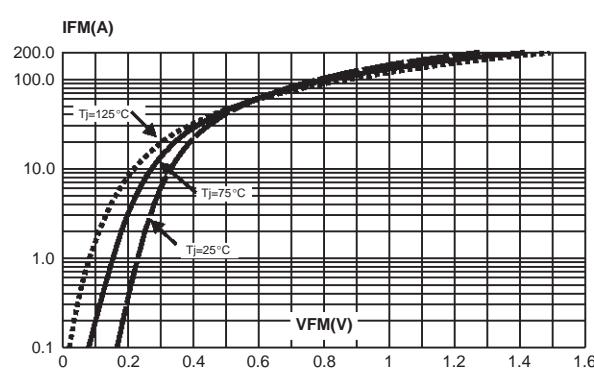


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

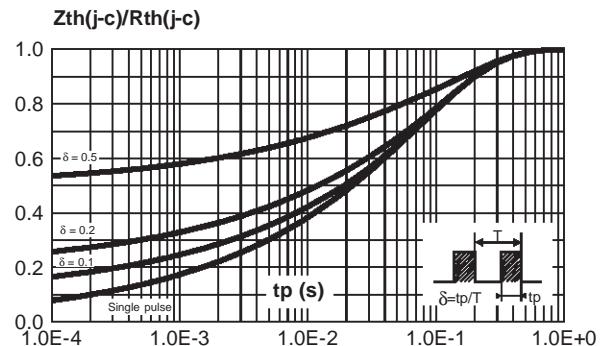


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

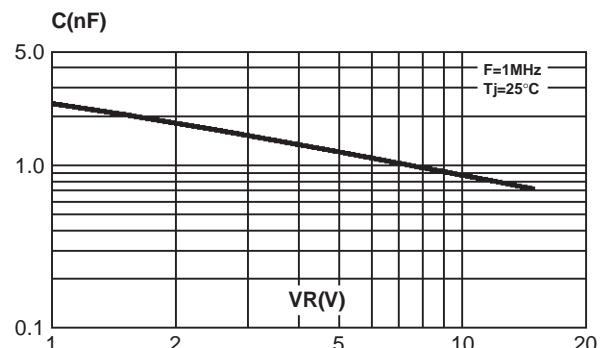
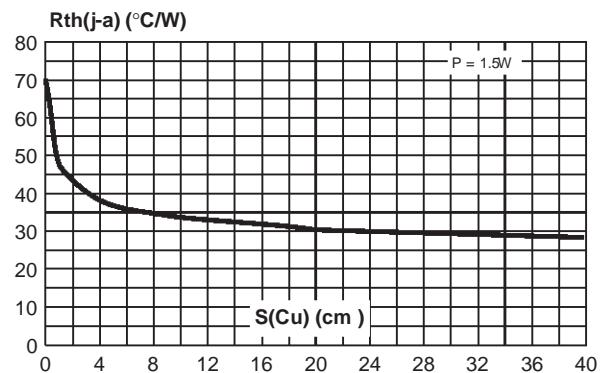


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness : 35 μm). (STPS20L15Gonly)

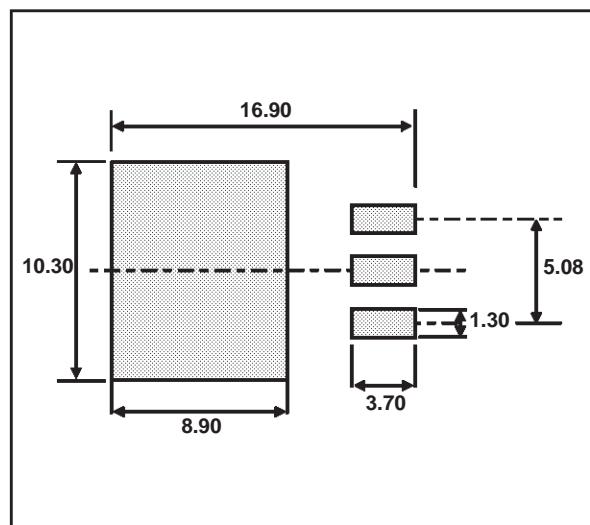


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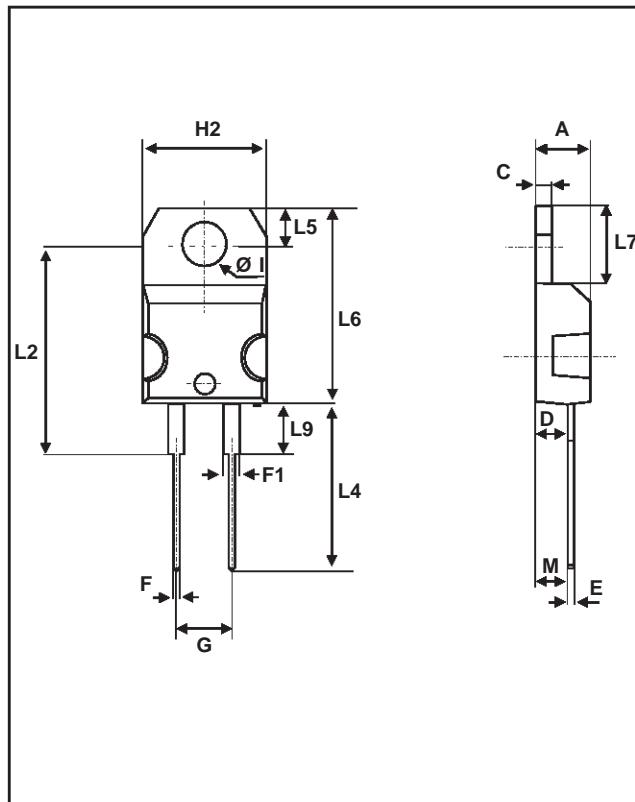
PACKAGE MECHANICAL DATA D²PAK

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.049	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.393		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

FOOT PRINT DIMENSIONS (in millimeters)



PACKAGE MECHANICAL DATA
TO-220AC



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
G	4.95	5.15	0.194	0.202
H2	10.00	10.40	0.393	0.409
L2	16.40 typ.		0.645 typ.	
L4	13.00	14.00	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. I	3.75	3.85	0.147	0.151

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