STPS20L15D/G

LOW DROP OR-ing POWER SCHOTTKY RECTIFIERS

MAIN PRODUCT CHARACTERISTICS

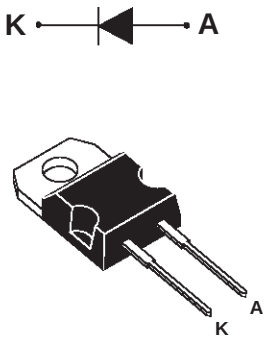
$I_{F(AV)}$	20 A
V_{RRM}	15 V
V_F (max)	0.33 V

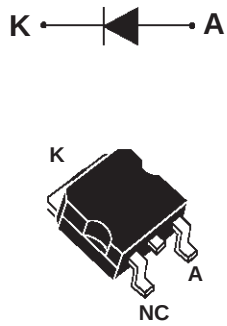
FEATURES AND BENEFITS

- 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 D^2PAK, this device is especially intended for use as an OR-ing diode in fault tolerant power supplies equipment.





TO-220AC
STPS20L15D

D^2PAK
STPS20L15G

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	Tc = 85°C δ = 0.5 V_R = 15V	20	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	310	A
I_{RRM}	Repetitive peak 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	Ta = 25°C I_{as} = 2A L = 6mH	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}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum junction temperature		125	
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

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	Tj = 25°C	V_R = 15V			6	mA
		Tj = 100°C	V_R = 15V		200	670	
V_F *	Forward voltage drop	Tj = 25°C	I_F = 19 A			0.41	V
		Tj = 25°C	I_F = 40 A			0.52	
		Tj = 125°C	I_F = 19 A		0.28	0.33	
		Tj = 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 :
$P = 0.19 \times I_{F(AV)} + 8.5.10^{-3} \times I_F{}^2{}_{(RMS)}$

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

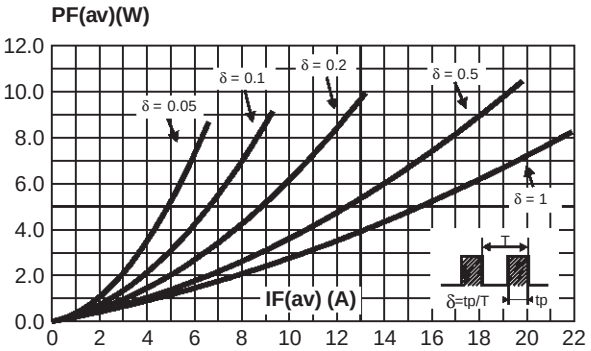


Fig. 2: Average forward current versus ambient temperature (δ = 0.5).

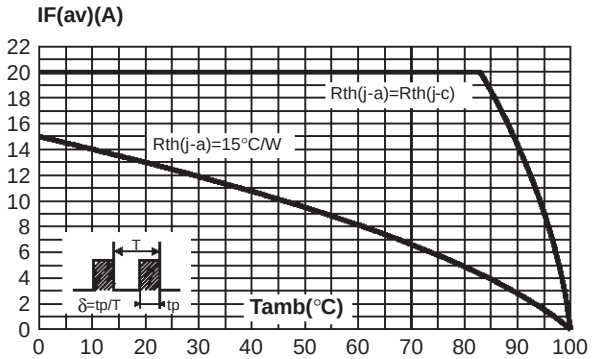


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

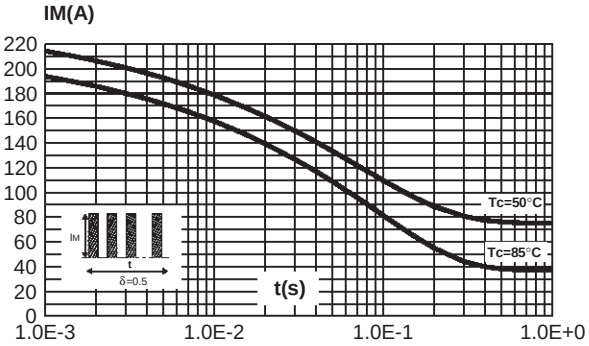


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

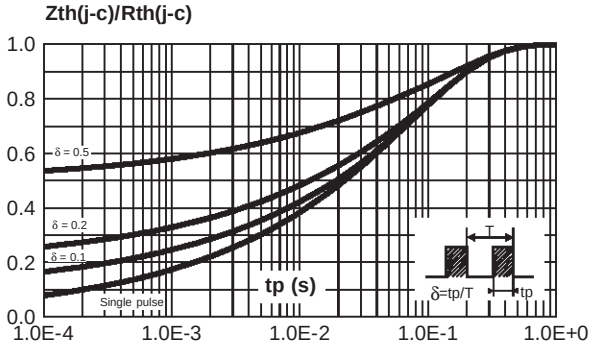


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

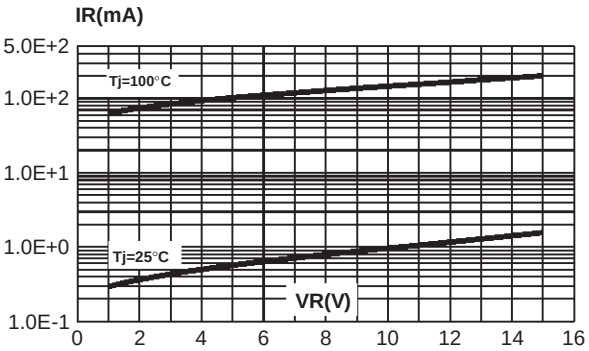


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

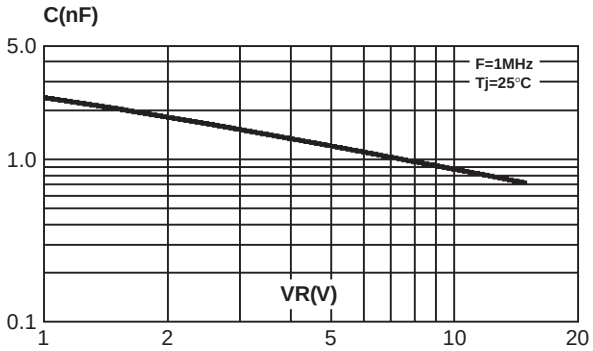


Fig. 7: Forward voltage drop versus forward current (maximum values).

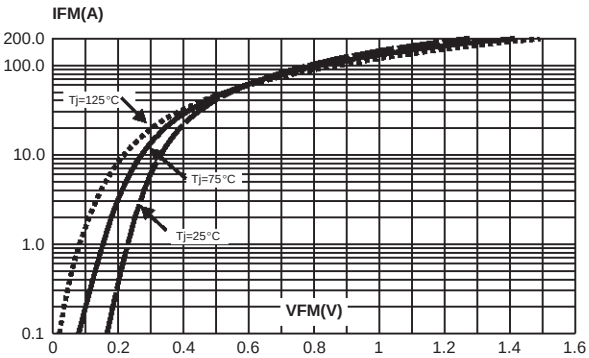
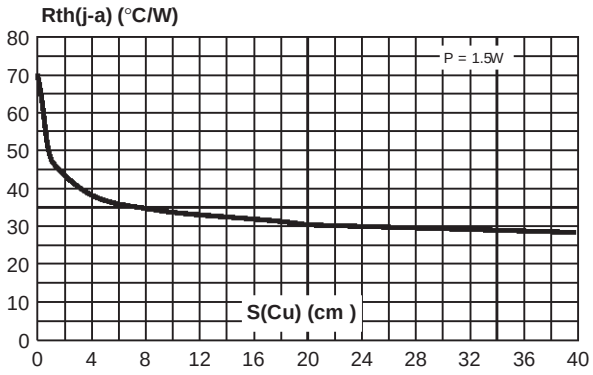
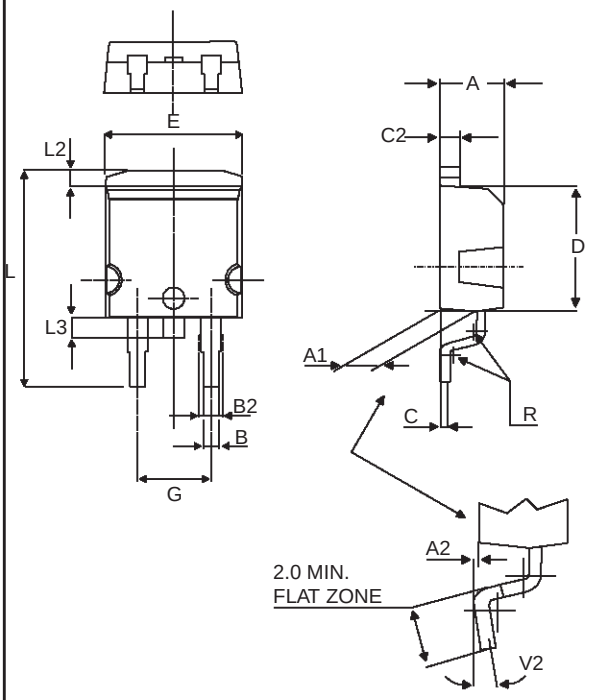


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness : 35 µm). (STPS20L15G only)



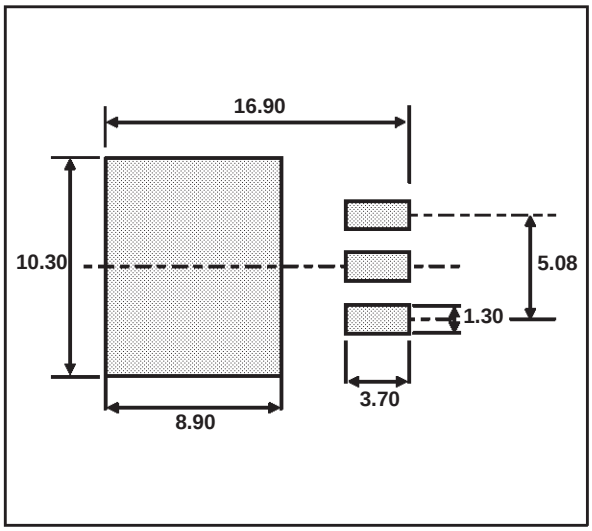
PACKAGE MECHANICAL DATA

D^2PAK



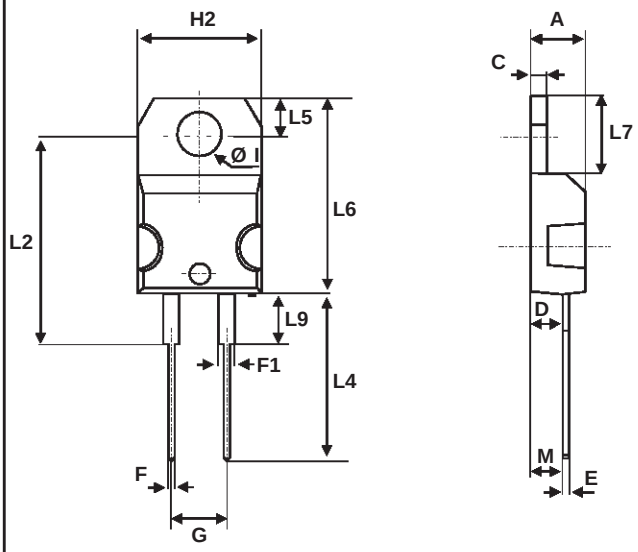
REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.049	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	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