



# STPS20L15D/G

## LOW DROP OR-ing POWER SCHOTTKY DIODE

### MAIN PRODUCT CHARACTERISTICS

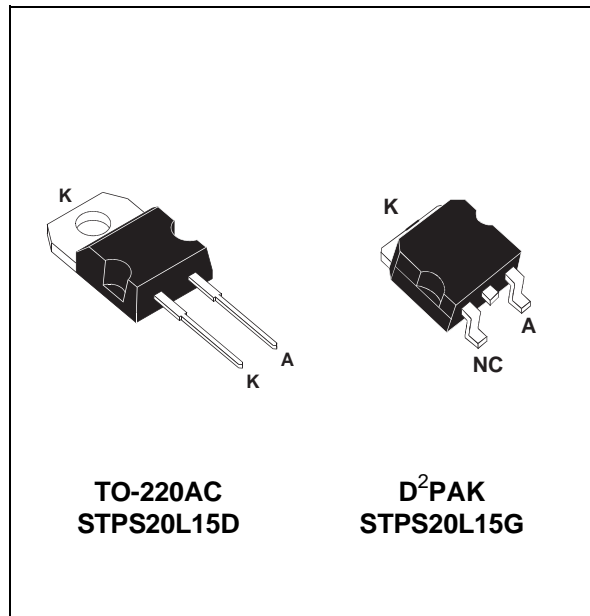
<b>I<sub>F(AV)</sub></b>	<b>20 A</b>
<b>V<sub>RRM</sub></b>	<b>15 V</b>
<b>T<sub>j(max)</sub></b>	<b>125°C</b>
<b>V<sub>F(max)</sub></b>	<b>0.33 V</b>

### 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

Packaged in TO-220AC or D<sup>2</sup>PAK, this device is especially intended for use as an OR-ing diode in fault tolerant power supply equipments.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage		15	V
I <sub>F(RMS)</sub>	RMS forward current		30	A
I <sub>F(AV)</sub>	Average forward current	T <sub>c</sub> = 115°C δ = 1	20	A
I <sub>FSM</sub>	Surge non repetitive forward current	t <sub>p</sub> = 10 ms Sinusoidal	310	A
I <sub>RRM</sub>	Repetitive peak reverse current	t <sub>p</sub> = 2 μs F = 1kHz	2	A
I <sub>RSM</sub>	Non repetitive peak reverse current	t <sub>p</sub> = 100 μs	3	A
T <sub>stg</sub>	Storage temperature range		- 65 to + 150	°C
T <sub>j</sub>	Maximum operating junction temperature *		125	°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	1.6	$^{\circ}\text{C}/\text{W}$

## STATIC ELECTRICAL CHARACTERISTICS

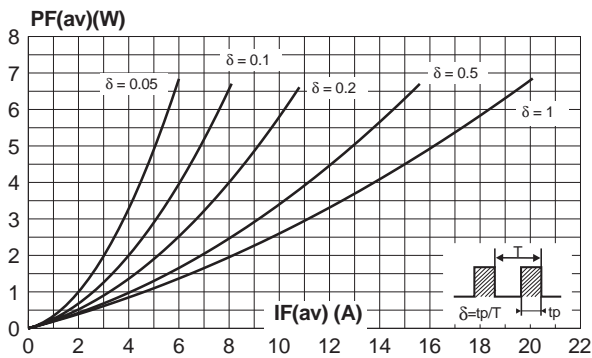
Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit	
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = 15\text{V}$			6	mA
		$T_j = 100^{\circ}\text{C}$	$V_R = 15\text{V}$		200	500	
$V_F^*$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 19\text{A}$			0.41	V
		$T_j = 25^{\circ}\text{C}$	$I_F = 40\text{A}$			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 : \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

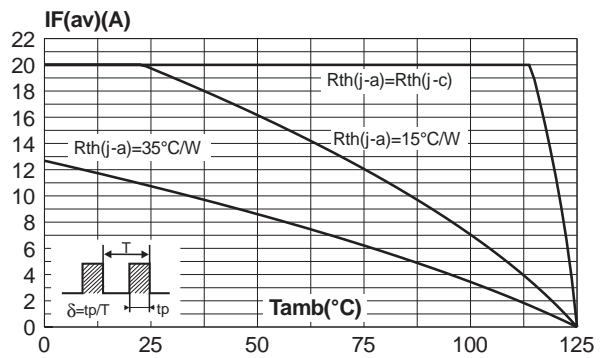
To evaluate the maximum conduction losses use the following equation :

$$P = 0.18 \times I_{F(AV)} + 8.10^{-3} \times I_{F(RMS)}^2$$

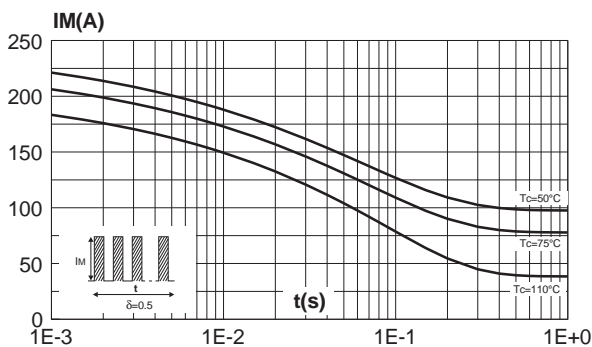
**Fig. 1:** Average forward power dissipation versus average forward current.



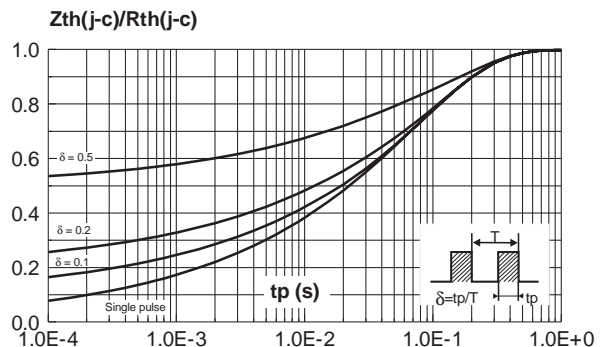
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 1$ ).



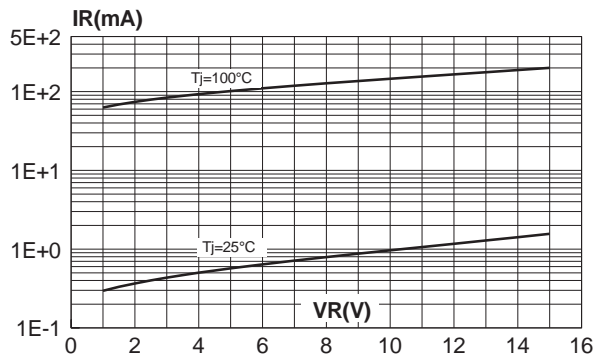
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).



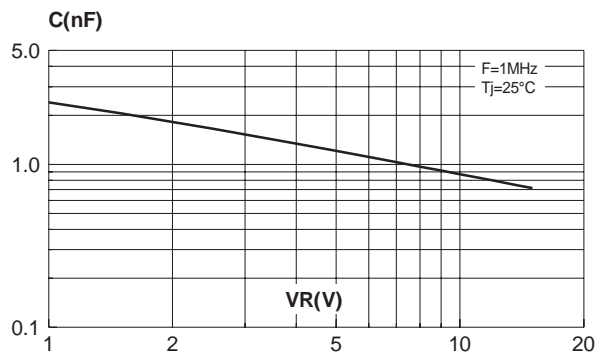
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse duration.



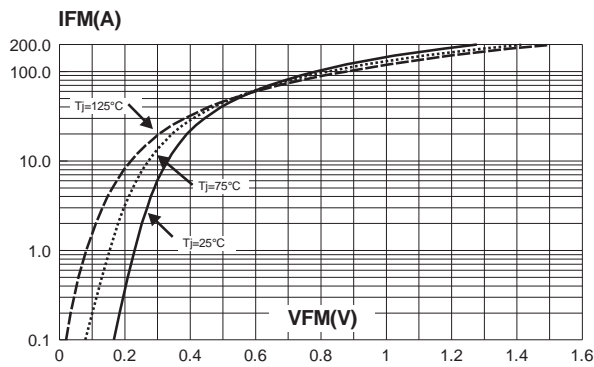
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values).



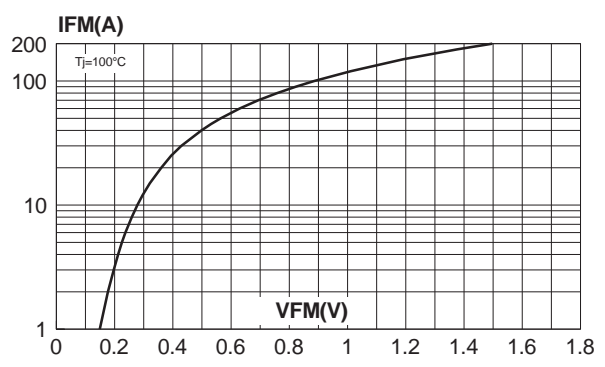
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).



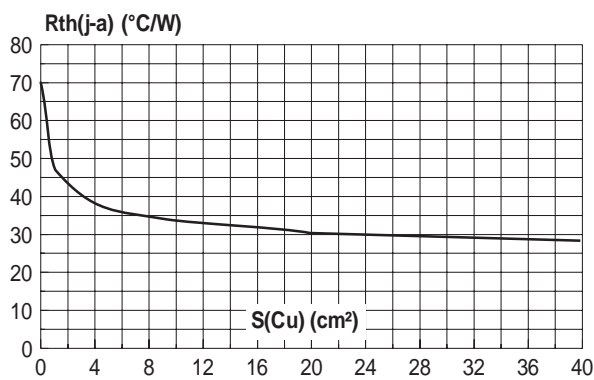
**Fig. 7:** Forward voltage drop versus forward current (typical values).



**Fig. 8:** Forward voltage drop versus forward current (maximum values).

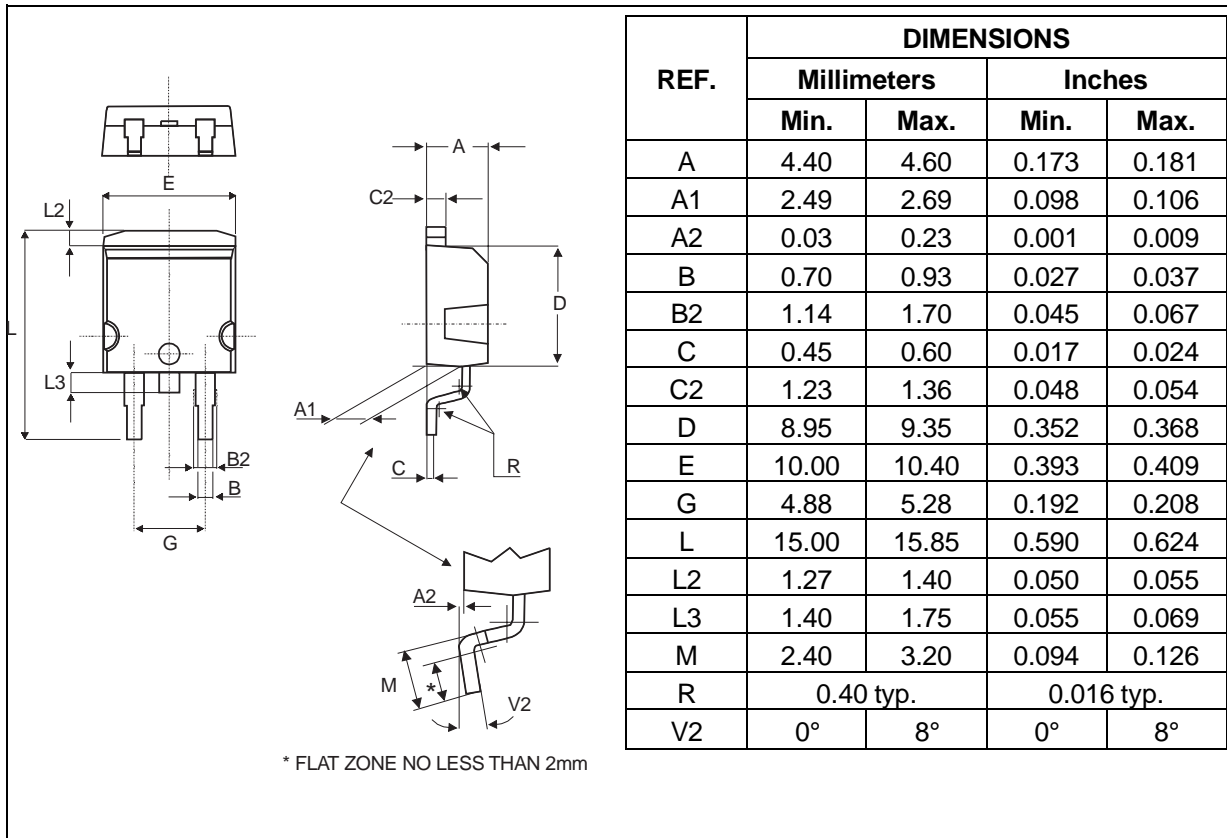


**Fig. 9:** Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness : 35  $\mu\text{m}$ ). (STPS20L15G only)

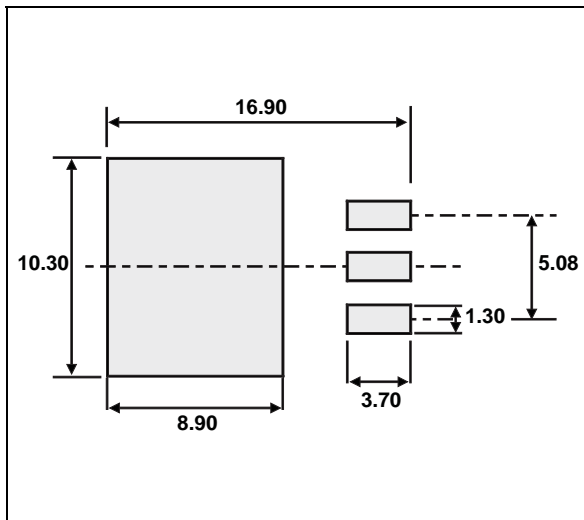


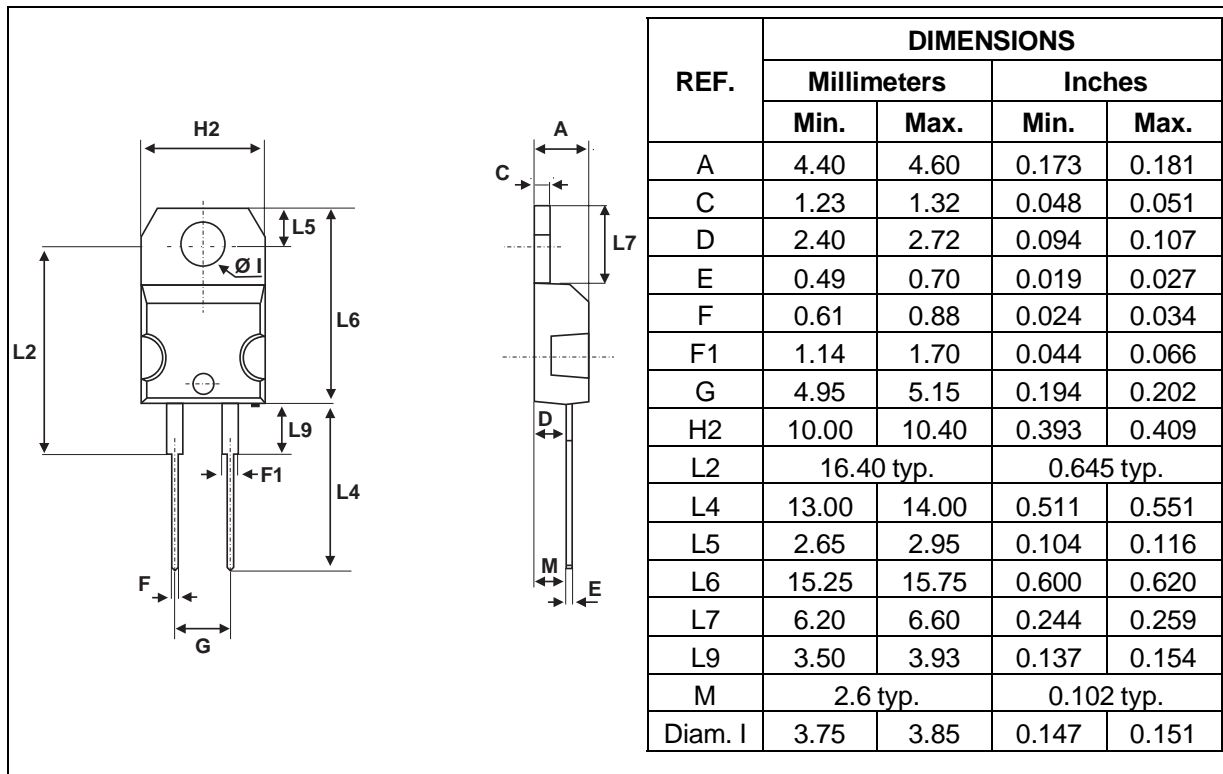
# STPS20L15D/G

## PACKAGE MECHANICAL DATA D<sup>2</sup>PAK



### FOOT PRINT DIMENSIONS (in millimeters)



**PACKAGE MECHANICAL DATA**  
 TO-220AC


Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS20L15D	STPS20L15D	TO-220AC	1.86 g.	50	Tube
STPS20L15G	STPS20L15G	D <sup>2</sup> PAK	1.48g.	50	Tube
STPS20L15G-TR	STPS20L15G	D <sup>2</sup> PAK	1.48 g.	1000	Tape and reel

- Cooling method: by conduction (C)
- Recommended torque value: 0.55 m.N
- Maximum torque value: 0.7 m.N
- Epoxy meets UL94,V0

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