



LOW DROP OR-ing POWER SCHOTTKY RECTIFIERS

MAIN PRODUCT CHARACTERISTICS

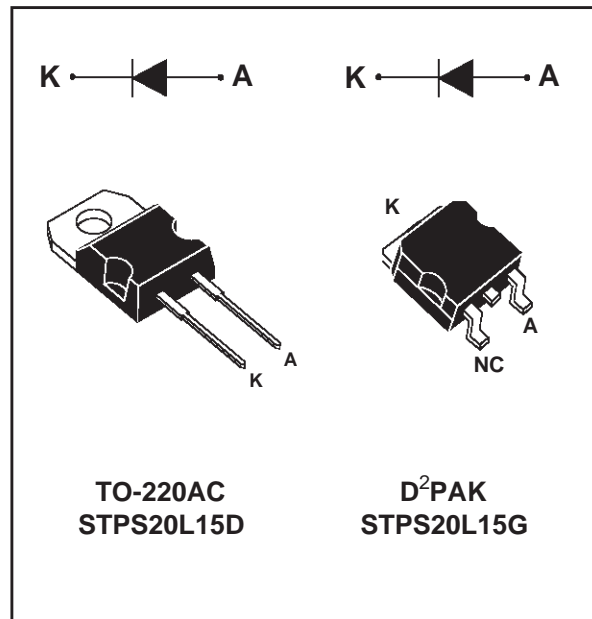
$I_{F(AV)}$	20 A
V_{RRM}	15 V
V_F (max)	0.33 V

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-ing 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	$T_C = 85^\circ\text{C}$ $\delta = 0.5$ $V_R = 15\text{V}$	20	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$ Sinusoidal	310	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\ \mu\text{s}$ $F = 1\text{ kHz}$	2	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100\ \mu\text{s}$	3	A
E_{as}	Non repetitive avalanche energy	$T_a = 25^\circ\text{C}$ $I_{as} = 2\text{ A}$ $L = 6\text{ mH}$	9	mJ
I_{ar}	Repetitive avalanche current	- $V_a = 3x\ V_R$ typ. - Current decaying linearly to 0 in $1\ \mu\text{s}$ - frequency limited by T_j max	2	A
T_{stg}	Storage temperature range		- 65 to + 150	$^\circ\text{C}$
T_j	Maximum junction temperature		125	
dV/dt	Critical rate of rise of reverse voltage		10000	$\text{V}/\mu\text{s}$

STPS20L15D/G

THERMAL RESISTANCES

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

STATIC ELECTRICAL CHARACTERISTICS (Per Diode)

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		670
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 :

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

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

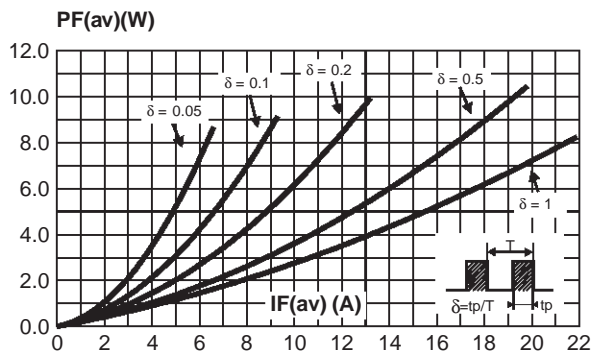


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

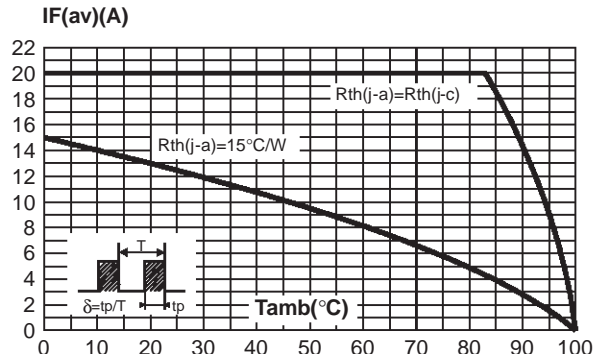


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

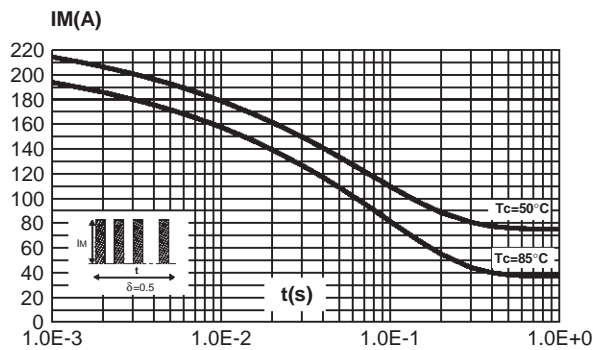


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

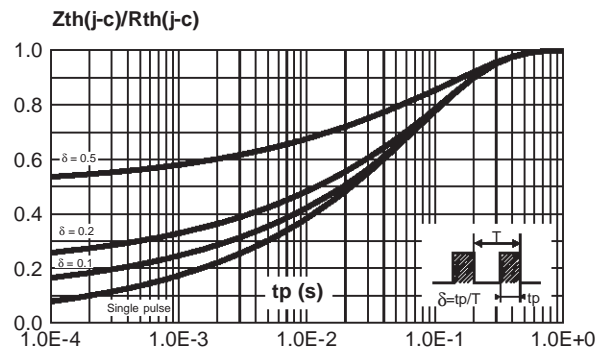


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

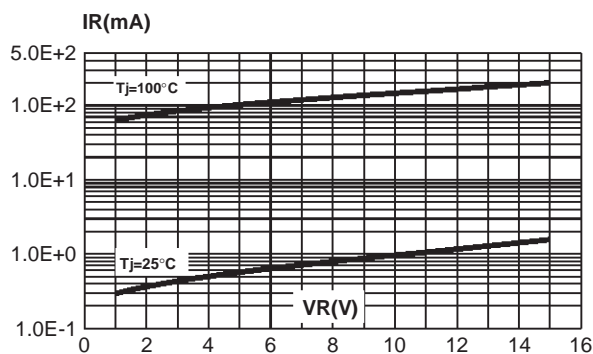


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

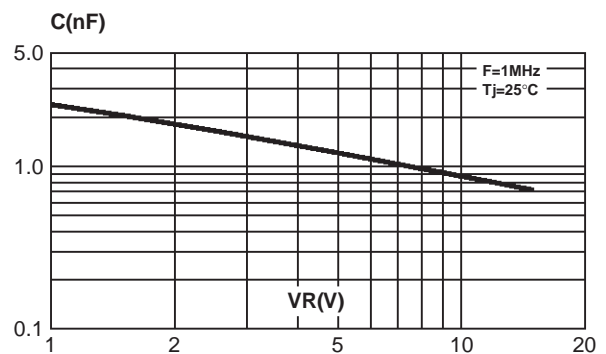


Fig. 7: Forward voltage drop versus forward current (maximum values).

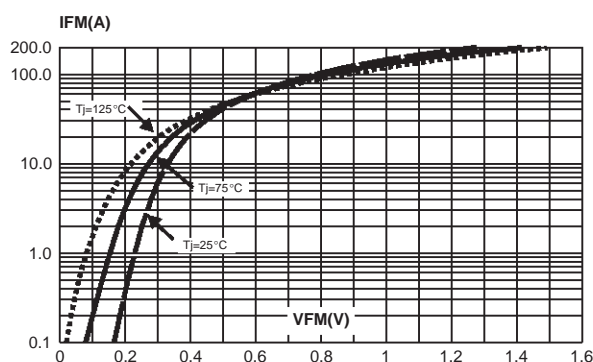
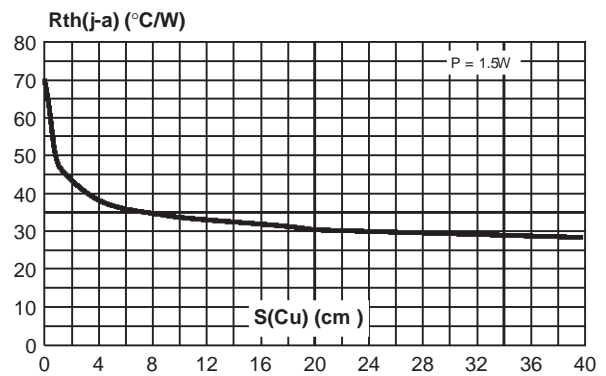
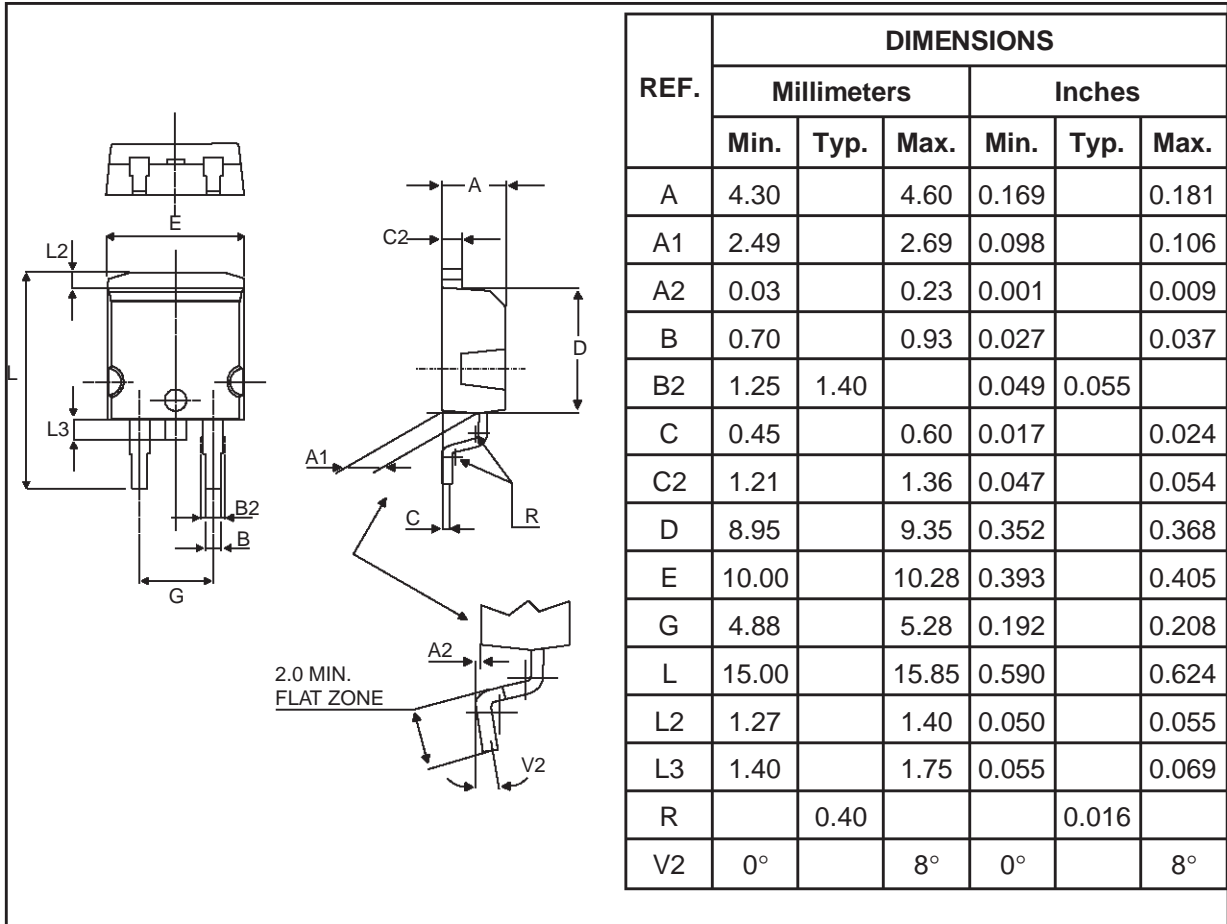


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness : 35 μm). (STPS20L15G only)

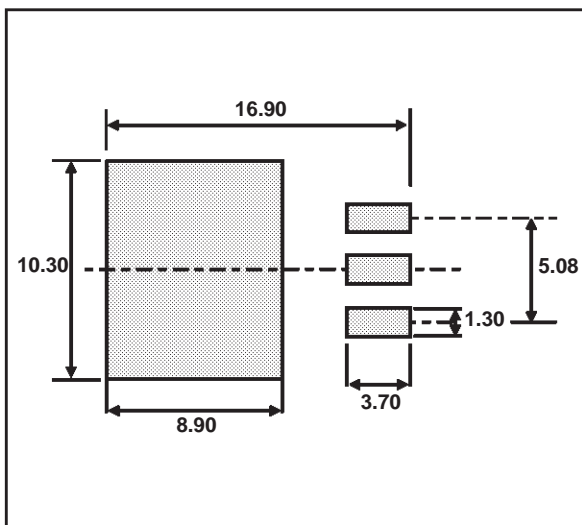


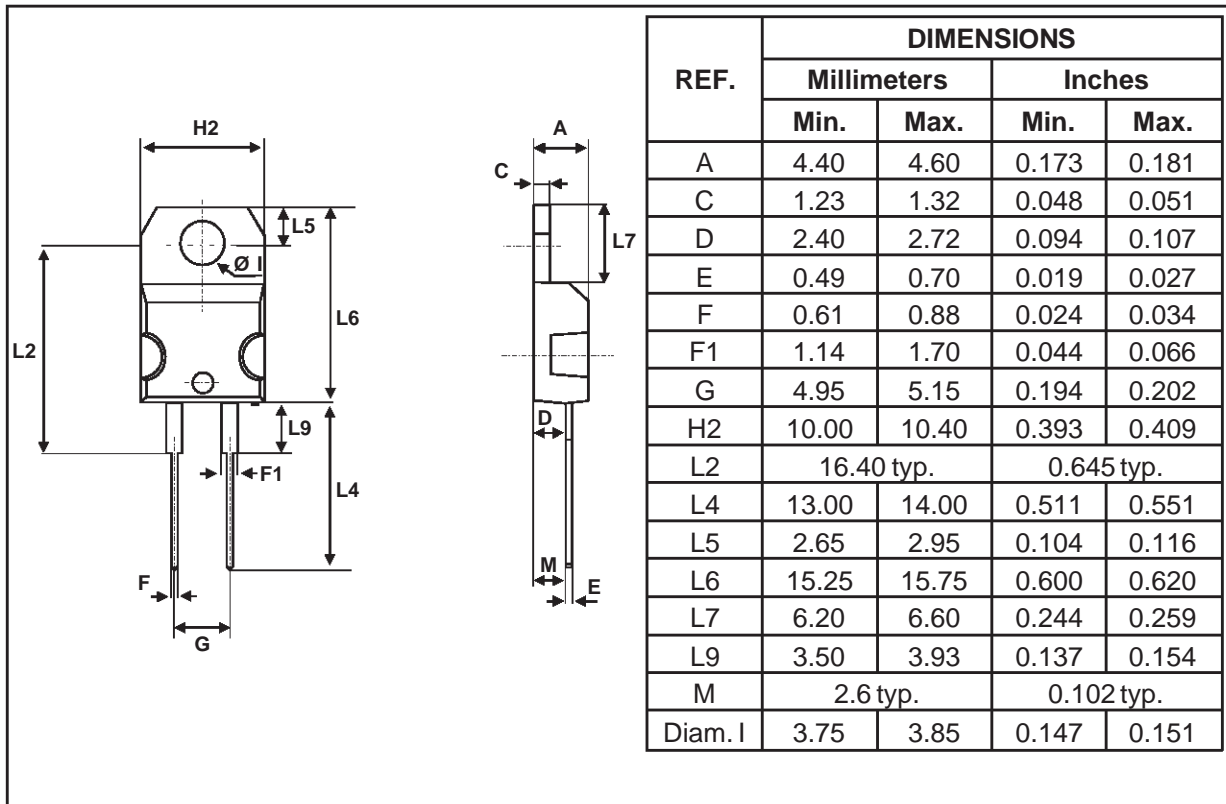
STPS20L15D/G

PACKAGE MECHANICAL DATA D²PAK



FOOT PRINT DIMENSIONS (in millimeters)



PACKAGE MECHANICAL DATA
 TO-220AC


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