



STPS20L15D/G

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAIN PRODUCT CHARACTERISTICS

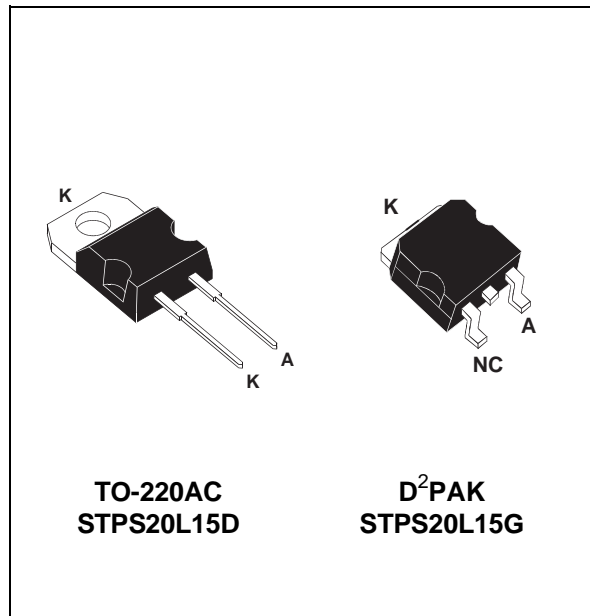
| | |
|---------------------------|---------------|
| I_{F(AV)} | 20 A |
| V_{RRM} | 15 V |
| T_{j(max)} | 125°C |
| V_{F(max)} | 0.33 V |

FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE DROP FOR LESS POWER DISSIPATION AND REDUCED HEATSINK SIZE
- REVERSE VOLTAGE SUITED TO OR-ing 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 supply equipments.



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 = 115°C δ = 1 | 20 | A |
| I _{FSM} | Surge non repetitive forward current | t _p = 10 ms Sinusoidal | 310 | A |
| I _{RRM} | Repetitive peak reverse current | t _p = 2 μs F = 1kHz | 2 | A |
| I _{RSM} | Non repetitive peak reverse current | t _p = 100 μs | 3 | A |
| T _{stg} | Storage temperature range | | - 65 to + 150 | °C |
| T _j | 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.

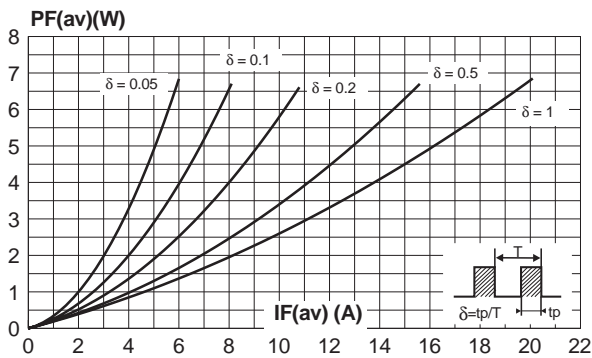


Fig. 2: Average forward current versus ambient temperature ($\delta = 1$).

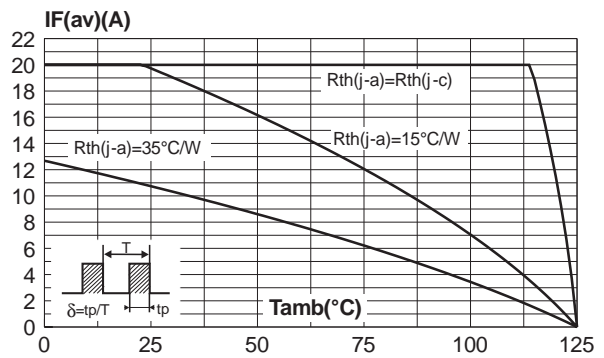


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

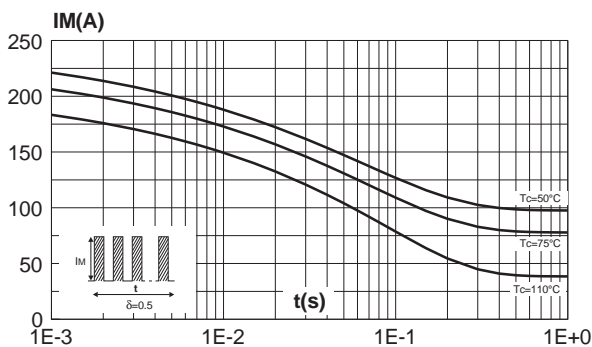


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

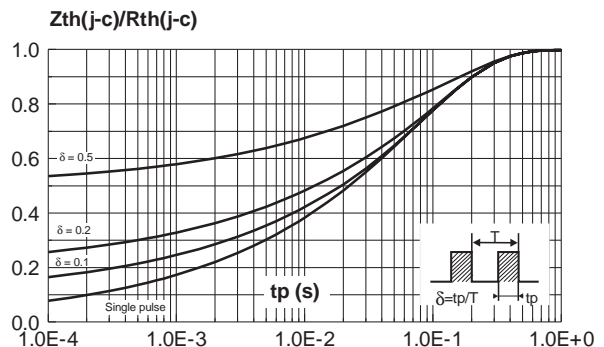


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

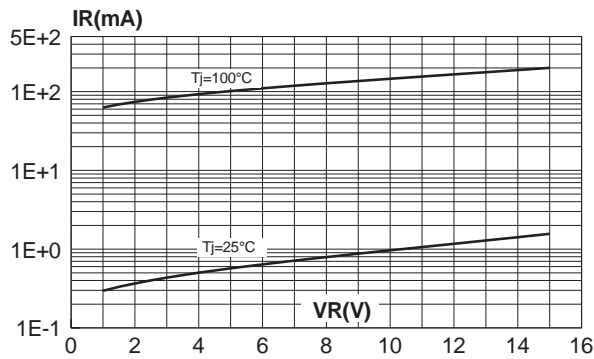


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

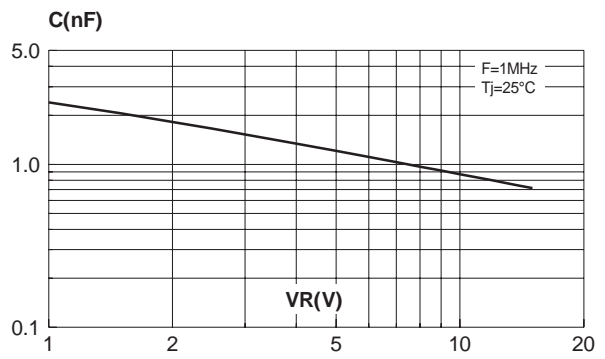


Fig. 7: Forward voltage drop versus forward current (typical values).

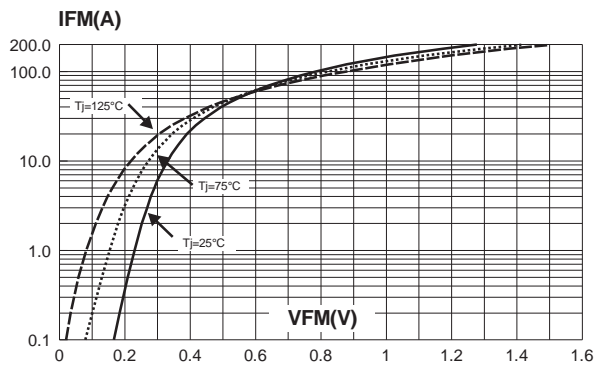


Fig. 8: Forward voltage drop versus forward current (maximum values).

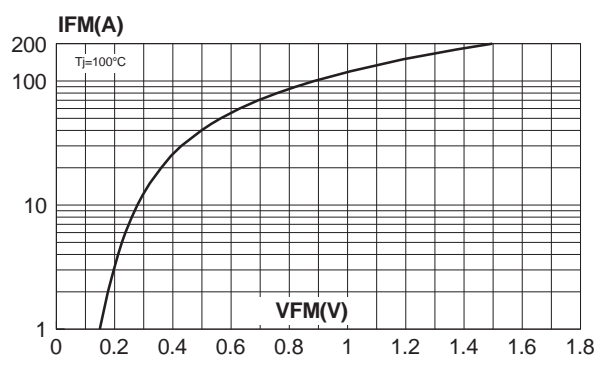
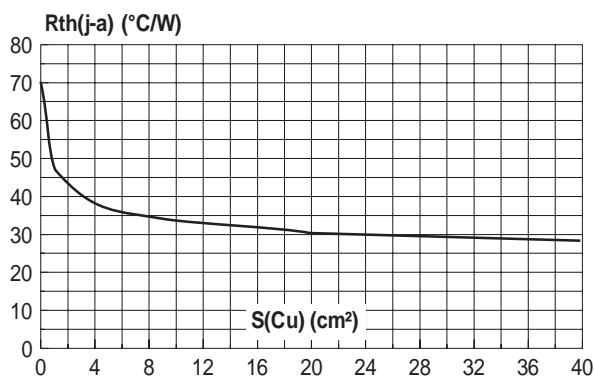
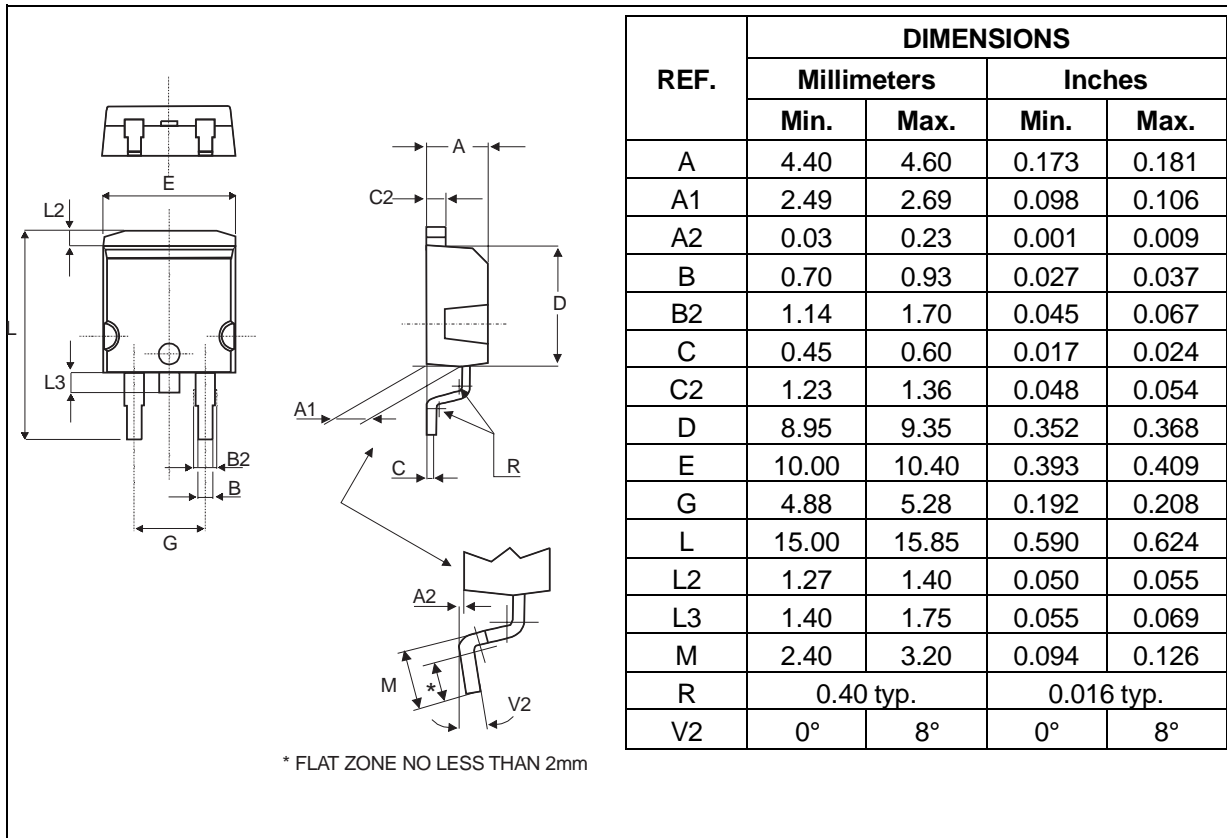


Fig. 9: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness : 35 μm). (STPS20L15G only)

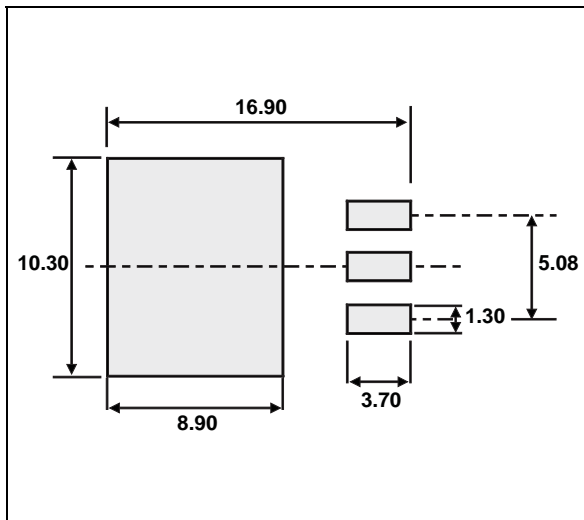


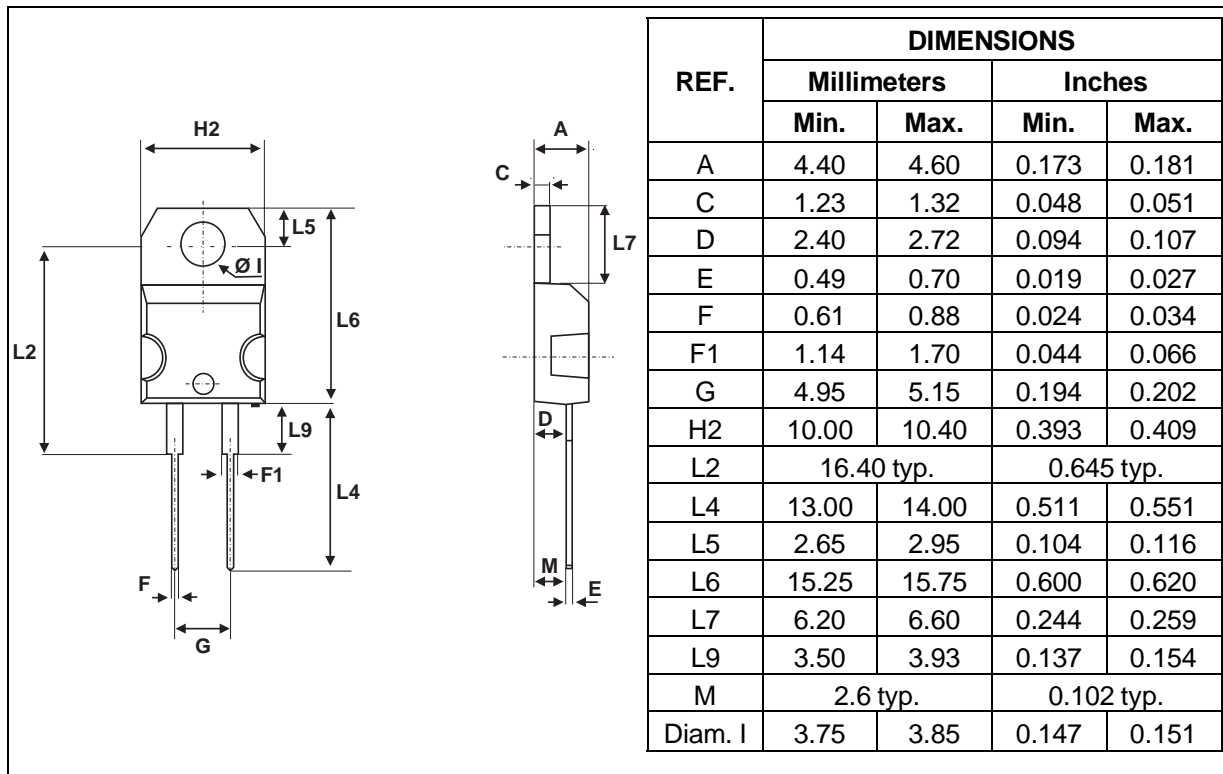
STPS20L15D/G

PACKAGE MECHANICAL DATA D²PAK



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 ² PAK | 1.48g. | 50 | Tube |
| STPS20L15G-TR | STPS20L15G | D ² 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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