



STPS3L60S

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

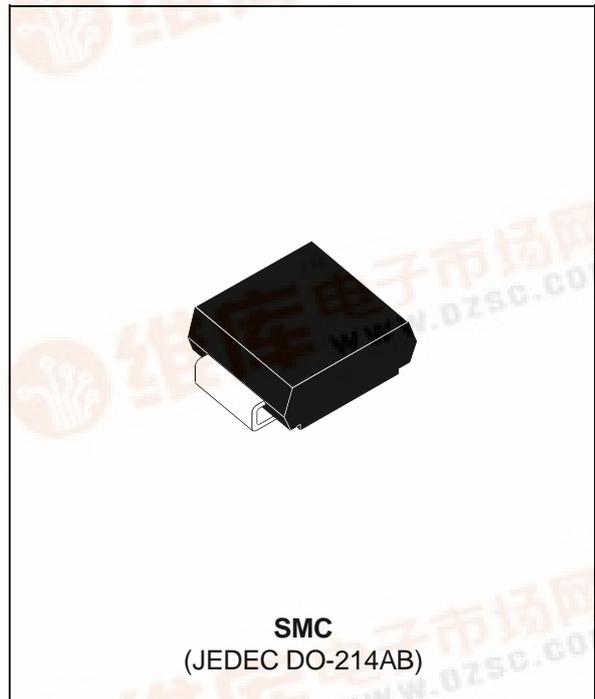
| | |
|----------------------------|---------------|
| I_{F(AV)} | 3 A |
| V_{RRM} | 60 V |
| T_{j (max)} | 150°C |
| V_{F (max)} | 0.65 V |

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE

DESCRIPTION

Schottky rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in SMC, this device is intended for use in DC/DC chargers.



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|---------------------|--|--|------|
| V _{RRM} | Repetitive peak reverse voltage | 60 | V |
| I _{F(RMS)} | RMS forward current | 10 | A |
| I _{F(AV)} | Average forward current | T _c = 100°C δ = 0.5 3 | A |
| I _{FSM} | Surge non repetitive forward current | t _p = 10 ms Sinusoidal 75 | A |
| I _{RRM} | Repetitive peak reverse current | t _p = 2 μs square F = 1kHz 1 | A |
| T _{stg} | Storage temperature range | - 65 to + 175 | °C |
| T _j | Maximum operating junction temperature * | 150 | °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



STPS3L60S

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|-------------------|-------|-----------------------------|
| $R_{th(j-l)}$ | Junction to leads | 20 | $^{\circ}\text{C}/\text{W}$ |

STATIC ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Tests conditions | Min. | Typ. | Max. | Unit |
|---------|-------------------------|-----------------------------|--------------------|------|------|---------------|
| I_R^* | Reverse leakage current | $T_j = 25^{\circ}\text{C}$ | $V_R = V_{RRM}$ | | 55 | μA |
| | | $T_j = 125^{\circ}\text{C}$ | | 10 | 15 | mA |
| V_F^* | Forward voltage drop | $T_j = 25^{\circ}\text{C}$ | $I_F = 3\text{ A}$ | | 0.7 | V |
| | | $T_j = 125^{\circ}\text{C}$ | $I_F = 3\text{ A}$ | 0.56 | 0.65 | |
| | | $T_j = 25^{\circ}\text{C}$ | $I_F = 6\text{ A}$ | | 0.94 | |
| | | $T_j = 125^{\circ}\text{C}$ | $I_F = 6\text{ A}$ | 0.67 | 0.76 | |

Pulse test : * $t_p = 380\ \mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation :

$$P = 0.54 \times I_{F(AV)} + 0.037 I_{F(RMS)}^2$$

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

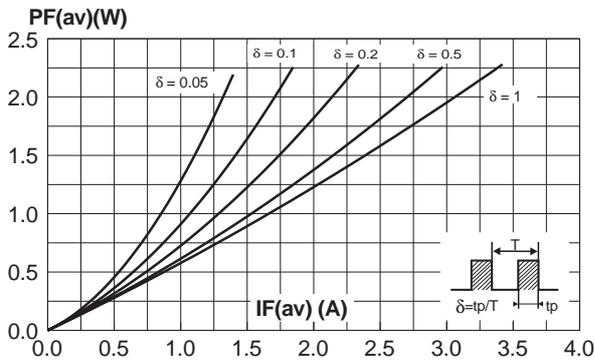


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

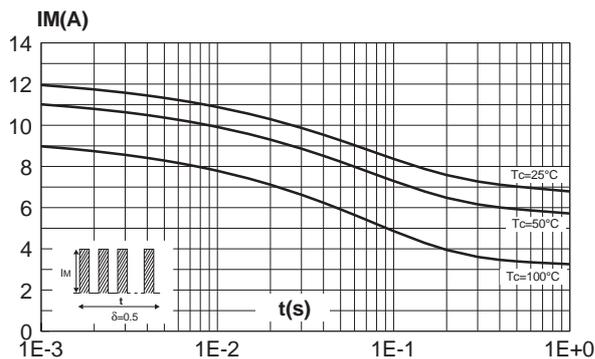


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

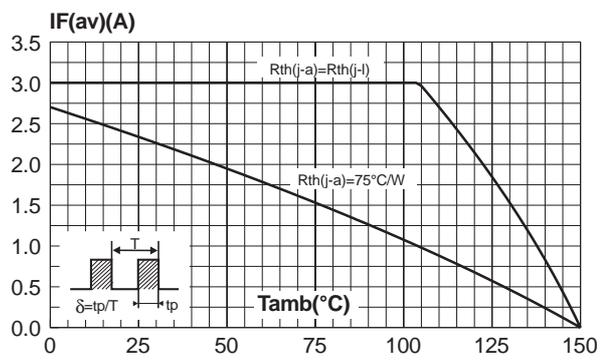


Fig. 4: Relative variation of thermal impedance junction to lead versus pulse duration.

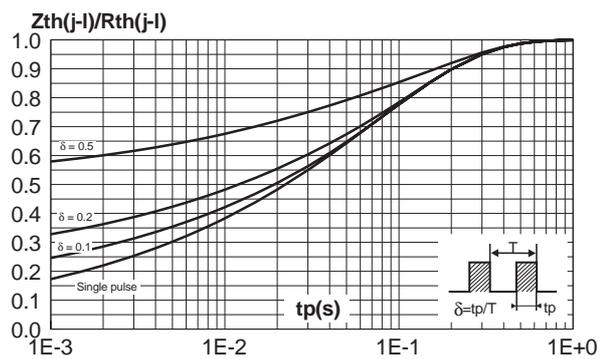


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

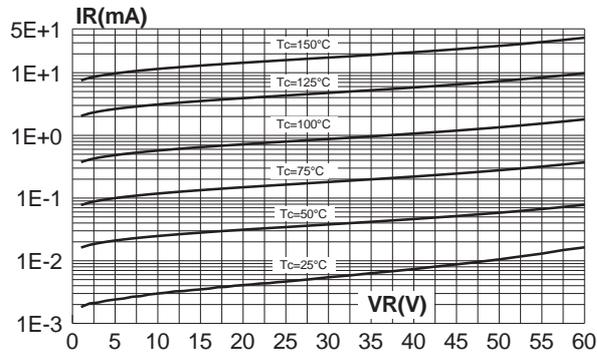


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

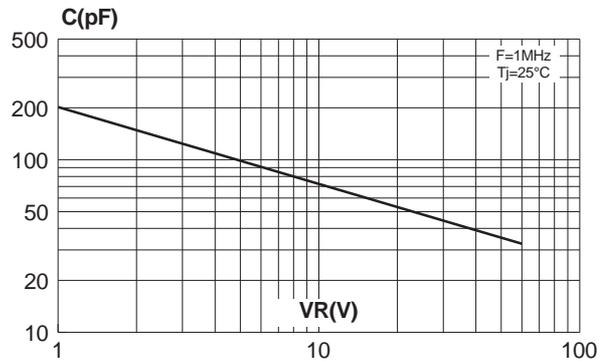


Fig. 7-1: Forward voltage drop versus forward current (low level, maximum values).

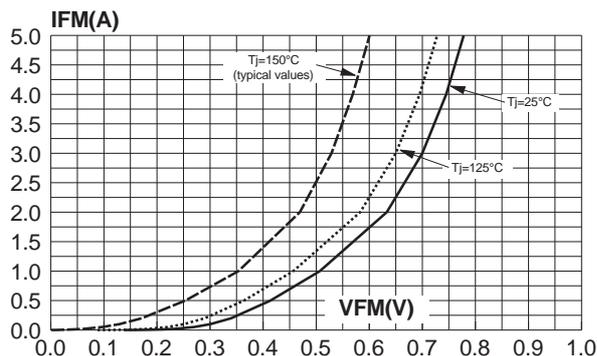


Fig. 7-2: Forward voltage drop versus forward current (high level, maximum values).

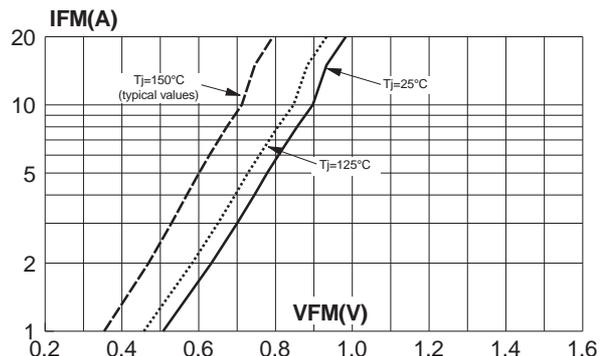
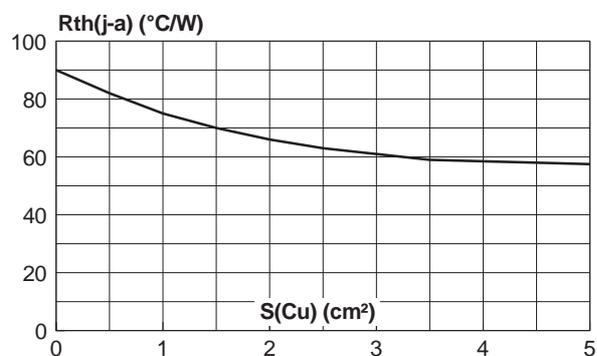
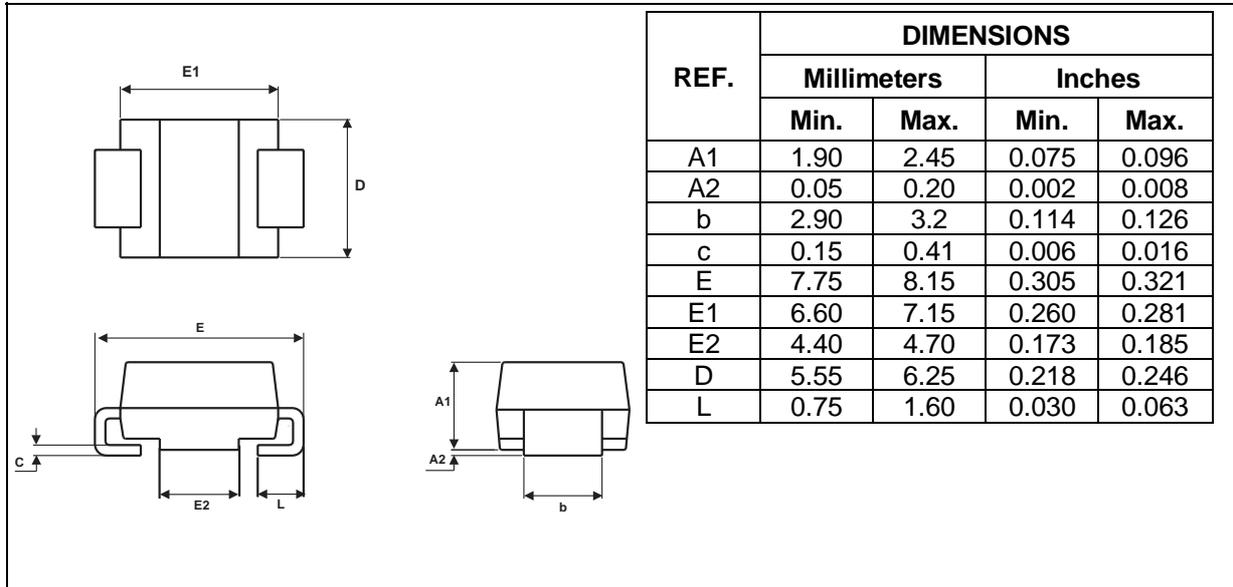


Fig. 8: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35mm)

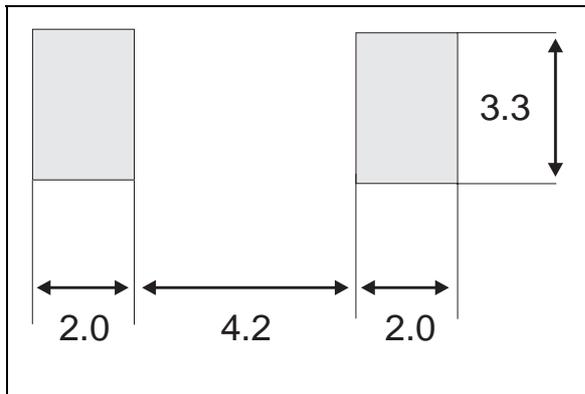


STPS3L60S

PACKAGE MECHANICAL DATA SMC



FOOT PRINT (in millimeters)



| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|---------|---------|--------|----------|---------------|
| STPS3L60S | S36 | SMC | 0.24g | 2500 | Tape and reel |

- Epoxy meets UL94,V0

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