



STPS3045G

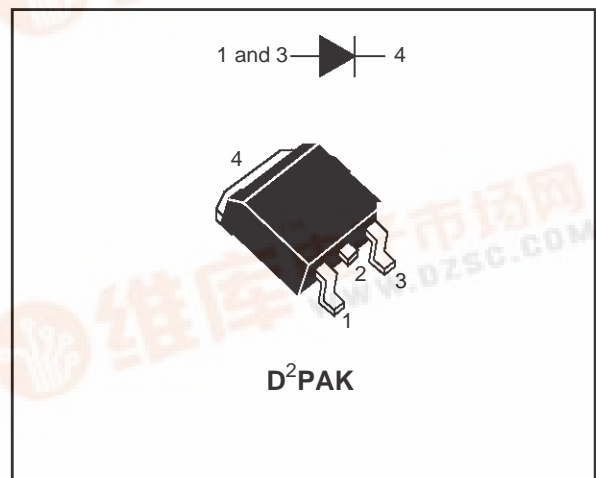
POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

| | |
|-------------|--------|
| $I_{F(AV)}$ | 30 A |
| V_{RRM} | 45 V |
| V_F | 0.63 V |

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH DISSIPATION MINIATURE PACKAGE
- SMD PACKAGE



DESCRIPTION

Dual schottky rectifier suited for switchmode power supply and high frequency DC to DC converters.

Packaged in a surface mount package D²PAK, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|--------------|---|--|------------------|
| V_{RRM} | Repetitive peak reverse voltage | 45 | V |
| $I_{F(RMS)}$ | RMS forward current (all pins connected) | 52 | A |
| $I_{F(AV)}$ | Average forward current | $T_c = 125^\circ\text{C}$ $\delta = 0.5$ | 30 A |
| I_{FSM} | Surge non repetitive forward current (all pins connected) | $t_p = 10 \text{ ms}$ Sinusoidal | 200 A |
| I_{RRM} | Repetitive peak reverse current | $t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$ | 1 A |
| T_{stg} | Storage temperature range | - 65 to + 150 | $^\circ\text{C}$ |
| T_j | Maximum junction temperature | 150 | $^\circ\text{C}$ |
| dV/dt | Critical rate of rise of reverse voltage | 10000 | V/ μs |

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THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|------------------|-------|---------------|
| $R_{th(j-c)}$ | Junction to case | 1 | $^{\circ}C/W$ |

STATIC ELECTRICAL CHARACTERISTICS

| Symbol | Parameter | Tests Conditions | | Min. | Typ. | Max. | Unit |
|------------|-------------------------|----------------------|-----------------|------|------|------|---------|
| I_R^* | Reverse leakage current | $T_j = 25^{\circ}C$ | $V_R = V_{RRM}$ | | | 500 | μA |
| | | $T_j = 125^{\circ}C$ | | | 20 | 80 | mA |
| V_F^{**} | Forward voltage drop | $T_j = 125^{\circ}C$ | $I_F = 60 A$ | | 0.68 | 0.78 | V |
| | | $T_j = 125^{\circ}C$ | $I_F = 30 A$ | | 0.53 | 0.63 | |
| | | $T_j = 25^{\circ}C$ | $I_F = 60 A$ | | | 0.84 | |

Pulse test : * $t_p = 5 ms, \delta < 2\%$
 ** $t_p = 380 \mu s, \delta < 2\%$

To evaluate the conduction losses use the following equation :
 $P = 0.48 \times I_{F(AV)} + 0.005 I_{F(RMS)}^2$

PIN OUT configuration in D²PAK:

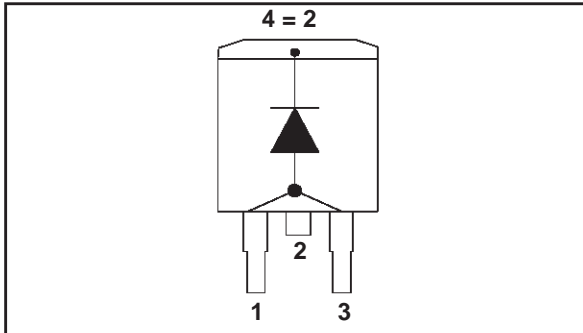


Fig. 1: Average forward power dissipation versus average forward current.

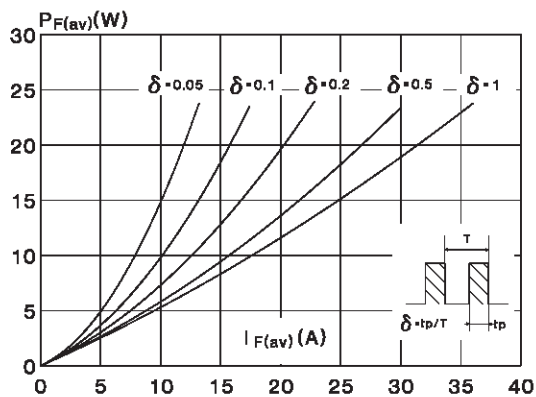


Fig. 2: Average current versus ambient temperature ($\delta=0.5$).

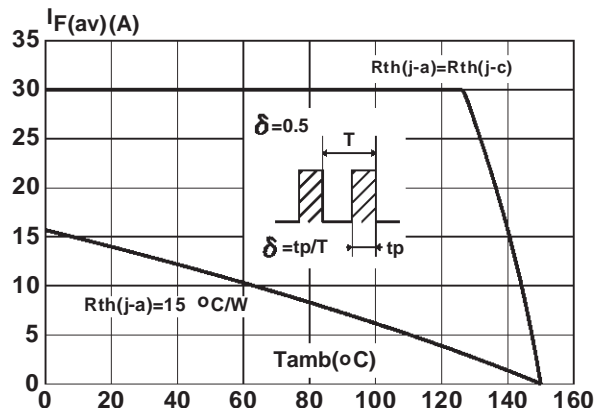


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

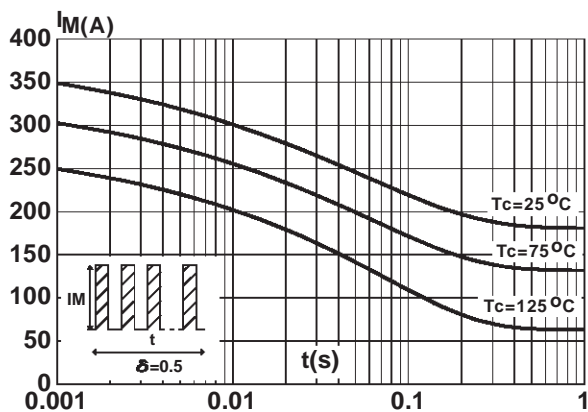


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

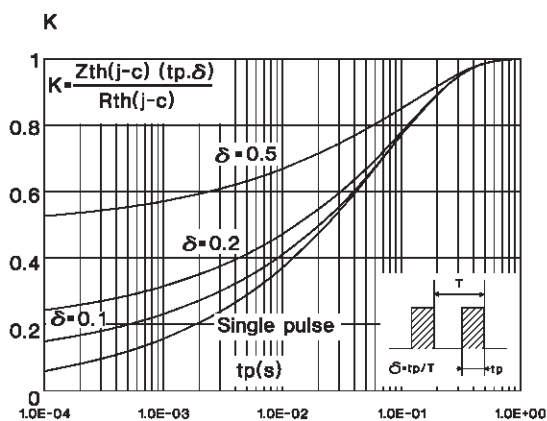


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values)

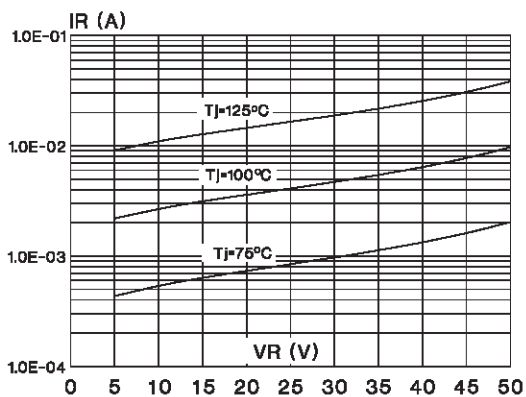


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

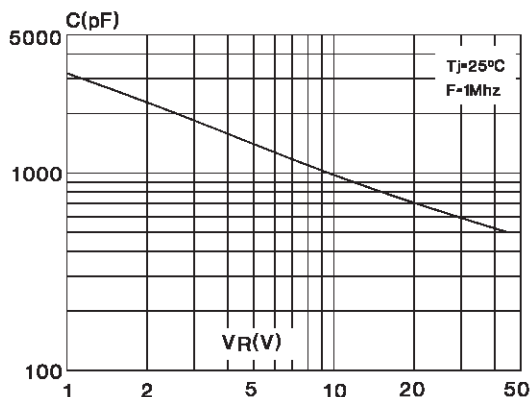
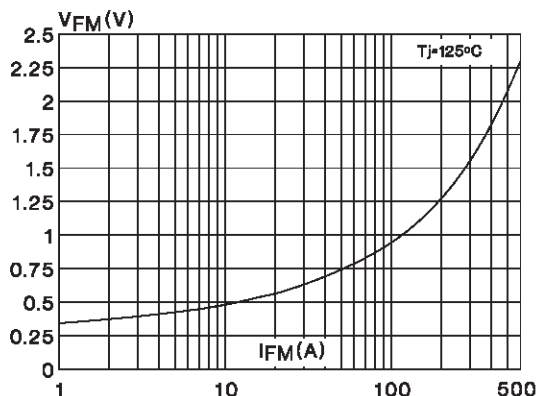
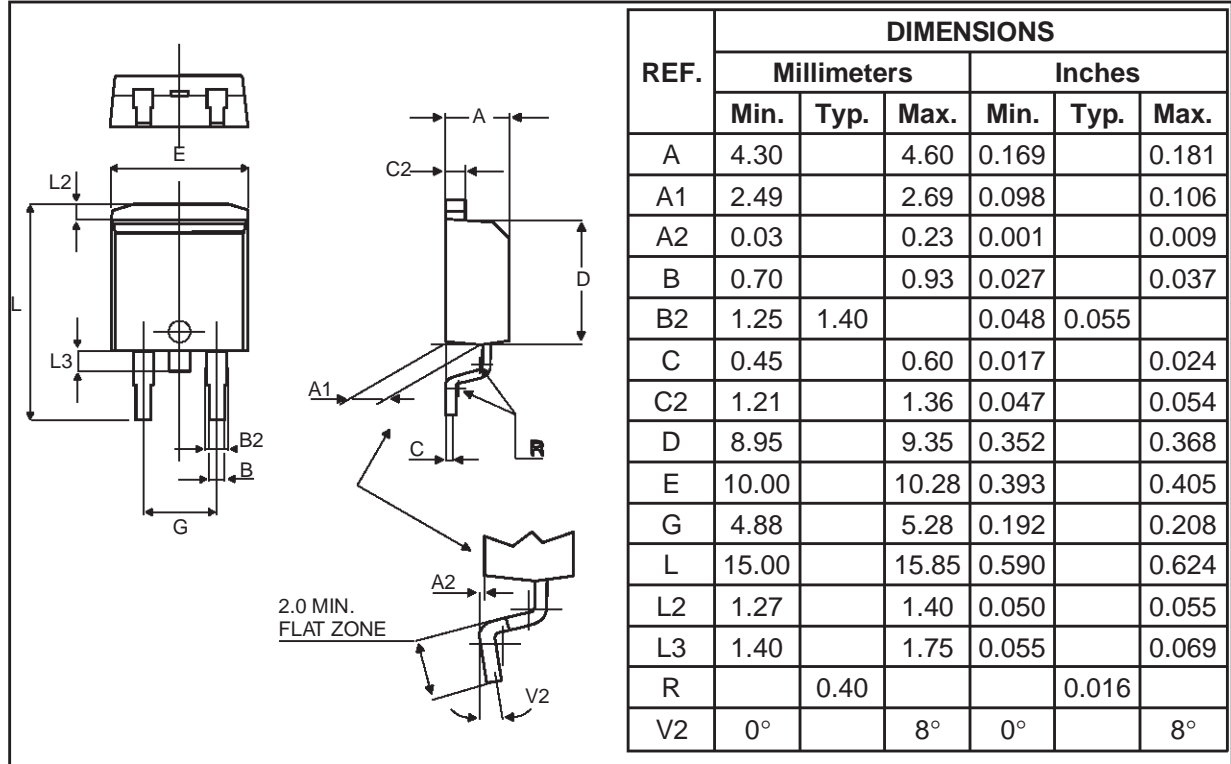


Fig. 7: Forward voltage drop versus forward current (maximum values).

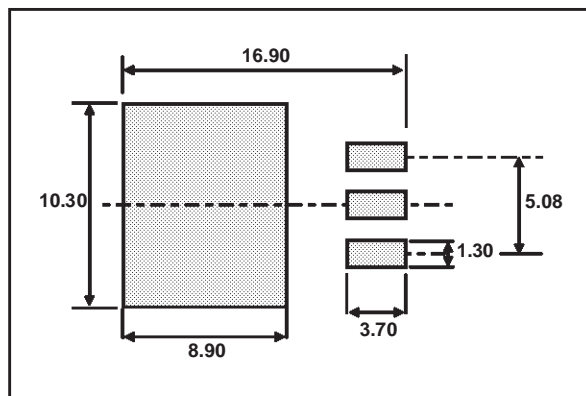


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PACKAGE MECHANICAL DATA D²PAK



FOOTPRINT DIMENSIONS (in millimeters)



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