

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

| | |
|---------------------------|-----------------|
| I_{F(AV)} | 2 x 15 A |
| V_{RRM} | 60 V |
| T_{j(max)} | 150°C |
| V_{F(max)} | 0.75 V |

FEATURES AND BENEFITS

- Negligible switching losses
- Low forward voltage drop
- Low capacitance
- High reverse avalanche surge capability.

DESCRIPTION

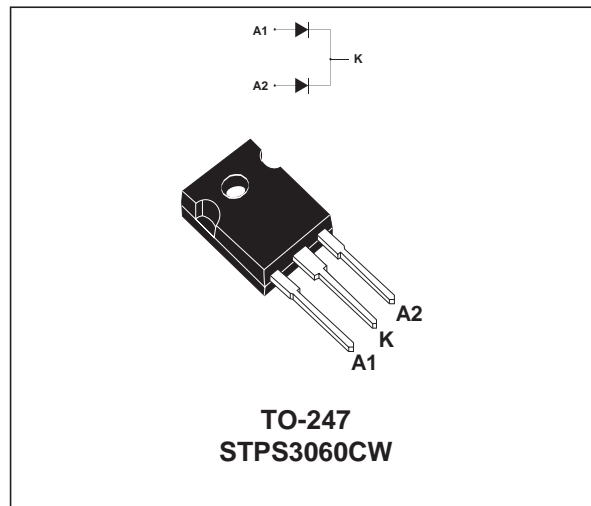
High voltage dual Schottky rectifier suited for switchmode power supplies and other power converters.

Packaged in TO-247, this device is intended for use in medium voltage operation, and particularly, in high frequency circuitries where low switching losses and low noise are required.

ABSOLUTE RATINGS (limiting values, per diode)

| Symbol | Parameter | | Value | Unit |
|---------------------|--|-----------------------------------|-------------------------------------|------|
| V _{RRM} | Repetitive peak reverse voltage | | 60 | V |
| I _{F(RMS)} | RMS forward current | | Per diode 30 | A |
| I _{F(AV)} | Average forward current δ = 0.5 | T _c = 130°C | Per diode 15 Per device 30 | A |
| I _{FSM} | Surge non repetitive forward current | | Per diode 200 | A |
| I _{RRM} | Repetitive peak reverse current | t _p = 2 μs F = 1kHz | Per diode 1 | A |
| I _{RSM} | Non repetitive peak reverse current | | Per diode 1 | A |
| T _{stg} | Storage temperature range | | - 65 to + 150 | °C |
| T _j | Maximum operating junction temperature * | | 150 | °C |
| dV/dt | Critical rate of rise of reverse voltage | | 1000 | V/μs |

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink



THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|----------------------|------------------|--|-----------|------|
| R _{th(j-c)} | Junction to case | | Per diode | 1.5 |
| | | | Total | 0.8 |
| R _{th(c)} | Coupling | | 0.1 | °C/W |

When the diodes 1 and 2 are used simultaneously :
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

| Symbol | Parameter | Tests Conditions | | Min. | Typ. | Max. | Unit |
|------------------|-------------------------|------------------------|-----------------------------------|------|------|------|------|
| I _R * | Reverse leakage current | T _j = 25°C | V _R = V _{RRM} | | | 150 | μA |
| | | T _j = 125°C | | | | 100 | mA |
| V _F * | Forward voltage drop | T _j = 25°C | I _F = 15 A | | | 0.85 | V |
| | | T _j = 125°C | I _F = 15 A | | 0.65 | 0.75 | |
| | | T _j = 25°C | I _F = 30 A | | | 1.05 | |
| | | T _j = 125°C | I _F = 30 A | | 0.80 | 0.90 | |

Pulse test: * tp = 5ms, δ < 2%
 **tp = 380μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :

$$P = 0.6 \times I_{F(AV)} + 0.01 I_{F(RMS)}^2$$

Fig. 1: Conduction losses versus average current (per diode).

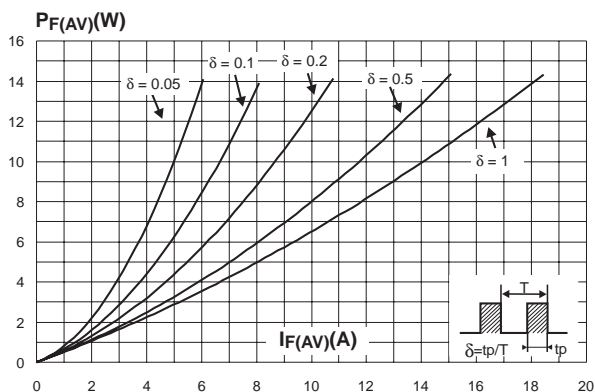


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).

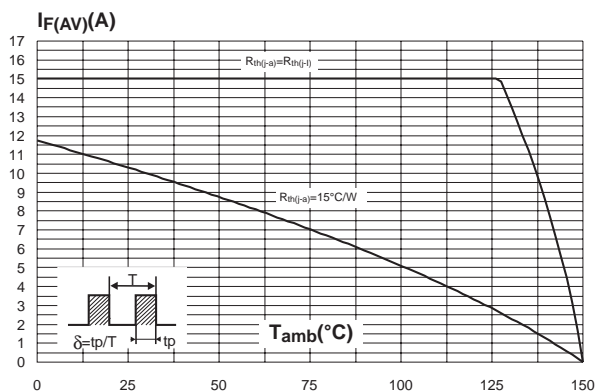


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

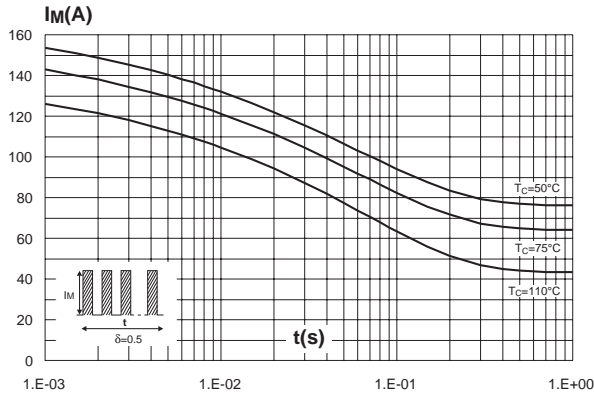


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

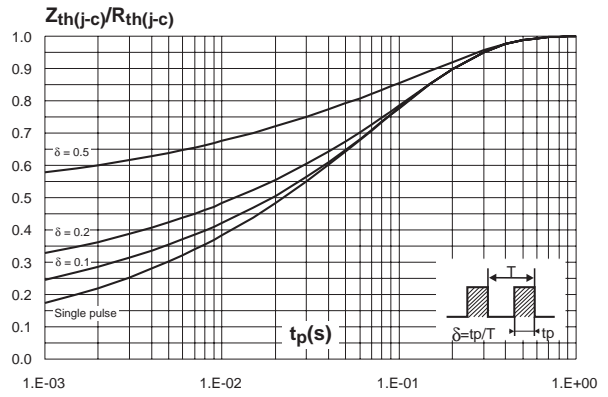


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

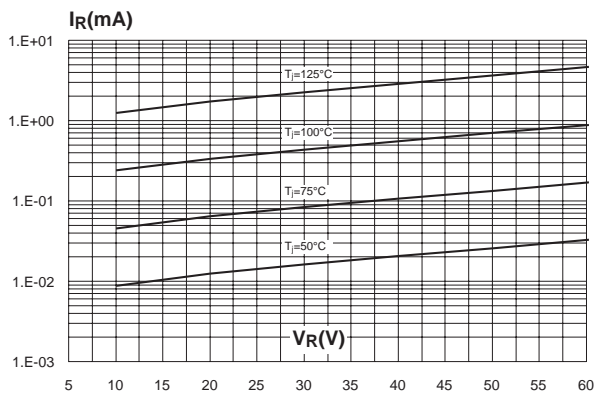


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

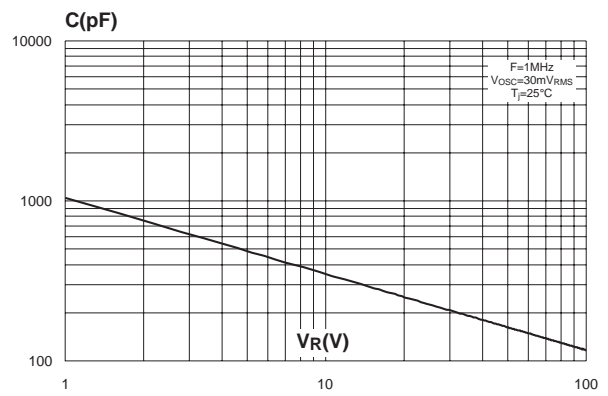
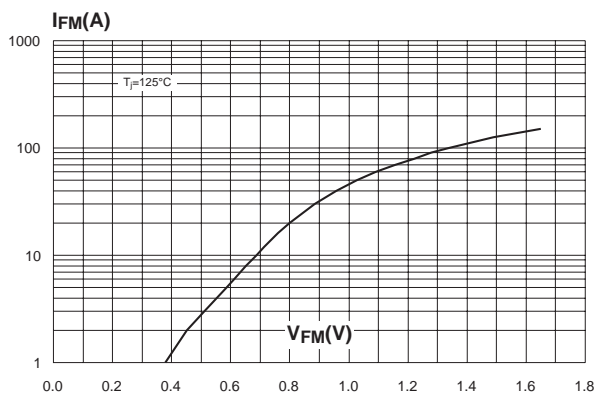


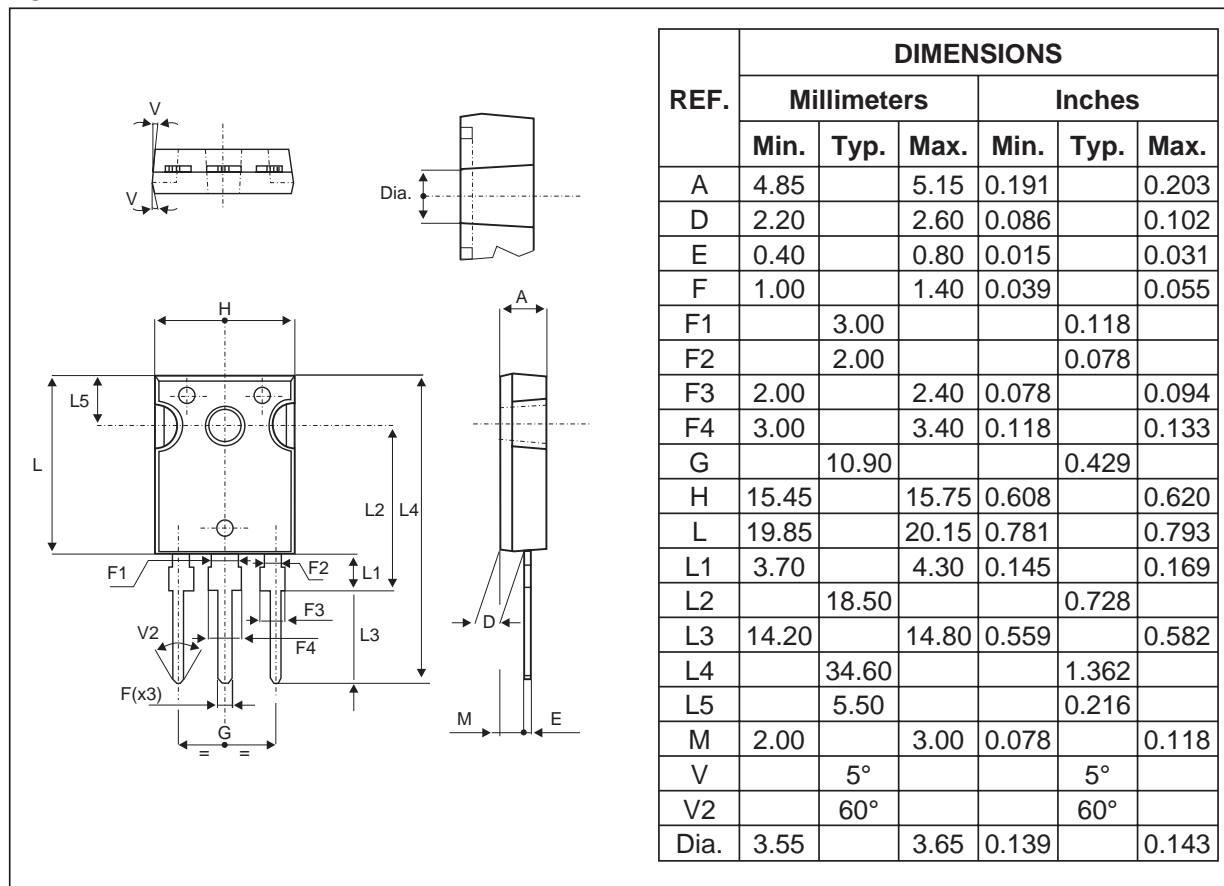
Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).



STPS3060CW

PACKAGE MECHANICAL DATA

TO-247



- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|------------|---------|--------|----------|---------------|
| STPS3060CW | STPS3060CW | TO-247 | 4.4 g | 50 | Tube |

- Epoxy meets UL94,V0

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