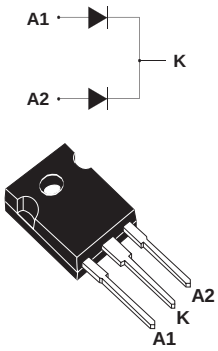
# STPS61H100CW

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAJOR PRODUCTS CHARACTERISTICS

| | |
|---|---|
| $I_{F(AV)}$ | 2 x 30 A |
| $V_{RRM}$ | 100 V |
| Tj (max) | 175°C |
| $V_F$ (max) | 0.67 V |




**TO-247**

### FEATURES AND BENEFITS

- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- HIGH FREQUENCY OPERATION

### DESCRIPTION

Dual center tap Schottky rectifiers suited for high frequency switch mode power supply.

Packaged in TO-247, this devices is intended for use to enhance the reliability of the application.

### ABSOLUTE RATINGS (limiting values, per diode)

| Symbol | Parameter | | | Value | Unit |
|---|---|---|---|---|---|
| $V_{RRM}$ | Repetitive peak reverse voltage | | | 100 | V |
| $I_{F(RMS)}$ | RMS forward current | | | 80 | A |
| $I_{F(AV)}$ | Average forward current | Tc = 150°C<br>δ = 0.5 | Per diode<br>Per device | 30<br>60 | A |
| $I_{FSM}$ | Surge non repetitive forward current | tp = 10 ms Sinusoidal | | 450 | A |
| $P_{ARM}$ | Repetitive peak avalanche power | tp = 1µs Tj = 25°C | | 26400 | W |
| $T_{stg}$ | Storage temperature range | | | - 65 to + 175 | °C |
| Tj | Maximum operating junction temperature * | | | 175 | °C |
| dV/dt | Critical rate of rise of reverse voltage | | | 10000 | V/µs |

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ 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<br>Total | 0.9<br>0.6 | °C/W |
| $R_{th(j-c)}$ | Junction to case | Coupling | 0.3 | °C/W |

When the diodes 1 and 2 are used simultaneously :
$\Delta$ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

## STATIC ELECTRICAL CHARACTERISTICS (per diode)

| Symbol | Parameter | Tests Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_R$ * | Reverse leakage current | Tj = 25°C | $V_R = V_{RRM}$ | | 3 | 16 | µA |
| | | Tj = 125°C | | | 4 | 16 | mA |
| $V_F$ * | Forward voltage drop | Tj = 25°C | $I_F$ = 30 A | | | 0.79 | V |
| | | Tj = 125°C | $I_F$ = 30 A | | 0.63 | 0.67 | |
| | | Tj = 25°C | $I_F$ = 60 A | | | 0.93 | |
| | | Tj = 125°C | $I_F$ = 60 A | | 0.72 | 0.78 | |

Pulse test : * tp = 380 µs, $\delta$ < 2%

To evaluate the conduction losses use the following equation:
$P = 0.56 \times I_{F(AV)} + 0.0036\ I_{F}^{2}{}_{(RMS)}$

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

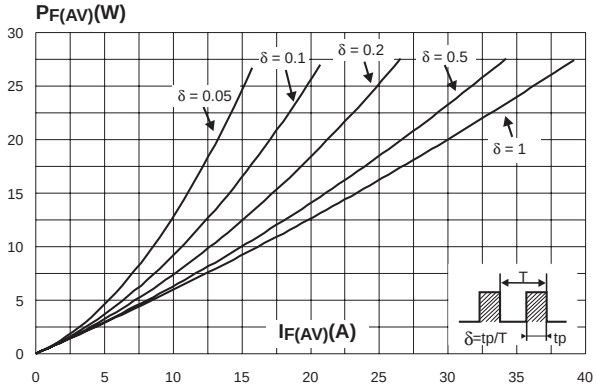



**Fig. 2:** Normalized avalanche power derating versus pulse duration.

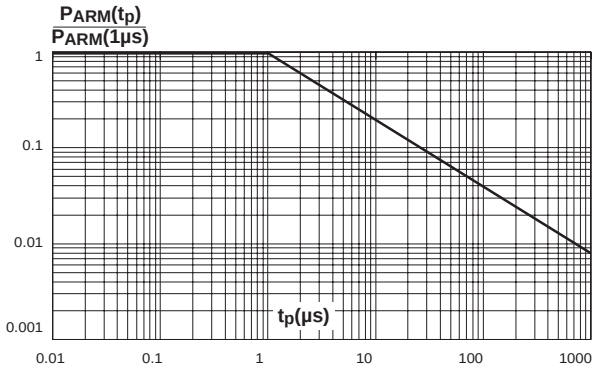



**Fig. 3:** Normalized avalanche power derating versus junction temperature.

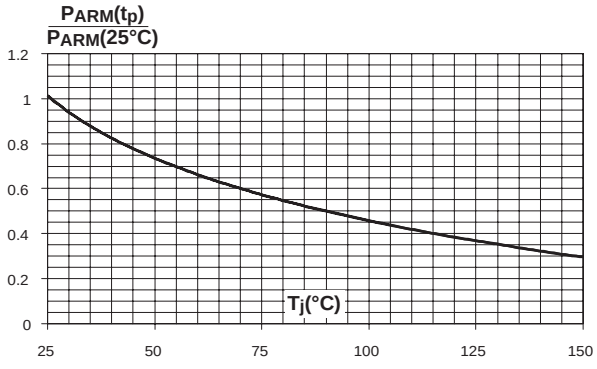



**Fig. 4:** Average forward current versus ambient temperature (δ=0.5, per diode).

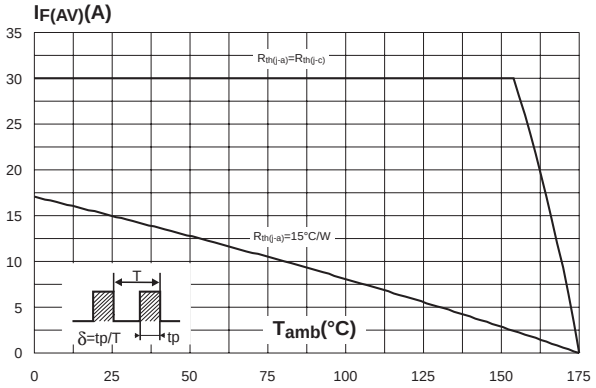


**Fig. 5:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

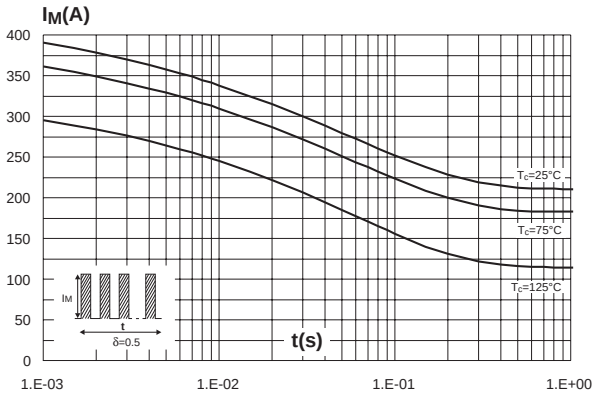



**Fig. 6:** Relative variation of thermal impedance junction to case versus pulse duration.

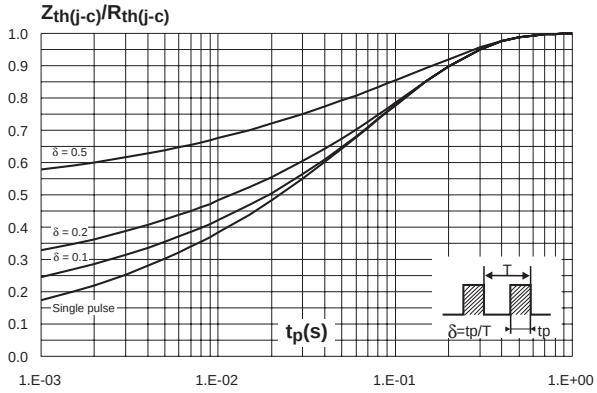



**Fig. 7:** Reverse leakage current versus reverse voltage applied (typical values, per diode).

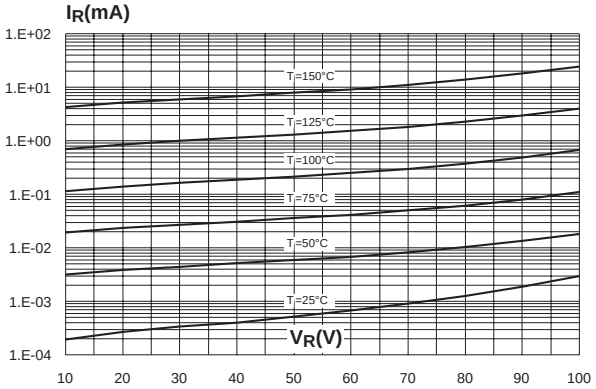



**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values, per diode).

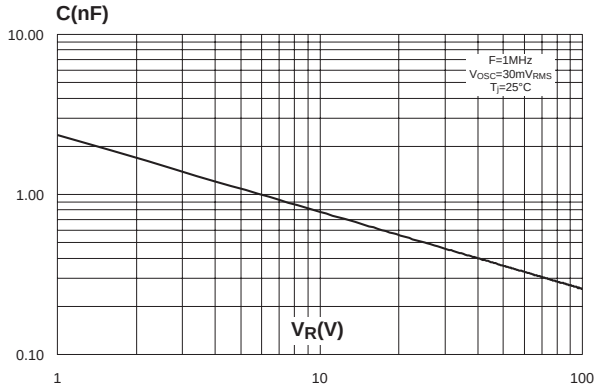
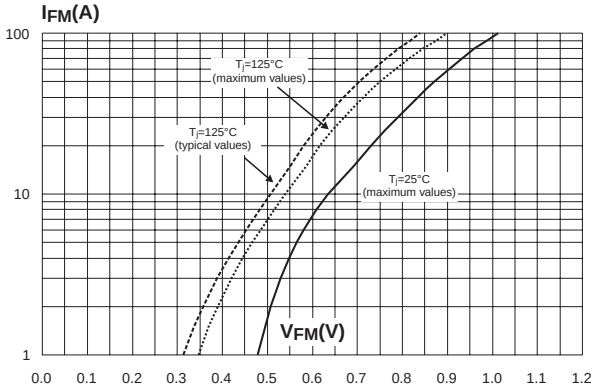



**Fig. 9:** Forward voltage drop versus forward current (per diode).



## PACKAGE MECHANICAL DATA

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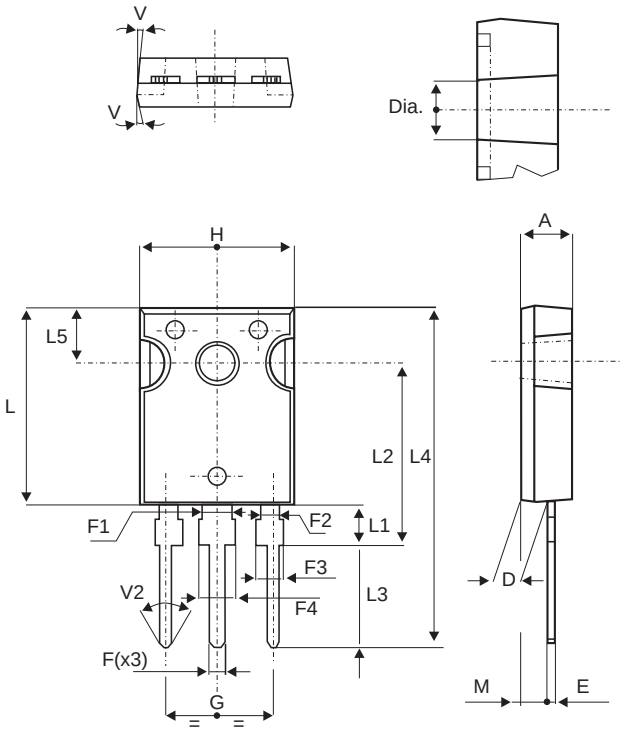


| REF. | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.85 | | 5.15 | 0.191 | | 0.203 |
| D | 2.20 | | 2.60 | 0.086 | | 0.102 |
| E | 0.40 | | 0.80 | 0.015 | | 0.031 |
| F | 1.00 | | 1.40 | 0.039 | | 0.055 |
| F1 | | 3.00 | | | 0.118 | |
| F2 | | 2.00 | | | 0.078 | |
| F3 | 2.00 | | 2.40 | 0.078 | | 0.094 |
| F4 | 3.00 | | 3.40 | 0.118 | | 0.133 |
| G | | 10.90 | | | 0.429 | |
| H | 15.45 | | 15.75 | 0.608 | | 0.620 |
| L | 19.85 | | 20.15 | 0.781 | | 0.793 |
| L1 | 3.70 | | 4.30 | 0.145 | | 0.169 |
| L2 | | 18.50 | | | 0.728 | |
| L3 | 14.20 | | 14.80 | 0.559 | | 0.582 |
| L4 | | 34.60 | | | 1.362 | |
| L5 | | 5.50 | | | 0.216 | |
| M | 2.00 | | 3.00 | 0.078 | | 0.118 |
| V | | 5° | | | 5° | |
| V2 | | 60° | | | 60° | |
| Dia. | 3.55 | | 3.65 | 0.139 | | 0.143 |

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

| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---|---|---|---|---|---|
| STPS61H100CW | STPS61H100CW | TO-247 | 4.4g | 30 | Tube |

- Epoxy meets UL94,V0