SGS-THOMSON MICROELECTRONICS

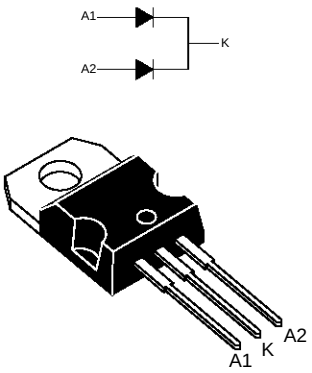
# STPS20L25CT

## LOW DROP 3.3V POWER SCHOTTKY RECTIFIERS

**PRELIMINARY DATASHEET**

### MAIN PRODUCT CHARACTERISTICS

| | |
|---|---|
| $I_{F(AV)}$ | 2*10 A |
| $V_{RRM}$ | 25 V |
| $V_F$ (max) | 0.35 V |




**TO220AB**
(Plastic)

### FEATURES AND BENEFITS

- VERY LOW FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION/REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST YIELD IN THE APPLICATIONS

### DESCRIPTION

Dual center tap Schottky rectifier suited to Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in TO220AB, this device is especially intended for use as a Rectifier at the secondary of 3.3V SMPS units.

### ABSOLUTE RATINGS (limiting values) PER DIODE

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | | 25 | V |
| $I_{F(RMS)}$ | RMS Forward Current | | 30 | A |
| $I_{F(AV)}$ | Average Forward Current | Tc = 115°C<br>δ = 0.5 | 10 | A |
| $I_{FSM}$ | Surge Non Repetitive Forward Current | tp = 10 ms<br>Sinusoidal | 200 | A |
| $I_{RRM}$ | Repetitive Peak<br>Reverse Current | tp = 2 µs<br>F = 1KHz | 1 | A |
| $T_{stg}$ | Storage Temperature Range | | - 65 to + 150 | °C |
| Tj | Max. Junction Temperature | | 125 | °C |
| dV/dt | Critical Rate of Rise of Reverse Voltage | | 1000 | V/µs |

## THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $R_{th\ (j-c)}$ | Junction to Case Thermal Resistance | Per diode | 1.5 | °C/W |
| | | Total | 0.8 | |
| $R_{th\ (c)}$ | Coupling Thermal Resistance | | 0.1 | |

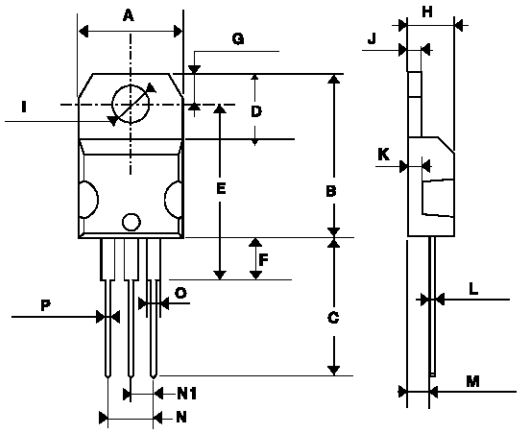
## STATIC ELECTRICAL CHARACTERISTICS (per diode)

| Symbol | Tests Conditions | Tests Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_R$ * | Reverse leakage Current | Tj = 25°C | $V_R = V_{RRM}$ | | | 800 | µA |
| | | Tj = 125°C | | | 125 | 400 | mA |
| $V_F$ * | Forward Voltage drop | Tj = 25°C | $I_F$ = 10 A | | | 0.46 | V |
| | | Tj = 125°C | $I_F$ = 10 A | | 0.30 | 0.35 | |
| | | Tj = 125°C | $I_F$ = 20 A | | | 0.48 | |

Pulse test : * tp = 380 µs, duty cycle < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.22 \times I_{F(AV)} + 0.013\ I_F{}^2{}_{(RMS)}$
Typical junction capacitance, $V_R$ = 15V F = 1MHz Tj = 25°C : 700pF

**PACKAGE MECHANICAL DATA**
TO220AB Plastic




Marking : STPS20L25CT

| REF. | DIMENSIONS | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 10.0 | 10.4 | 0.393 | 0.409 |
| B | 15.2 | 15.9 | 0.598 | 0.626 |
| C | 13 | 14 | 0.511 | 0.551 |
| D | 6.2 | 6.6 | 0.244 | 0.260 |
| E | 16.4 typ. | | 0.645 typ. | |
| F | 3.5 | 4.2 | 0.137 | 0.165 |
| G | 2.65 | 2.95 | 0.104 | 0.116 |
| H | 4.4 | 4.6 | 0.173 | 0.181 |
| I | 3.75 | 3.85 | 0.147 | 0.151 |
| J | 1.23 | 1.32 | 0.048 | 0.051 |
| K | 1.27 typ. | | 0.050 typ. | |
| L | 0.49 | 0.70 | 0.019 | 0.027 |
| M | 2.4 | 2.72 | 0.094 | 0.107 |
| N | 4.95 | 5.15 | 0.194 | 0.203 |
| N1 | 2.40 | 2.70 | 0.094 | 0.106 |
| O | 1.14 | 1.70 | 0.044 | 0.067 |
| P | 0.61 | 0.88 | 0.024 | 0.034 |