



## SCHOTTKY RECTIFIER

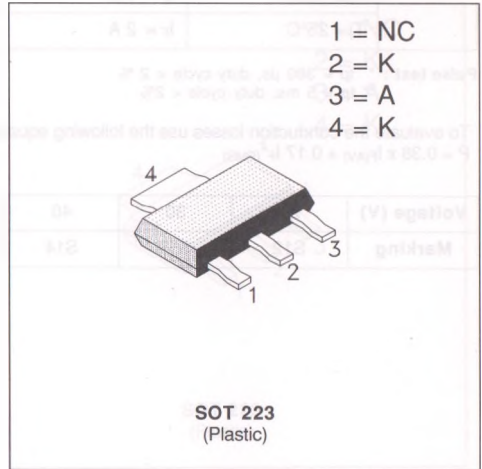
PRELIMINARY DATA

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- EXTREMELY FAST SWITCHING
- SURFACE MOUNTED DEVICE

### DESCRIPTION

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

Packaged in SOT 223, this device is intended for surface mounting and use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



### ABSOLUTE RATINGS (limiting values)

| Symbol             | Parameter                                | Value                          | Unit       |
|--------------------|--|--------------------------------|------------|
| $I_{F(RMS)}$       | RMS Forward Current                      | 1.4                            | A          |
| $I_{F(AV)}$        | Average Forward Current                  | 1                              | A          |
| $I_{FSM}$          | Surge Non Repetitive Forward Current     | 10                             | A          |
| $I_{RRM}$          | Peak Repetitive Reverse Current          | 1                              | A          |
| $T_{stg}$<br>$T_J$ | Storage and Junction Temperature Range   | - 65 to + 150<br>- 65 to + 150 | °C         |
| $dV/dt$            | Critical Rate of Rise of Reverse Voltage | 1000                           | V/ $\mu$ s |

| Symbol    | Parameter                       | STPS |      |      | Unit |
|-----------|---------------------------------|------|------|------|------|
|           |                                 | 120E | 130E | 140E |      |
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | 20   | 30   | 40   | V    |

### THERMAL RESISTANCE

| Symbol        | Parameter  | Value | Unit |
|---------------|--|-------|------|
| $R_{TH(j-t)}$ | Junction to Tab for D.C  | 20    | °C/W |
| $R_{TH(j-a)}$ | Junction to Ambient with 5cm <sup>2</sup> Copper Surface Under Tab | 55    | °C/W |

## ELECTRICAL CHARACTERISTICS

## STATIC CHARACTERISTICS

| Symbol     | Tests Conditions          |                    | Min. | Typ. | Max. | Unit          |
|------------|---------------------------|--------------------|------|------|------|---------------|
| $I_R^{**}$ | $T_j = 25^\circ\text{C}$  | $V_R = V_{RRM}$    |      |      | 500  | $\mu\text{A}$ |
|            | $T_j = 100^\circ\text{C}$ |                    |      |      | 10   | $\text{mA}$   |
| $V_F^*$    | $T_j = 125^\circ\text{C}$ | $I_F = 2\text{ A}$ |      |      | 0.72 | V             |
|            | $T_j = 125^\circ\text{C}$ | $I_F = 1\text{ A}$ |      |      | 0.55 |               |
|            | $T_j = 25^\circ\text{C}$  | $I_F = 2\text{ A}$ |      |      | 0.81 |               |

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

\*\*  $t_p = 5\ \text{ms}$ , duty cycle < 2%

To evaluate the conduction losses use the following equation :

$$P = 0.38 \times I_{F(AV)} + 0.17 I_{F(RMS)}^2$$

|                    |     |     |     |
|--------------------|-----|-----|-----|
| <b>Voltage (V)</b> | 20  | 30  | 40  |
| <b>Marking</b>     | S12 | S13 | S14 |