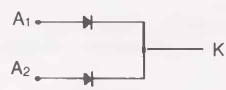
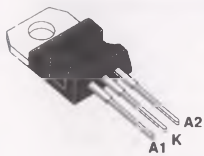
# STPS2035CT/CF
# STPS2045CT/CF

## POWER SCHOTTKY RECTIFIER

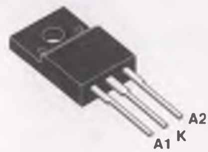
- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE :
  Insulating voltage = 2000V DC
  Capacitance = 12pF




**TO220AB**
(Plastic)

STPS2035CT
STPS2045CT




**ISOWATT220AB**
(Plastic)

STPS2035CF
STPS2045CF

### DESCRIPTION

Dual center tap schottky rectifier suited for switch-mode power supply and high frequency DC to DC converters.

Packaged in TO220AB and ISOWATT220AB, this device is intended for 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 | | | Per diode | 30 | A |
| $I_{F(AV)}$ | Average Forward Current δ = 0.5 | TO220AB | Tc = 135°C | Per diode | 10 | A |
| | | ISOWATT220AB | Tc = 120°C | Per device | 20 | |
| $I_{FSM}$ | Surge Non Repetitive Forward Current | | Tp = 10 ms Sinusoidal | Per diode | 180 | A |
| $I_{RRM}$ | Peak Repetitive Reverse Current | | Tp = 2 µs F = 1KHz | Per diode | 1 | A |
| Tstg<br>Tj | Storage and Junction Temperature Range | | | | - 65 to + 150<br>- 65 to + 150 | °C |
| dV/dt | Critical Rate of Rise of Reverse Voltage | | | | 1000 | V/µs |

| Symbol | Parameter | STPS | | Unit |
|---|---|---|---|---|
| | | 2035CT 2035CF | 2045CT 2045CF | |
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | 35 | 45 | V |

## THERMAL RESISTANCE

| Symbol | Parameter | | | Value | Unit |
|---|---|---|---|---|---|
| $R_{TH\ (j-c)}$ | Junction-case | TO220AB | Per diode<br>total | 2.2<br>1.3 | °C/W |
| | | ISOWATT220AB | Per diode<br>total | 4.5<br>3.5 | |
| $R_{TH\ (c)}$ | Coupling | TO220AB | | 0.3 | °C/W |
| | | ISOWATT220AB | | 2.5 | |

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

## ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

| Symbol | Tests Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_R$ * | Tj = 25°C | $V_R = V_{RRM}$ | | | 100 | µA |
| | Tj = 125°C | | | | 15 | mA |
| $V_F$ ** | Tj = 125°C | $I_F$ = 20 A | | | 0.72 | V |
| | Tj = 125°C | $I_F$ = 10 A | | | 0.57 | |
| | Tj = 25°C | $I_F$ = 20 A | | | 0.84 | |

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

To evaluate the conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.015\ I_F{}^2{}_{(RMS)}$

**Fig. 1 :** Average forward power dissipation versus average forward current. (Per diode)

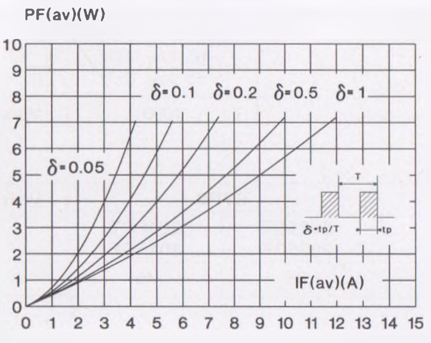


**Fig. 2 :** Average current versus ambient temperature. (duty cycle : 0.5) (Per diode) (TO220AB)

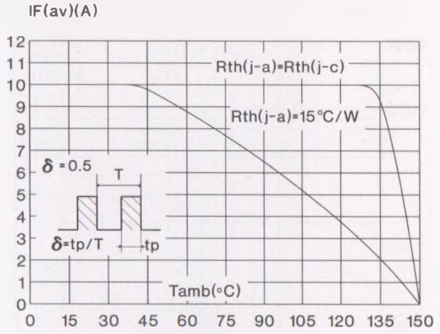



**Fig. 3 :** Average current versus ambient temperature. (duty cycle : 0.5) (Per diode) (ISOWATT220AB)

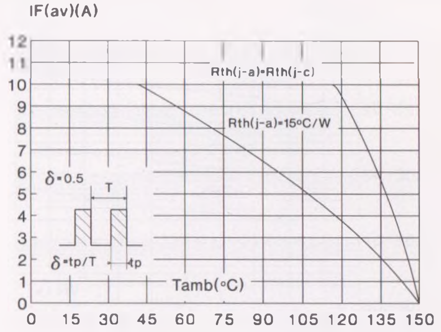



**Fig. 4 :** Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (TO220AB)

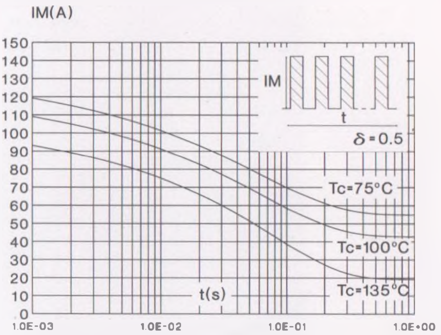



**Fig. 5 :** Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode) (ISOWATT220AB)

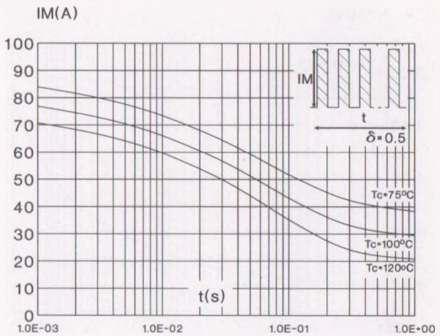



**Fig. 6** : Relative variation of thermal transient impedance junction to case versus pulse duration.
(TO220AB)

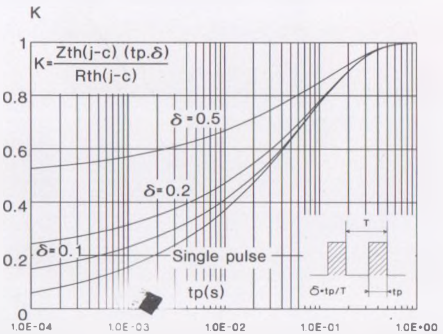



**Fig. 7** : Relative variation of thermal transient impedance junction to case versus pulse duration.
(ISOWATT220AB)

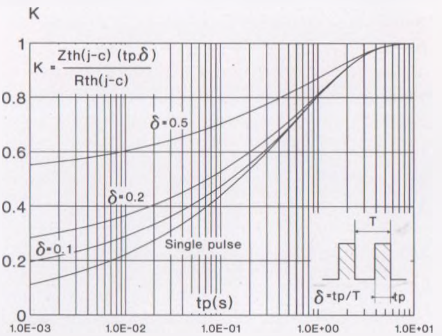


**Fig. 8** : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

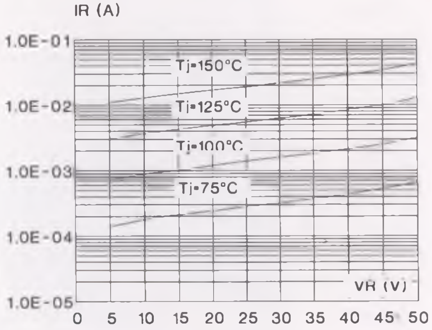



**Fig. 9** : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

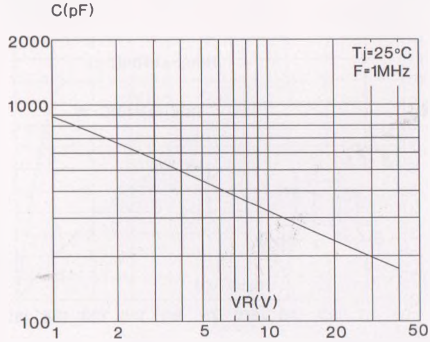



**Fig. 10** : Forward voltage drop versus forward current. (Maximum values) (Per diode)