SEMIPONT® 2

# Controllable Bridge Rectifiers

**SKDT 100**

## Features

- Fully controlled three phase bridge rectifier
- Robust plastic case with screw terminals
- Large, isolated base plate
- Blocking voltage to 1400V
- High surge currents
- Easy chassis mounting
- UL recognized, file no. E 63 532

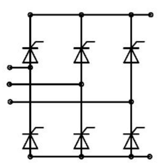
## Typical Applications

- For DC drives with a fixed direction of rotation
- Controlled field rectifiers for DC motors
- Controlled battery charger rectifiers

1) Painted metal shield of minimum 250 x 250 x 1 mm: $R_{th(c-a)}$ = 1,8 K/W

| $V_{RSM}$ V | $V_{RRM}$, $V_{DRM}$ V | $I_D$ = 100 A (full conduction) ($T_c$ = 84 °C) |
|---|---|---|
| 900 | 800 | SKDT 100/08 |
| 1300 | 1200 | SKDT 100/12 |
| 1500 | 1400 | SKDT 100/14 |
| 1700 | 1600 | SKDT 100/16 |

| Symbol | Conditions | Values | Units |
|---|---|---|---|
| $I_D$ | $T_c$ = 85 °C | 98 | A |
| | $T_a$= 45 °C; chassis 1) | 20 | A |
| | $T_a$= 45 °C; P13A/125 | 25 | A |
| | $T_a$= 45 °C; P1A/120 | 45 | A |
| $I_{TSM}$, $I_{FSM}$ | $T_{vj}$ = 25 °C; 10 ms | 1000 | A |
| | $T_{vj}$ = 125 °C; 10 ms | 850 | A |
| i²t | $T_{vj}$ = 25 °C; 8,3 ... 10 ms | 5000 | A²s |
| | $T_{vj}$ = 125 °C; 8,3 ... 10 ms | 3600 | A²s |
| $V_T$ | $T_{vj}$ = 25 °C; $I_T$=200 A | max. 1,95 | V |
| $V_{T(TO)}$ | $T_{vj}$ = 125 °C; | max. 1 | V |
| $r_T$ | $T_{vj}$ = 125 °C | max. 4,5 | mΩ |
| $I_{DD}$; $I_{RD}$ | $T_{vj}$ = 125 °C; $V_{DD}$ = $V_{DRM}$; $V_{RD}$ = $V_{RRM}$ | max. 15 | mA |
| $t_{gd}$ | $T_{vj}$ = 25 °C; $I_G$ = 1 A; $di_G/dt$ = 1 A/µs | 1 | µs |
| $t_{gr}$ | $V_D$ = 0,67 · $V_{DRM}$ | 1 | µs |
| $(dv/dt)_{cr}$ | $T_{vj}$ = 125 °C | max. 500 | V/µs |
| $(di/dt)_{cr}$ | $T_{vj}$ = 125 °C; f = 50 Hz | max. 50 | A/µs |
| $t_q$ | $T_{vj}$ = 125 °C; typ. | 80 | µs |
| $I_H$ | $T_{vj}$ = 25 °C; typ. / max. | 100 / 200 | mA |
| $I_L$ | $T_{vj}$ = 25 °C; $R_G$ = 33 Ω | 250 / 400 | mA |
| $V_{GT}$ | $T_{vj}$ = 25 °C; d.c. | min. 3 | V |
| $I_{GT}$ | $T_{vj}$ = 25 °C; d.c. | min. 150 | mA |
| $V_{GD}$ | $T_{vj}$ = 125 °C; d.c. | max. 0,25 | V |
| $I_{GD}$ | $T_{vj}$ = 125 °C; d.c. | max. 5 | mA |
| $R_{th(j-c)}$ | per thyristor / diode | 0,85 | K/W |
| | total | 0,141 | K/W |
| $R_{th(c-s)}$ | total | 0,05 | K/W |
| $T_{vj}$ | | - 40 ... + 125 | °C |
| $T_{stg}$ | | - 40 ... + 125 | °C |
| $V_{isol}$ | a. c. 50 Hz; r.m.s.; 1 s / 1 min. | 3600 ( 3000 ) | V |
| $M_s$ | to heatsink | 5 | Nm |
| $M_t$ | to terminals | 3 | Nm |
| m | | 165 | g |
| Case | SKDT | G 21 | |



SKDT

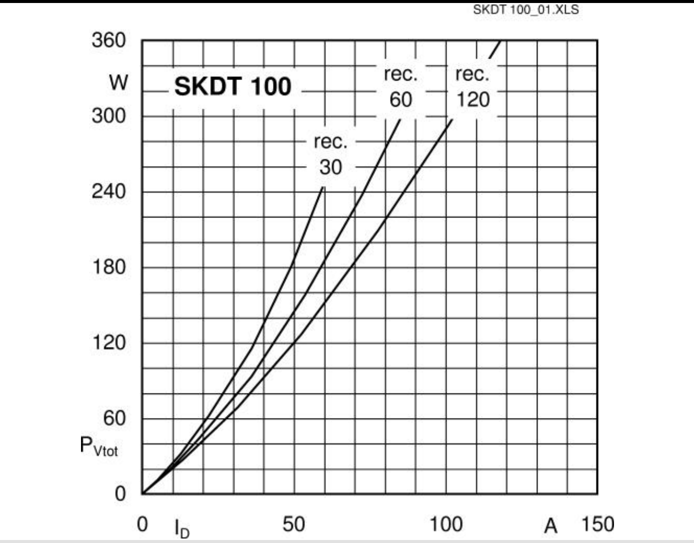


Fig. 1 Power dissipation vs. output current

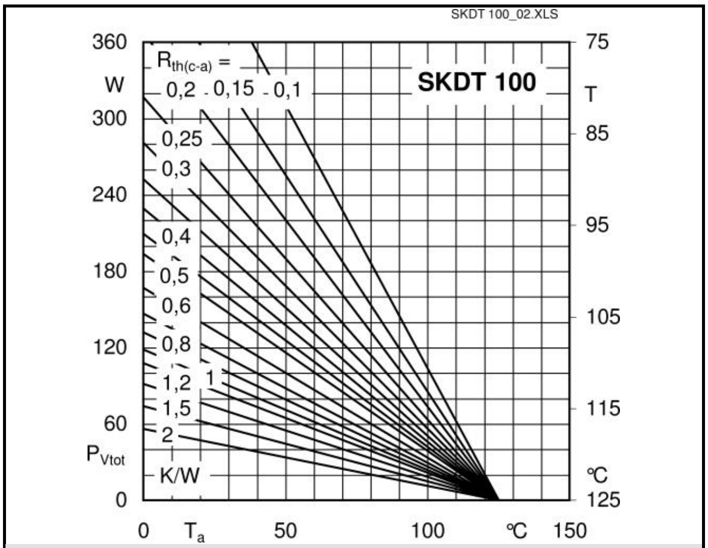


Fig. 2 Power dissipation vs. case temperature

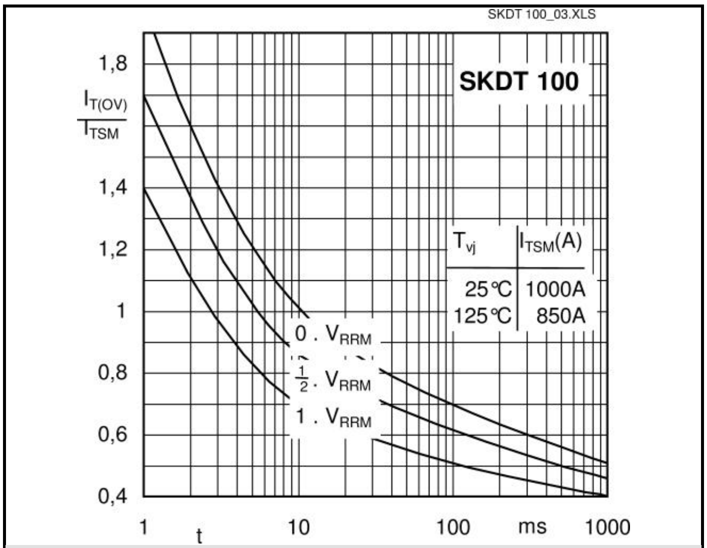


Fig. 5 Surge overload characteristics vs. time

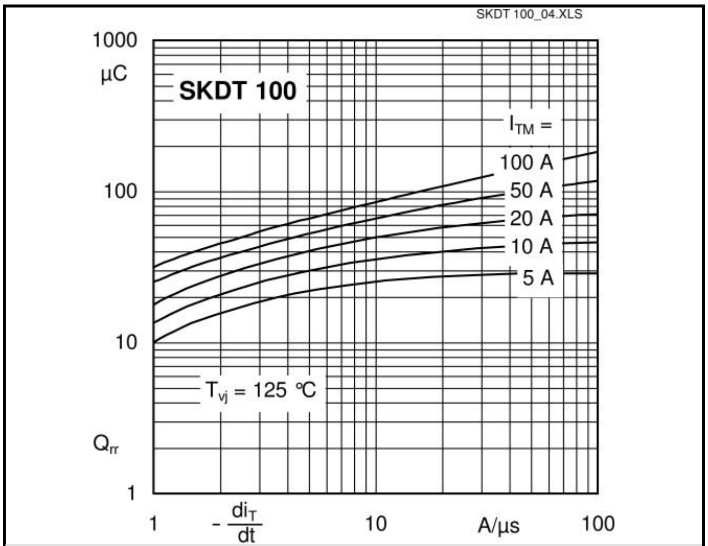


Fig. 8 Recovered charge vs. current decrease

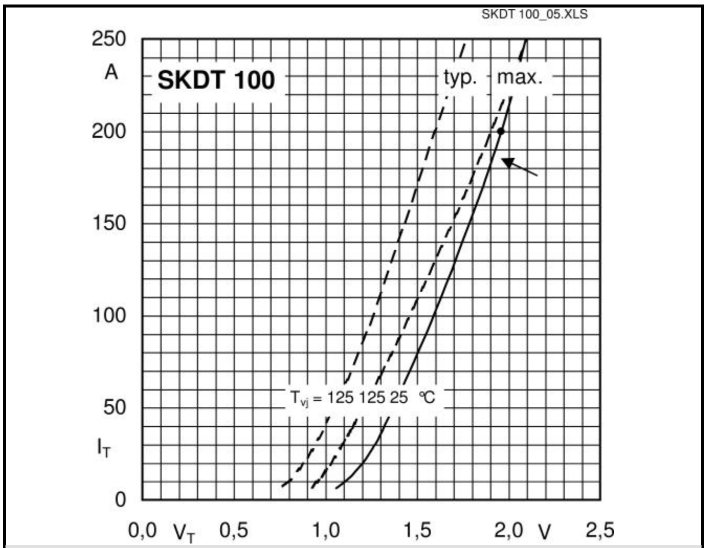


Fig. 10 On-state characteristics of a thyristor arm

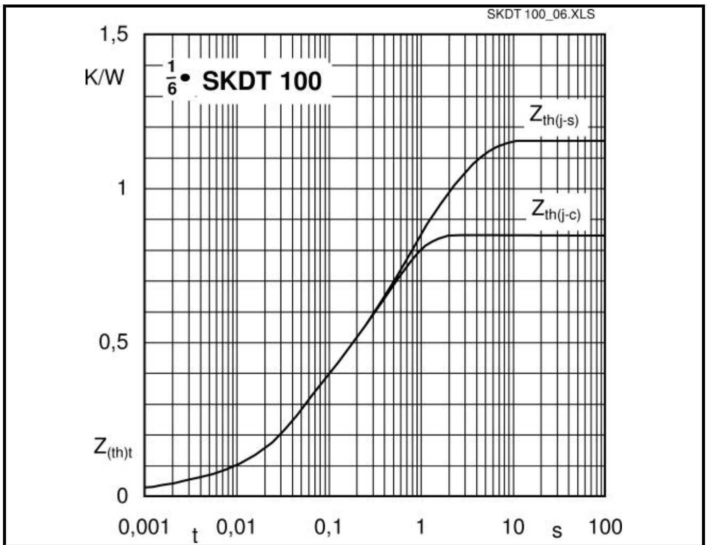


Fig. 12 Transient thermal impedance vs. time

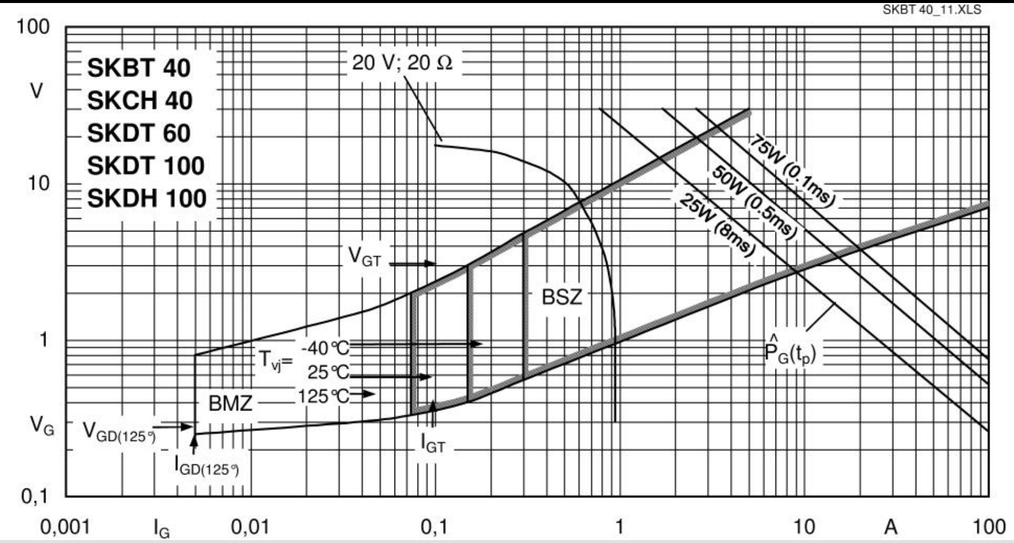
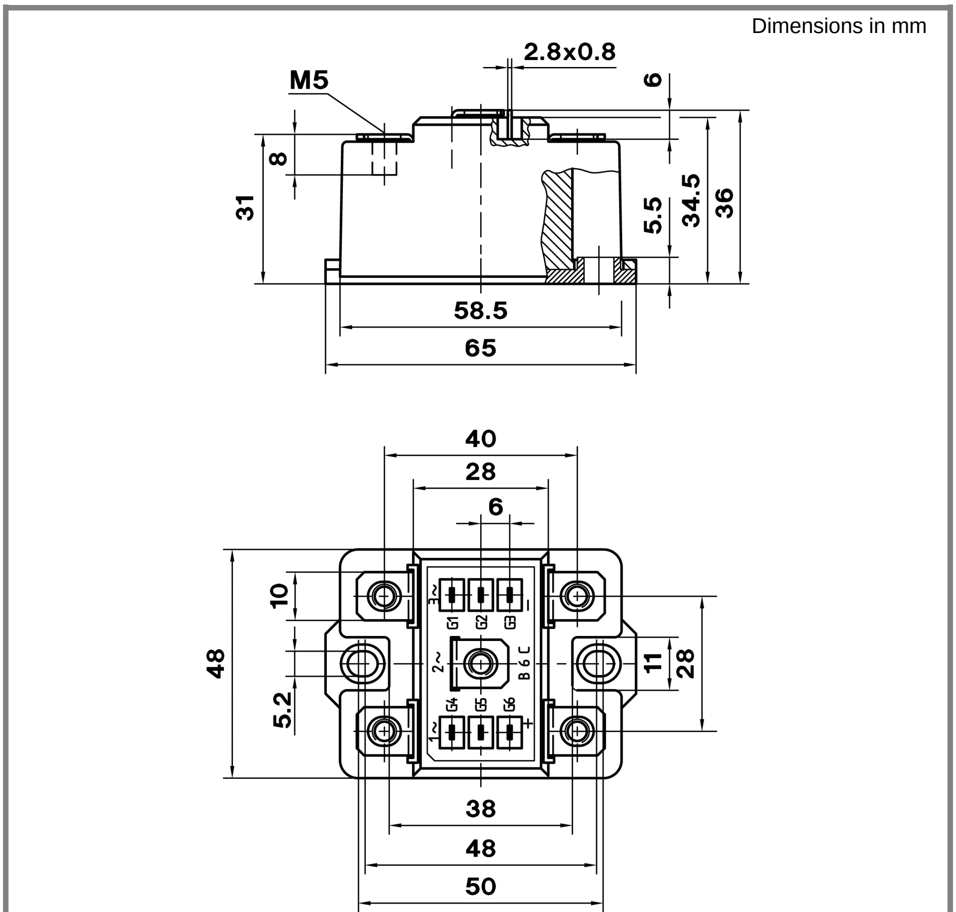



Fig. 11 Gate characteristics of a thyristor device




Case G 21

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