

DATASHEET

SEMIKRON

SKB33/12

OTHER SYMBOLS:

SKB3312, SKB33 12, SKB33/12

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SKB 33



Controllable Bridge Rectifiers

SKB 33

Features

- Half controlled, single phase rectifier with freewheeling diode
- Isolated metal case with screw terminals
- Blocking voltage up to 1200 V
- High surge currents
- Easy chassis mounting

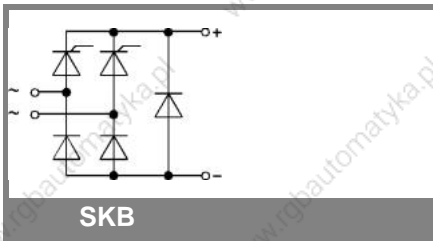
Typical Applications

- Power supplies for electronic equipment
- DC motors
- Field rectifiers for DC motors
- Battery charger rectifiers

- 1) Freely suspended or mounted on an insulator
- 2) Mounted on a painted metal sheet of min. 250 x 250 x 1 mm

| V_{RSM} V | V_{RRM}, V_{DRM} V | $I_D = 33$ A (full conduction) ($T_c = 62$ °C) |
|----------------|-------------------------|--|
| 300 | 200 | SKB 33/02 |
| 500 | 400 | SKB 33/04 |
| 700 | 600 | SKB 33/06 |
| 900 | 800 | SKB 33/08 |
| 1100 | 1000 | SKB 33/10 |
| 1300 | 1200 | SKB 33/12 |

| Symbol | Conditions | Values | Units |
|--------------------|---|----------------|------------------|
| I_D | $T_a = 45$ °C isolated ¹⁾ | 6,5 | A |
| | $T_a = 45$ °C; chassis ²⁾ | 14 | A |
| | $T_a = 45$ °C; P1A/120 | 24 | A |
| | $T_a = 35$ °C; P1A/120 F | 32 | A |
| I_{TSM}, I_{FSM} | $T_{vj} = 25$ °C; 10 ms | 370 | A |
| | $T_{vj} = 130$ °C; 10 ms | 340 | A |
| i^2t | $T_{vj} = 25$ °C; 8,3 ... 10 ms | 680 | A ² s |
| | $T_{vj} = 130$ °C; 8,3 ... 10 ms | 580 | A ² s |
| V_T | $T_{vj} = 25$ °C; $I_T = 75$ A | max. 2,4 | V |
| $V_{T(TO)}$ | $T_{vj} = 130$ °C; | max. 1 | V |
| r_T | $T_{vj} = 130$ °C | max. 15 | mΩ |
| I_{DD}, I_{RD} | $T_{vj} = 130$ °C; $V_{DD} = V_{DRM}; V_{RD} = V_{RRM}$ | max. 10 | mA |
| t_{gd} | $T_{vj} = 25$ °C; $I_G = 1$ A; $di_G/dt = 1$ A/μs | 1 | μs |
| t_{gr} | $V_D = 0,67 \cdot V_{DRM}$ | 1 | μs |
| $(dv/dt)_{cr}$ | $T_{vj} = 130$ °C | max. 200 | V/μs |
| $(di/dt)_{cr}$ | $T_{vj} = 130$ °C; $f = 50$ Hz | max. 50 | A/μs |
| t_q | $T_{vj} = 130$ °C; typ. | 80 | μs |
| I_H | $T_{vj} = 25$ °C; typ. / max. | 20 / 200 | mA |
| I_L | $T_{vj} = 25$ °C; $R_G = 33$ Ω; typ. / max. | 80 / 400 | mA |
| V_{GT} | $T_{vj} = 25$ °C; d.c. | min. 3 | V |
| I_{GT} | $T_{vj} = 25$ °C; d.c. | min. 100 | mA |
| V_{GD} | $T_{vj} = 130$ °C; d.c. | max. 0,25 | V |
| I_{GD} | $T_{vj} = 130$ °C; d.c. | max. 3 | mA |
| $R_{th(j-c)}$ | per thyristor / diode | 2,6 | K/W |
| | total | 0,65 | K/W |
| $R_{th(c-s)}$ | total | 0,06 | K/W |
| | | | |
| T_{vj} | | - 40 ... + 130 | °C |
| T_{stg} | | - 55 ... + 150 | °C |
| V_{isol} | a. c. 50 Hz; r.m.s.; 1 s / 1 min. | 3000 (2500) | V |
| M_s | to heatsink | 5 ± 15 % | Nm |
| M_t | to terminals | 3 ± 15 % | Nm |
| m | | 250 | g |
| Case | | G 16 | |



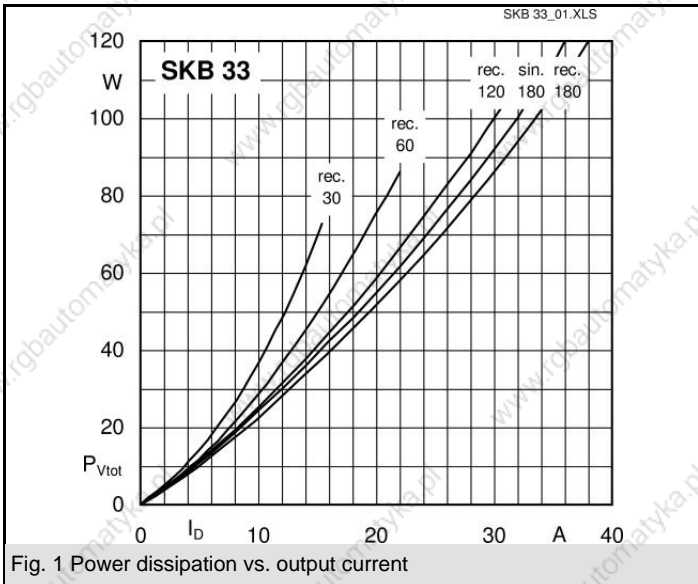


Fig. 1 Power dissipation vs. output current

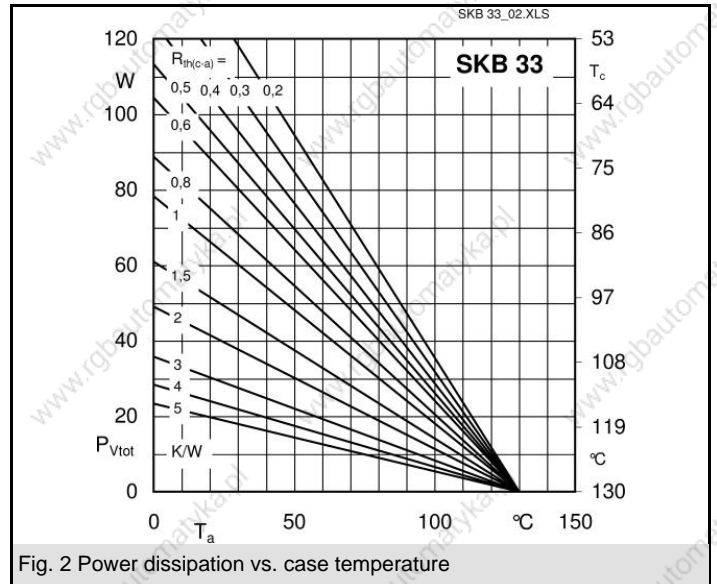


Fig. 2 Power dissipation vs. case temperature

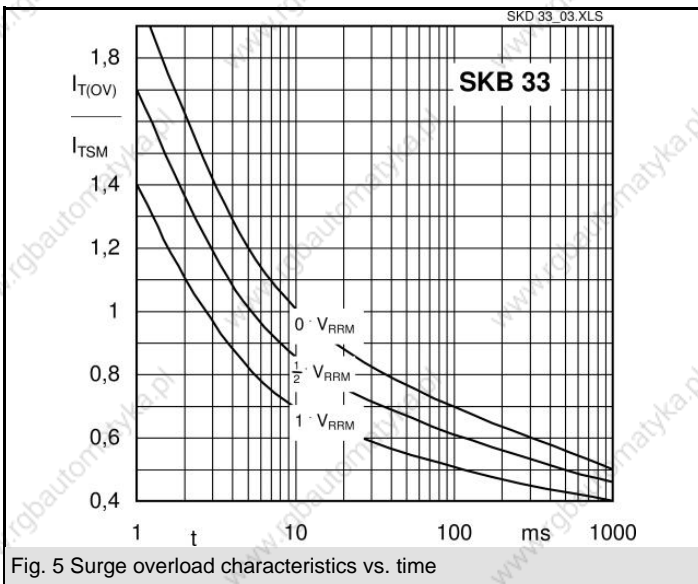


Fig. 5 Surge overload characteristics vs. time

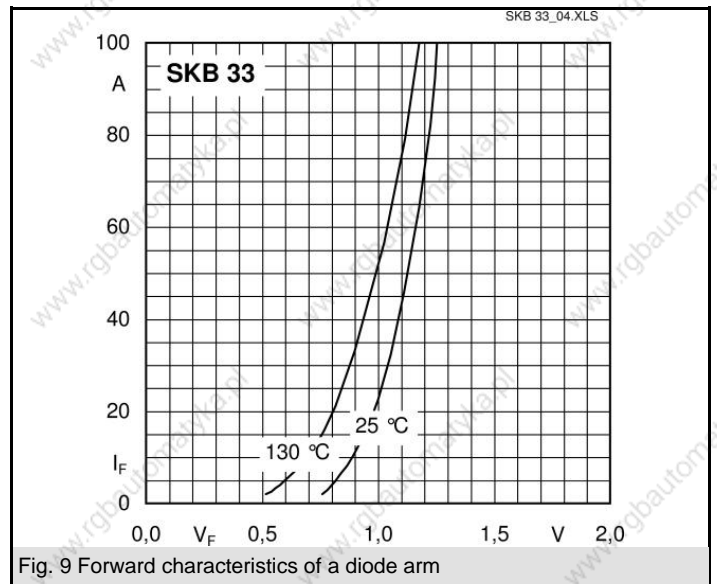


Fig. 9 Forward characteristics of a diode arm

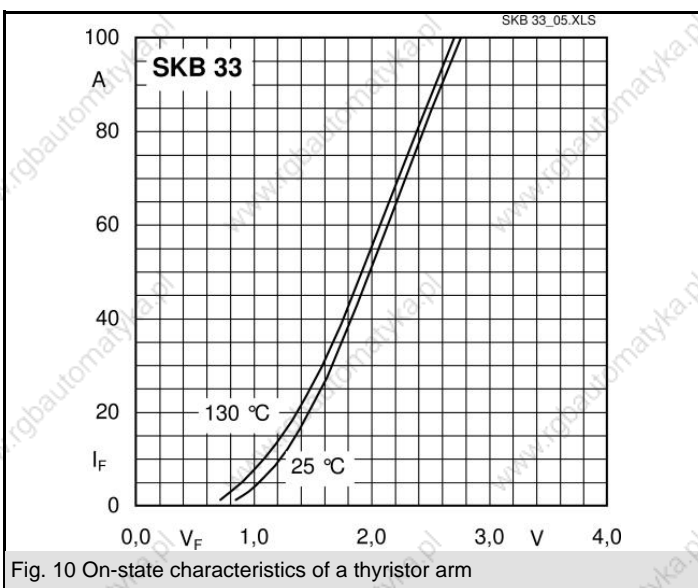


Fig. 10 On-state characteristics of a thyristor arm

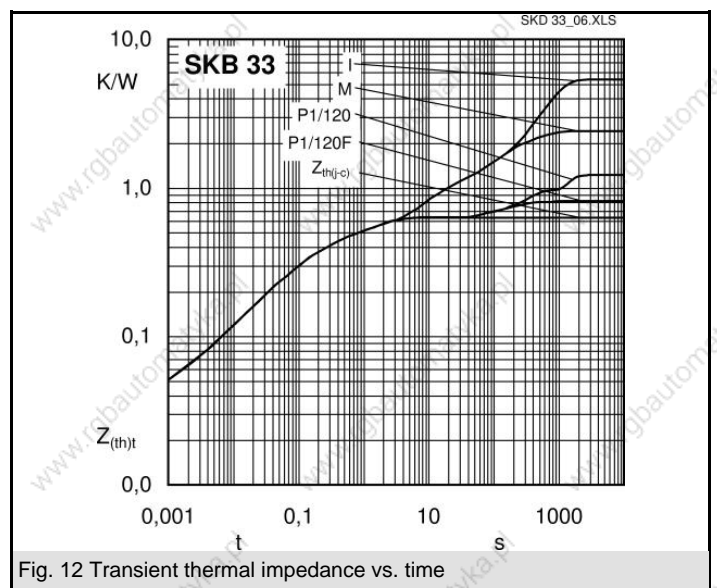


Fig. 12 Transient thermal impedance vs. time

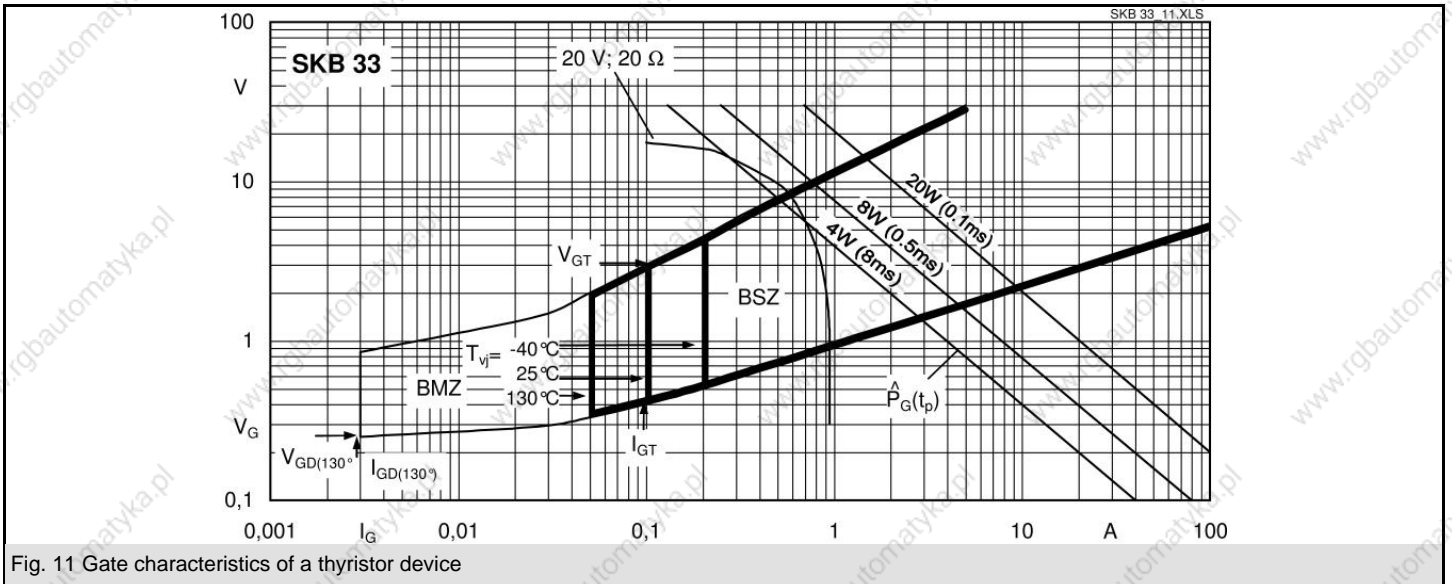
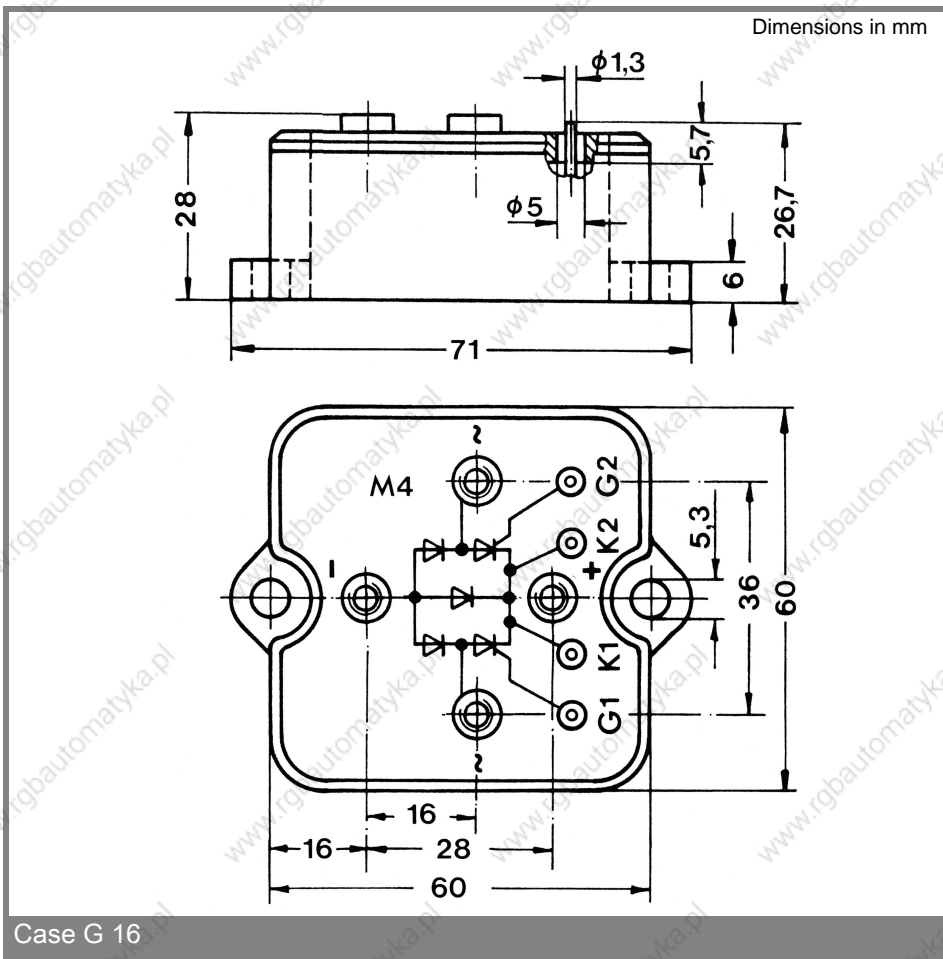


Fig. 11 Gate characteristics of a thyristor device



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