

# 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

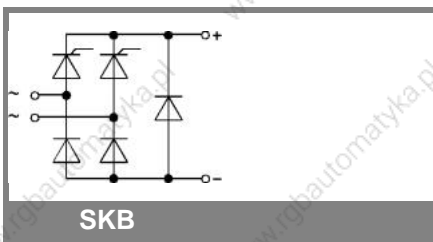
#### Typical Applications

- 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 <sup>1)</sup>	6,5	A
	$T_a = 45$ °C; chassis <sup>2)</sup>	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 <sup>2</sup> s
	$T_{vj} = 130$ °C; 8,3 ... 10 ms	580	A <sup>2</sup> 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	$5 \pm 15$ %	Nm
$M_t$	to terminals	$3 \pm 15$ %	Nm
$m$		250	g
Case		G 16	



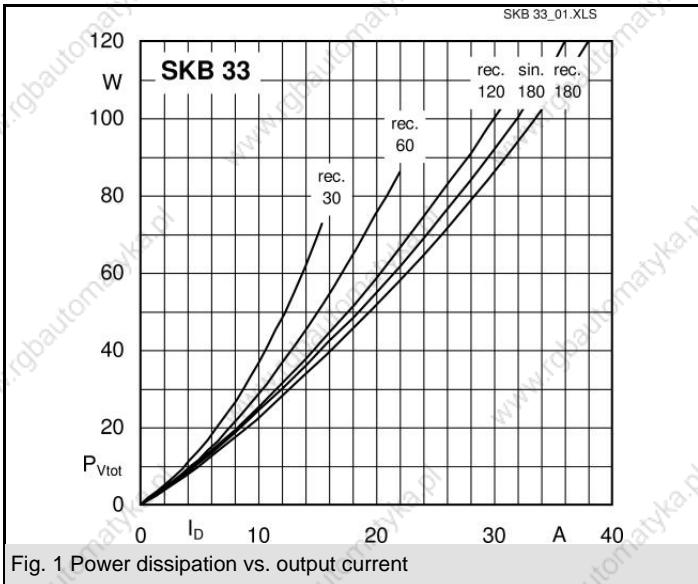


Fig. 1 Power dissipation vs. output current

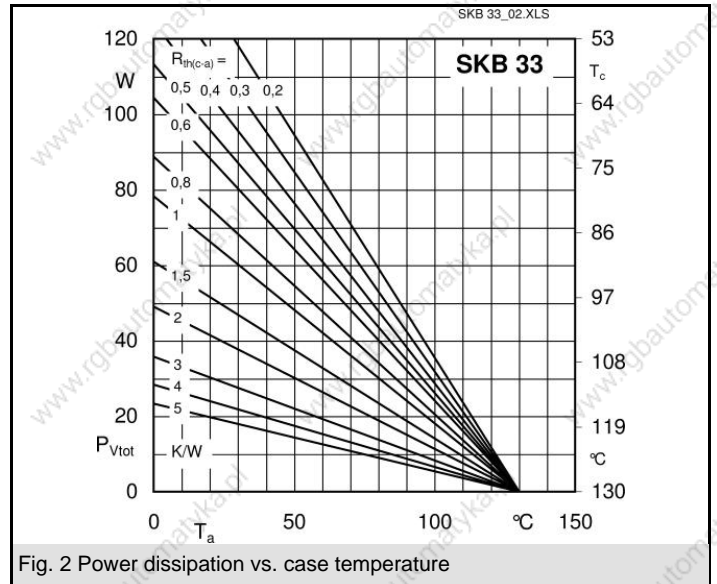


Fig. 2 Power dissipation vs. case temperature

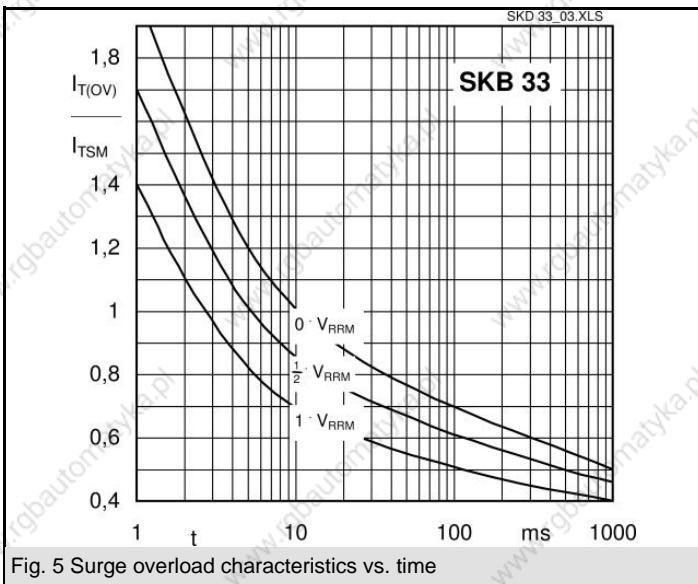


Fig. 5 Surge overload characteristics vs. time

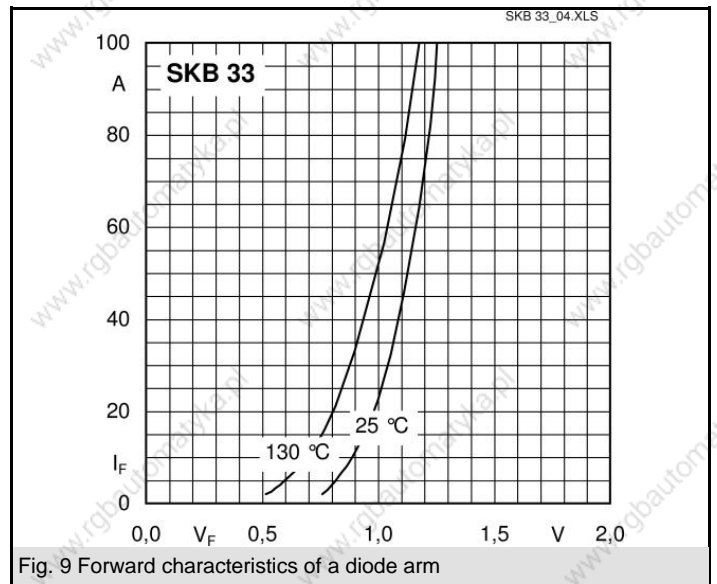


Fig. 9 Forward characteristics of a diode arm

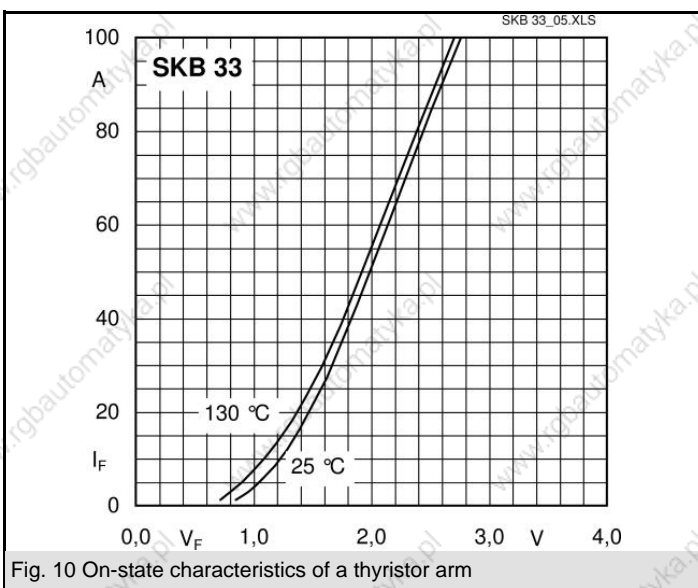


Fig. 10 On-state characteristics of a thyristor arm

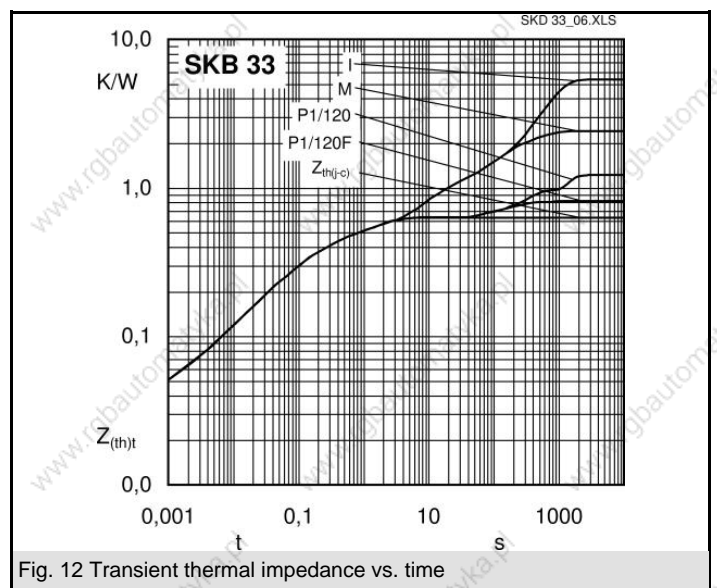


Fig. 12 Transient thermal impedance vs. time

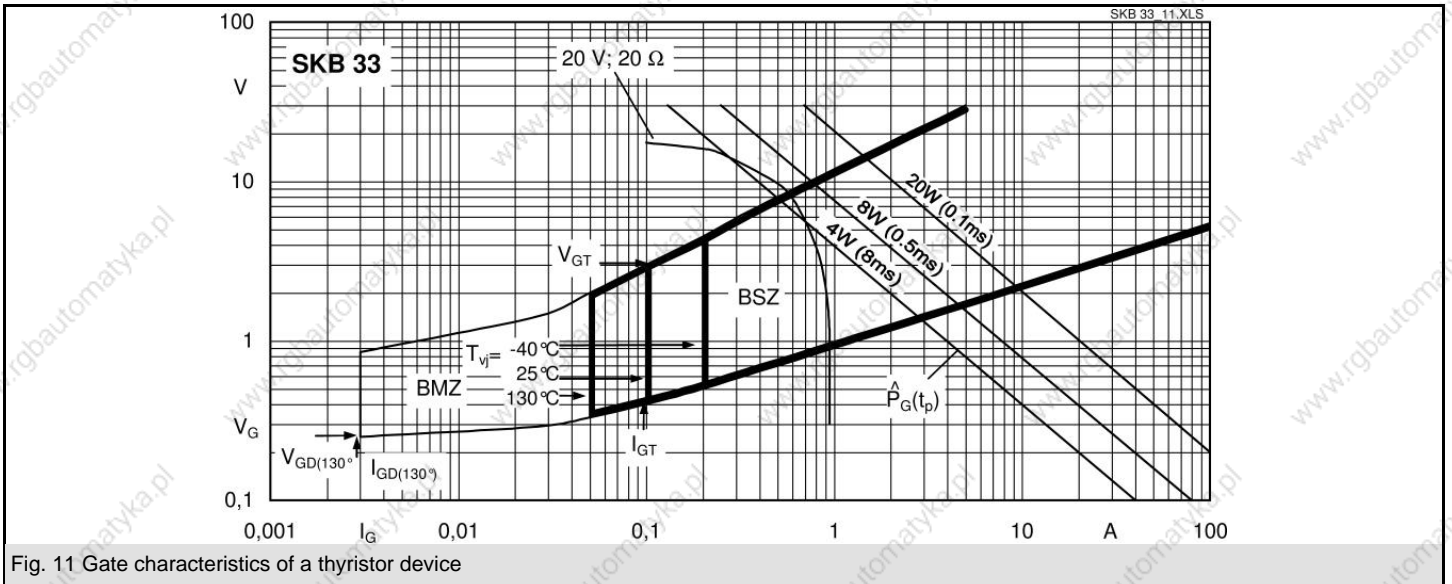
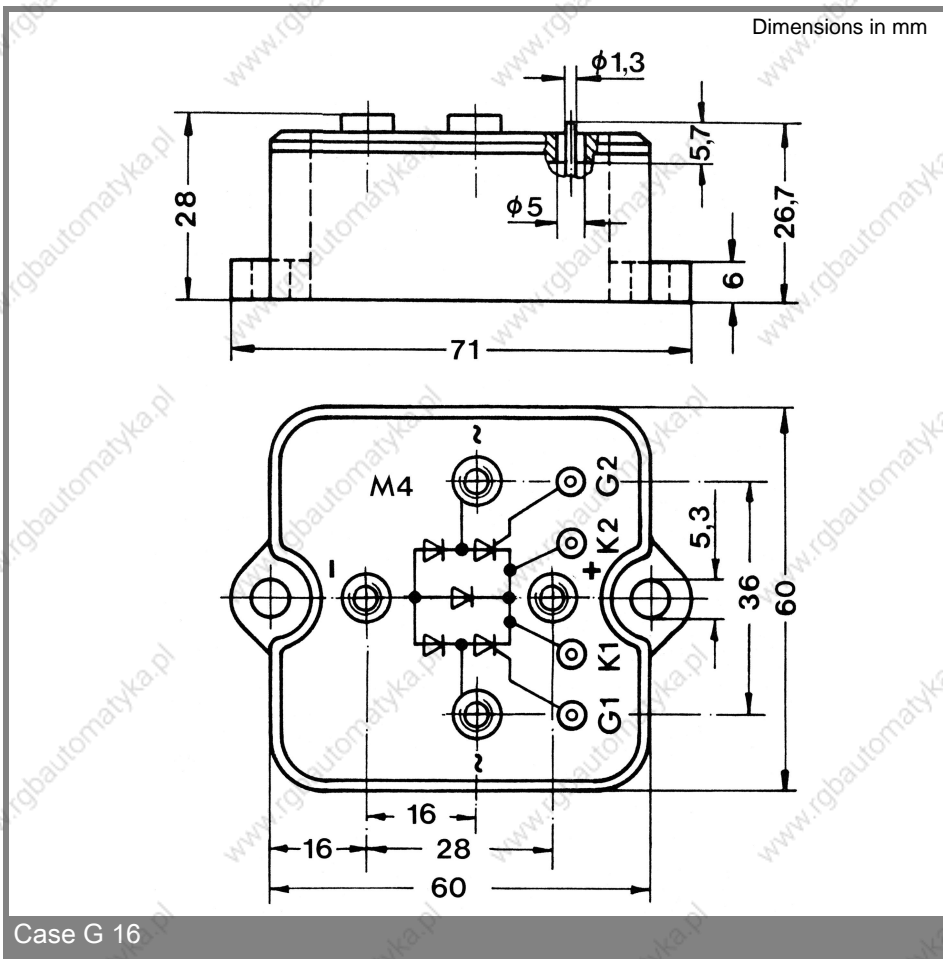


Fig. 11 Gate characteristics of a thyristor device



Case G 16

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