

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

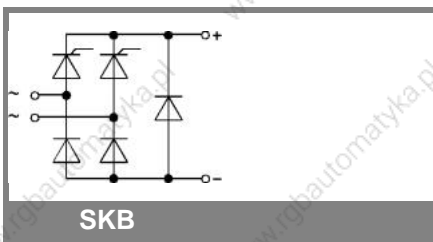
Typical Applications

- 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	



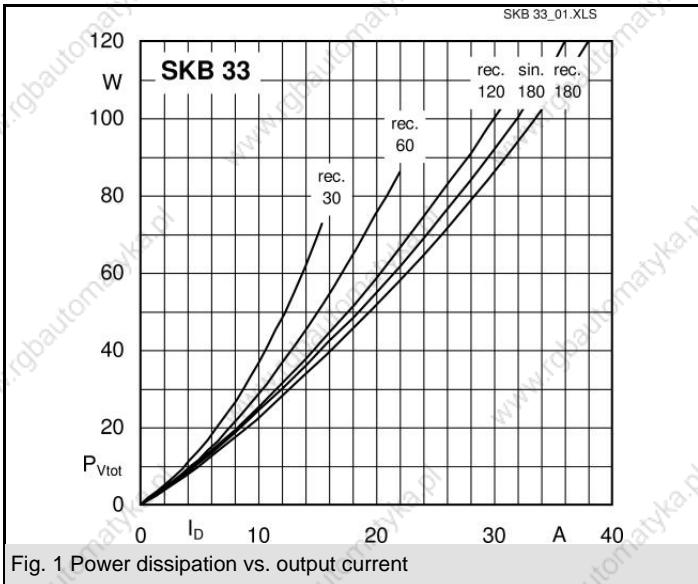


Fig. 1 Power dissipation vs. output current

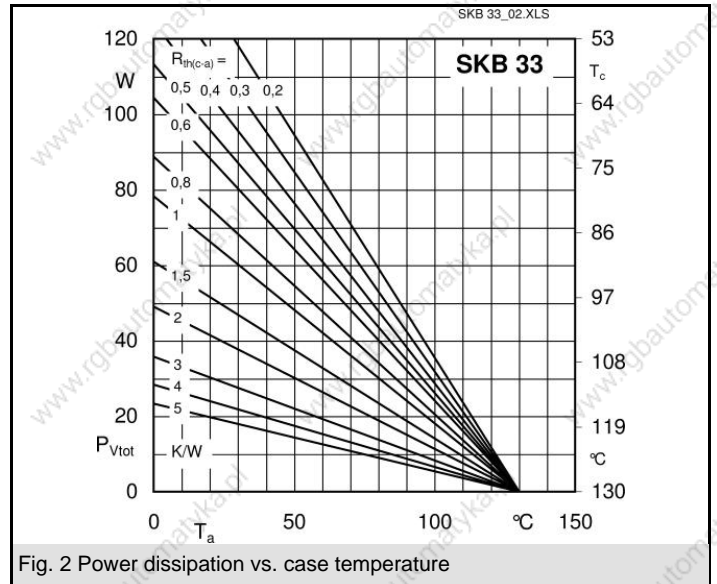


Fig. 2 Power dissipation vs. case temperature

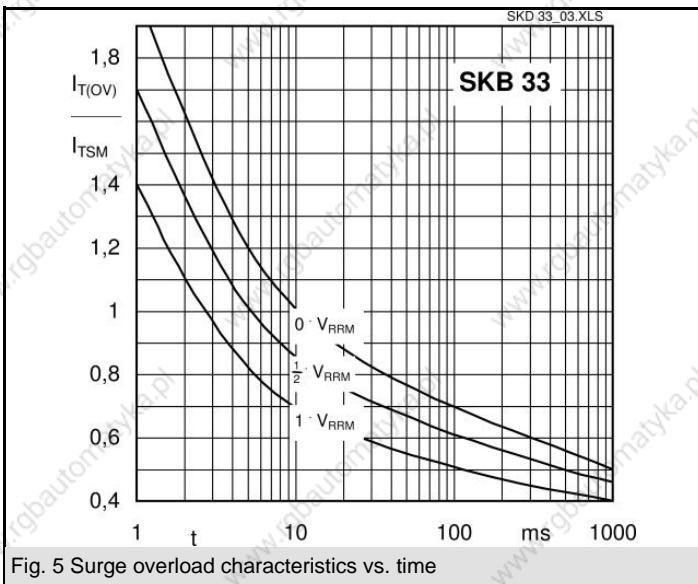


Fig. 5 Surge overload characteristics vs. time

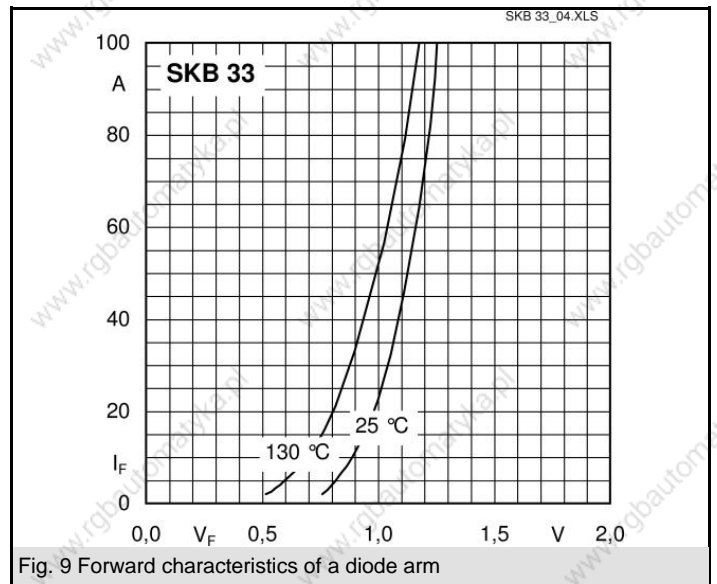


Fig. 9 Forward characteristics of a diode arm

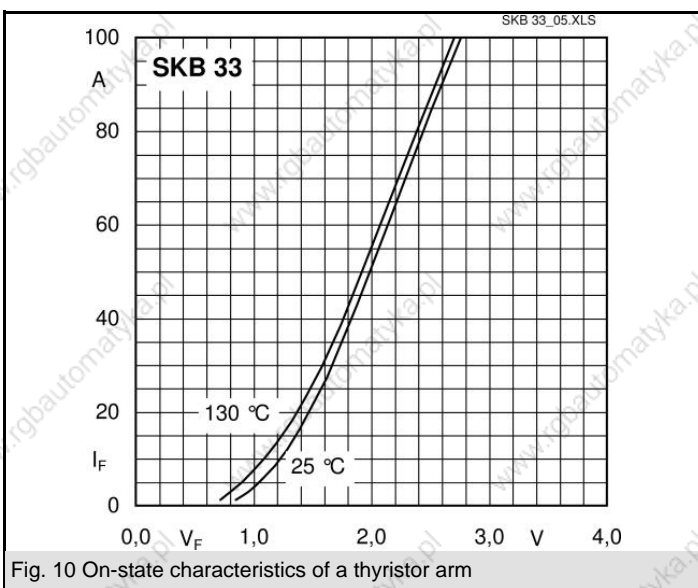


Fig. 10 On-state characteristics of a thyristor arm

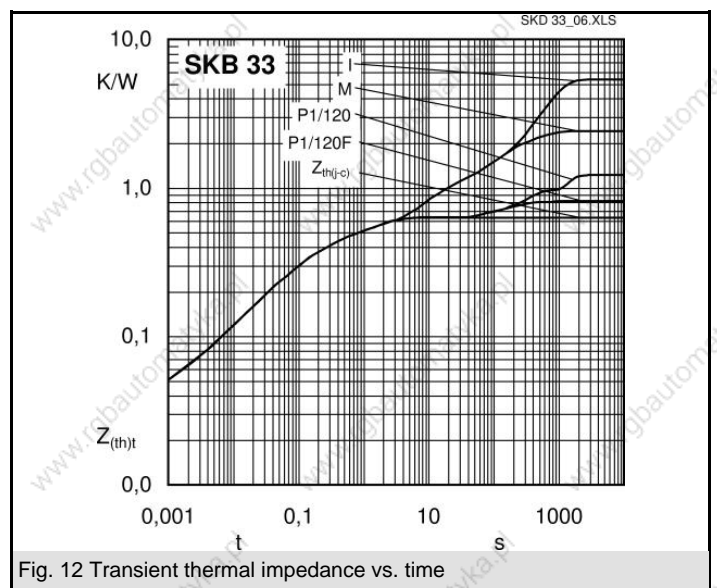


Fig. 12 Transient thermal impedance vs. time

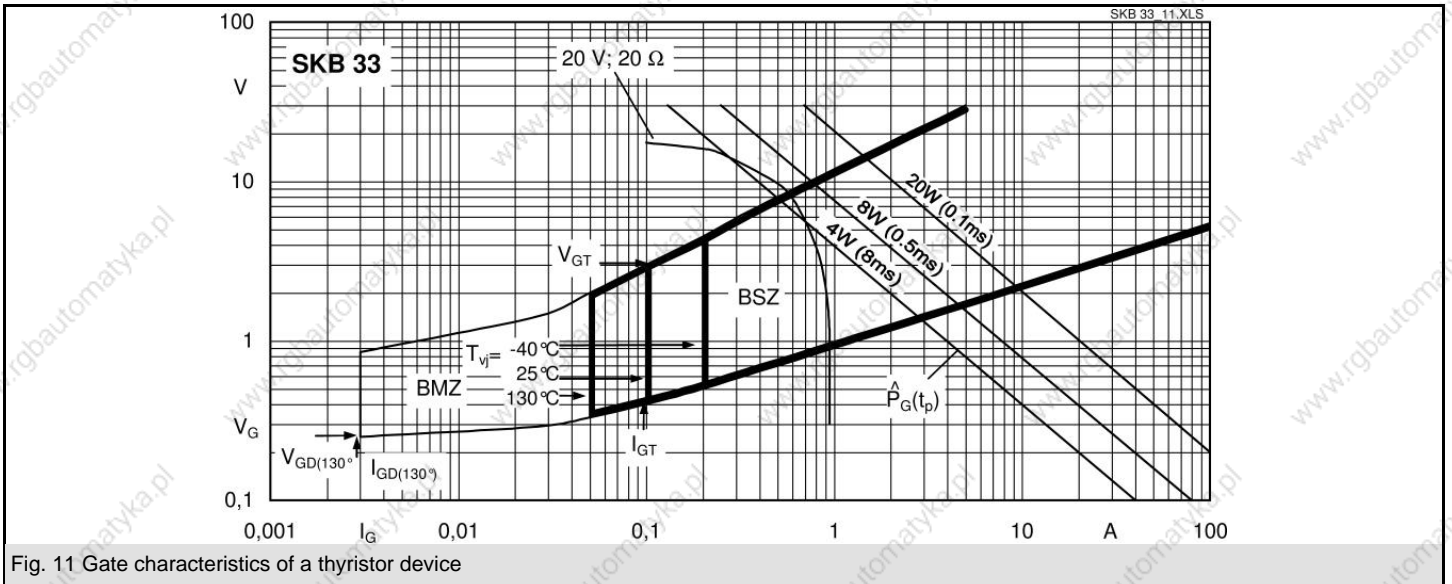
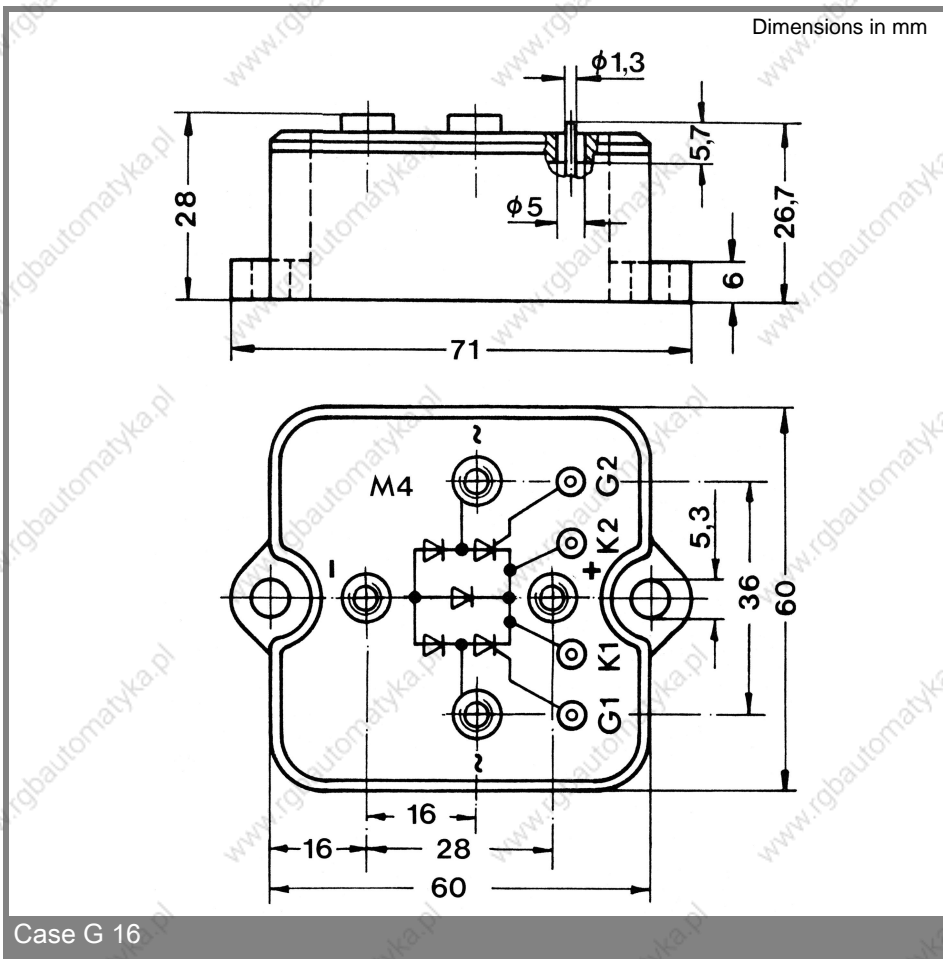


Fig. 11 Gate characteristics of a thyristor device



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