



**SEMIPONT<sup>®</sup> 2**

## Controllable Bridge Rectifiers

### SKDH 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

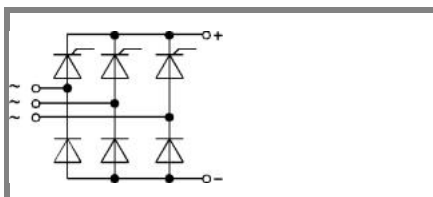
#### Typical Applications

- 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:  $R_{th(c-a)} = 1,8 \text{ K/W}$

$V_{RSM}$ V	$V_{RRM}, V_{DRM}$ V	$I_D = 100 \text{ A}$ (full conduction) ( $T_c = 84 \text{ °C}$ )
800	800	SKDH 100/08
1200	1200	SKDH 100/12
1400	1400	SKDH 100/14

Symbol	Conditions	Values	Units
$I_D$	$T_c = 85 \text{ °C}$	98	A
	$T_a = 45 \text{ °C}$ ; chassis <sup>1)</sup>	20	A
	$T_a = 45 \text{ °C}$ ; P13A/125	25	A
	$T_a = 45 \text{ °C}$ ; P1A/120	45	A
$I_{TSM}, I_{FSM}$	$T_{vj} = 25 \text{ °C}$ ; 10 ms	1000	A
	$T_{vj} = 125 \text{ °C}$ ; 10 ms	850	A
$i^2t$	$T_{vj} = 25 \text{ °C}$ ; 8,3 ... 10 ms	5000	A <sup>2</sup> s
	$T_{vj} = 125 \text{ °C}$ ; 8,3 ... 10 ms	3600	A <sup>2</sup> s
$V_T$	$T_{vj} = 25 \text{ °C}$ ; $I_T = 200 \text{ A}$	max. 1,95	V
$V_{T(TO)}$	$T_{vj} = 125 \text{ °C}$ ;	max. 1	V
$r_T$	$T_{vj} = 125 \text{ °C}$	max. 4,5	mΩ
$I_{DD}, I_{RD}$	$T_{vj} = 125 \text{ °C}$ ; $V_{DD} = V_{DRM}$ ; $V_{RD} = V_{RRM}$	max. 15	mA
$t_{gd}$	$T_{vj} = 25 \text{ °C}$ ; $I_G = 1 \text{ A}$ ; $di_G/dt = 1 \text{ A}/\mu\text{s}$	1	μs
$t_{gr}$	$V_D = 0,67 \cdot V_{DRM}$	1	μs
$(dv/dt)_{cr}$	$T_{vj} = 125 \text{ °C}$	max. 500	V/μs
$(di/dt)_{cr}$	$T_{vj} = 125 \text{ °C}$ ; $f = 50 \text{ Hz}$	max. 50	A/μs
$t_q$	$T_{vj} = 125 \text{ °C}$ ; typ.	80	μs
$I_H$	$T_{vj} = 25 \text{ °C}$ ; typ. / max.	100 / 200	mA
$I_L$	$T_{vj} = 25 \text{ °C}$ ; $R_G = 33 \text{ } \Omega$	250 / 400	mA
$V_{GT}$	$T_{vj} = 25 \text{ °C}$ ; d.c.	min. 3	V
$I_{GT}$	$T_{vj} = 25 \text{ °C}$ ; d.c.	min. 150	mA
$V_{GD}$	$T_{vj} = 125 \text{ °C}$ ; d.c.	max. 0,25	V
$I_{GD}$	$T_{vj} = 125 \text{ °C}$ ; 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	SKDH	G 53	



**SKDH**

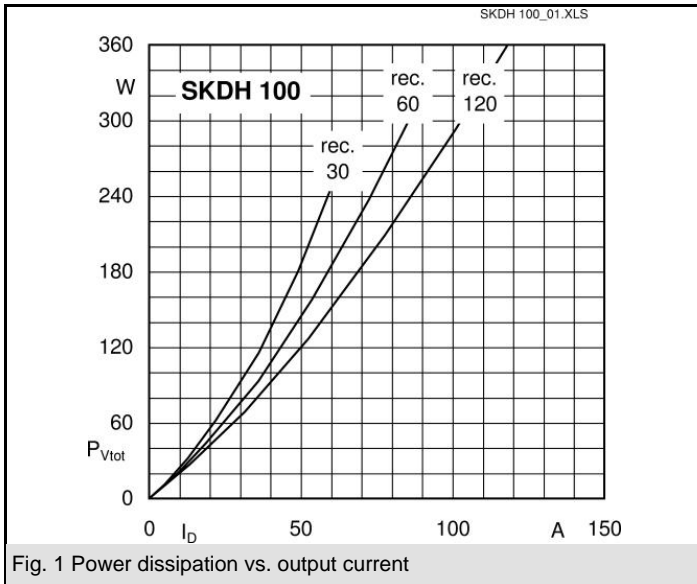


Fig. 1 Power dissipation vs. output current

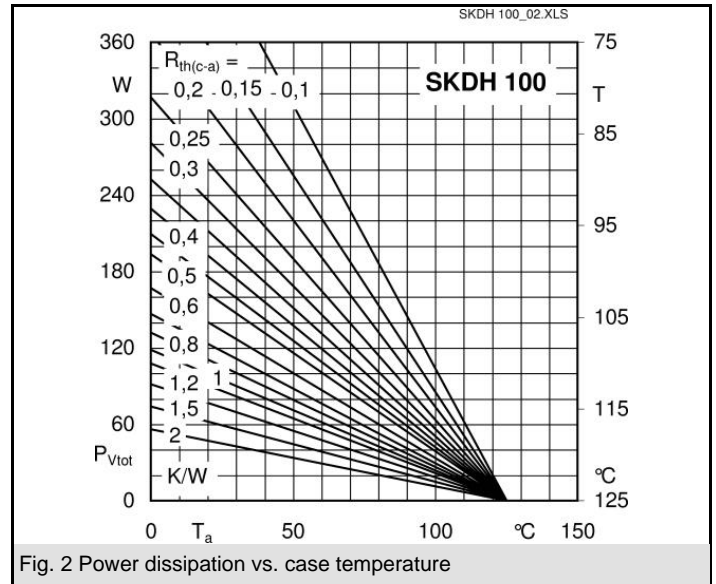


Fig. 2 Power dissipation vs. case temperature

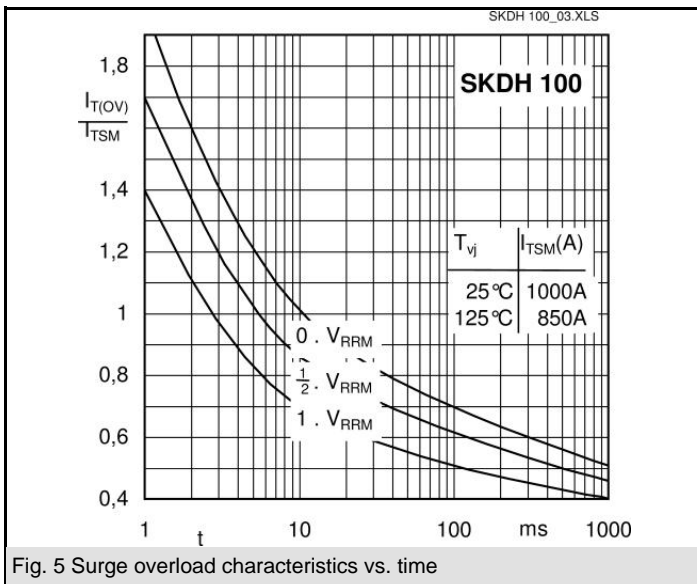


Fig. 5 Surge overload characteristics vs. time

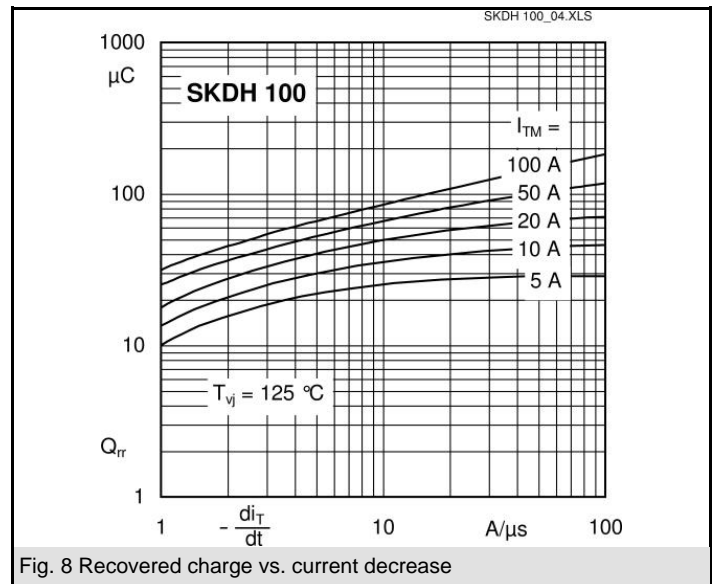


Fig. 8 Recovered charge vs. current decrease

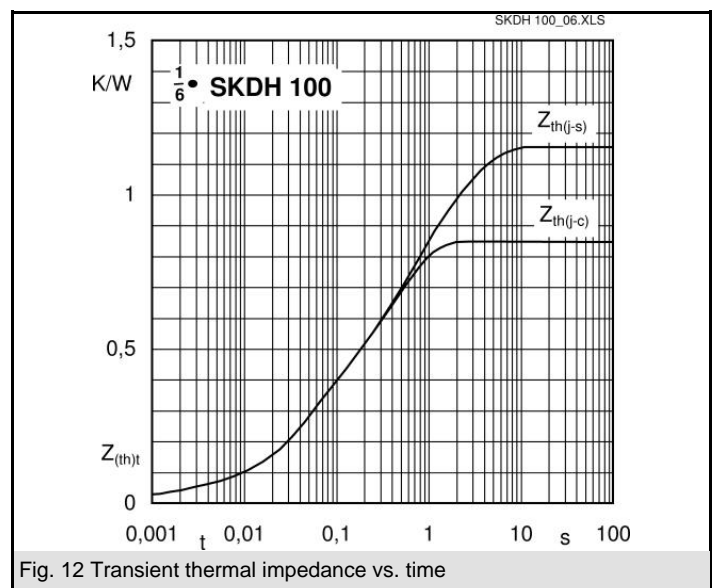


Fig. 12 Transient thermal impedance vs. time

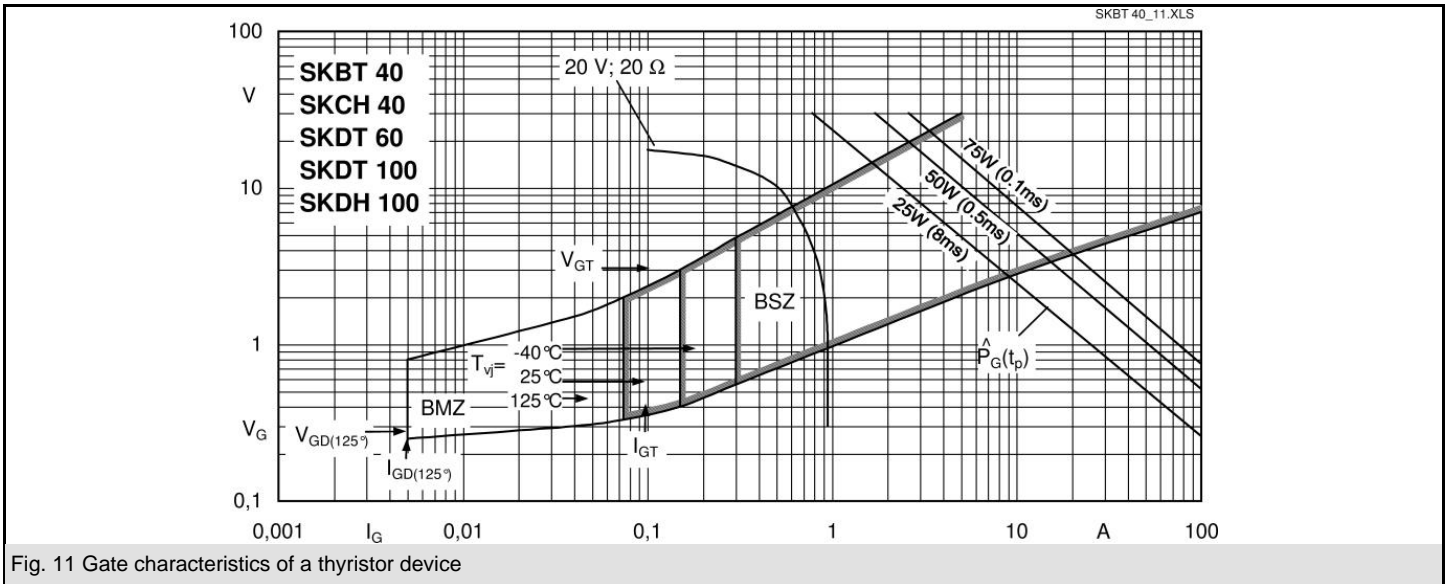
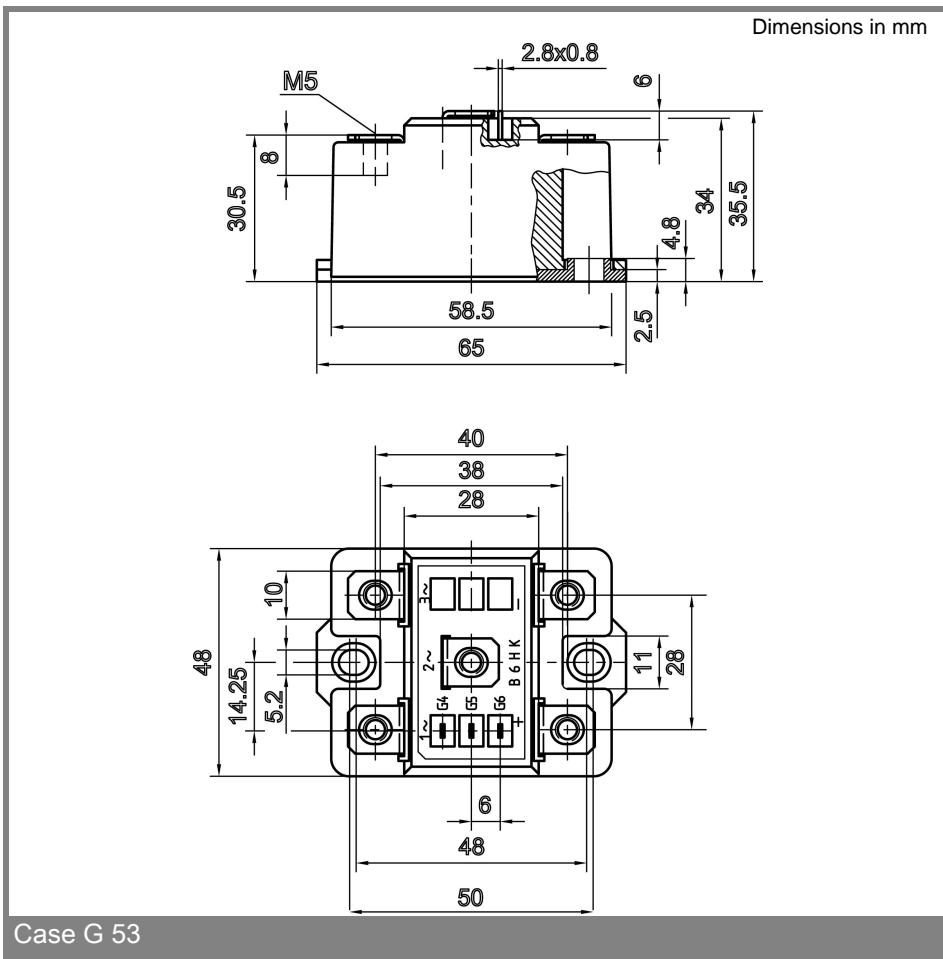


Fig. 11 Gate characteristics of a thyristor device



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