



**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

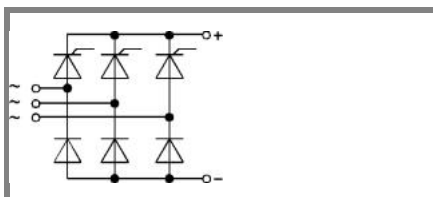
#### Typical Applications\*

- 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
	$T_a = 45 \text{ °C; chassis } ^1)$	20	A
	$T_a = 45 \text{ °C; P13A/125}$	25	A
	$T_a = 45 \text{ °C; P1A/120}$	45	A
$I_{TSM}, I_{FSM}$	$T_{vj} = 25 \text{ °C; } 10 \text{ ms}$	1000	A
	$T_{vj} = 125 \text{ °C; } 10 \text{ ms}$	850	A
$i^2t$	$T_{vj} = 25 \text{ °C; } 8,3 \dots 10 \text{ ms}$	5000	A <sup>2</sup> s
	$T_{vj} = 125 \text{ °C; } 8,3 \dots 10 \text{ ms}$	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**

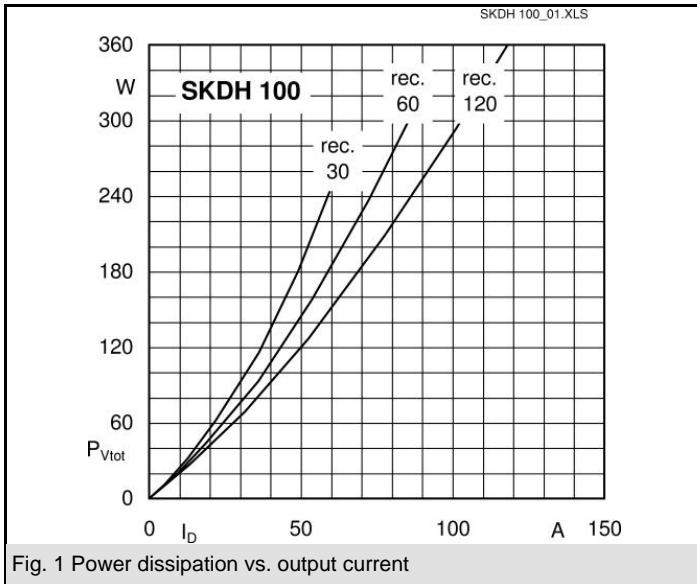


Fig. 1 Power dissipation vs. output current

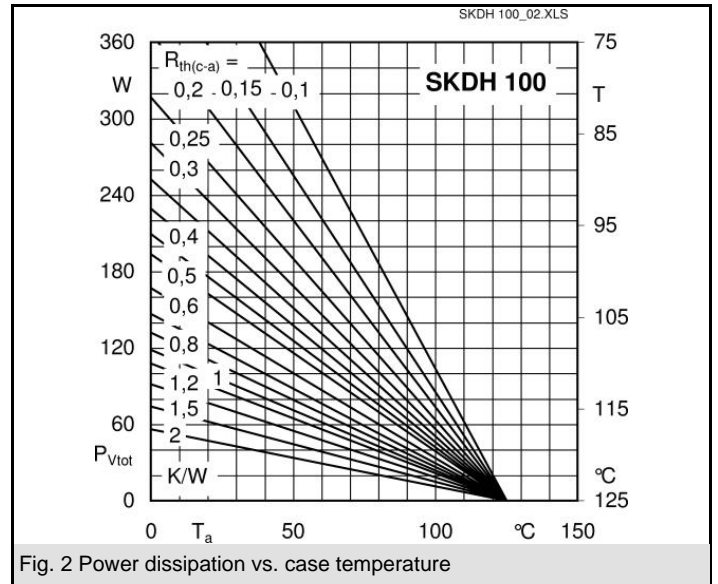


Fig. 2 Power dissipation vs. case temperature

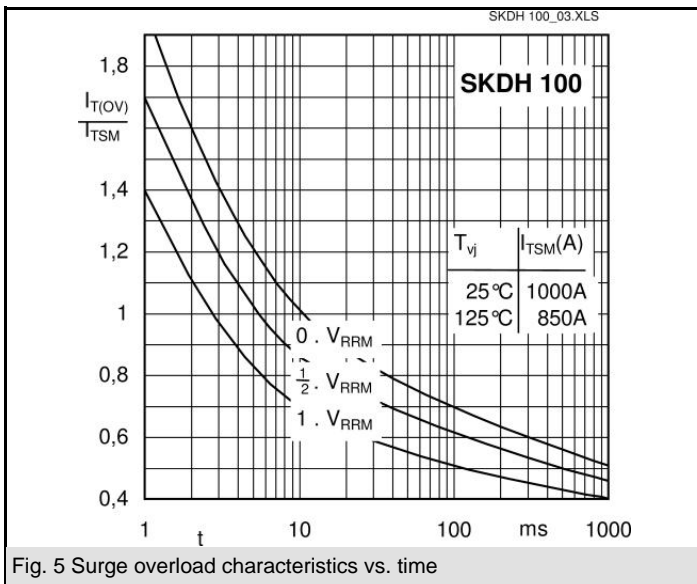


Fig. 5 Surge overload characteristics vs. time

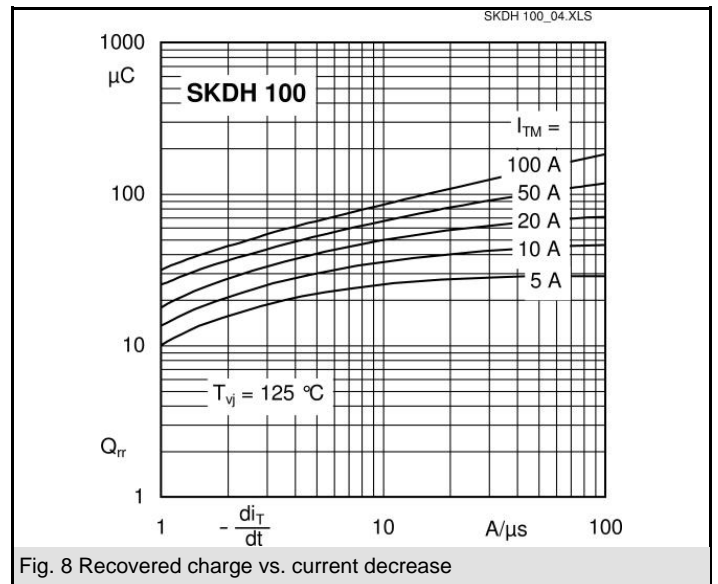


Fig. 8 Recovered charge vs. current decrease

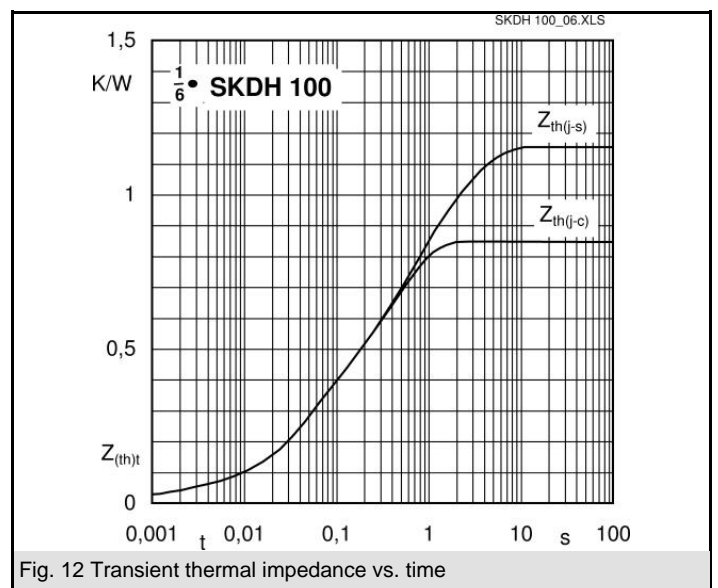


Fig. 12 Transient thermal impedance vs. time

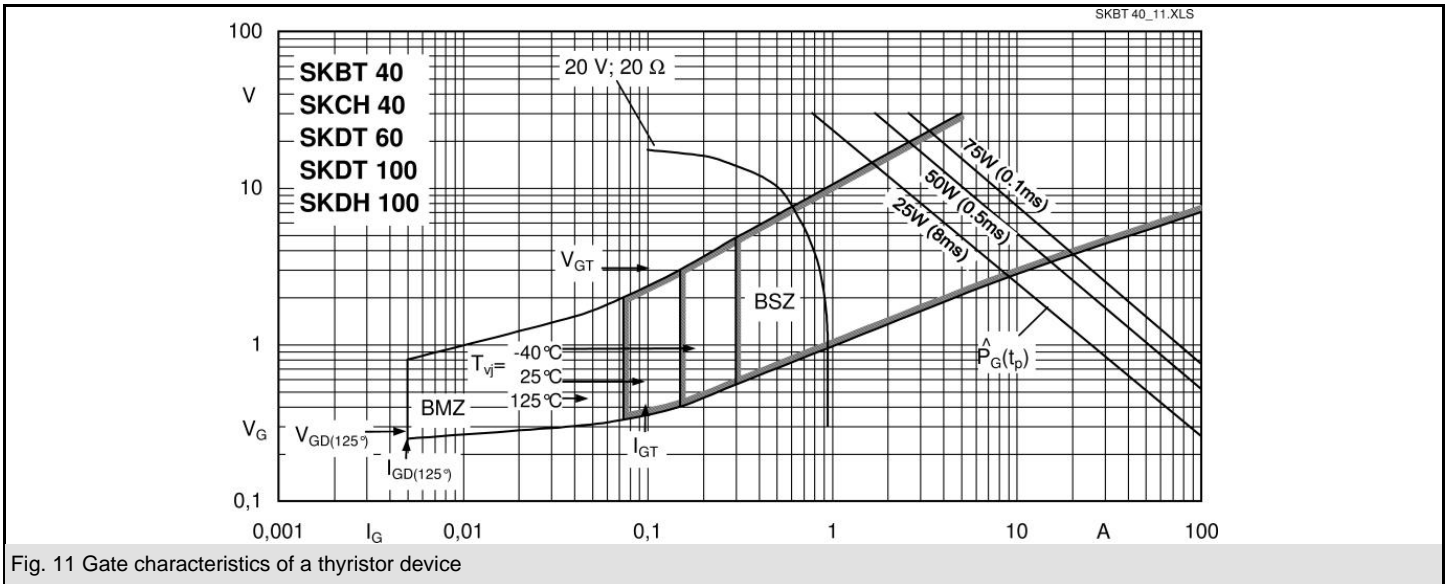
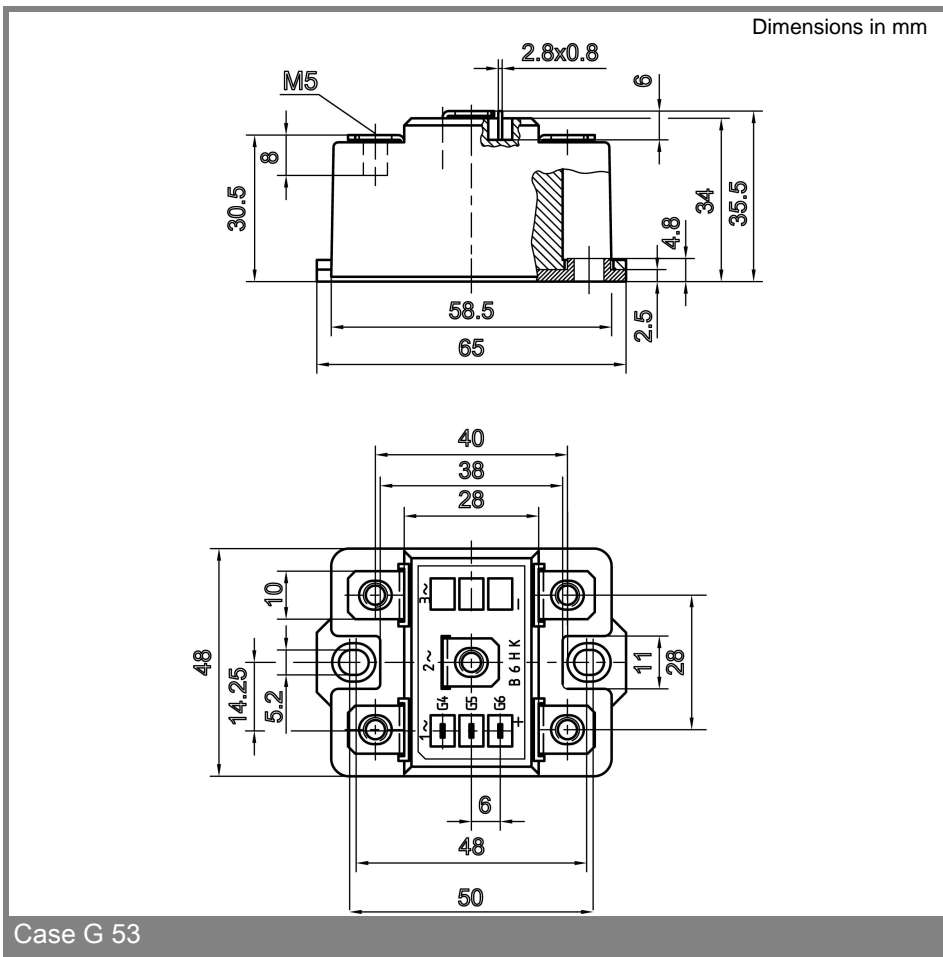


Fig. 11 Gate characteristics of a thyristor device



\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.