SEMIKRON

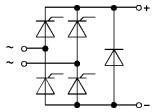
V_{DRM} V_{RSM} V_{RRM} V	I_D (T_{case} = ... °C, full conduction) 40 A (92 °C)	40 A (92 °C)	100 A (84 °C)	60 A (86 °C)	100 A (84°C)
	SKCH	**SKBT**	**SKDH**	**SKDT**	**SKDT**
400	**40/04**	–	–	**60/04**	–
800	**40/08**	**40/08**	**100/08**	**60/08**	**100/08**
1200	**40/12**	**40/12**	**100/12**	**60/12**	**100/12**
1400	**40/14**	**40/14**	**100/14**	**60/14**	**100/14**
1600	**40/16**	–	–	–	

Symbol	**Conditions**	**SKCH 40 SKBT 40**	**SKDT 60**	**SKDH 100 SKDT 100**	**Units**
I_D	T_{case} = 85 °C; inductive load	46	61	98	A
	T_{amb} = 45 °C, chassis[1)]	15	16	20	A
	P13A/125	18	21	25	A
	R4A/120	18			A
	P1A/120	28	34	45	A
	T_{amb} = 35 °C, P1A/120 F	47	57	85	A
	P3/180 F	55	65	95	A
I_{TSM}	T_{vj} = 25 °C, 10 ms	470	470	1000	A
	T_{vj} = 125 °C, 10 ms	400	400	850	A
i^2t	T_{vj} = 25 °C, 8,3...10 ms	1100	1100	5000	A^2s
	T_{vj} = 125 °C, 8,3...10 ms	800	800	3600	A^2s
$(di/dt)_{cr}$	T_{vj} = 125 °C, 50 Hz	50			A/µs
$(dv/dt)_{cr}$	T_{vj} = 125 °C, $^2/_3$ V_{DRM}	500			V/µs
I_H	T_{vj} = 25 °C, typ./max.	100/200			mA
I_L	T_{vj} = 25 °C, typ./max.	250/400			mA
V_T	T_{vj} = 25 °C; (I_T = ...)	2,3 (75)	2,3 (75)	1,95 (200)	V A
$V_{T(TO)}$	T_{vj} = 125 °C	1,0	1,0	1,0	V
r_T	T_{vj} = 125 °C	16	16	4,5	mΩ
I_{DD}; I_{RD}	T_{vj} = 125 °C; V_{DD} = V_{DRM} V_{RD} = V_{RRM}	10	10	15	mA
V_{GT}	T_{vj} = 25 °C, V_D = 6 V	3			V
I_{GT}	T_{vj} = 25 °C, V_D = 6 V	150			mA
V_{GD}	T_{vj} = 125 °C, V_D = 6 V	0,25			V
R_{thjc}	per thyristor/diode	1,0	1,0	0,85	°C/W
	total	0,25	0,167	0,141	°C/W
R_{thch}	total	0,05			°C/W
T_{vj}, T_{stg}		– 40...+ 125			°C
V_{isol}	a.c.50...60Hz;r.m.s.;1s/1min	3600 / 3000			V~
M_1	to heatsink } SI (US) units	5 (44 lb.in.) ± 15 %			Nm
M_2	to terminals } SI (US) units	3 (26 lb.in.) ± 15 %			Nm
w		165			g
Case	→ page B 11 – 67	G 19 G 20	G 21	G 21 G 53	

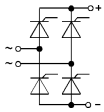
[1)] Painted metal sheet of minimum 250 x 250 x 1 mm: R_{thca} = 1,8 °C/W

SEMIPONT® 2
Controllable Bridge Rectifiers

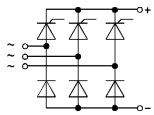
SKCH 40 **SKDT 60**
SKBT 40 **SKDT 100**
SKDH 100



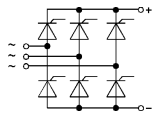
SKCH



SKBT



SKDH



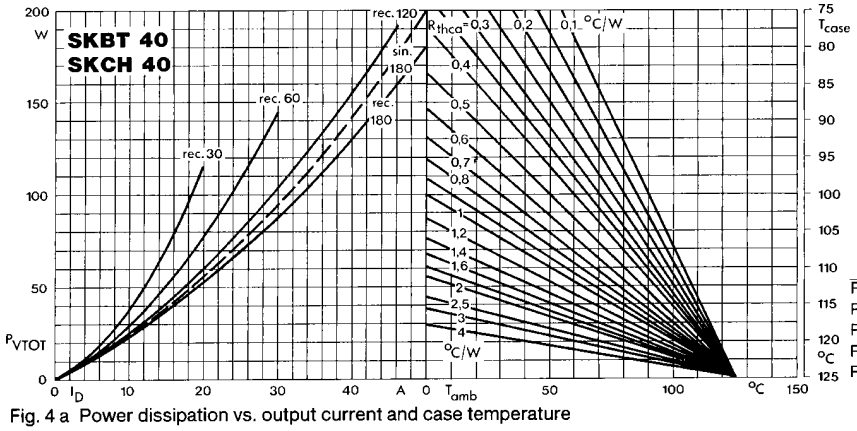
SKDT

Features

- Fully controlled single and three phase bridge rectifiers
- Robust plastic case with screw terminals
- Large, isolated base plate
- Blocking voltage to 1600 V
- High surge currents
- Easy chassis mounting
- UL recognized, file no. E 63 532

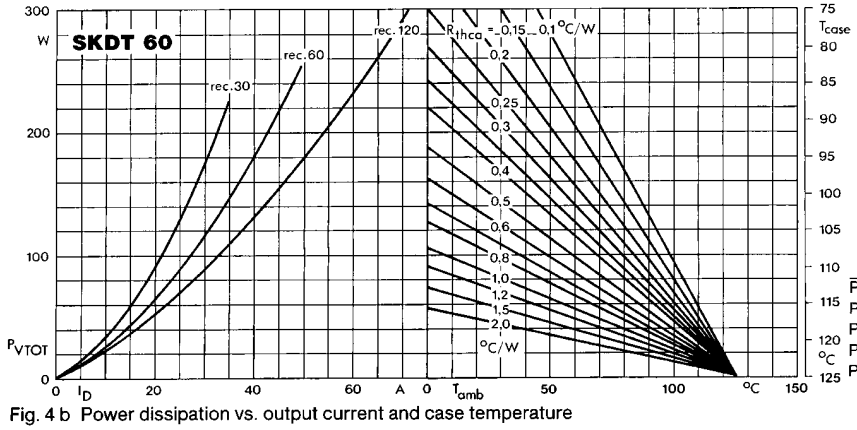
Typical Applications

- SKCH, SKDH, SKDT for DC drives with a fixed direction of rotation
- SKBT, SKDT for reversing DC drives
- Controlled field rectifiers for DC motors
- Controlled battery charger rectifiers



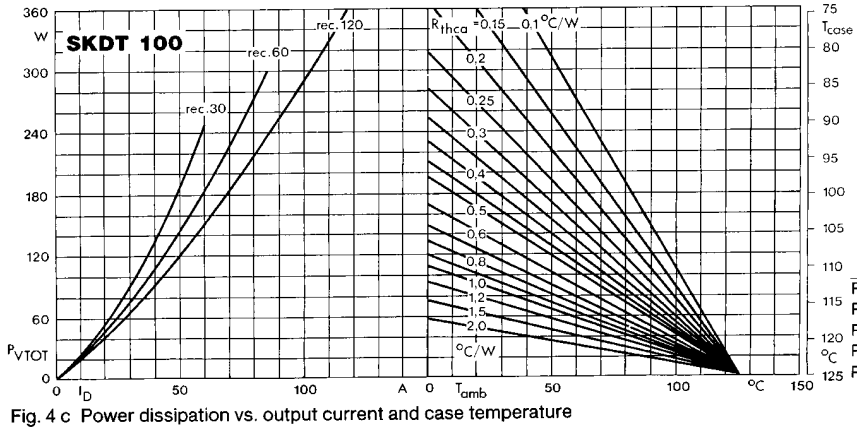
	R_{thca}
P5/100	1,45 °C/W
P13/125	1,3 °C/W
P1/120	0,60 °C/W
P1/200	0,45 °C/W
P1/120 F	0,18 °C/W

Fig. 4 a Power dissipation vs. output current and case temperature



	R_{thca}
P5/100	1,45 °C/W
P13/125	1,3 °C/W
P1/120	0,60 °C/W
P1/200	0,45 °C/W
P1/120 F	0,18 °C/W

Fig. 4 b Power dissipation vs. output current and case temperature



	R_{thca}
P5/100	1,45 °C/W
P13/125	1,3 °C/W
P1/120	0,60 °C/W
P1/200	0,45 °C/W
P1/120 F	0,18 °C/W

Fig. 4 c Power dissipation vs. output current and case temperature

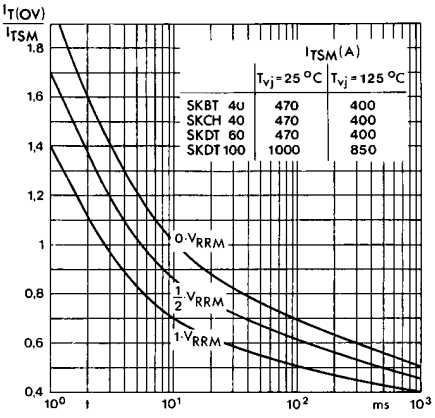


Fig. 5 Surge overload current vs. time

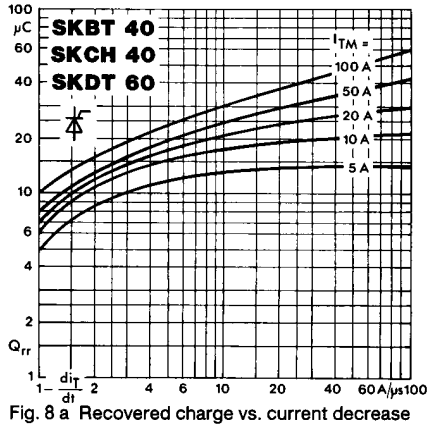


Fig. 8 a Recovered charge vs. current decrease

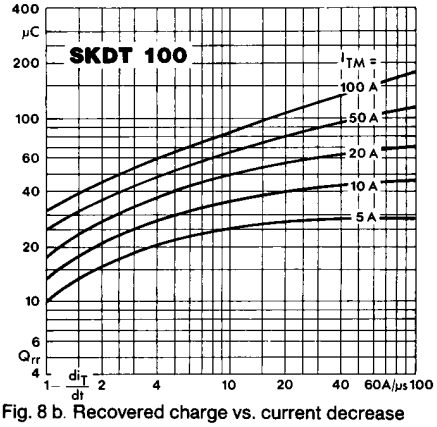


Fig. 8 b. Recovered charge vs. current decrease

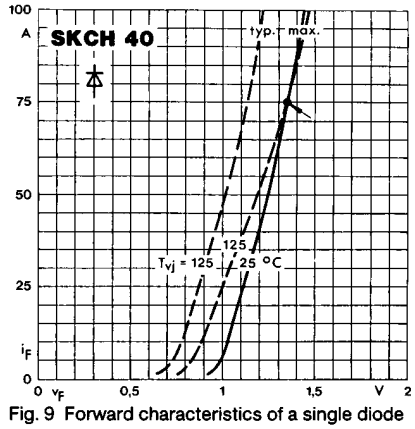


Fig. 9 Forward characteristics of a single diode

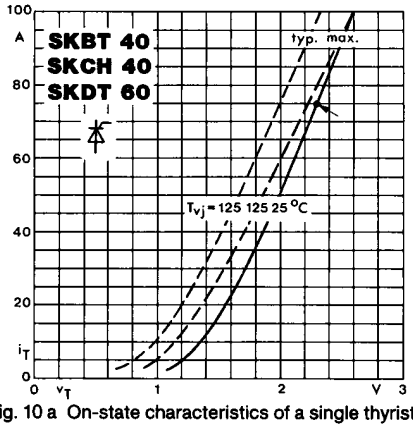


Fig. 10 a On-state characteristics of a single thyristor

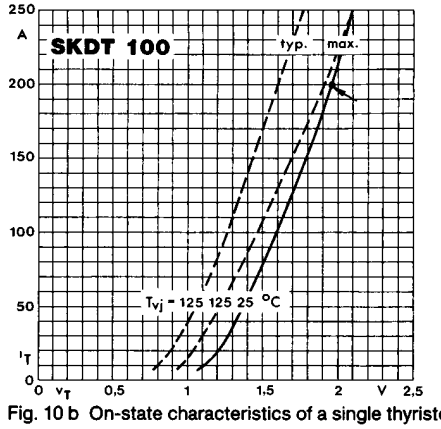


Fig. 10 b On-state characteristics of a single thyristor

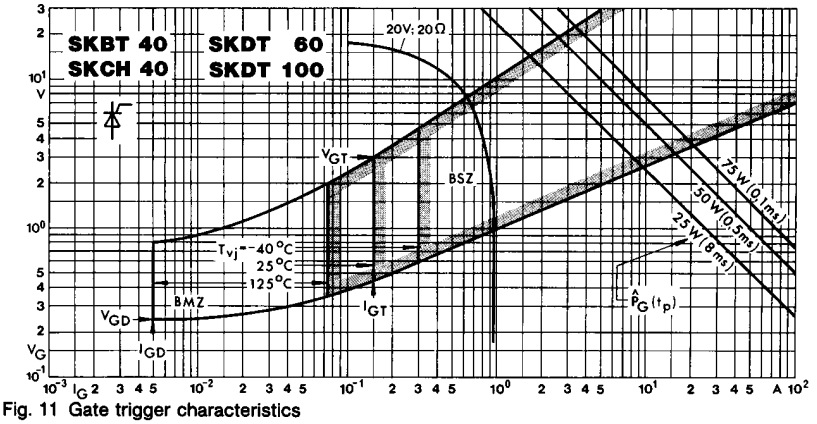


Fig. 11 Gate trigger characteristics

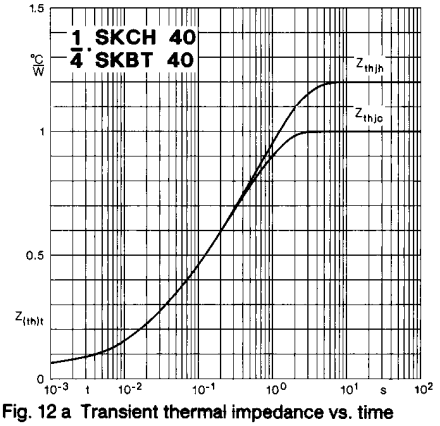


Fig. 12 a Transient thermal impedance vs. time

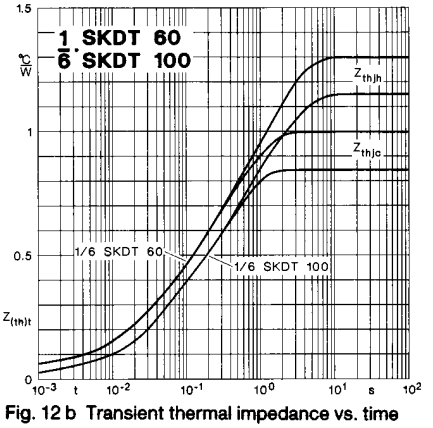
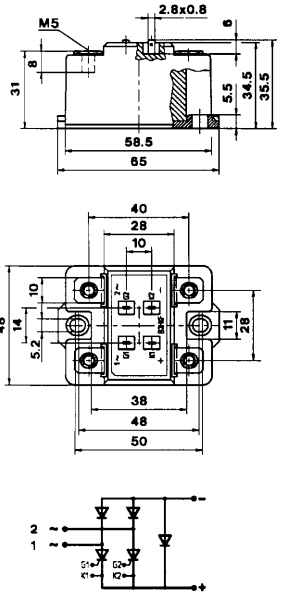


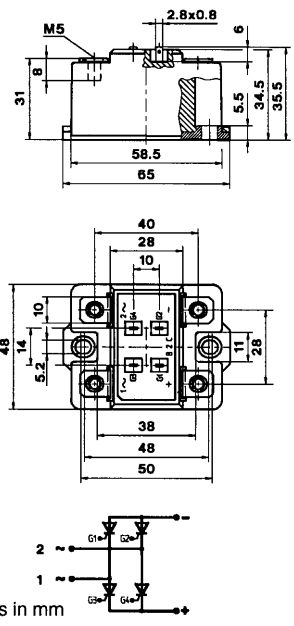
Fig. 12 b Transient thermal impedance vs. time

SKCH 40 SEMIPONT® 2
Case G 19



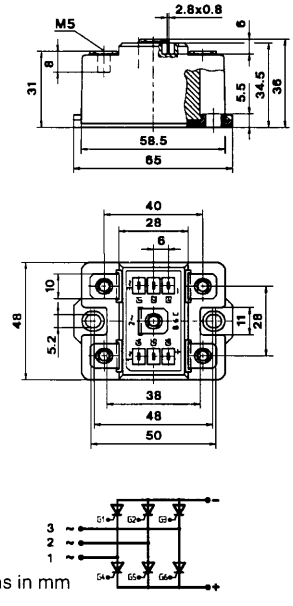
Dimensions in mm

SKBT 40 SEMIPONT® 2
Case G 20



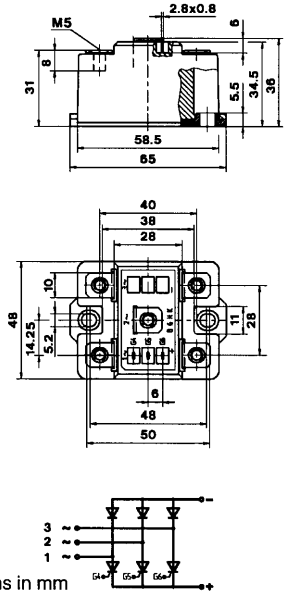
Dimensions in mm

SKDT 60, SKDT 100 SEMIPONT® 2
Case G 21



Dimensions in mm

SKDL 100 SEMIPONT® 2
Case G 53



Dimensions in mm

Available Heatsinks

Rectifier	Heatsink	w kg	R_{thca} natural cooling °C/W	R_{thca} forced cooling °C/W
SKB 15	**P 5A/100**	0,28	1,7	–
SKB 25, SKD 25	**P 5A/100**	0,28	1,55	–
	R 4A/120	0,6	1,45	–
	P 1/120	1,3	0,75	–
SKBH 28, SKBT 28, **SKBZ 28, SKCH 28** **SKB 30, SKD 30, SKD 31**	**P 5A/100**	0,28	1,5	–
	R 4A/120	0,6	1,4	–
	P 1/120	1,3	0,7	–
	P13A/125	0,6	1,35	–
SKB 33, **SKB 50, SKD 50**	**P1/120**	1,3	0,65	0,30
SKBT 40, SKCH 40	**P 5A/100**	0,28	1,45	–
	R 4A/120	0,6	1,35	–
SKB 60, SKD 60, SKDT 60	**P 13A/125**	0,6	1,30	–
SKB 52, SKD 62, SKB 72	**P 15/180**	1,7	0,8	0,30
SKD 82, SKD 100, SKDT 100	**P 1/120**	1,3	0,65	0,20
SKD 110, SKD 160	**P 3/180**	3,1	0,5	0,18
	P 1/200	2,2	0,52	0,18

Section 12: SEMISTACK® Thyristor, Rectifier Diode and IGBT Assemblies

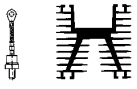
Summary of Types

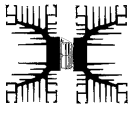
This is our standard SEMISTACK® program. Most of the assemblies above are also offered mounted on water-cooled heatsinks. Numerous special designs may be supplied according to the customer's demand. Our application engineers are available to propose the most reliable and cost-effective solution to your needs.
Please contact your nearest SEMIKRON sales office.

Notes
1) IEC 971 - 1989-07: 4.1 ... 4.3
2) RC-snubber circuits, semiconductor fuses, varistors and bimetal thermal trips appropriate to each SEMISTACK® are offered on request.

Discrete rectifier diodes with non-isolated heatsinks

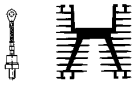
Natural cooling; $T_{amb} \leq 45$ °C

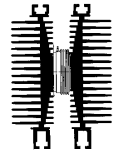




Code Designation * V_{VRMS} / V_D - I_d V / V - A	Device Type	Heatsink Type / L mm	Thermal Trip °C	Overall Dimensions Height mm	Width mm	Depth mm	Outline Figure
B2U... / ...-100	**SKN 100**	**C3/120**		120	234	130	12 a
-165	**SKN/R 100**	**P1/150**		150	375	250	15 a
-190	**SKN/R 130**	**P1/200**		200	375	250	15 b
-275	**SKN/R 240**	**P1/200**		200	375	250	15 b
-350	**SKN/R 240**	**P1/400**		400	375	250	15 c
-430	**SKN/R 320**	**P1/400**		400	375	250	15 c
-490	**SKN/R 320**	**P4/400**		400	475	270	19 a
-600	**SKN 501**	**P11/415**		635	500	275	21 a
-645	**SKN 870**	**P11/415**		635	500	275	21 a
-845	**SKN 870**	**U3/515**		740	560	290	25 a
-1090	**SKN 1500**	**U3/515**		740	560	290	25 a

Forced air cooling; $T_{amb} \leq 35$ °C





B2U... / ...-245 F	**SKN/R 100**	**P1/150**	85	208	375	250	15 a
-310 F	**SKN/R 130**	**P1/200**	85	258	375	250	15 b
-485 F	**SKN/R 240**	**P1/200**	100	258	375	250	15 b
-545 F	**SKN/R 240**	**P1/400**	95	458	375	250	15 c
-675 F	**SKN/R 320**	**P1/400**	100	458	375	250	15 c
-885 F	**SKN 501**	**P18/130**	112	558	382	344	28 a
-1200 F	**SKN 870**	**P18/130**	112	558	382	344	28 b
-1525 F	**SKN 1500**	**P18/130**	132	558	406	344	28 b
-1865 F	**SKN 2000**	**P18/130**	132	558	406	344	28 b
-1970 F	**SKN 1500**	**N4/250**	118	790	542	400	34
-2560 F	**SKN 2000**	**N4/250**	118	790	542	400	34

*) see page A – 96: siehe Seite A – 221

