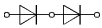
V_{RSM}	V_{RRM}	I_{FRMS} (maximum values for continuous operation)		
		90 A	140 A	140 A
		I_{FAV} (sin. 180; T_{case} = . . .)		
V	V	57 A (71 °C)	90 A (80 °C)	90 A (80 °C)
500	400	**SKKD 46/04**	**SKKD 81/04**	**SKKE 81/04**
700	600	**SKKD 46/06**	**SKKD 81/06**	**SKKE 81/06**
900	800	**SKKD 46/08**	**SKKD 81/08**	**SKKE 81/08**
1300	1200	**SKKD 46/12**	**SKKD 81/12**	**SKKE 81/12**
1500	1400	**SKKD 46/14**	**SKKD 81/14**	**SKKE 81/14**
1700	1600	**SKKD 46/16**	**SKKD 81/16**	**SKKE 81/16**
1900	1800	**SKKD 46/18**	**SKKD 81/18**	**SKKE 81/18**
2100	2000	–	**SKKD 81/20**	**SKKE 81/20**
2300	2200	–	**SKKD 81/22**	**SKKE 81/22**

SEMIPACK® 1
Rectifier Diode Modules

SKKD 46
SKND 46[1)]

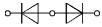
SKKD 81
SKKE 81
SKND 81[1)]

Symbol	Conditions	SKKD 46	SKKD 81 SKKE 81	Units
I_{FAV}	sin. 180 (T_{case} = . . .)	45(86 °C)	80(87 °C)	A
I_D[1)]	B2/B6 T_{amb} = 45 °C; P 3/120	50/60	63/70	A
	P 3/180	54/66	70/85	A
	T_{amb} = 35 °C; P 3/180 F	95/120	135/175	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	700	2 000	A
	T_{vj} = 125 °C; 10 ms	600	1 750	A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	2 450	20 000	A^2s
	T_{vj} = 125 °C; 8,3 ... 10 ms	1 800	15 000	A^2s
I_{RD}	T_{vj} = 125 °C; V_{RD} = V_{RRM}	3	4,5	mA
V_F	T_{vj} = 25 °C (I_F = . . .); max.	1,95 (250 A)	1,55 (300 A)	V
$V_{(TO)}$	T_{vj} = 125 °C	0,85	0,85	V
r_T	T_{vj} = 125 °C	5	1,8	mΩ
R_{thjc}	per diode/per module[2)]	0,6/0,3	0,4/0,2	°C/W
R_{thch}		0,2/0,1	0,2/0,1	°C/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_1	to heatsink, SI (US) units	5 (44 lb. in.) ± 15 %[3)]		Nm
M_2	to terminals, SI (US) units	3 (26 lb. in.) ± 15 %[3)]		Nm
a		5 · 9,81		m/s^2
w	approx.	120		g
Case	→ page B 1 – 93	SKKD 46: A 10 SKND 46: A 19	SKKD 81: A 10 SKKE 81: A 12 SKND 81: A 19	



SKKD

SKKE



SKND

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- Non-controllable rectifiers for AC/AC converters
- Line rectifiers for transistorized AC motor controllers
- Field supply for DC motors
- SKKE: Free-wheeling diodes

1) SKND 46 and SKND 81 available on request
2) SKKD types only
3) See the assembly instructions

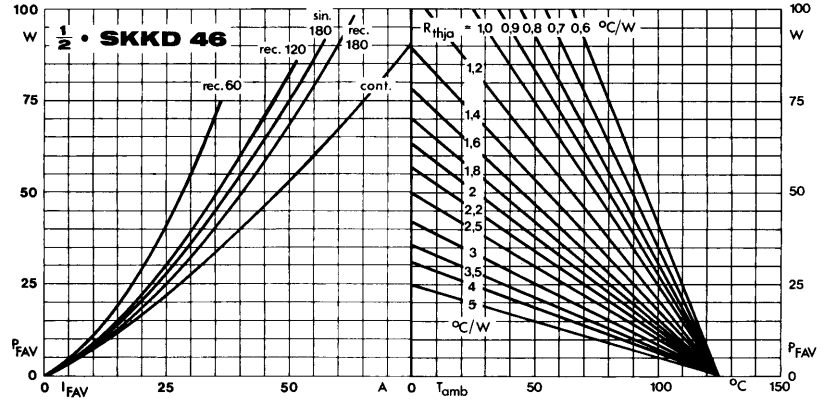


Fig. 11 a Power dissipation per diode vs. forward current and ambient temperature

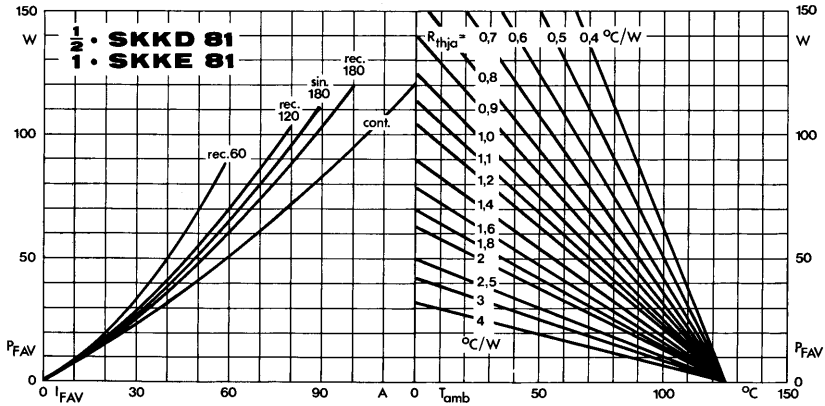


Fig. 11 b Power dissipation per diode vs. forward current and ambient temperature

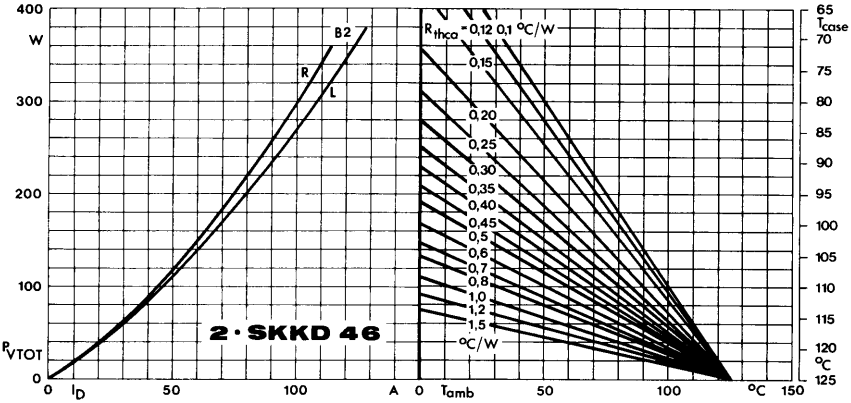


Fig. 12 a Power dissipation of two modules vs. direct current and case temperature

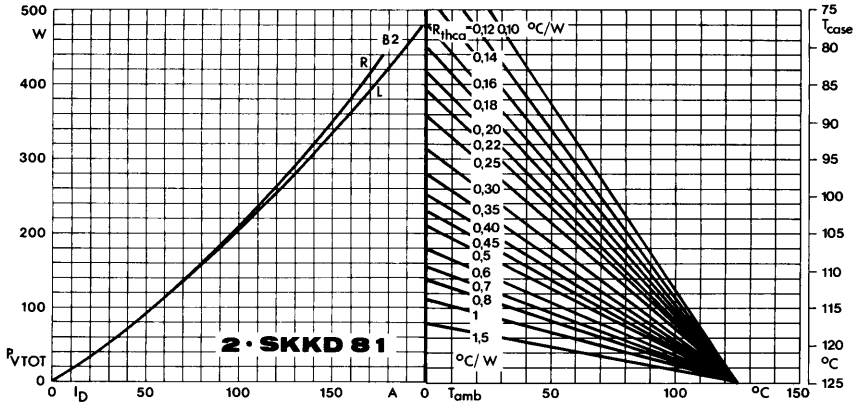


Fig. 12 b Power dissipation of two modules vs. direct current and case temperature

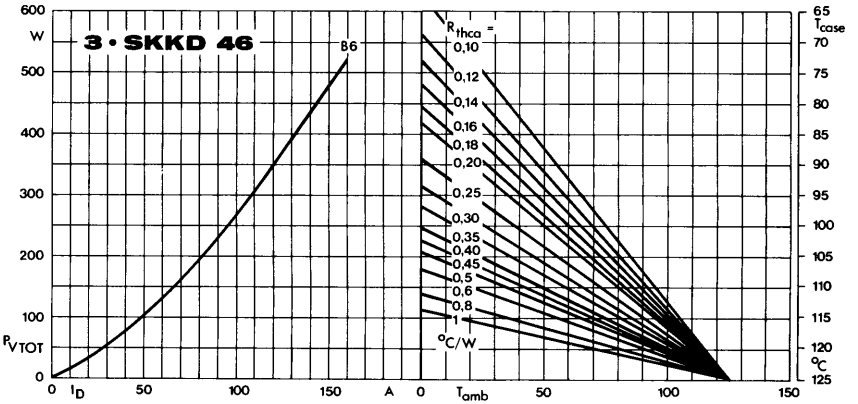


Fig. 13 a Power dissipation of three modules vs. direct current and case temperature

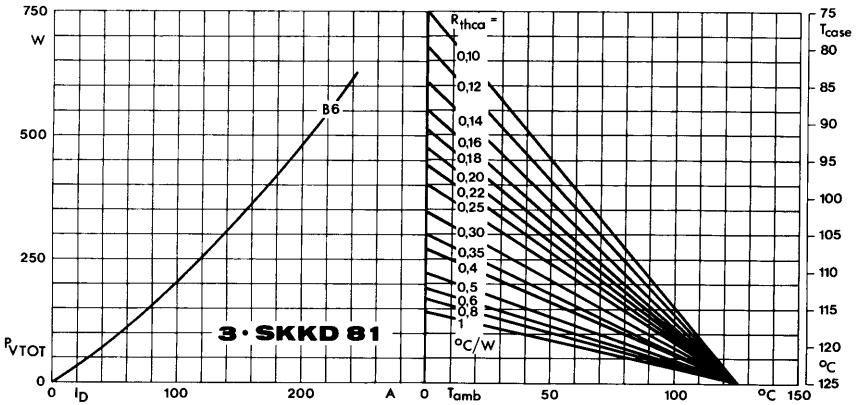


Fig. 13 b Power dissipation of three modules vs. direct current and case temperature

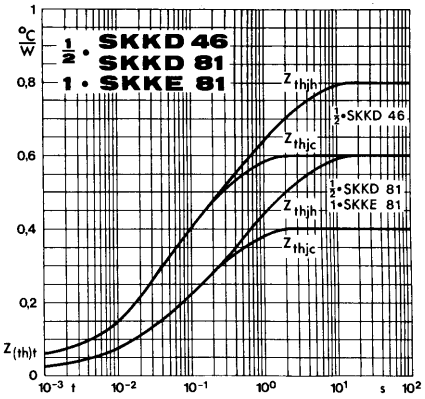


Fig. 14 Transient thermal impedance vs. time

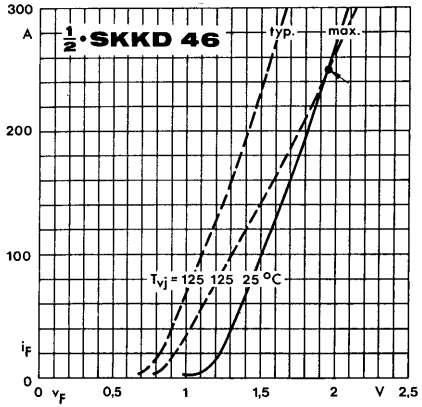


Fig. 15 a Forward characteristics

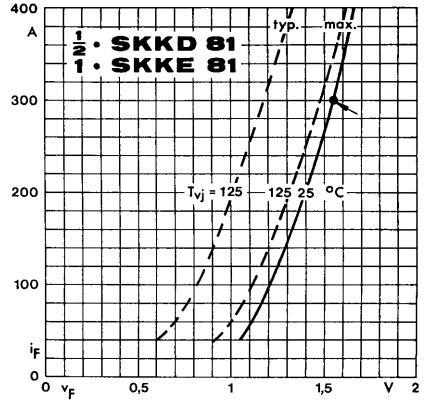


Fig. 15 b Forward characteristics

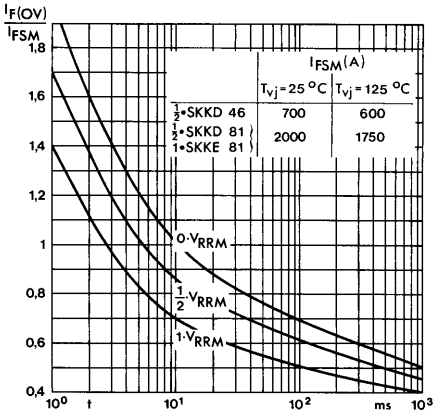


Fig. 16 Surge overload current vs. time

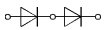
V_{RSM}	V_{RRM}	I_{FRMS} (maximum values for continuous operation) 175 A	250 A	250 A
		I_{FAV} (sin. 180; T_{case} = . . .)		
V	V	100 A (85 °C)	160 A (95 °C)	160 A (95 °C)
500	400	**SKKD 100/04**	–	–
900	800	**SKKD 100/08**	**SKKD 162/08**	**SKKE 162/08**
1300	1200	**SKKD 100/12**	**SKKD 162/12**	**SKKE 162/12**
1500	1400	**SKKD 100/14**	**SKKD 162/14**	**SKKE 162/14**
1700	1600	**SKKD 100/16**	**SKKD 162/16**	**SKKE 162/16**
1900	1800	**SKKD 100/18**	**SKKD 162/18**	**SKKE 162/18**
2100	2000	–	**SKKD 162/20**	**SKKE 162/20**
2300	2200	–	**SKKD 162/22**	**SKKE 162/22**

Symbol	**Conditions**	**SKKD 100**	**SKKD 162 SKKE 162**	**Units**
I_{FAV}	sin. 180; (T_{case} = ...)	100 (85°C)	160 (95°C)	A
I_D[1]	B2/B6 T_{amb} = 45 °C, P 3/180	73/91	90/115	A
	T_{amb} = 35 °C, P 3/180F	150/190	210/260	A
	P16/200F	–	320/425	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	2500	6000	A
	T_{vj} = 125 °C; 10 ms	2000	5000	A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	31 250	180 000	A^2s
	T_{vj} = 125 °C; 8,3 ... 10 ms	20 000	125 000	A^2s
I_{RD}	$T_{vj\ max.}$; V_{RD} = V_{RRM}	5	9	mA
V_F	T_{vj} = 25 °C (I_F = . . .); max.	1,35 (300 A)	1,5 (500 A)	V
$V_{(TO)}$	T_{vjmax}	0,85	0,85	V
r_T	T_{vjmax}	1,3	1,2	mΩ
R_{thjc}	per diode/per module[2]	0,35/0,175	0,18/0,09	°C/W
R_{thch}	per diode/per module[2]	0,2/0,1	0,10/0,05	°C/W
T_{vj}	per diode/per module[2]	– 40 ... +125	– 40 ... +135	°C
T_{stg}	per diode/per module[2]	– 40 ... +125	– 40 ... +135	°C
V_{isol}	a. c. 50 Hz; r.m.s.; 1 s/1 min	3600/3000		V~
M_1	to heatsink SI units	5 ± 15 %		Nm
	US units	44 ± 15 %		lb.in.
M_2	to terminals SI units	3 ± 15 %[3]	5 ± 15 %[3]	Nm
	US units	26 ± 15 %[3]	44 ± 15 %[3]	lb.in.
a		5 · 9,81	5 · 9,81	m/s^2
w	approx.	120	250	g
Case	→ page B 1 – 93; 94	SKKD 100: A 10	SKKD 162: A 23 SKKE 162: A 24	
	(B 1 – 42: SKMD 100: A 33)		SKMD 162: A 57	

Rectifier Diode Modules

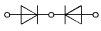
SEMIPACK® 1
SKKD 100 SKMD 100[1)]

SEMIPACK® 2
SKKD 162 SKND 162[1)]
SKKE 162

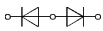


SKKD

SKKE



SKMD



SKND

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- **SKKD** half bridge connection center-tap connections:
  SKMD common cathode
  SKND common anode
- UL recognized, file no. E 63 532

Typical Applications

- Non-controllable rectifiers for AC/AC converters
- Line rectifiers for transistorized AC motor controllers
- Field supply for DC motors
- SKKE: Free-wheeling diodes

1) SKMD 100, SKND 162 available on request
2) SKKD types only
3) See the assembly instructions

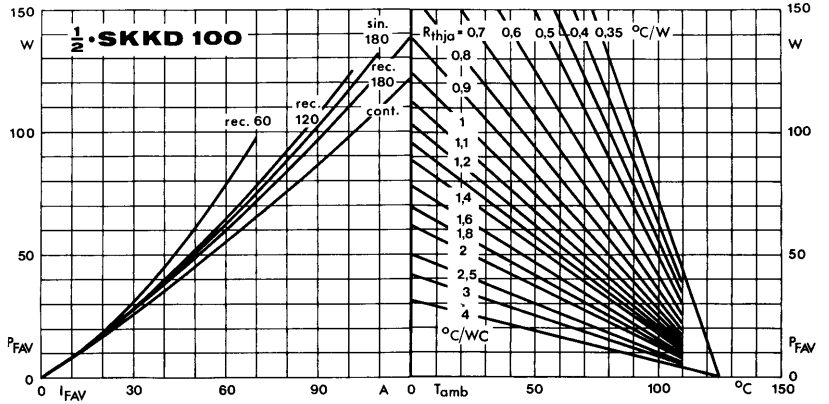


Fig. 11 a Power dissipation per diode vs. forward current and ambient temperature

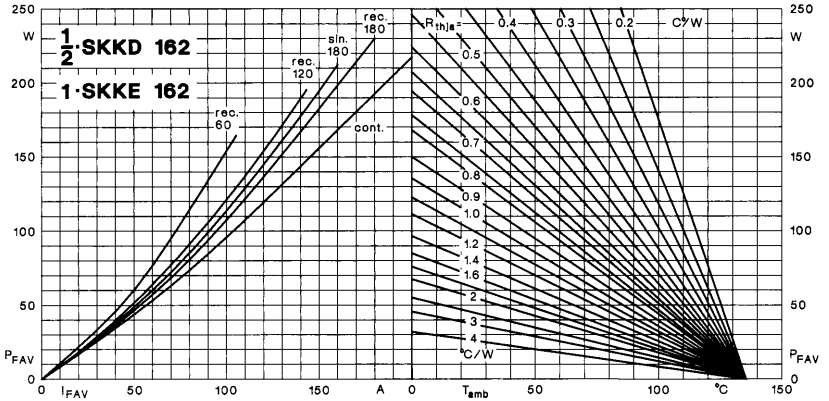


Fig. 11 b Power dissipation per diode vs. forward current and ambient temperature

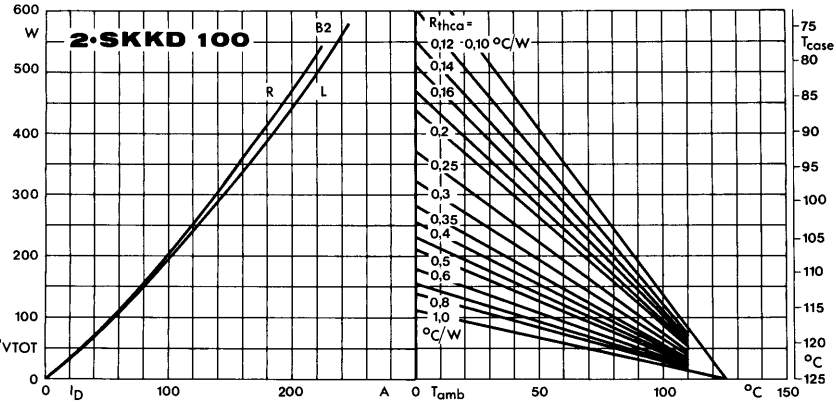


Fig. 12 a Power dissipation of two modules vs. direct current and case temperature

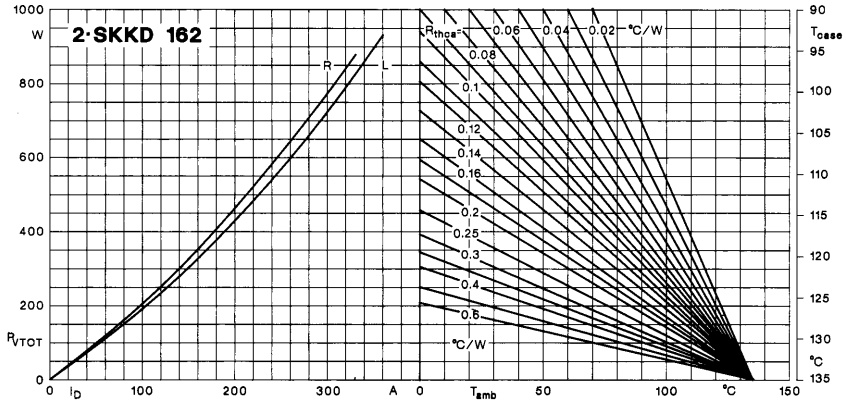


Fig. 12 b Power dissipation of two modules vs. direct current and case temperature

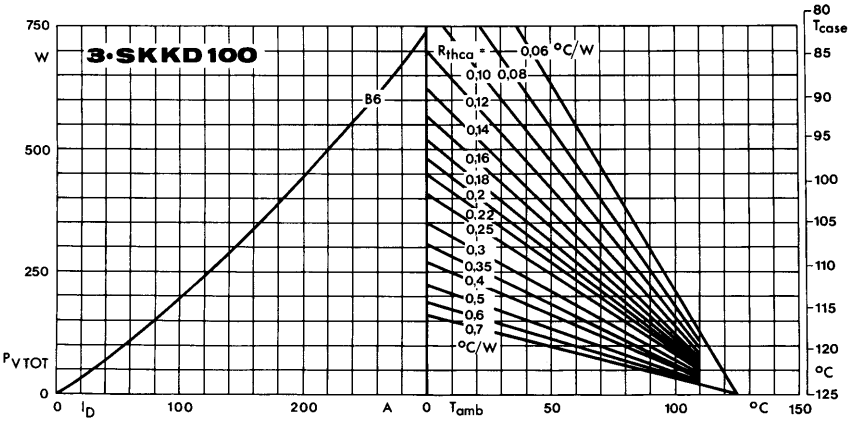


Fig. 13 a Power dissipation of three modules vs. direct current and case temperature

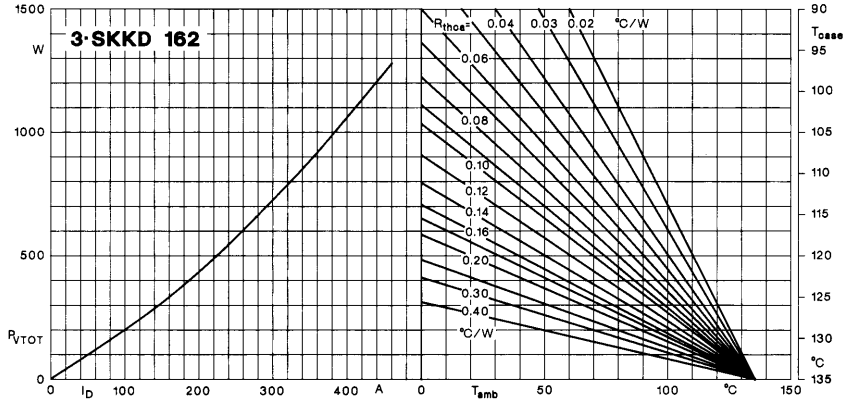


Fig. 13 b Power dissipation of three modules vs. direct current and case temperature

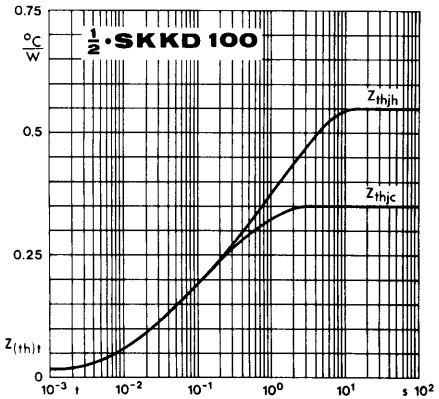


Fig. 14 a Transient thermal impedance vs. time

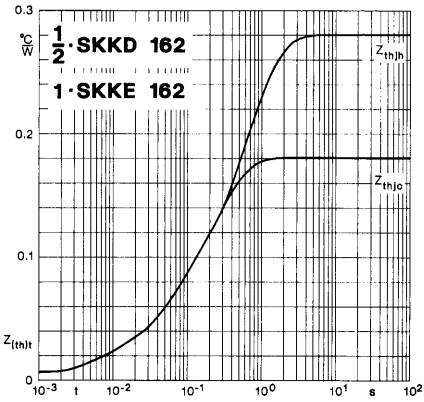


Fig. 14 b Transient thermal impedance vs. time

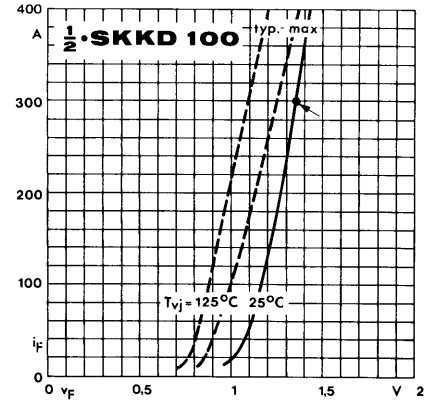


Fig. 15 a Forward characteristics

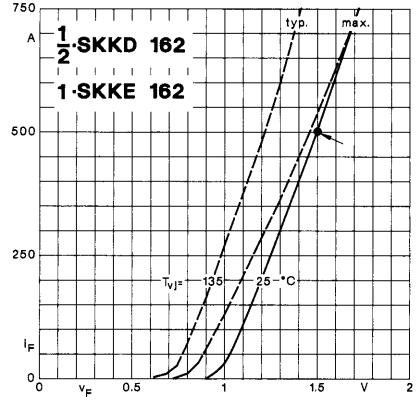


Fig. 15 b Forward characteristics

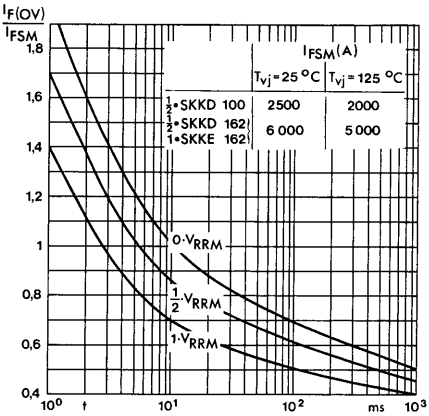


Fig. 16 Surge overload current vs. time

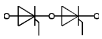
V_{RSM} V	V_{RRM} V_{DRM} V	$(dv/dt)_{cr}$ V/µs	I_{TRMS} (maximum value for continuous operation) 40 A		
			I_{TAV} (sin. 180; T_{case} = 60 °C) 25 A		
700	600	500	**SKKT 19/06 D**	**SKKT 20/06 D**	–
900	800	500	**SKKT 19/08 D**	**SKKT 20/08 D**	**SKKT 20B08 D**
1300	1200	500	**SKKT 19/12 D**	–	–
1300	1200	1000	**SKKT 19/12 E**	**SKKT 20/12 E**	**SKKT 20B12 E**
1500	1400	1000	**SKKT 19/14 E**	**SKKT 20/14 E**	**SKKT 20B14 E**
1700	1600	1000	**SKKT 19/16 E**	**SKKT 20/16 E**	**SKKT 20B16 E**

Symbol	Conditions		SKKT 19	SKKT 20 SKKT 20B
I_{TAV}	sin. 180;	T_{case} = 60 °C	25 A	
		T_{case} = 85 °C	18 A	
I_D	B2/B6	T_{amb} = 45 °C; P 3/180	31 A/38 A	
		T_{amb} = 35 °C; P 3/180 F	46 A/60 A	
I_{RMS}	W1/W3	T_{amb} = 45 °C; P 3/180	42 A/3 x 30 A	
I_{TSM}	T_{vj} = 25 °C; 10 ms		320 A	
	T_{vj} = 125 °C; 10 ms		280 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms		510 A^2s	
	T_{vj} = 125 °C; 8,3 ... 10 ms		390 A^2s	
t_{gd}	T_{vj} = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs		1 µs	
t_{gr}	V_D = 0,67 · V_{DRM}		1 µs	
$(di/dt)_{cr}$	T_{vj} = 125 °C		150 A/µs	
t_q	T_{vj} = 125 °C		typ. 80 µs	
I_H	T_{vj} = 25 °C; typ./max.		100/200 mA	
I_L	T_{vj} = 25 °C; R_G = 33 Ω; typ./max.		250/400 mA	
V_T	T_{vj} = 25 °C; I_T = 75 A		max. 2,3 V	
$V_{T(TO)}$	T_{vj} = 125 °C		1,0 V	
r_T	T_{vj} = 125 °C		16 mΩ	
I_{DD}; I_{RD}	T_{vj} = 125 °C; V_{DD} = V_{DRM}; V_{RD} = V_{RRM}		max. 10 mA	
V_{GT}	T_{vj} = 25 °C; d. c.		3 V	
I_{GT}	T_{vj} = 25 °C; d. c.		150 mA	
V_{GD}	T_{vj} = 125 °C; d. c.		0,25 V	
I_{GD}	T_{vj} = 125 °C; d. c.		5 mA	
R_{thjc}	cont.	per thyristor/per module	1,2 °C/W / 0,6 °C/W	
	sin. 180		1,3 °C/W / 0,65 °C/W	
	rec.120		1,35 °C/W / 0,68 °C/W	
R_{thch}			0,2 °C/W / 0,1 °C/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 V~/ 3000 V~	
M_1	to heatsink	SI units / US units	5 Nm/44 lb. in. ± 15 %[1)]	
M_2	to terminals		3 Nm/26 lb. in. ± 15 %	
a			5 · 9,81 m/s^2	
w	approx.		120 g	
Case	→ page B 1 – 93		SKKT 19: A 5 SKKT 20: A 46 SKKT 20B: A 48	

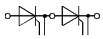
1) See the assembly instructions

SEMIPACK® 1
Thyristor/ Diode Modules

SKKT 19
SKKT 20
SKKT 20B



SKKT 19



SKKT 20

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

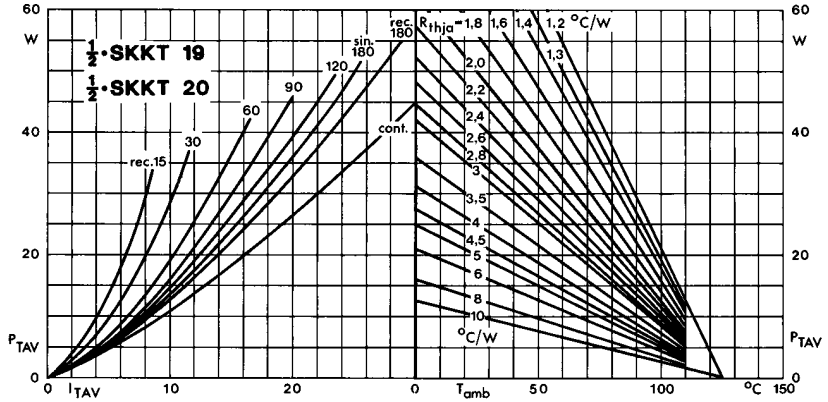


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

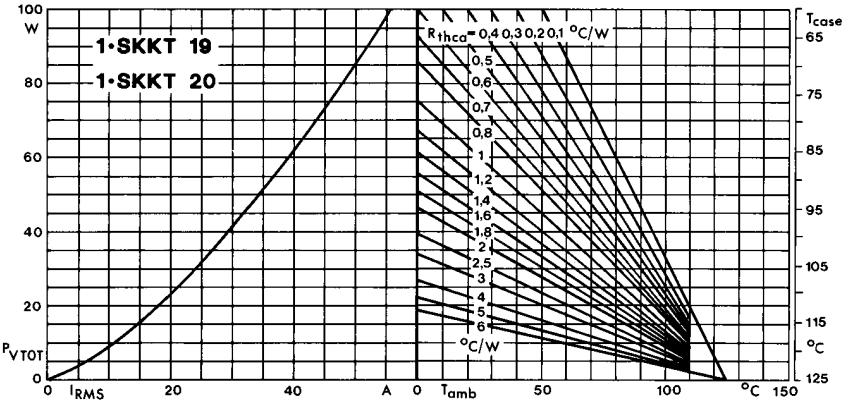


Fig. 2 Power dissipation per module vs. rms current and case temperature

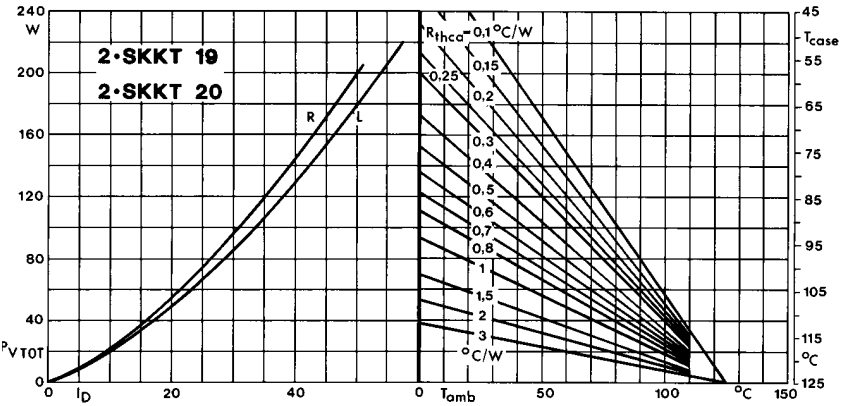


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

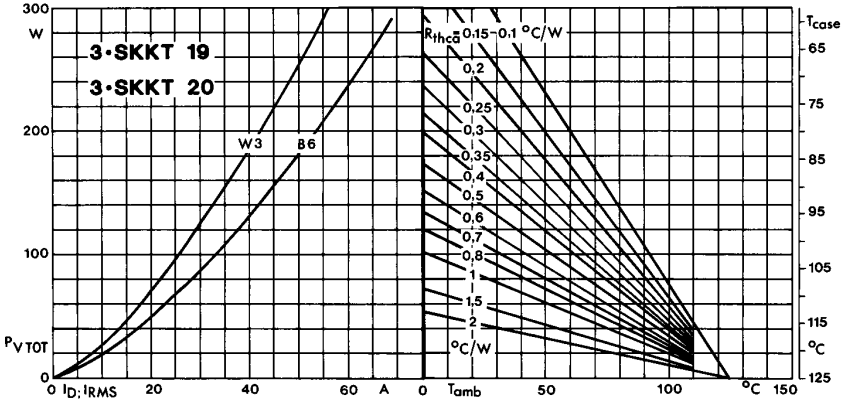


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

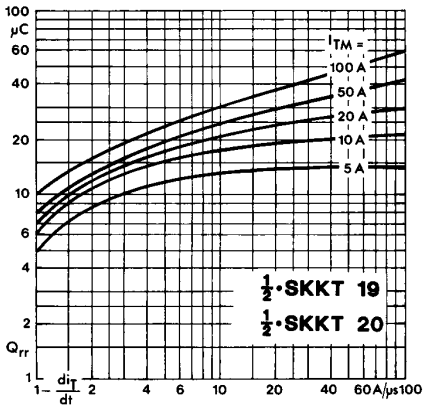


Fig. 5 Recovered charge vs. current decrease

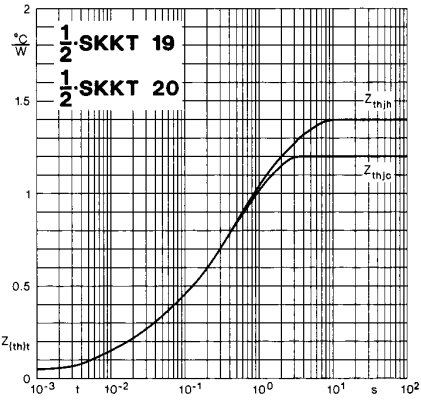


Fig. 6 Transient thermal impedance vs. time

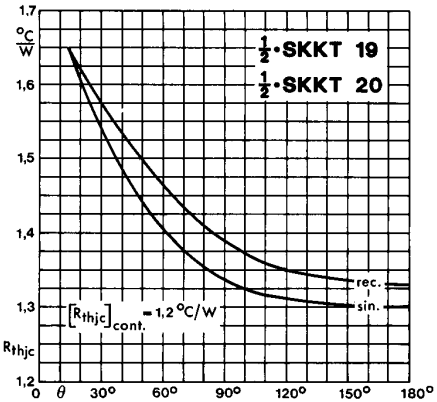


Fig. 7 Thermal resistance vs. conduction angle

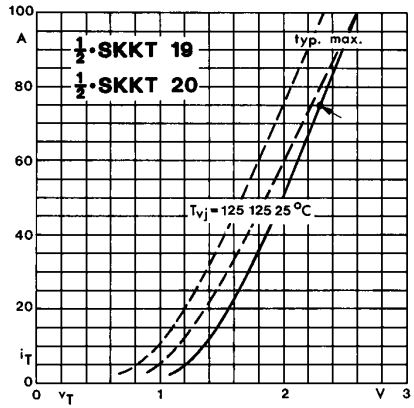


Fig. 8 On-state characteristics

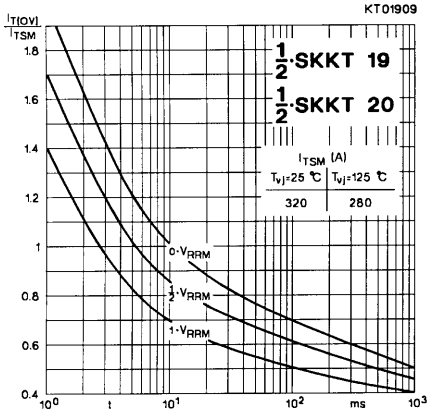


Fig. 9 Surge overload current vs. time

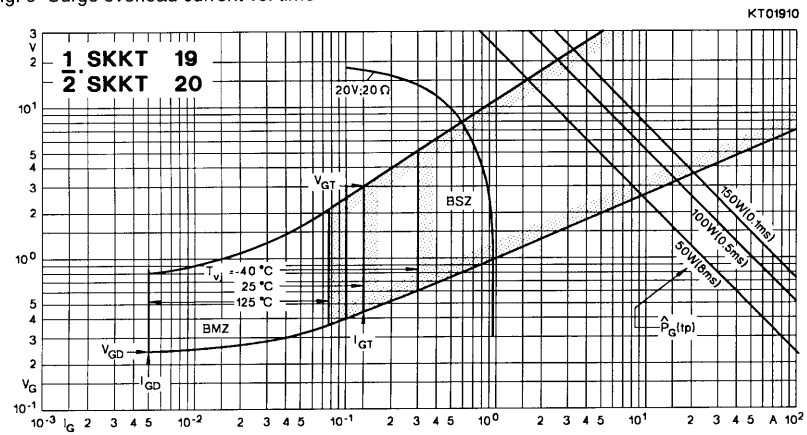


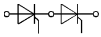
Fig. 10 Gate trigger characteristics

V_{RSM}	V_{RRM} V_{DRM}	$(dv/dt)_{cr}$	I_{TRMS} (maximum value for continuous operation) 50 A			
			I_{TAV} (sin. 180; T_{case} = 68 °C) 32 A			
V	V	V/µs				
500	400	500	–	–	**SKKH 26/04 D**	–
700	600	500	**SKKT 26/06 D**	–	**SKKH 26/06 D**	**SKKH 27/06 D**
900	800	500	**SKKT 26/08 D**	**SKKT 27/08 D**[1]	**SKKH 26/08 D**	**SKKH 27/08 D**
1300	1200	1000	**SKKT 26/12 E**	**SKKT 27/12 E**[1]	**SKKH 26/12 E**	**SKKH 27/12 E**
1500	1400	1000	**SKKT 26/14 E**	**SKKT 27/14 E**[1]	**SKKH 26/14 E**	**SKKH 27/14 E**
1700	1600	1000	**SKKT 26/16 E**	**SKKT 27/16 E**[1]	**SKKH 26/16 E**	**SKKH 27/16 E**

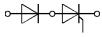
Symbol	**Conditions**		**SKKT 26 SKKH 26**	**SKKT 27 SKKT 27B SKKH 27**
I_{TAV}	sin. 180;	T_{case} = 68 °C	32 A	
		T_{case} = 85 °C	25 A	
I_D	B2/B6	T_{amb} = 45 °C; P 3/180	38 A/50 A	
		T_{amb} = 35 °C; P 3/180 F	60 A/77 A	
I_{RMS}	W1/W3	T_{amb} = 45 °C; P 3/180	52 A/3 x 37 A	
I_{TSM}	T_{vj} = 25 °C; 10 ms		550 A	
	T_{vj} = 125 °C; 10 ms;		480 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms		1 500 A^2s	
	T_{vj} = 125 °C; 8,3 ... 10 ms		1 150 A^2s	
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	
$(di/dt)_{cr}$	T_{vj} = 125 °C		150 A/µs	
t_q	T_{vj} = 125 °C		typ. 80 µs	
I_H	T_{vj} = 25 °C; typ./max.		100/200 mA	
I_L	T_{vj} = 25 °C; R_G = 33 Ω; typ./max.		250/400 mA	
V_T	T_{vj} = 25 °C; I_T = 75 A		max. 1,8 V	
$V_{T(TO)}$	T_{vj} = 125 °C		0,9 V	
r_T	T_{vj} = 125 °C		12 mΩ	
I_{DD}; I_{RD}	T_{vj} = 125 °C; $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$		max. 10 mA	
V_{GT}	T_{vj} = 25 °C; d. c.		3 V	
I_{GT}	T_{vj} = 25 °C; d. c.		150 mA	
V_{GD}	T_{vj} = 125 °C; d. c.		0,25 V	
I_{GD}	T_{vj} = 125 °C; d. c.		5 mA	
R_{thjc}	cont.	per thyristor/per module	0,9 °C/W / 0,45 °C/W	
	sin. 180		0,95 °C/W / 0,48 °C/W	
	rec.120		1,0 °C/W / 0,5 °C/W	
R_{thch}			0,2 °C/W / 0,1 °C/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 V~ / 3000 V ~	
M_1	to heatsink	SI units / US units	5 Nm/44 lb. in. ± 15 %[2]	
M_2	to terminals		3 Nm/26 lb. in. ± 15 %	
a			5 · 9,81 m/s^2	
w	approx.		120 g	
Case	→ page B 1 – 93	SKKT 26: A 5 SKKH 26: A 6	SKKT 27: A 46 SKKT 27B: A 48 SKKH 27: A 47	

SEMIPACK® 1
Thyristor/ Diode Modules

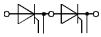
SKKT 26 **SKKH 26**
SKKT 27 **SKKH 27**
SKKT 27B



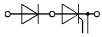
SKKT 26



SKKH 26



SKKT 27



SKKH 27

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

[1] Also available in SKKT 27 B configuration (case A 48)

[2] See the assembly instructions

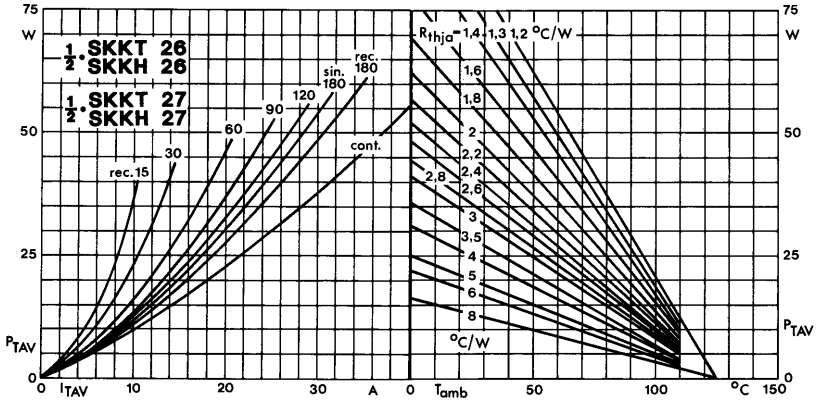


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

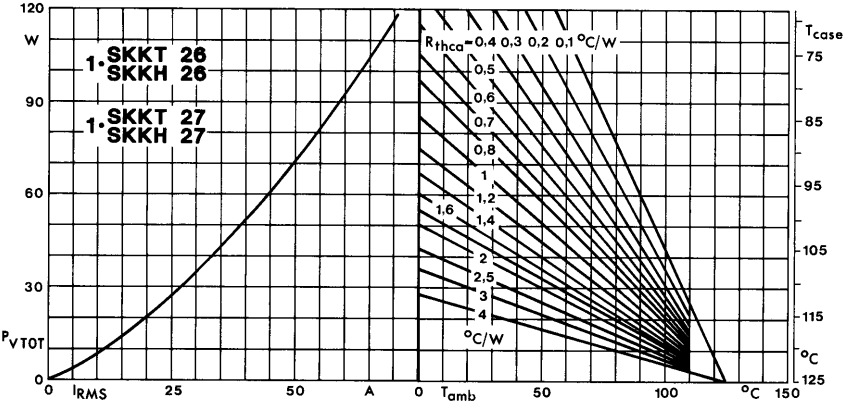


Fig. 2 Power dissipation per module vs. rms current and case temperature

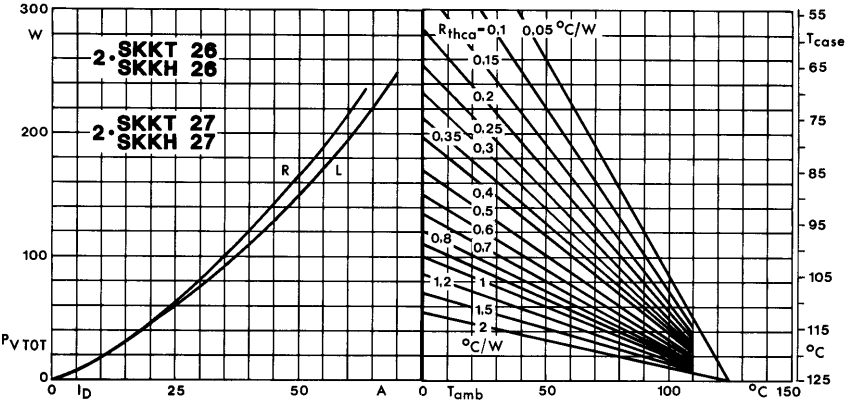


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

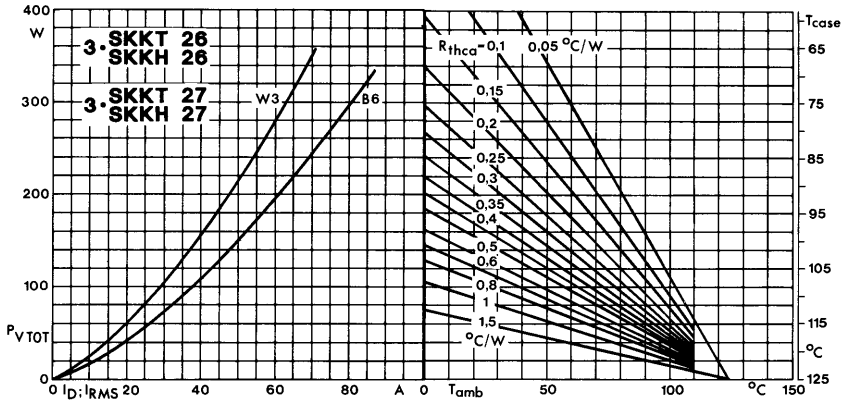


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

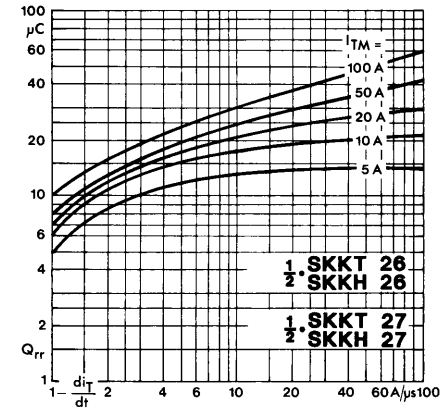


Fig. 5 Recovered charge vs. current decrease

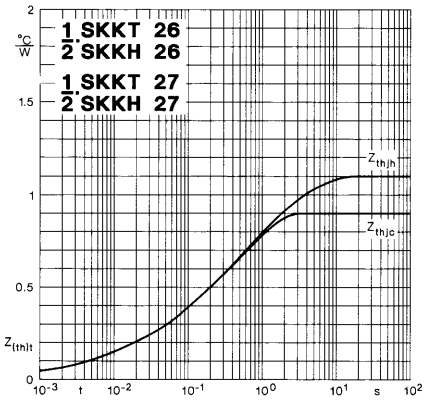


Fig. 6 Transient thermal impedance vs. time

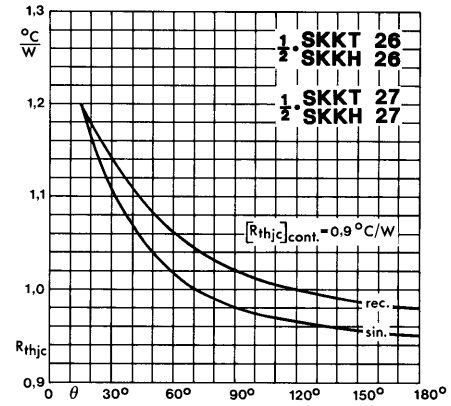


Fig. 7 Thermal resistance vs. conduction angle

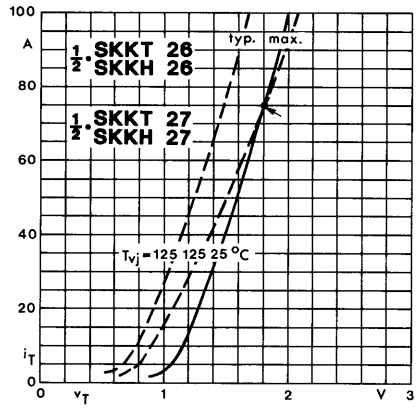


Fig. 8 On-state characteristics

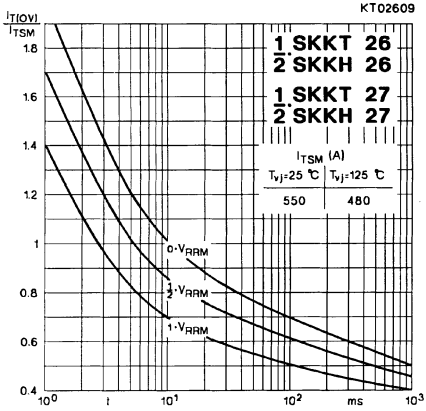


Fig. 9 Surge overload current vs. time

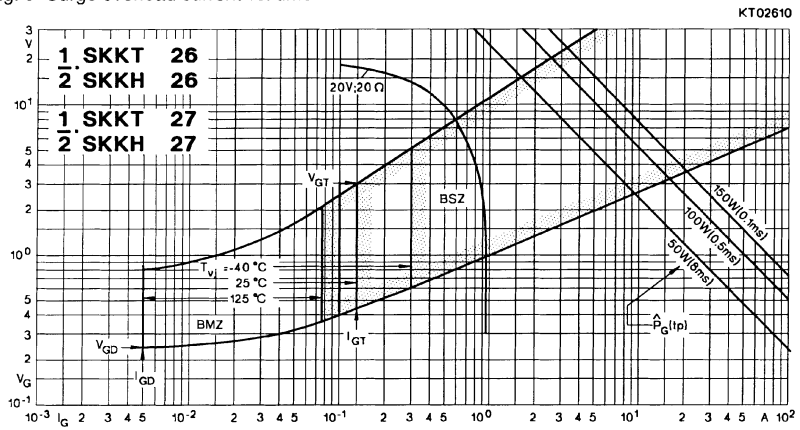
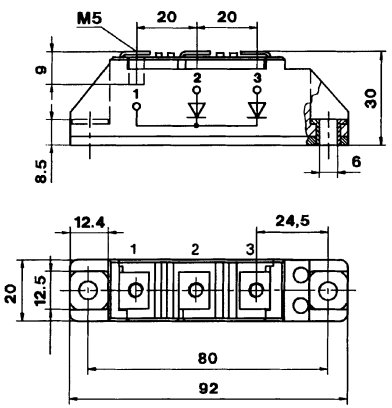


Fig. 10 Gate trigger characteristics

SKMD 100

Case A 33

SEMIPACK® 1



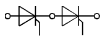
Dimensions in mm

V_{RSM}	V_{RRM} V_{DRM}	$(dv/dt)_{cr}$	I_{TRMS} (maximum value for continuous operation) 75 A			
			I_{TAV} (sin. 180; T_{case} = 68 °C) 48 A			
V	V	V/µs				
500	400	500	–	–	**SKKH 41/04 D**	–
700	600	500	**SKKT 41/06 D**	**SKKT 42/06 D**	**SKKH 41/06 D**	**SKKH 42/06 D**
900	800	500	**SKKT 41/08 D**	**SKKT 42/08 D**[1]	**SKKH 41/08 D**	**SKKH 42/08 D**
1300	1200	500	**SKKT 41/12 D**	–	**SKKH 41/12 D**	–
1300	1200	1000	**SKKT 41/12 E**	**SKKT 42/12 E**[1]	**SKKH 41/12 E**	**SKKH 42/12 E**
1500	1400	1000	**SKKT 41/14 E**	**SKKT 42/14 E**[1]	**SKKH 41/14 E**	**SKKH 42/14 E**
1700	1600	1000	**SKKT 41/16 E**	**SKKT 42/16 E**[1]	**SKKH 41/16 E**	**SKKH 42/16 E**
1900	1800	1000	**SKKT 41/18 E**	**SKKT 42/18 E**[1]	**SKKH 41/18 E**	**SKKH 42/18 E**
2100	2000	1000	**SKKT 41/20 E**	**SKKT 42/20 E**[1]	–	–
2300	2200	1000	**SKKT 41/22 E**	**SKKT 42/22 E**[1]	–	–

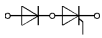
Symbol	**Conditions**	**SKKT 41 SKKH 41**	**SKKT 42 SKKT 42B SKKH 42**
I_{TAV}	sin. 180; T_{case} = 74 °C	48 A	
	T_{case} = 85 °C	40 A	
I_D	B2/B6 T_{amb} = 45 °C; P 3/180	50 A/60 A	
	T_{amb} = 35 °C; P 3/180 F	85 A/110 A	
I_{RMS}	W1/W3 T_{amb} = 35 °C; P 3/180 F	110 A/3 x 85 A	
I_{TSM}	T_{vj} = 25 °C; 10 ms	1 000 A	
	T_{vj} = 125 °C; 10 ms	850 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	5 000 A^2s	
	T_{vj} = 125 °C; 8,3 ... 10 ms	3 600 A^2s	
t_{gd}	T_{vj} = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs	1 µs	
t_{gr}	V_D = 0,67 · V_{DRM}	2 µs	
$(di/dt)_{cr}$	T_{vj} = 125 °C	150 A/µs	
t_q	T_{vj} = 125 °C	typ. 80 µs	
I_H	T_{vj} = 25 °C;	typ. 150 mA; max. 250 mA	
I_L	T_{vj} = 25 °C; R_G = 33 Ω	typ. 300 mA; max. 600 mA	
V_T	T_{vj} = 25 °C; I_T = 200 A	max. 1,95 V	
$V_{T(TO)}$	T_{vj} = 125 °C	1 V	
r_T	T_{vj} = 125 °C	4,5 mΩ	
I_{DD}; I_{RD}	T_{vj} = 125 °C; V_{DD} = V_{DRM}; V_{RD} = V_{RRM}	max. 15 mA [3]	
V_{GT}	T_{vj} = 25 °C; d. c.	3 V	
I_{GT}	T_{vj} = 25 °C; d. c.	150 mA	
V_{GD}	T_{vj} = 125 °C; d. c.	0,25 V	
I_{GD}	T_{vj} = 125 °C; d. c.	6 mA	
R_{thjc}	cont.	0,65 °C/W / 0,33 °C/W	
	sin. 180 } per thyristor/per module	0,69 °C/W / 0,35 °C/W	
	rec.120 }	0,73 °C/W / 0,37 °C/W	
R_{thch}		0,2 °C/W / 0,1 °C/W	
T_{vj}, T_{stg}		– 40 ... +125 °C	
V_{isol}	a. c. 50 Hz; r.m.s.; 1 s/1 min	3600 V~ / 3000 V ~	
M_1	to heatsink } SI units / US units	5 Nm/44 lb. in. ± 15 %[4]	
M_2	to terminals }	3 Nm/26 lb. in. ± 15 %	
a		5 · 9,81 m/s^2	
w	approx.	120 g	
Case	→ page B 1 – 93	SKKT 41: A 5 SKKH 41: A 6 SKKH 42: A 47	SKKL 42: A 59 SKKT 42: A 46 SKKT 42B: A 48

SEMIPACK® 1
Thyristor/ Diode Modules

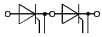
SKKT 41 **SKKH 41**
SKKT 42 **SKKH 42**
SKKT 42B **SKKL 42**[2]



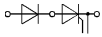
SKKT 41



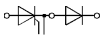
SKKH 41



SKKT 42



SKKH 42



SKKL 42

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

[1] Also available in SKKT 42 B configuration (case A 48).
[2] SKKL 42 available on request
[3] /20 E, /22 E max. 30 mA
[4] See the assembly instructions

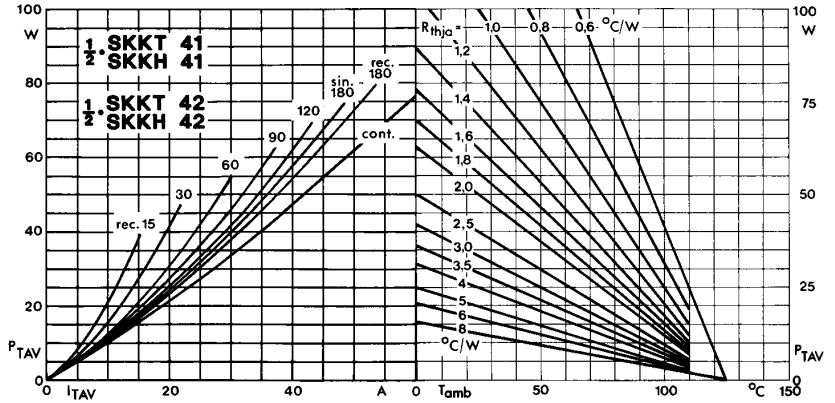


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

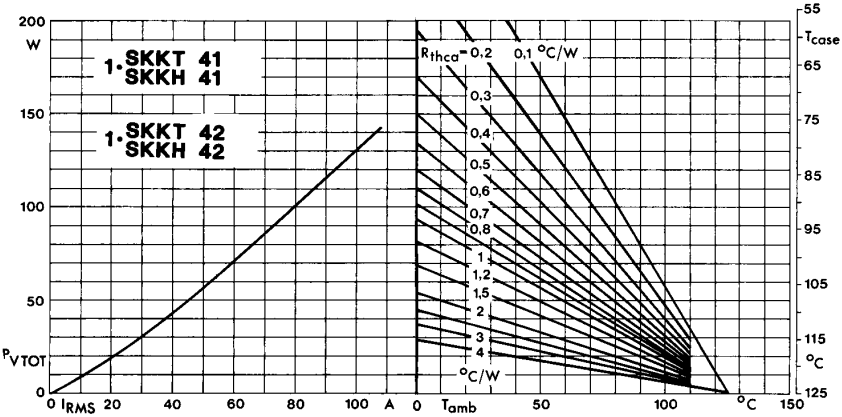


Fig. 2 Power dissipation per module vs. rms current and case temperature

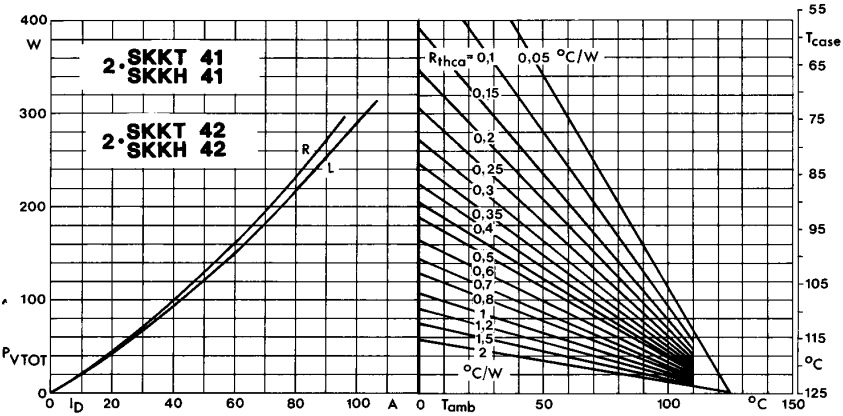


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

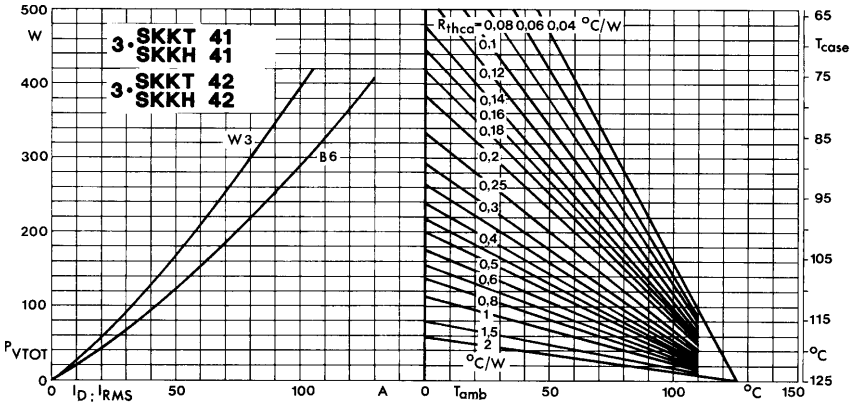


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

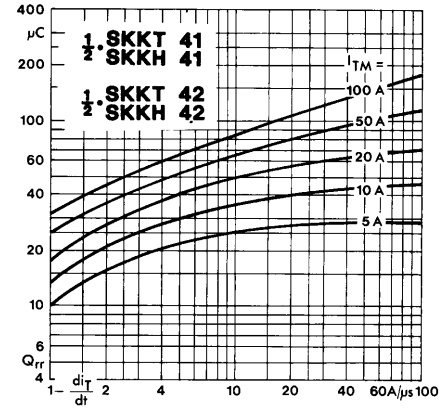


Fig. 5 Recovered charge vs. current decrease

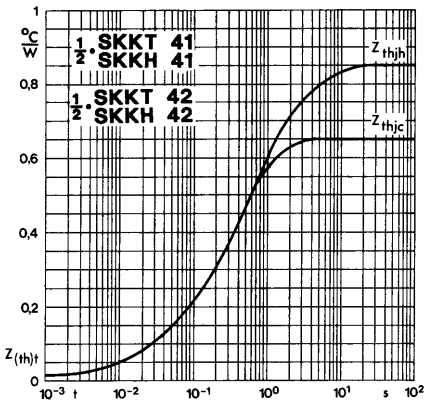


Fig. 6 Transient thermal impedance vs. time

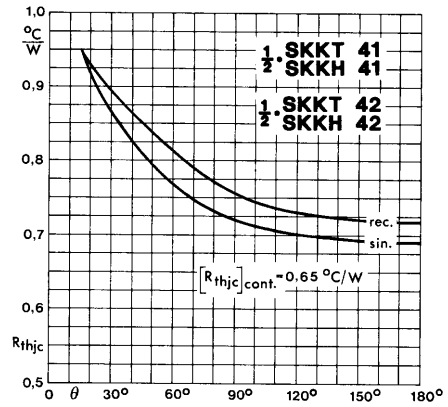


Fig. 7 Thermal resistance vs. conduction angle

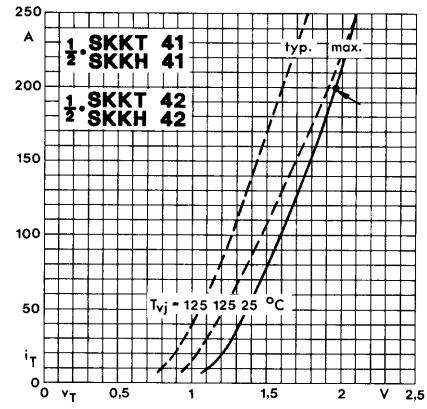


Fig. 8 On-state characteristics

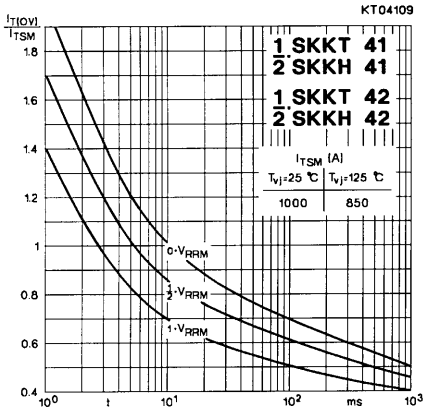


Fig. 9 Surge overload current vs. time

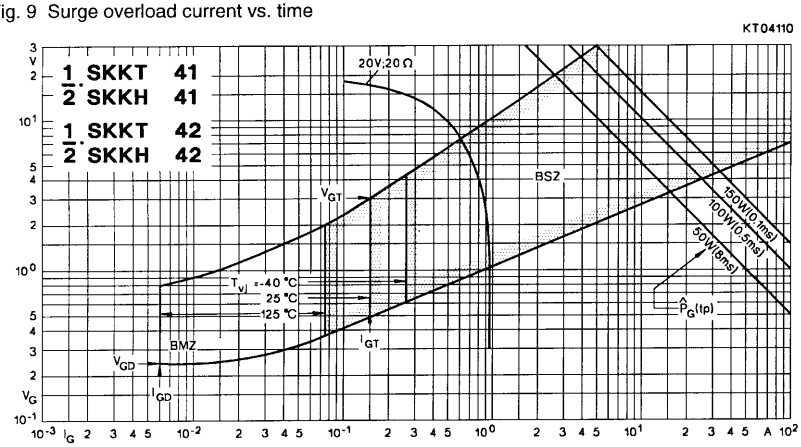


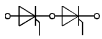
Fig. 10 Gate trigger characteristics

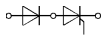
V_{RSM} V	V_{RRM} V_{DRM} V	$(dv/dt)_{cr}$ V/µs	I_{TRMS} (maximum value for continuous operation) 95 A I_{TAV} (sin. 180; T_{case} = 74 °C) 60 A			
500	400	500	–	–	**SKKH 56/04 D**	–
700	600	500	**SKKT 56/06 D**	**SKKT 57/06 D**	**SKKH 56/06 D**	**SKKH 57/06 D**
900	800	500	**SKKT 56/08 D**	**SKKT 57/08 D**[1]	**SKKH 56/08 D**	**SKKH 57/08 D**
1300	1200	500	**SKKT 56/12 D**	–	**SKKH 56/12 D**	–
1300	1200	1000	**SKKT 56/12 E**	**SKKT 57/12 E**[1]	–	**SKKH 57/12 E**
1500	1400	1000	**SKKT 56/14 E**	**SKKT 57/14 E**[1]	**SKKH 56/14 E**	**SKKH 57/14 E**
1700	1600	1000	**SKKT 56/16 E**	**SKKT 57/16 E**[1]	**SKKH 56/16 E**	**SKKH 57/16 E**
1900	1800	1000	**SKKT 56/18 E**	**SKKT 57/18 E**[1]	**SKKH 56/18 E**	**SKKH 57/18 E**
2100	2000	1000	**SKKT 56/20 E**	**SKKT 57/20 E**[1]	–	**SKKH 57/20 E**
2300	2200	1000	**SKKT 56/22 E**	**SKKT 57/22 E**[1]	–	**SKKH 57/22 E**

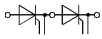
Symbol	**Conditions**		**SKKT 56 SKKH 56**	**SKKT 57 SKKT 57B SKKH 57**
I_{TAV}	sin. 180; T_{case} = 74 °C		60 A	
	T_{case} = 80 °C		55 A	
I_D	B2/B6	T_{amb} = 45 °C; P 3/180	57 A/68 A	
		T_{amb} = 35 °C; P 3/180 F	100 A/130 A	
I_{RMS}	W1/W3	T_{amb} = 35 °C; P 3/180 F	130 A/3 x 100 A	
I_{TSM}	T_{vj} = 25 °C; 10 ms		1 500 A	
	T_{vj} = 125 °C; 10 ms		1 250 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms		11 000 A^2s	
	T_{vj} = 125 °C; 8,3 ... 10 ms		8 000 A^2s	
t_{gd}	T_{vj} = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs		1 µs	
t_{gr}	V_D = 0,67 · V_{DRM}		2 µs	
$(di/dt)_{cr}$	T_{vj} = 125 °C		150 A/µs	
t_q	T_{vj} = 125 °C		typ. 80 µs	
I_H	T_{vj} = 25 °C;		typ.150 mA; max. 250 mA	
I_L	T_{vj} = 25 °C; R_G = 33 Ω		typ.300 mA; max. 600 mA	
V_T	T_{vj} = 25 °C; I_T = 200 A		max. 1,65 V	
$V_{T(TO)}$	T_{vj} = 125 °C		0,9 V	
r_T	T_{vj} = 125 °C		3,5 mΩ	
I_{DD}; I_{RD}	T_{vj} = 125 °C; V_{DD} = V_{DRM}; V_{RD} = V_{RRM}		max. 15 mA[3]	
V_{GT}	T_{vj} = 25 °C; d. c.		3 V	
I_{GT}	T_{vj} = 25 °C; d. c.		150 mA	
V_{GD}	T_{vj} = 125 °C; d. c.		0,25 V	
I_{GD}	T_{vj} = 125 °C; d. c.		6 mA	
R_{thjc}	cont.	per thyristor/per module	0,57 °C/W / 0,29 °C/W	
	sin. 180		0,60 °C/W / 0,30 °C/W	
	rec.120		0,64 °C/W / 0,32 °C/W	
R_{thch}			0,2 °C/W / 0,1 °C/W	
T_{vj}, T_{stg}			– 40 ... +125 °C	
V_{isol}	a. c. 50 Hz; r.m.s.; 1 s/1 min		3600 V~ / 3000 V ~	
M_1	to heatsink	SI units / US units	5 Nm/44 lb. in. ± 15 %[2]	
M_2	to terminals		3 Nm/26 lb. in. ± 15 %	
a			5 · 9,81 m/s^2	
w	approx.		120 g	
Case	→ page B 1 – 93	SKKT 56: A 5 SKKH 56: A 6	SKKT 57: A 46 SKKT 57B: A 48 SKKH 57: A 47	

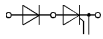
SEMIPACK® 1
Thyristor/ Diode Modules

SKKT 56 **SKKH 56**
SKKT 57 **SKKH 57**
SKKT 57B


SKKT 56


SKKH 56


SKKT 57


SKKH 57

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

[1] Also available in SKKT 57 B configuration (case A 48)

[2] See the assembly instructions

[3] /20 E, /22 E max. 30 mA

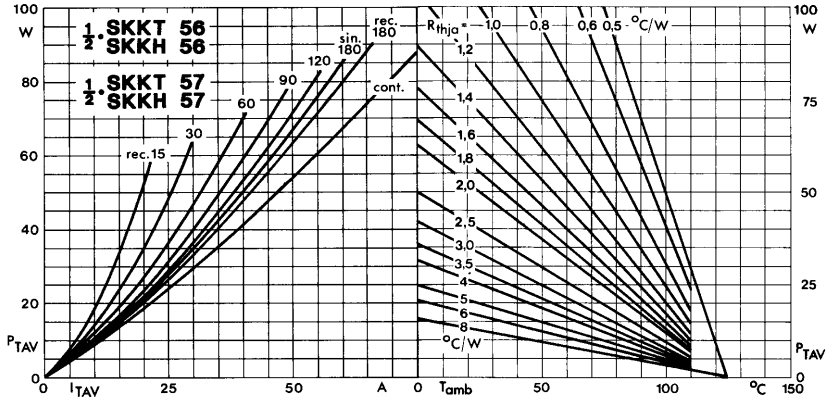


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

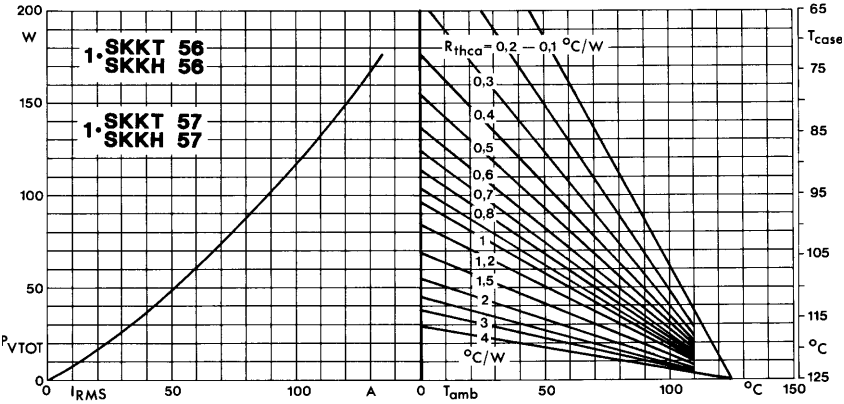


Fig. 2 Power dissipation per module vs. rms current and case temperature

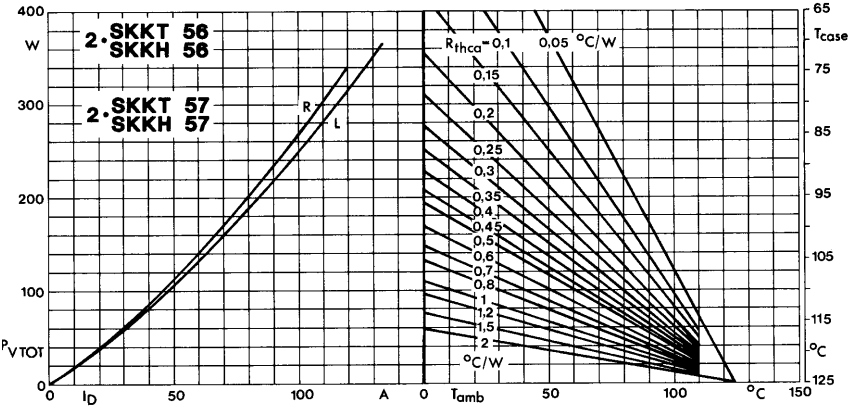


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

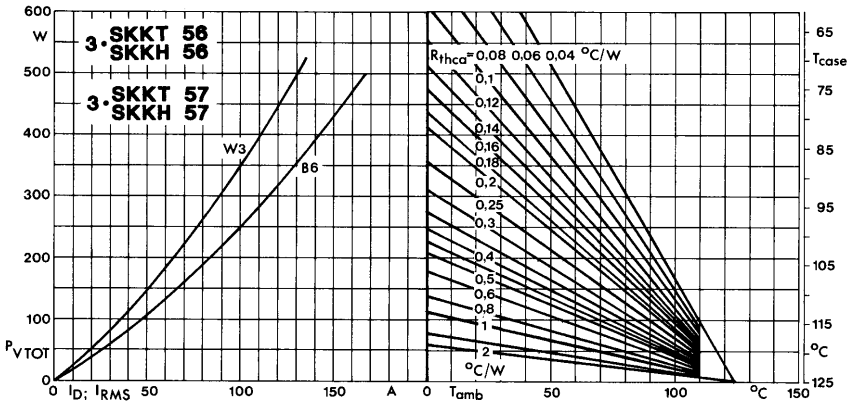


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

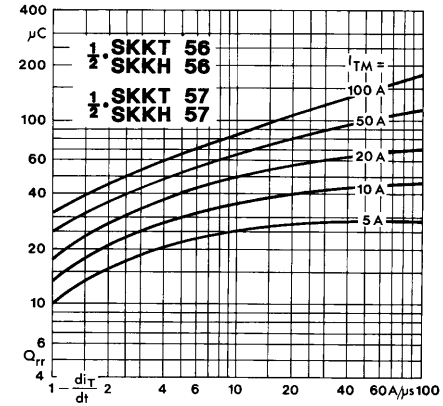


Fig. 5 Recovered charge vs. current decrease

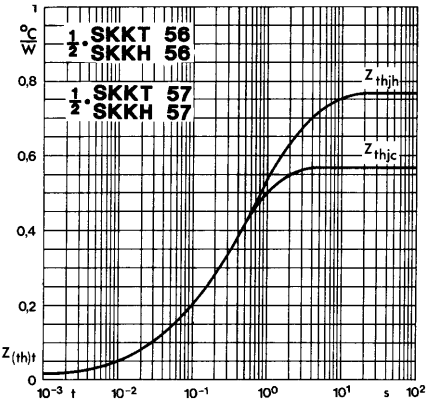


Fig. 6 Transient thermal impedance vs. time

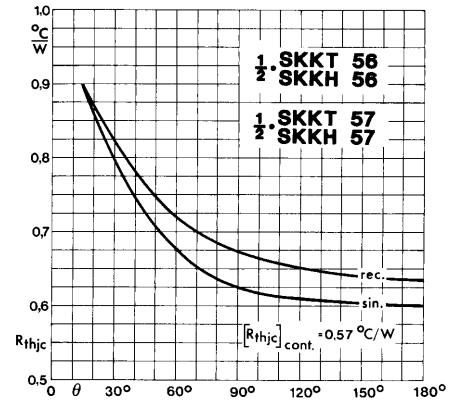


Fig. 7 Thermal resistance vs. conduction angle

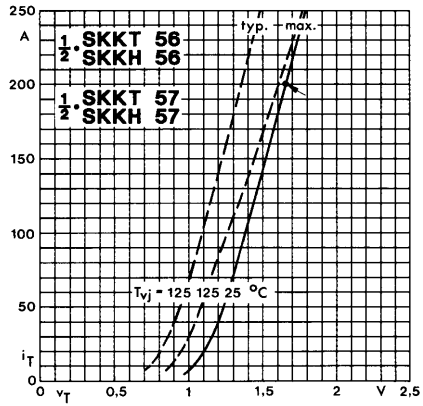


Fig. 8 On-state characteristics

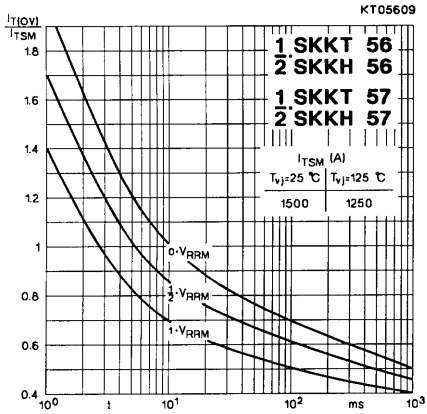


Fig. 9 Surge overload current vs. time

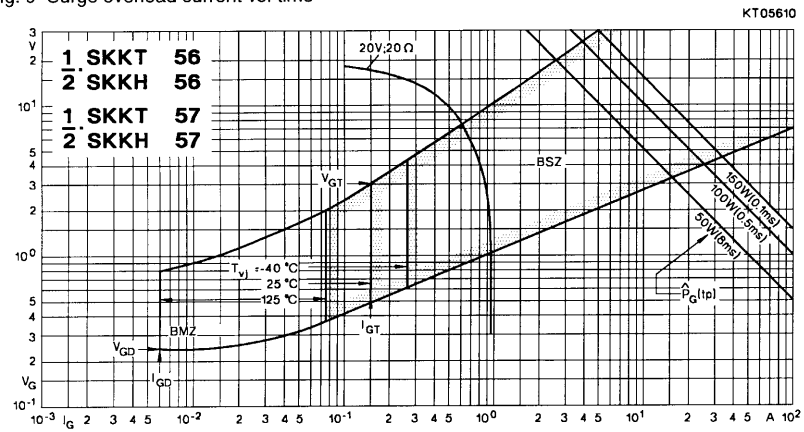


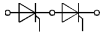
Fig. 10 Gate trigger characteristics

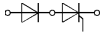
V_{RSM} V	V_{RRM} V_{DRM} V	$(dv/dt)_{cr}$ V/µs	I_{TRMS} (maximum value for continuous operation) 150 A I_{TAV} (sin. 180; T_{case} = 85 °C) 95 A			
500	400	500	–	–	**SKKH 91/04 D**	–
700	600	500	**SKKT 91/06 D**	**SKKT 92/06 D**	**SKKH 91/06 D**	**SKKH 92/06 D**
900	800	500	**SKKT 91/08 D**	**SKKT 92/08 D**[1]	**SKKH 91/08 D**	**SKKH 92/08 D**
1300	1200	500	**SKKT 91/12 D**	–	**SKKH 91/12 D**	–
1300	1200	1000	**SKKT 91/12 E**	**SKKT 92/12 E**[1]	–	**SKKH 92/12 E**
1500	1400	1000	**SKKT 91/14 E**	**SKKT 92/14 E**[1]	**SKKH 91/14 E**	**SKKH 92/14 E**
1700	1600	1000	**SKKT 91/16 E**	**SKKT 92/16 E**[1]	**SKKH 91/16 E**	**SKKH 92/16 E**
1900	1800	1000	**SKKT 91/18 E**	**SKKT 92/18 E**[1]	**SKKH 91/18 E**	**SKKH 92/18 E**

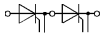
Symbol	Conditions		SKKT 91 SKKH 91	SKKT 92 SKKT 92B SKKH 92
I_{TAV}	sin. 180; T_{case} = 85 °C		95 A	
I_D	B2/B6	T_{amb} = 45 °C, P 3/180	70 A/85 A	
		T_{amb} = 35 °C; P 3/180 F	140 A/175 A	
I_{RMS}	W1/W3	T_{amb} = 35 °C; P 3/180 F	190 A/3 x 135 A	
I_{TSM}	T_{vj} = 25 °C; 10 ms		2 000 A	
	T_{vj} = 125 °C; 10 ms		1 750 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms		20 000 A^2s	
	T_{vj} = 125 °C; 8,3 ... 10 ms		15 000 A^2s	
t_{gd}	T_{vj} = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs		1 µs	
t_{gr}	V_D = 0,67 · V_{DRM}		2 µs	
$(di/dt)_{cr}$	T_{vj} = 125 °C		150 A/µs	
t_q	T_{vj} = 125 °C		typ. 100 µs	
I_H	T_{vj} = 25 °C;		max. 250 mA	
I_L	T_{vj} = 25 °C; R_G = 33 Ω		max. 600 mA	
V_T	T_{vj} = 25 °C; I_T = 300 A		max. 1,65 V	
$V_{T(TO)}$	T_{vj} = 125 °C		0,9 V	
r_T	T_{vj} = 125 °C		2 mΩ	
I_{DD}; I_{RD}	T_{vj} = 125 °C; V_{DD} = V_{DRM}; V_{RD} = V_{RRM}		max. 20 mA	
V_{GT}	T_{vj} = 25 °C; d. c.		3 V	
I_{GT}	T_{vj} = 25 °C; d. c.		150 mA	
V_{GD}	T_{vj} = 125 °C; d. c.		0,25 V	
I_{GD}	T_{vj} = 125 °C; d. c.		6 mA	
R_{thjc}	cont.	per thyristor/per module	0,28 °C/W / 0,14 °C/W	
	sin. 180		0,30 °C/W / 0,15 °C/W	
	rec.120		0,32 °C/W / 0,16 °C/W	
R_{thch}			0,2 °C/W / 0,1 °C/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 V~/ 3000 V~	
M_1	to heatsink	SI units/ US units	5 Nm/44 lb. in. ± 15 %[3]	
M_2	to terminals		3 Nm/26 lb.in. ± 15 %	
a			$5 \cdot 9{,}81\ m/s^2$	
w	approx.		120 g	
Case	→ page B 1 – 93		SKKT 91: A 5 SKKH 91: A 6 SKMT 91: A 65	SKKL 92: A 59 SKKT 92: A 46 SKKH 92: A 47 SKKT 92B: A 48

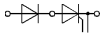
SEMIPACK® 1
Thyristor/ Diode Modules

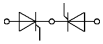
SKKT 91 **SKKH 91**
SKKT 92 **SKKH 92**
SKKT 92B **SKMT 91**[2]
SKKL 92[2]

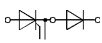

SKKT 91


SKKH 91


SKKT 92


SKKH 92


SKMT 91


SKKL 92

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

- DC motor control (e. g. for machine tools)
- AC motor soft starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

[1] Also available in SKKT 92 B configuration (case A 48)
[2] SKKL 92, SKMT 91 available on request
[3] See the assembly instructions

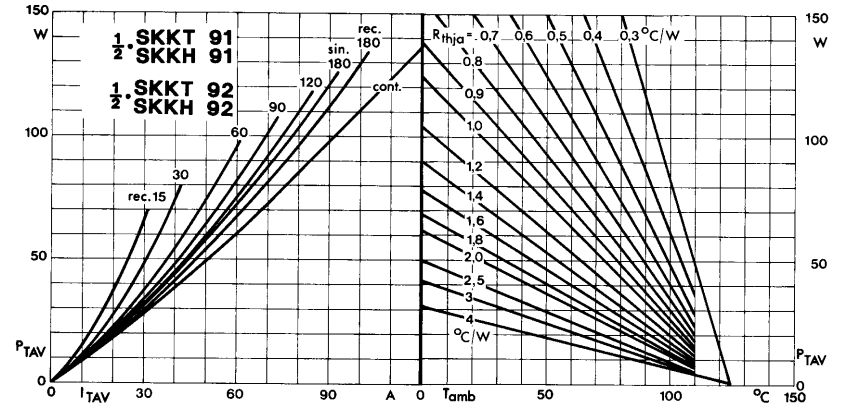


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

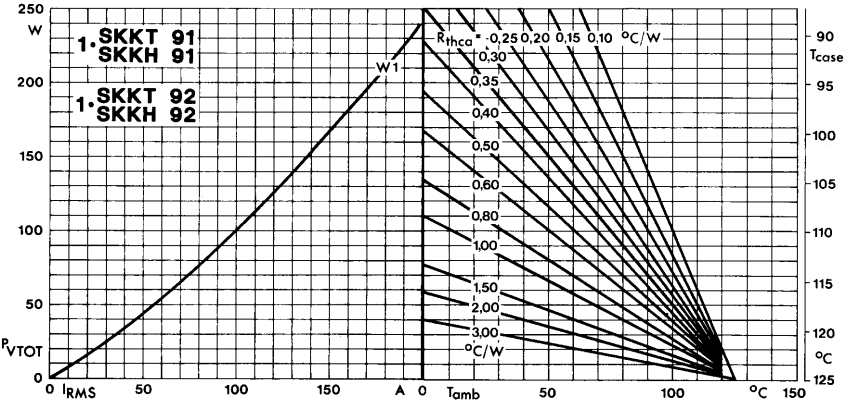


Fig. 2 Power dissipation per module vs. rms current and case temperature

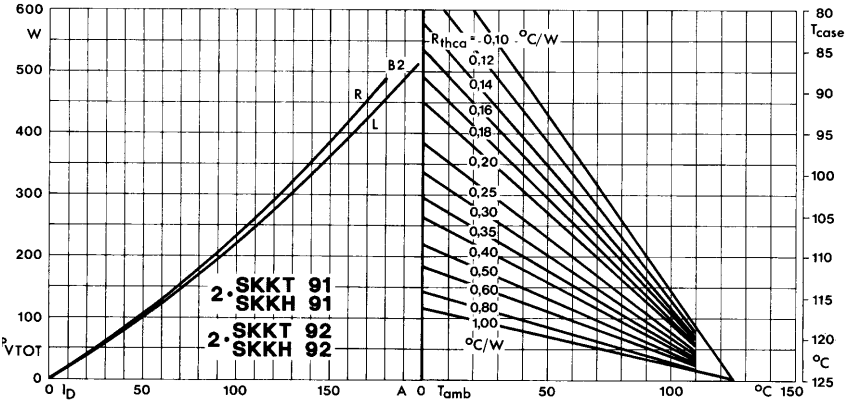


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

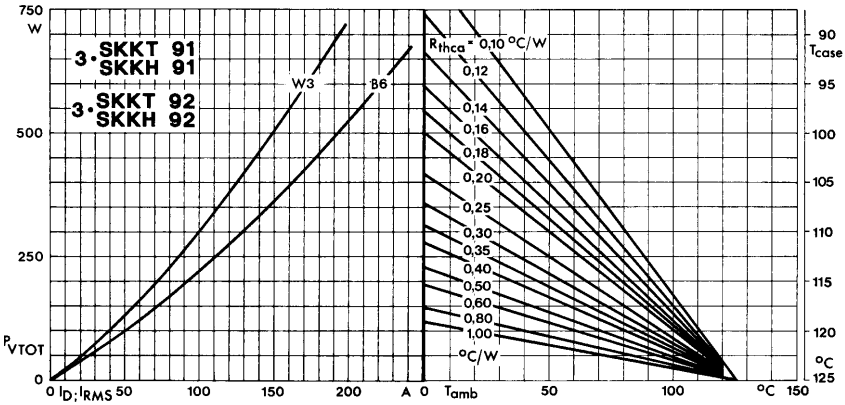


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

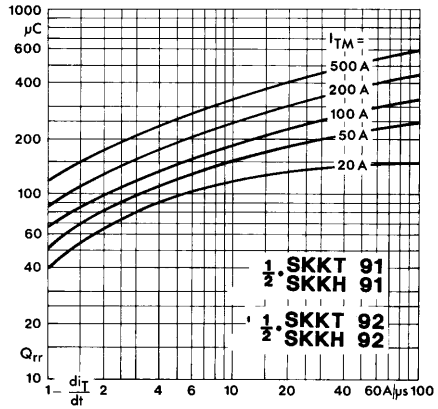


Fig. 5 Recovered charge vs. current decrease

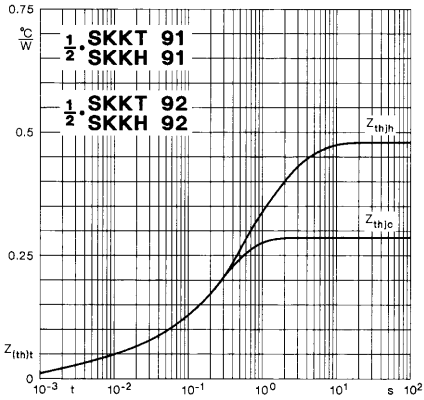


Fig. 6 Transient thermal impedance vs. time

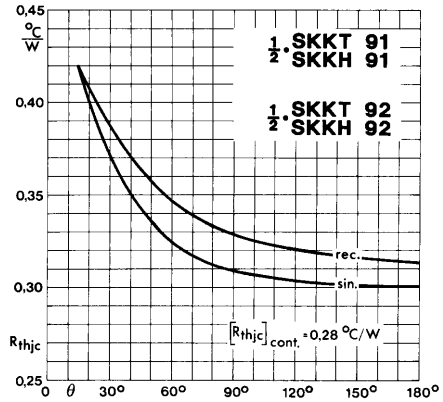


Fig. 7 Thermal resistance vs. conduction angle

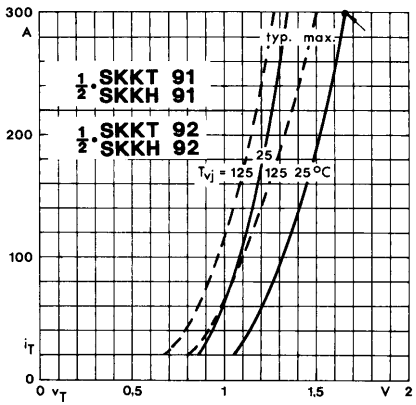


Fig. 8 On-state characteristics

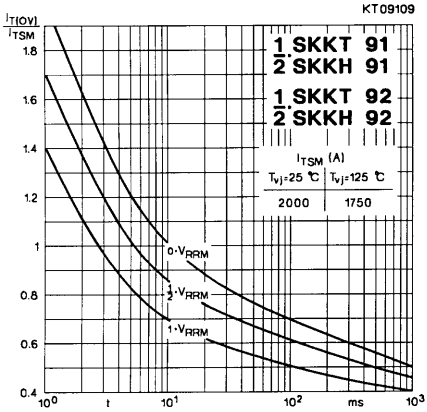


Fig. 9 Surge overload current vs. time

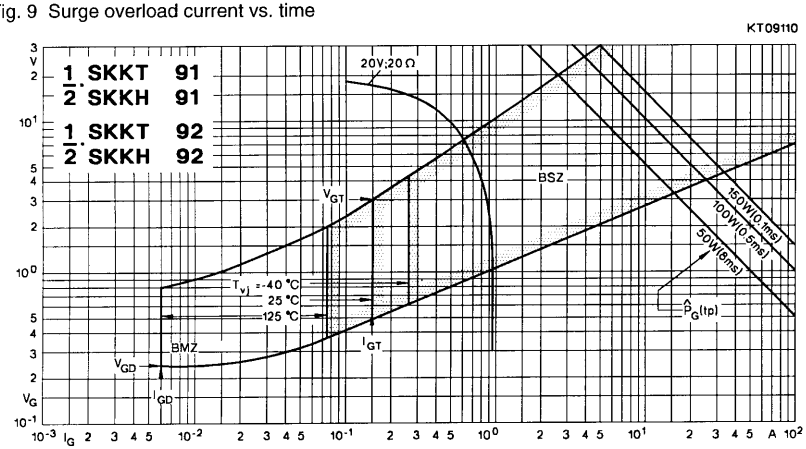


Fig. 10 Gate trigger characteristics