

**SEMIPACK® 1**

## Thyristor / Diode Modules

### SKKT 42

### SKKT 42B

### SKKH 42

### Features

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

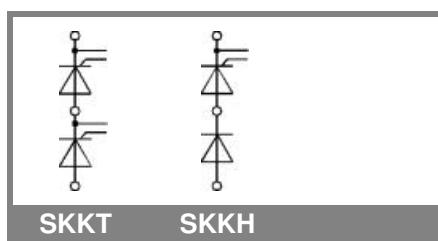
### Typical Applications\*

- 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) See the assembly instructions

$V_{RSM}$ V	$V_{RRM}, V_{DRM}$ V	$I_{TRMS} = 75 \text{ A}$ (maximum value for continuous operation) $I_{TAV} = 40 \text{ A}$ (sin. 180; $T_c = 85^\circ\text{C}$ )		
900	800	SKKT 42/08E	SKKT 42B08E	SKKH 42/08E
1300	1200	SKKT 42/12E	SKKT 42B12E	SKKH 42/12E
1500	1400	SKKT 42/14E	SKKT 42B14E	SKKH 42/14E
1700	1600	SKKT 42/16E	SKKT 42B16E	SKKH 42/16E
1900	1800	SKKT 42/18E	SKKT 42B18E	SKKH 42/18E

Symbol	Conditions	Values	Units
$I_{TAV}$	sin. 180; $T_c = 85$ (100) $^\circ\text{C}$ ;	40 (28)	A
$I_D$	P3/180; $T_a = 45^\circ\text{C}$ ; B2 / B6	50 / 60	A
	P3/180F; $T_a = 35^\circ\text{C}$ ; B2 / B6	85 / 110	A
$I_{RMS}$	P3/180F; $T_a = 35^\circ\text{C}$ ; W1 / W3	110 / 3 * 85	A
$I_{TSM}$	$T_{vj} = 25^\circ\text{C}$ ; 10 ms	1000	A
	$T_{vj} = 125^\circ\text{C}$ ; 10 ms	850	A
$i^2t$	$T_{vj} = 25^\circ\text{C}$ ; 8,3 ... 10 ms	5000	A <sup>2</sup> s
	$T_{vj} = 125^\circ\text{C}$ ; 8,3 ... 10 ms	3600	A <sup>2</sup> s
$V_T$	$T_{vj} = 25^\circ\text{C}$ ; $I_T = 200 \text{ A}$	max. 1,95	V
$V_{T(TO)}$	$T_{vj} = 125^\circ\text{C}$	max. 1	V
$r_T$	$T_{vj} = 125^\circ\text{C}$	max. 4,5	m $\Omega$
$I_{DD}, I_{RD}$	$T_{vj} = 125^\circ\text{C}$ ; $V_{RD} = V_{RRM}$ ; $V_{DD} = V_{DRM}$	max. 15	mA
$t_{gd}$	$T_{vj} = 25^\circ\text{C}$ ; $I_G = 1 \text{ A}$ ; $di_G/dt = 1 \text{ A}/\mu\text{s}$	1	$\mu\text{s}$
$t_{gr}$	$V_D = 0,67 * V_{DRM}$	2	$\mu\text{s}$
$(di/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$	max. 150	A/ $\mu\text{s}$
$(dv/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$	max. 1000	V/ $\mu\text{s}$
$t_q$	$T_{vj} = 125^\circ\text{C}$ ,	80	$\mu\text{s}$
$I_H$	$T_{vj} = 25^\circ\text{C}$ ; typ. / max.	150 / 250	mA
$I_L$	$T_{vj} = 25^\circ\text{C}$ ; $R_G = 33 \Omega$ ; typ. / max.	300 / 600	mA
$V_{GT}$	$T_{vj} = 25^\circ\text{C}$ ; d.c.	min. 3	V
$I_{GT}$	$T_{vj} = 25^\circ\text{C}$ ; d.c.	min. 150	mA
$V_{GD}$	$T_{vj} = 125^\circ\text{C}$ ; d.c.	max. 0,25	V
$I_{GD}$	$T_{vj} = 125^\circ\text{C}$ ; d.c.	max. 6	mA
$R_{th(j-c)}$	cont.; per thyristor / per module	0,65 / 0,33	K/W
$R_{th(j-c)}$	sin. 180; per thyristor / per module	0,69 / 0,35	K/W
$R_{th(j-c)}$	rec. 120; per thyristor / per module	0,73 / 0,37	K/W
$R_{th(c-s)}$	per thyristor / per module	0,2 / 0,1	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 ± 15 % <sup>1)</sup>	Nm
$M_t$	to terminals	3 ± 15 %	Nm
$a$		5 * 9,81	$\text{m/s}^2$
$m$	approx.	95	g
Case	SKKT SKKT ...B SKKH	A 46 A 48 A 47	



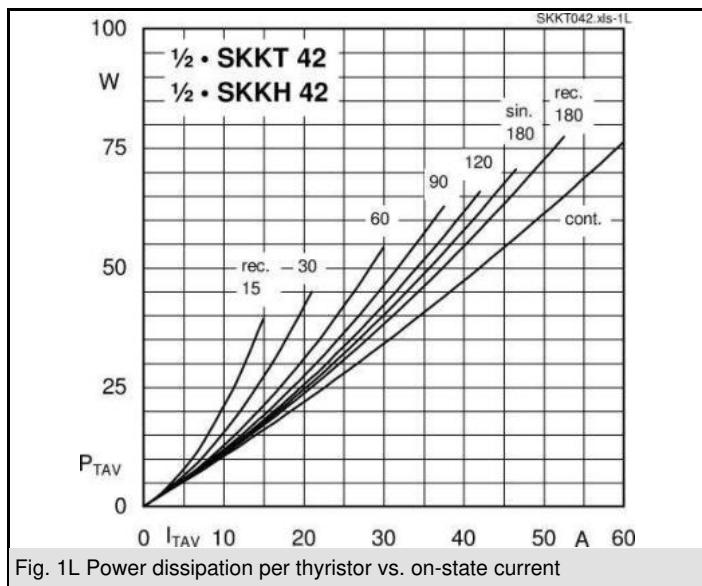


Fig. 1L Power dissipation per thyristor vs. on-state current

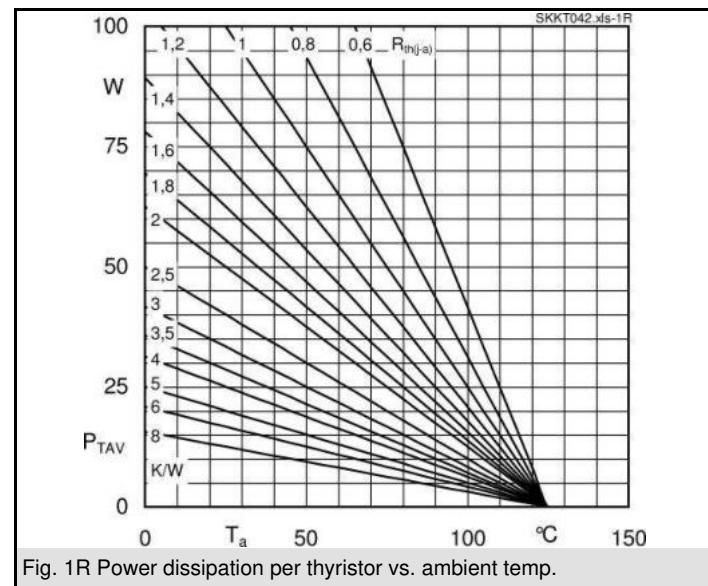


Fig. 1R Power dissipation per thyristor vs. ambient temp.

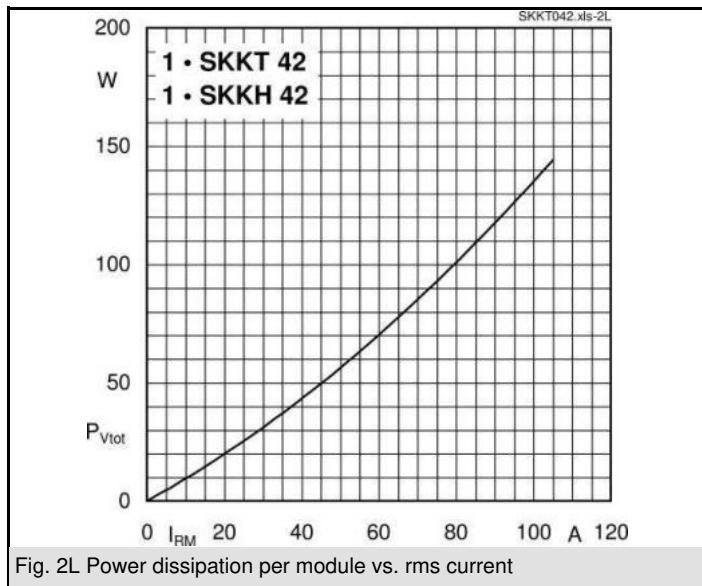


Fig. 2L Power dissipation per module vs. rms current

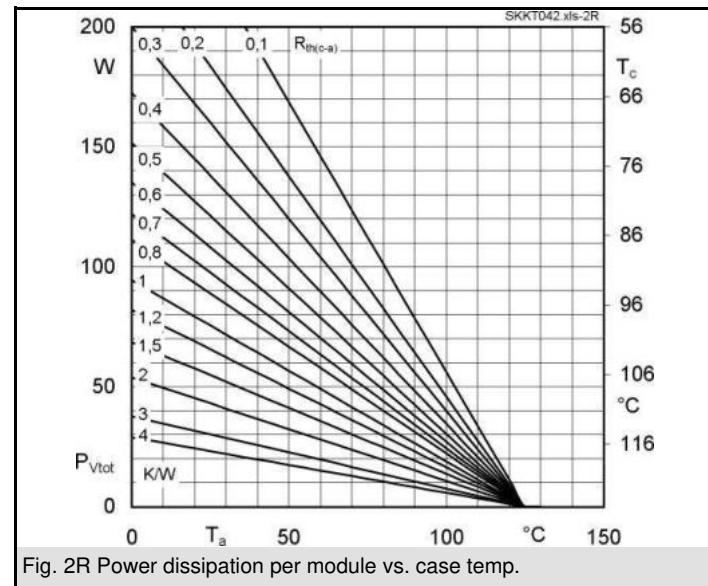


Fig. 2R Power dissipation per module vs. case temp.

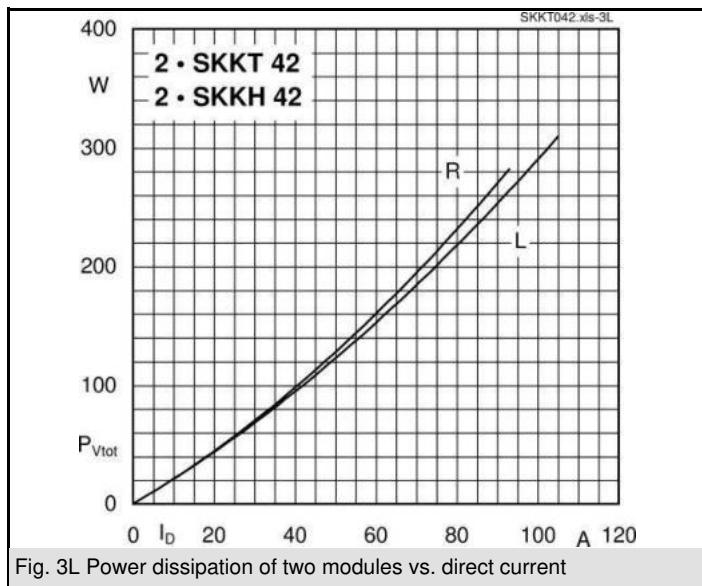


Fig. 3L Power dissipation of two modules vs. direct current

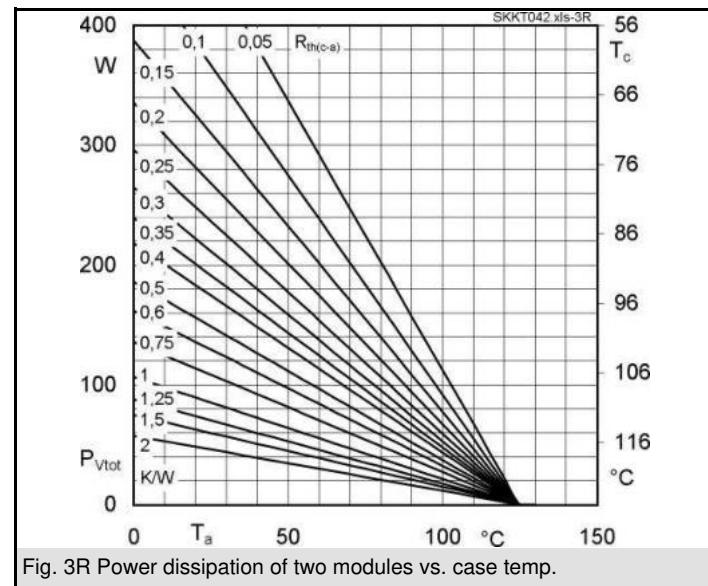


Fig. 3R Power dissipation of two modules vs. case temp.

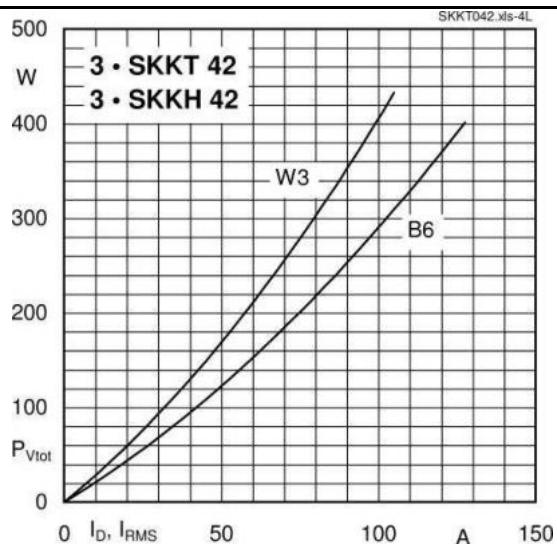


Fig. 4L Power dissipation of three modules vs. direct and rms current

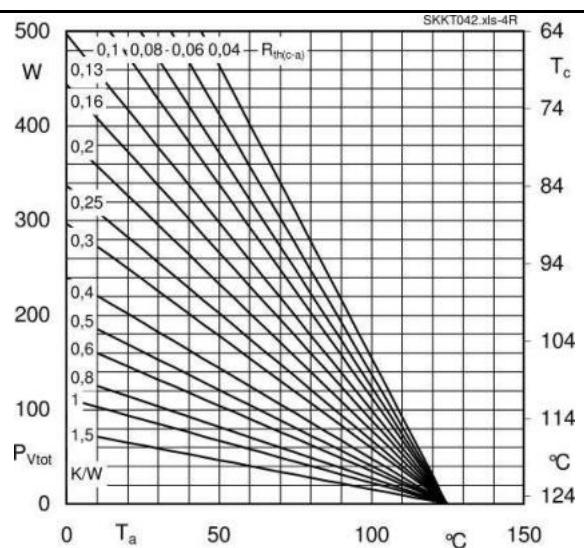


Fig. 4R Power dissipation of three modules vs. case temp.

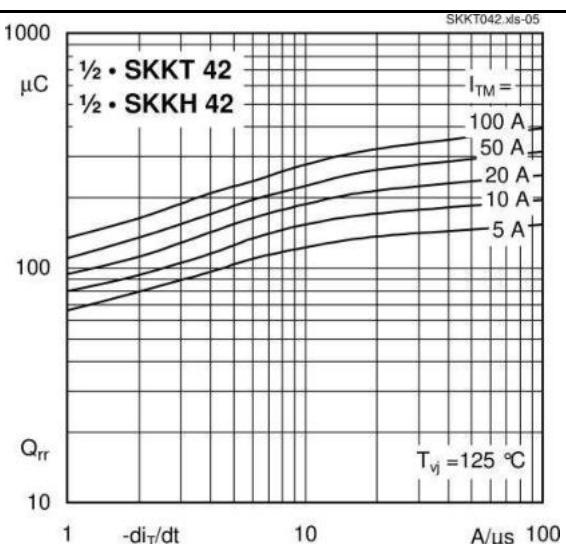


Fig. 5 Recovered charge vs. current decrease

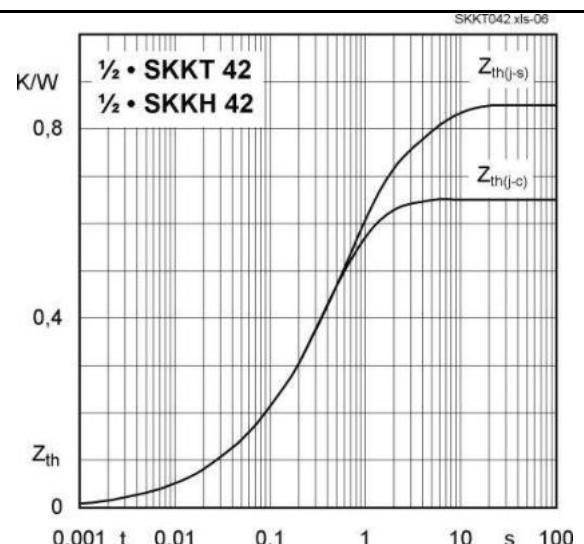


Fig. 6 Transient thermal impedance vs. time

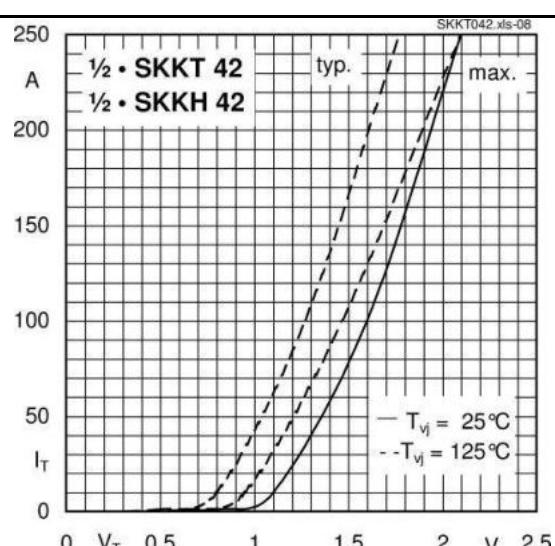


Fig. 7 On-state characteristics

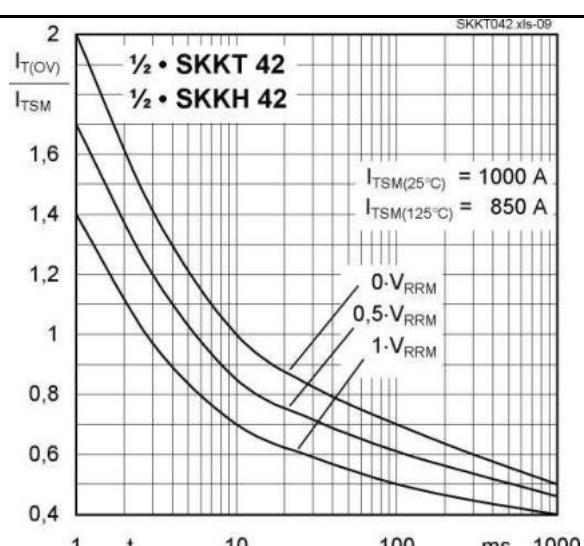
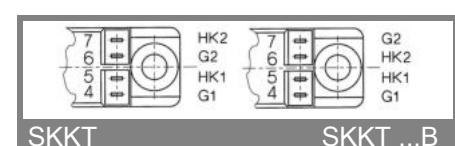
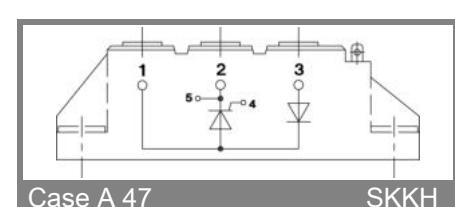
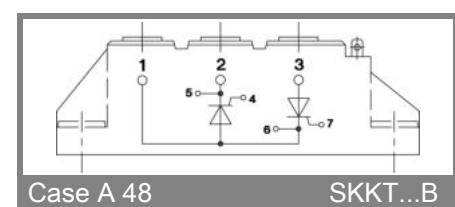
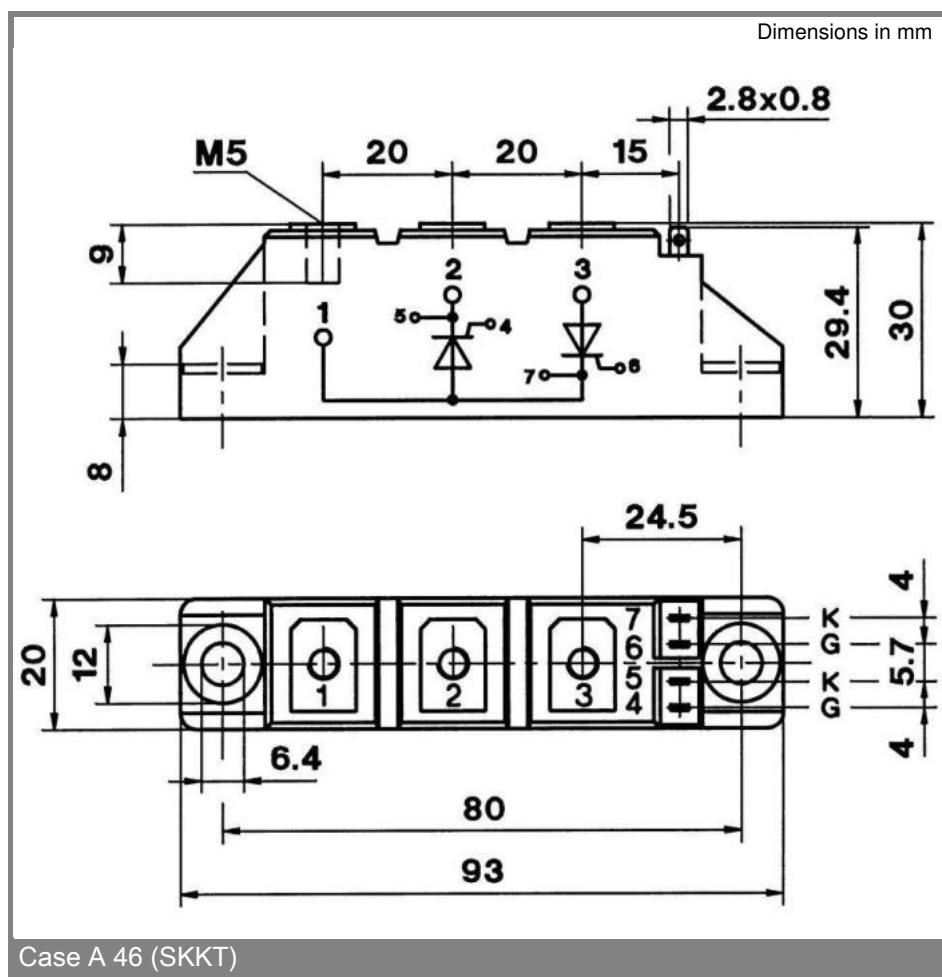
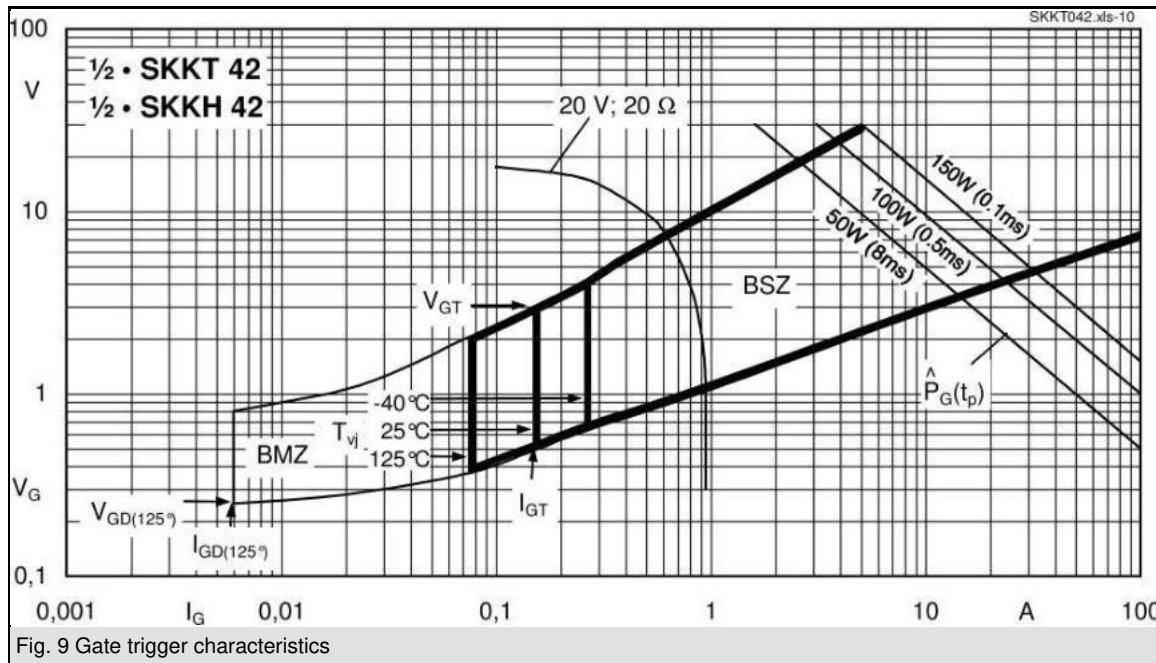


Fig. 8 Surge overload current vs. time



\* 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.