

SEMIPACK® 1

Thyristor / Diode Modules

SKKL 92

SKMT 92

Features

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

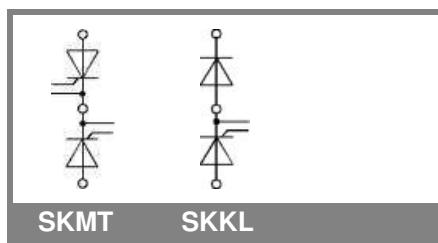
Typical Applications*

- Line rectifiers for transistorized AC motor controllers (SKKL)
- DC braking of AC motor (SKMT)

1) See the assembly instructions

V_{RSM}	V_{RRM}, V_{DRM}	$I_{TRMS} = 150 \text{ A}$ (maximum value for continuous operation)	
V	V	$I_{TAV} = 95 \text{ A}$ (sin. 180; $T_c = 85^\circ\text{C}$)	
900	800	SKMT 92/08E	SKKL 92/12E
1300	1200	SKMT 92/14E	
1500	1400	SKMT 92/16E	SKKL 92/16E
1700	1600	SKMT 92/18E	
1900	1800		

Symbol	Conditions	Values	Units
I_{TAV}	sin. 180; $T_c = 85$ (100) $^\circ\text{C}$;	95 (68)	A
I_D	P3/180; $T_a = 45^\circ\text{C}$; B2 / B6	70 / 85	A
	P3/180F; $T_a = 35^\circ\text{C}$; B2 / B6	140 / 175	A
I_{RMS}	P3/180F; $T_a = 35^\circ\text{C}$; W1 / W3	190 / 3 * 135	A
I_{TSM}	$T_{vj} = 25^\circ\text{C}$; 10 ms	2000	A
	$T_{vj} = 125^\circ\text{C}$; 10 ms	1750	A
i^2t	$T_{vj} = 25^\circ\text{C}$; 8,3 ... 10 ms	20000	A ² s
	$T_{vj} = 125^\circ\text{C}$; 8,3 ... 10 ms	15000	A ² s
V_T	$T_{vj} = 25^\circ\text{C}$; $I_T = 300 \text{ A}$	max. 1,65	V
$V_{T(TO)}$	$T_{vj} = 125^\circ\text{C}$	max. 0,9	V
r_T	$T_{vj} = 125^\circ\text{C}$	max. 2	m Ω
I_{DD}, I_{RD}	$T_{vj} = 125^\circ\text{C}$; $V_{RD} = V_{RRM}$; $V_{DD} = V_{DRM}$	max. 20	mA
t_{gd}	$T_{vj} = 25^\circ\text{C}$; $I_G = 1 \text{ A}$; $di_G/dt = 1 \text{ A}/\mu\text{s}$	1	μs
t_{gr}	$V_D = 0,67 * V_{DRM}$	2	μs
$(di/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$	max. 150	A/ μs
$(dv/dt)_{cr}$	$T_{vj} = 125^\circ\text{C}$	max. 1000	V/ μs
t_q	$T_{vj} = 125^\circ\text{C}$,	100	μs
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	0,28 / 0,14	K/W
$R_{th(j-c)}$	sin. 180; per thyristor / per module	0,3 / 0,15	K/W
$R_{th(j-c)}$	rec. 120; per thyristor / per module	0,32 / 0,16	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 % ¹⁾	Nm
M_t	to terminals	3 ± 15 %	Nm
a		5 * 9,81	m/s^2
m	approx.	95	g
Case	SKMT SKKL	A 72 A 59	



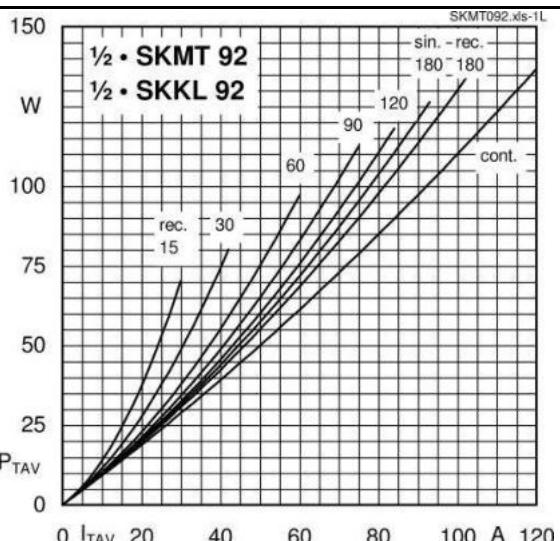


Fig. 1L Power dissipation per thyristor vs. on-state current

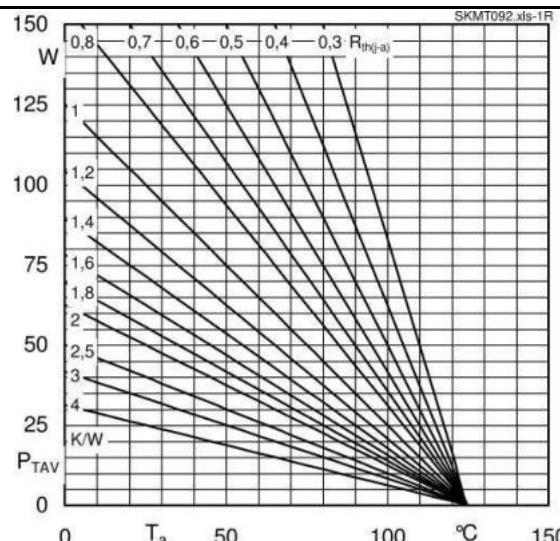


Fig. 1R Power dissipation per thyristor vs. ambient temp.

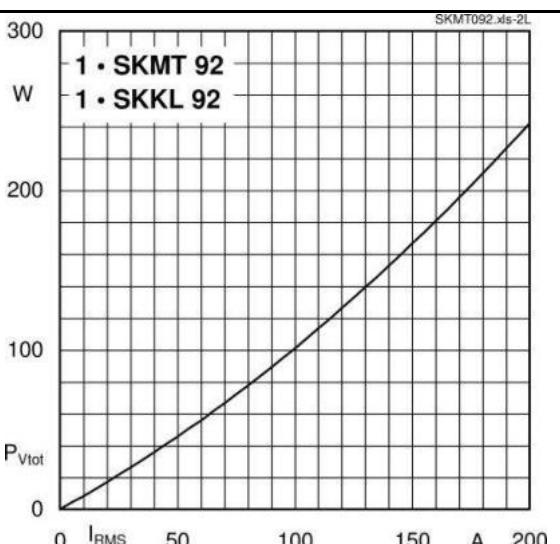


Fig. 2L Power dissipation per module vs. rms current

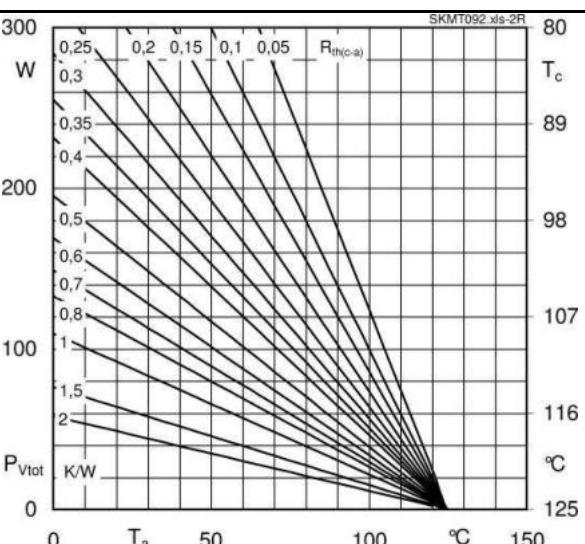


Fig. 2R Power dissipation per module vs. case temp.

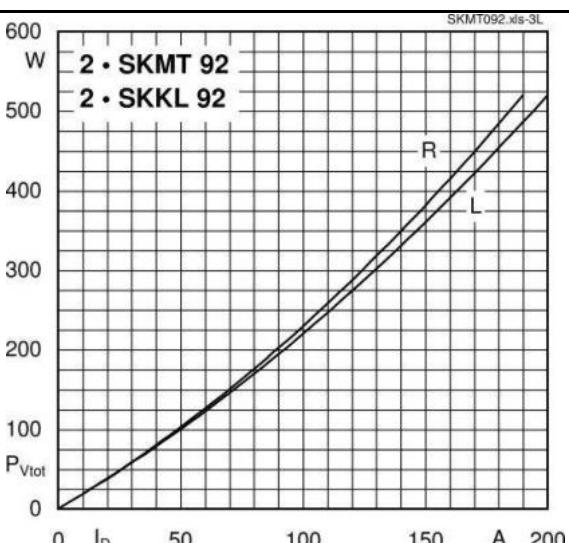


Fig. 3L Power dissipation of two modules vs. direct current

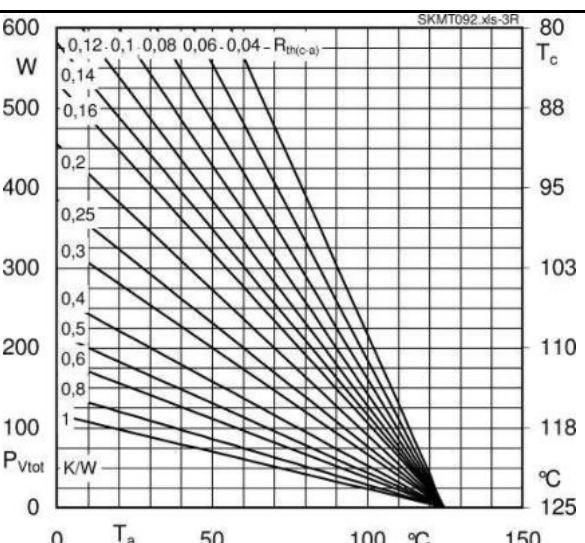


Fig. 3R Power dissipation of two modules vs. case temp.

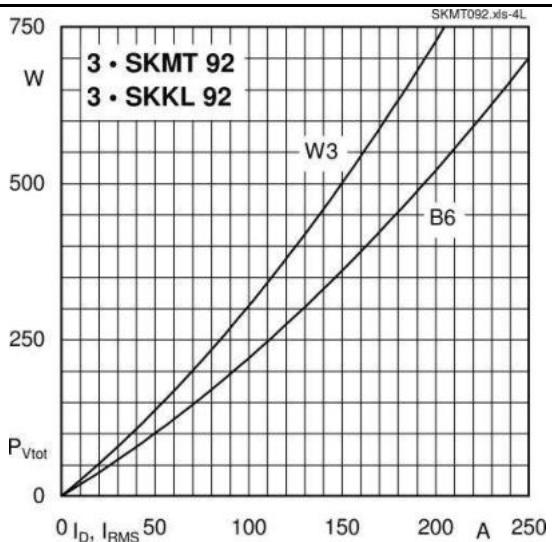


Fig. 4L Power dissipation of three modules vs. direct and rms current

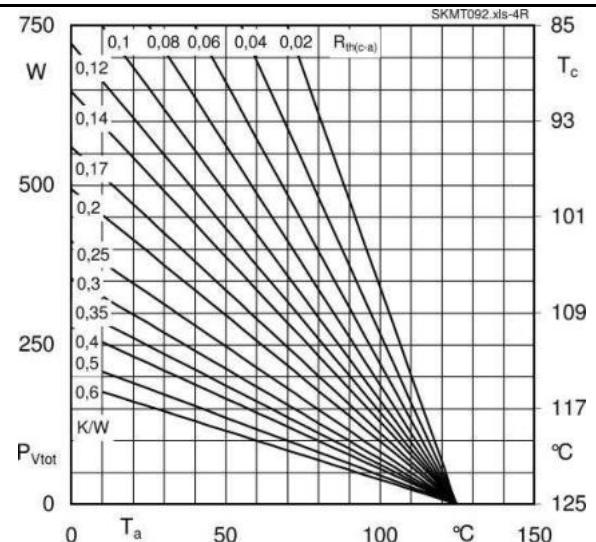


Fig. 4R Power dissipation of three modules vs. case temp.

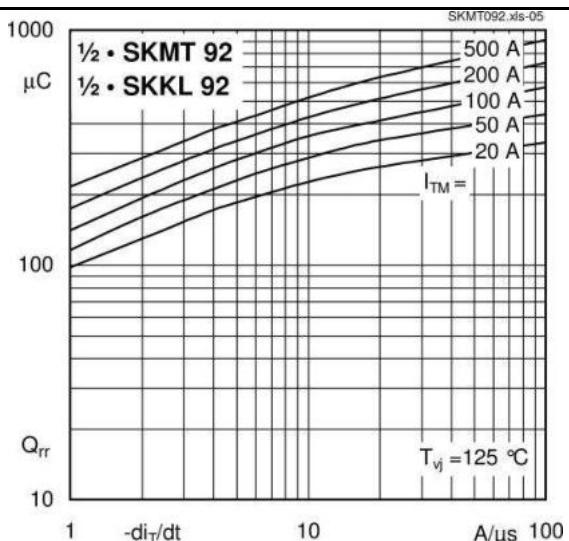


Fig. 5 Recovered charge vs. current decrease

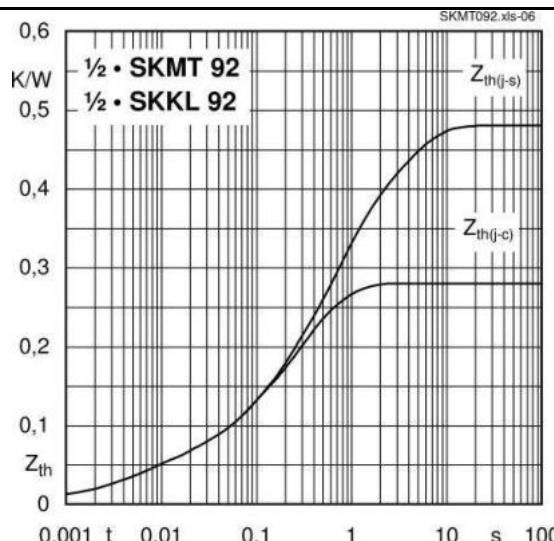


Fig. 6 Transient thermal impedance vs. time

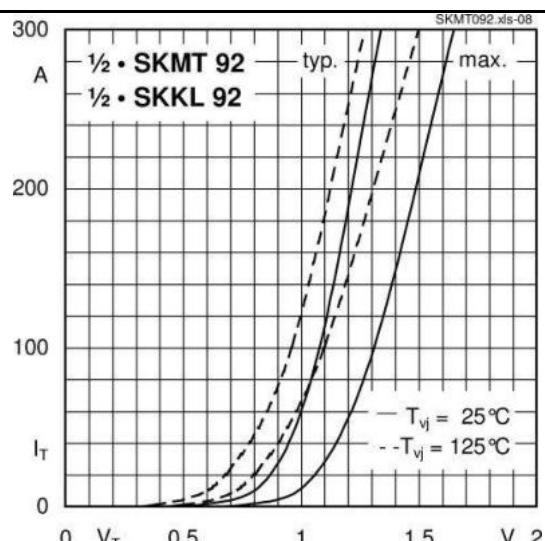


Fig. 7 On-state characteristics

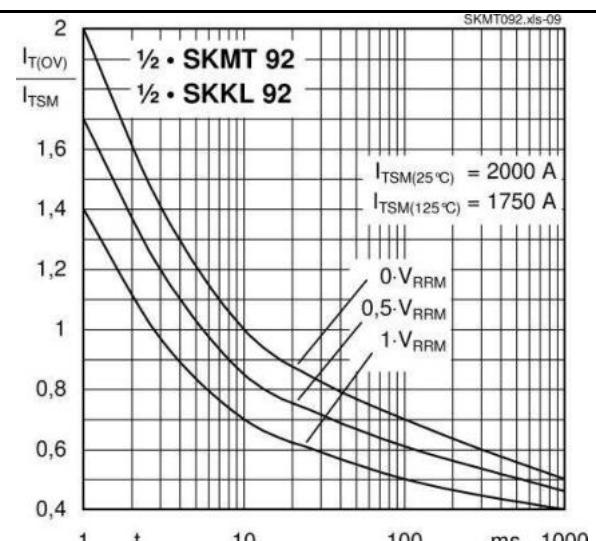
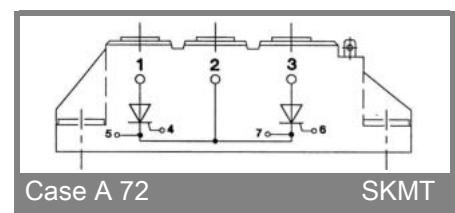
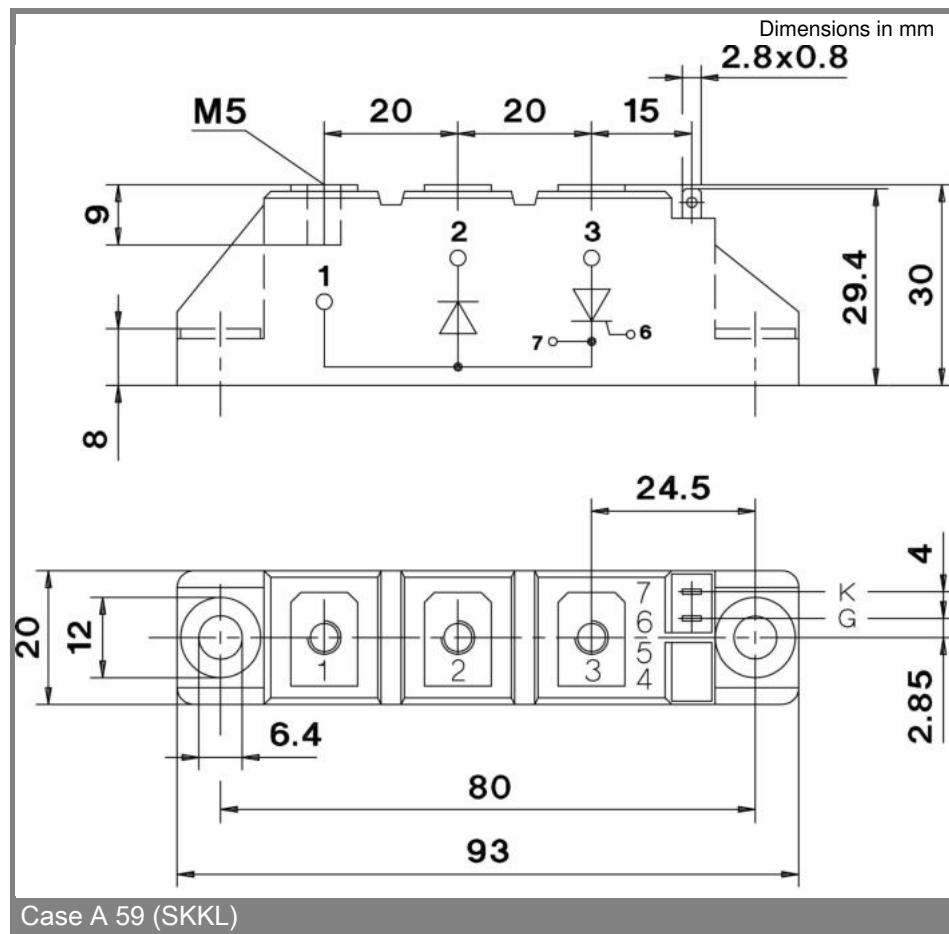
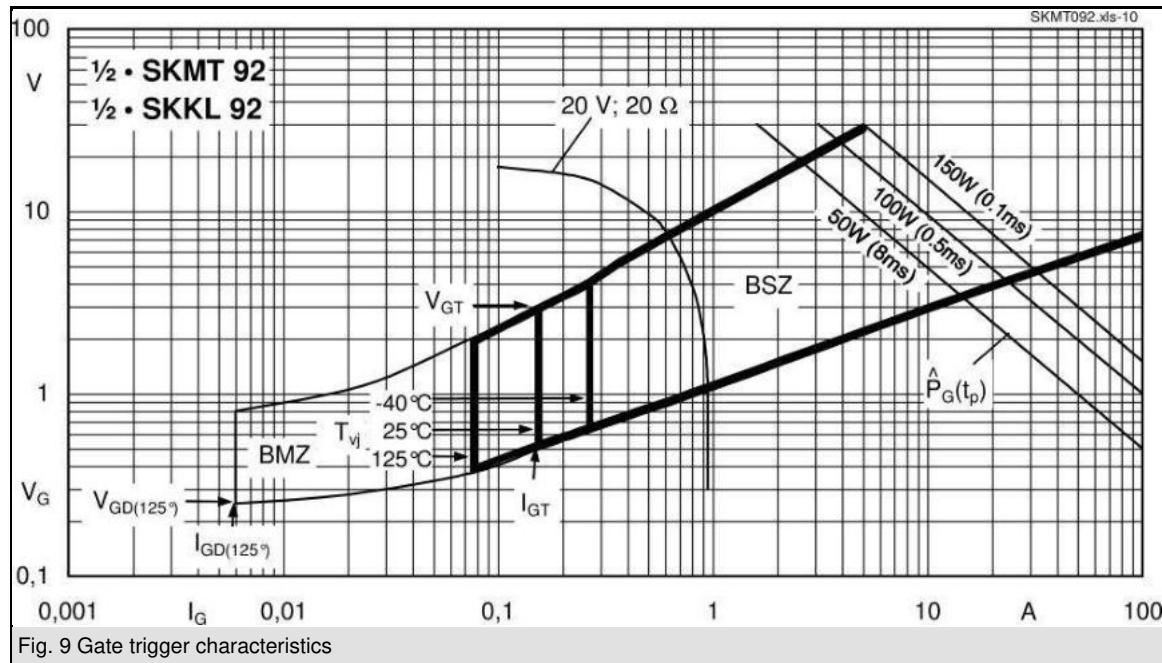


Fig. 8 Surge overload current vs. time



* 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.