



# Thyristor Diode Modules

LiuJing rectifier co., Ltd.

$V_{RSM}$	$V_{RRM}$	$I_{TRMS} = 195A$ (maximum value for continuous operation)	
$V$	$V$	$I_{AV} = 122A$ (sin.180; $T_c=88\text{ }^\circ\text{C}$ )	
900	800	SKKT 122/08E	SKKH 122/08E
1300	1200	SKKT 122/12E	SKKH 122/12E
1500	1400	SKKT 122/14E	SKKH 122/14E
1700	1600	SKKT 122/16E	SKKH 122/16E
1900	1800	SKKT 122/16E	SKKH 122/18E

Symbol	Conditions	Values	Units
$I_{AV}$	sin. 180; $T_c = 85(100)\text{ }^\circ\text{C}$ ;	129 (92)	A
$I_d$	P3/180 ; $T_a = 45\text{ }^\circ\text{C}$ ; B2 / B6	82 / 105	A
$I_{RMS}$	P3/180F; $T_a = 35\text{ }^\circ\text{C}$ ; B2 / B6	170 / 200	A
	P3/180F; $T_a = 35\text{ }^\circ\text{C}$ ; W1 / W3	235 / 3 * 160	A
$I_{TSM}$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; 10ms	3600	A
	$T_{vj} = 125\text{ }^\circ\text{C}$ ; 10ms	3200	A
$i^2t$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; 8, 3 ...10ms	64800	$\text{A}^2\text{s}$
	$T_{vj} = 125\text{ }^\circ\text{C}$ ; 8, 3 ...10ms	51200	$\text{A}^2\text{s}$
$V_T$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; $I_t=366\text{A}$	max.1.55	V
$V_{T(TO)}$	$T_{vj} = 125\text{ }^\circ\text{C}$	max.0.85	V
$r_T$	$T_{vj} = 125\text{ }^\circ\text{C}$	max.2	$\text{m}\Omega$
$I_{DD}; I_{RD}$	$T_{vj} = 125\text{ }^\circ\text{C}$ ; $V_{RD}=V_{RRM}$ ; $V_{DD}=V_{DRM}$	max.40	mA
$t_{qd}$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; $I_g = 1\text{A}$ ; $d ig/d t = \text{A}/\mu\text{s}$	1	$\mu\text{s}$
$t_{gr}$	$V_D = 0.67*V_{DRM}$	2	$\mu\text{s}$
$(di/dt)_{cr}$	$T_{vj} = 125\text{ }^\circ\text{C}$	max.200	$\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$	$T_{vj} = 125\text{ }^\circ\text{C}$	max.1000	$\text{V}/\mu\text{s}$
$t_q$	$T_{vj} = 125\text{ }^\circ\text{C}$	250	$\mu\text{s}$
$I_H$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; typ./max	100 / 300	mA
$I_L$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; $RG = 33\Omega$ ; typ./max	200 / 500	mA
$V_{GT}$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; d.c.	min. 2	V
$I_{GT}$	$T_{vj} = 25\text{ }^\circ\text{C}$ ; d.c.	min. 150	mA
$V_{GD}$	$T_{vj} = 125\text{ }^\circ\text{C}$ ; d.c.	max. 0.25	V
$I_{GD}$	$T_{vj} = 125\text{ }^\circ\text{C}$ ; d.c.	max. 10	mA
$R_{th(j-c)}$	cont.; per thyristor/per module	0.2 / 0.1	K/W
$R_{th(j-c)}$	sin. 180; per thyristor/per module	0.21 / 0.105	K/W
$R_{th(j-c)}$	rec. 120; per thyristor/per module	0.22 / 0.11	K/W
$R_{th(j-c)}$	per thyristor/per module	0.13 / 0.065	K/W
$T_{vj}$		- 40...+ 125	$^\circ\text{C}$
$T_{stg}$		- 40...+ 125	$^\circ\text{C}$
$V_{isol}$	a. c. 50Hz; r.m.s. ; 1s/1min	3600/3000	$\text{V}\sim$
$M_s$	to heatsink	5 ± 15%)	Nm
$M_t$	to terminal	5 ± 15%	Nm
$a$	approx.	5 * 9.81	$\text{m}/\text{s}^2$
$m$		165	g
Case	SKKH	LJ2	

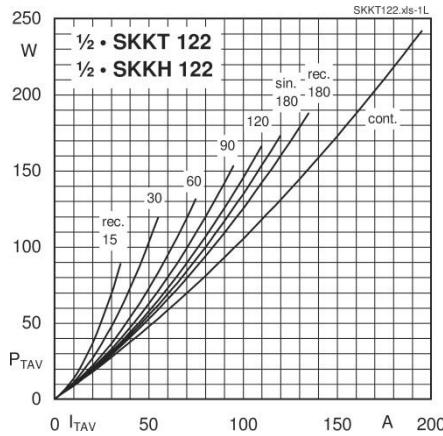


Fig. 1L Power dissipation per thyristor vs. on-state current

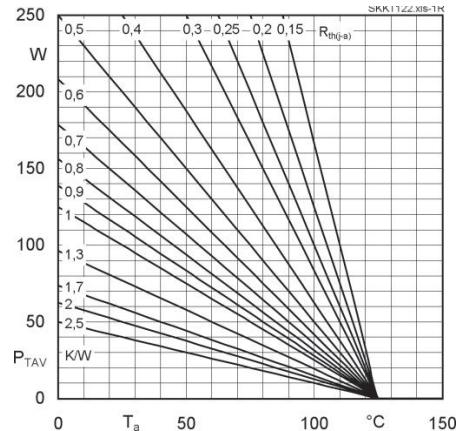


Fig. 1R Power dissipation per thyristor vs. ambient temp.

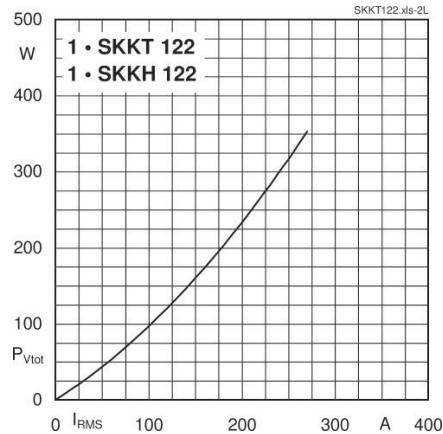


Fig. 2L Power dissipation per module vs. rms current

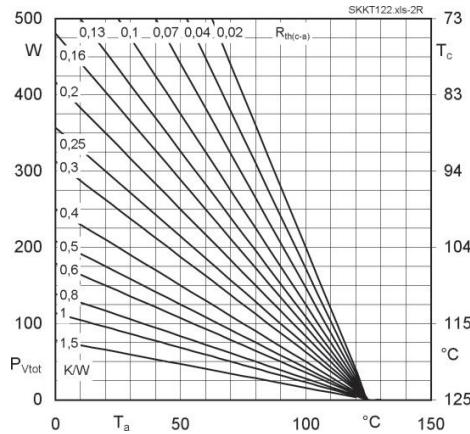


Fig. 2R Power dissipation per module vs. case temp.

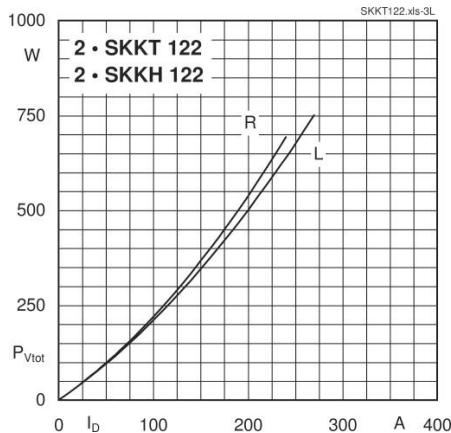


Fig. 3L Power dissipation of two modules vs. direct current

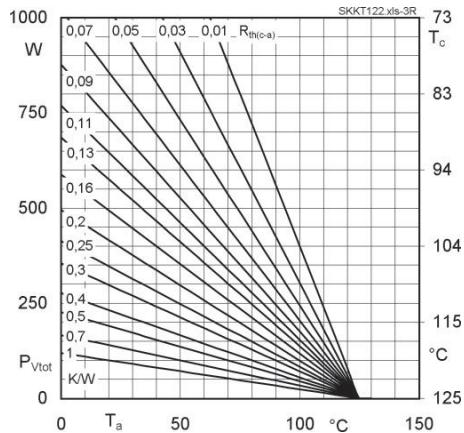


Fig. 3R Power dissipation of two modules vs. case temp.

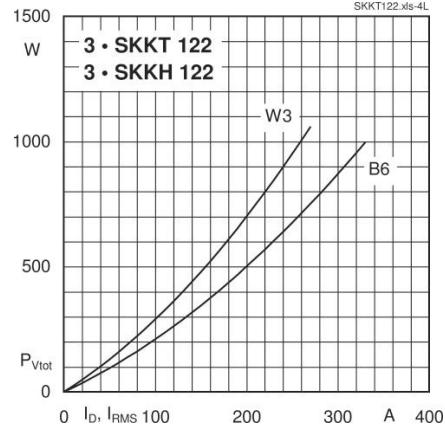


Fig. 4L Power dissipation of three modules vs. direct and rms current

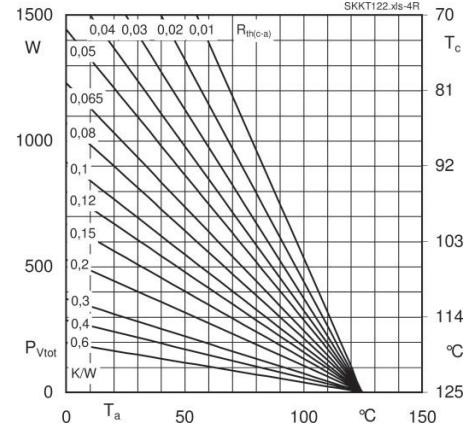


Fig. 4R Power dissipation of three modules vs. case temp.

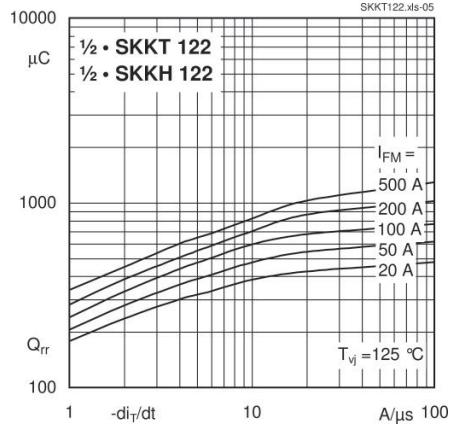


Fig. 5 Recovered charge vs. current decrease

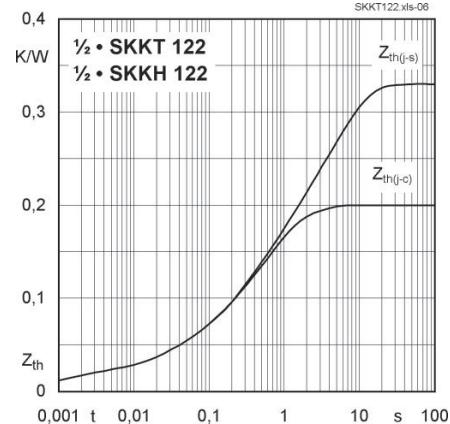


Fig. 6 Transient thermal impedance vs. time

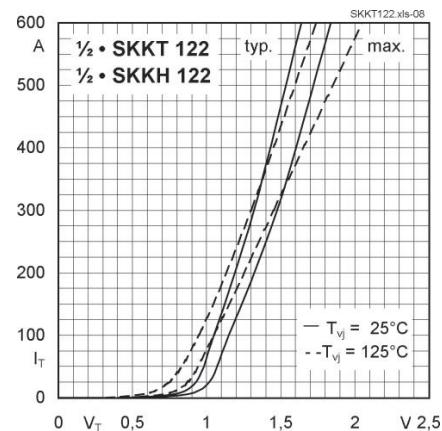


Fig. 7 On-state characteristics

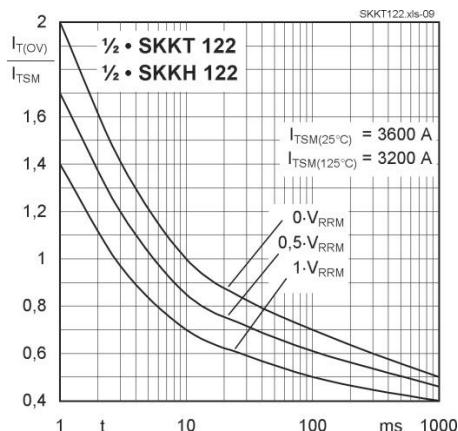


Fig. 8 Surge overload current vs. time



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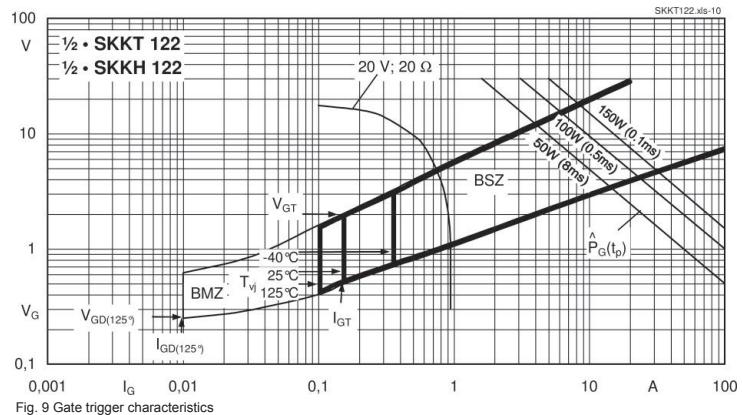
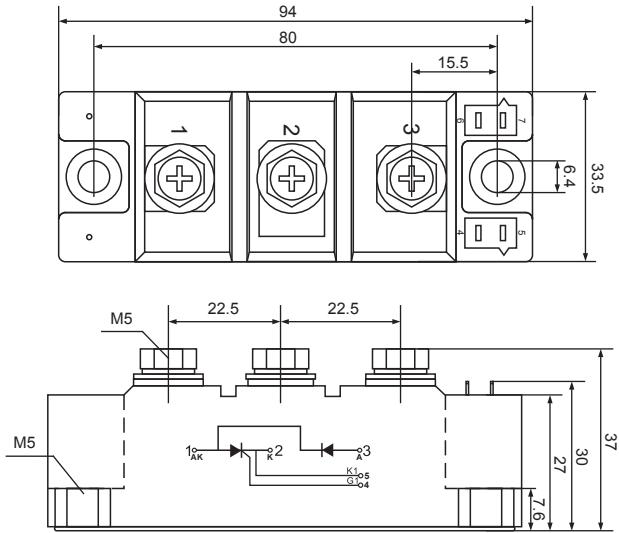


Fig. 9 Gate trigger characteristics



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