SKKH 323/12 E

SEMIPACK® 3

Thyristor / Diode Modules

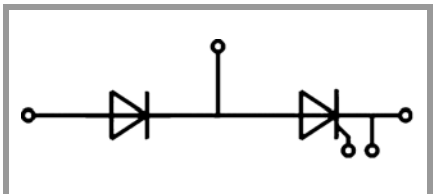
SKKH 323/12 E

Features*

- Industrial standard package
- Electrically insulated base plate
- Heat transfer through aluminum oxide ceramic insulated metal base plate
- Chip soldered on direct copper bonded Al_2O_3 ceramic
- UL recognition, file no. E63532

Typical Applications

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



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Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Chip				
$I_{T(AV)}$	sinus 180°	T_c = 85 °C	320	A
		T_c = 100 °C	241	A
I_{TSM}	10 ms	T_j = 25 °C	9500	A
		T_j = 130 °C	8200	A
i^2t	10 ms	T_j = 25 °C	451250	A^2s
		T_j = 130 °C	336200	A^2s
V_{RSM}			1300	V
V_{RRM}			1200	V
V_{DRM}			1200	V
$(di/dt)_{cr}$	T_j = 130 °C		130	A/µs
$(dv/dt)_{cr}$	T_j = 130 °C		1000	V/µs
T_j			-40 ... 130	°C
Module				
T_{stg}			-40 ... 125	°C
V_{isol}	a.c.; 50 Hz; r.m.s.	1 min	3000	V
		1 s	3600	V

Characteristics

Symbol	Conditions		min.	typ.	max.	Unit
Chip						
V_T	T_j = 25 °C, I_T = 750 A				1.45	V
$V_{T(TO)}$	T_j = 130 °C				0.81	V
r_T	T_j = 130 °C				0.85	mΩ
I_{DD};I_{RD}	T_j = 130 °C, V_{DD} = V_{DRM}; V_{RD} = V_{RRM}				100	mA
t_{gd}	T_j = 25 °C, I_G = 1 A, di_G/dt = 1 A/µs			1		µs
t_{gr}	V_D = 0.67 * V_{DRM}			2		µs
t_q	T_j = 130 °C			150		µs
I_H	T_j = 25 °C			150	500	mA
I_L	T_j = 25 °C, R_G = 33 Ω			300	2000	mA
V_{GT}	T_j = 25 °C, d.c.		2			V
I_{GT}	T_j = 25 °C, d.c.		150			mA
V_{GD}	T_j = 130 °C, d.c.				0.25	V
I_{GD}	T_j = 130 °C, d.c.				10	mA
$R_{th(j-c)}$	cont.	per chip			0.091	K/W
		per module			0.0455	K/W
$R_{th(j-c)}$	sin. 180°	per chip			0.095	K/W
		per module			0.048	K/W
$R_{th(j-c)}$	rec. 120°	per chip			0.11	K/W
		per module			0.055	K/W
Module						
$R_{th(c-s)}$	chip			0.08		K/W
	module			0.04		K/W
M_s	to heatsink M5		4.25		5.75	Nm
M_t	to terminals M8		7.65		10.35	Nm
a					5 * 9.81	m/s^2
w				410		g

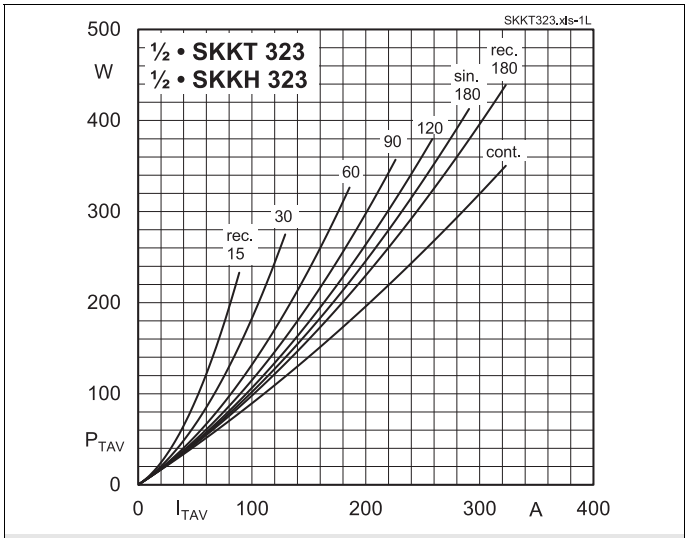


Fig. 1L: Power dissipation per thyristor/diode vs. on-state current

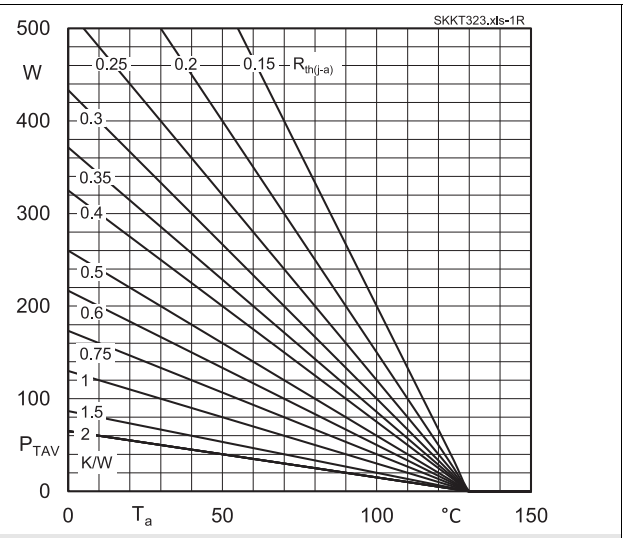


Fig. 1R: Power dissipation per thyristor/diode vs. ambient temperature

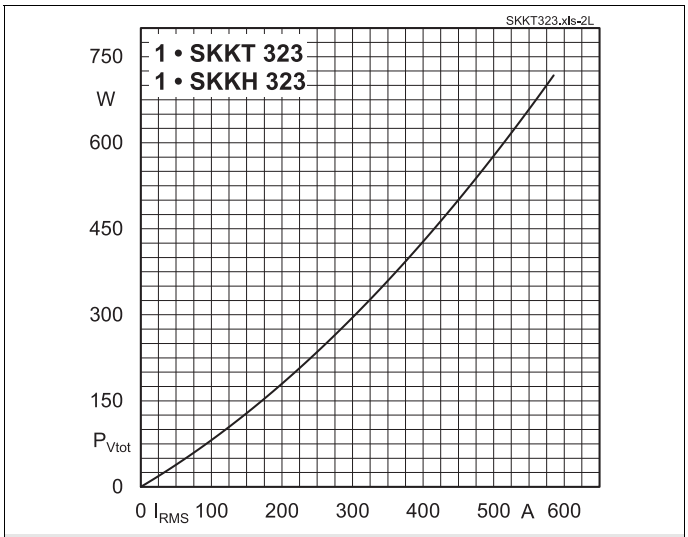


Fig. 2L: Power dissipation of one module vs. rms current

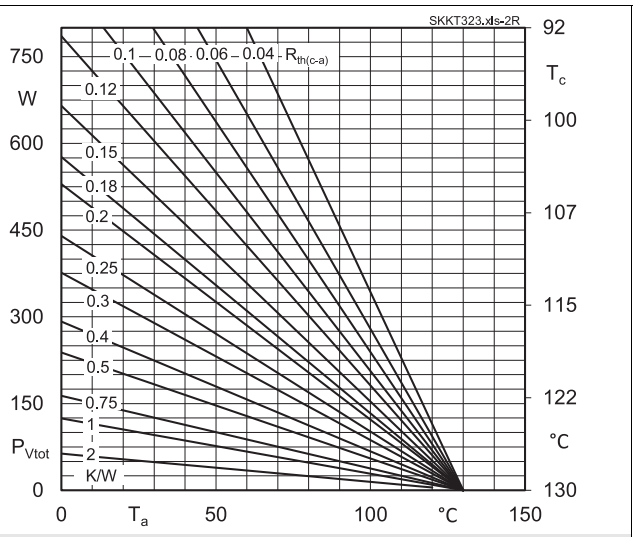


Fig. 2R: Power dissipation of one module vs. case temperature

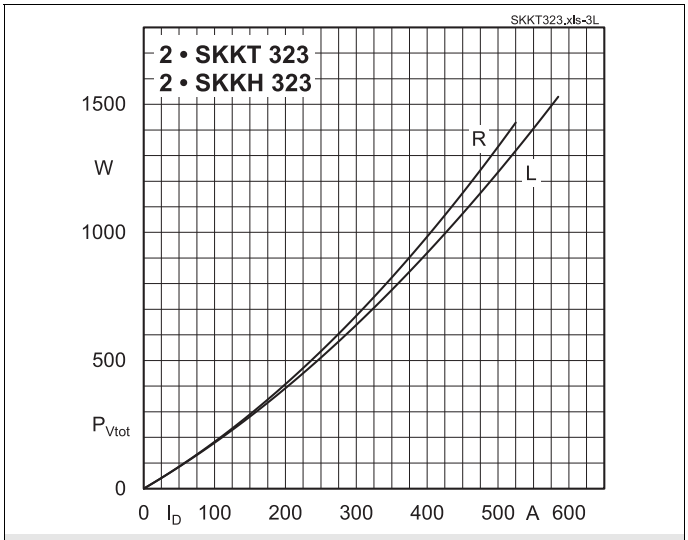


Fig. 3L: Power dissipation of two modules vs. direct current

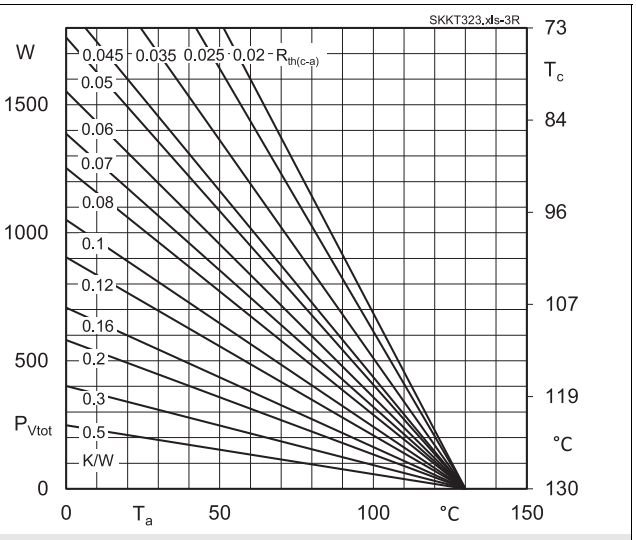


Fig. 3R: Power dissipation of two modules vs. case temperature

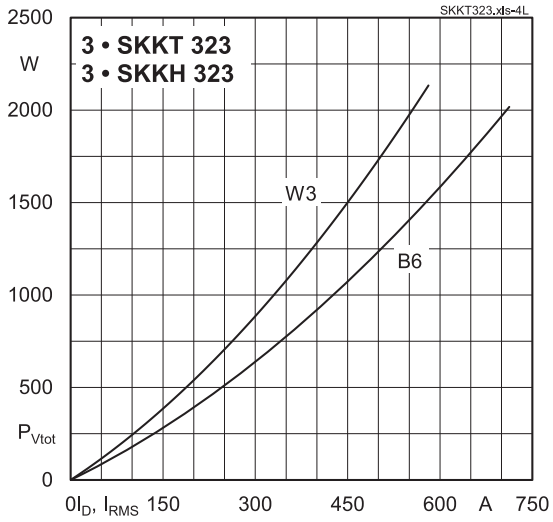


Fig. 4L: Power dissipation of three modules vs. direct and rms current

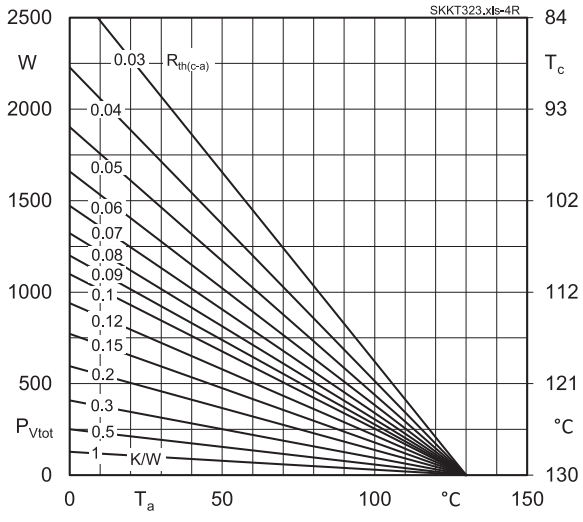


Fig. 4R: Power dissipation of three modules vs. case temperature

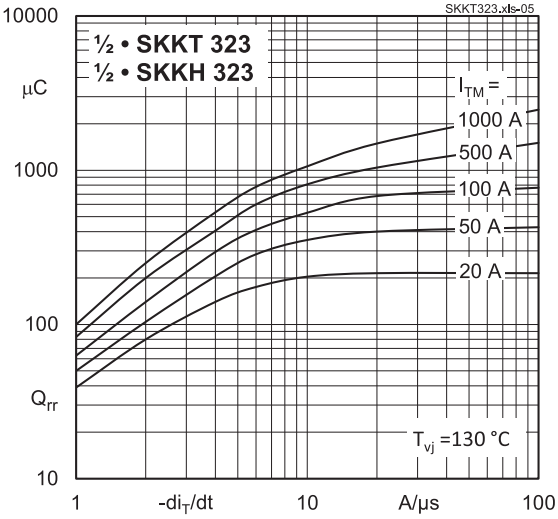


Fig. 5: Recovered charge vs. current decrease

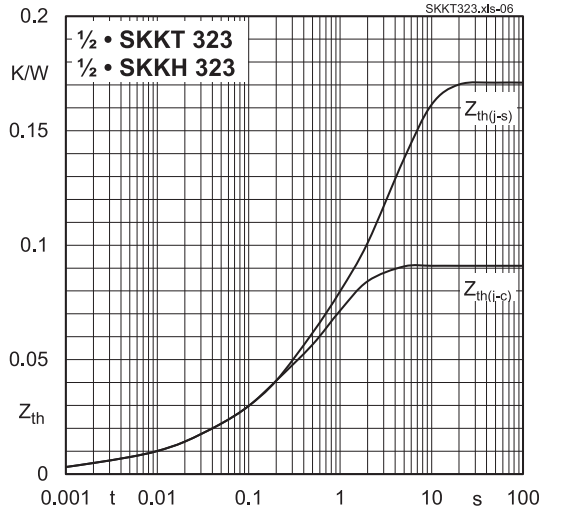


Fig. 6: Transient thermal impedance vs. time

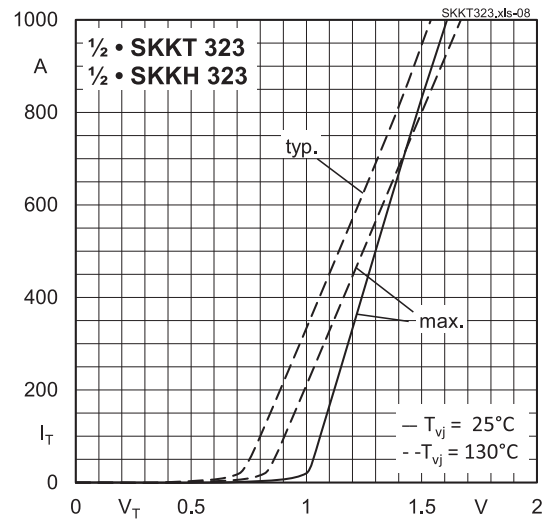


Fig. 7: On-state characteristics

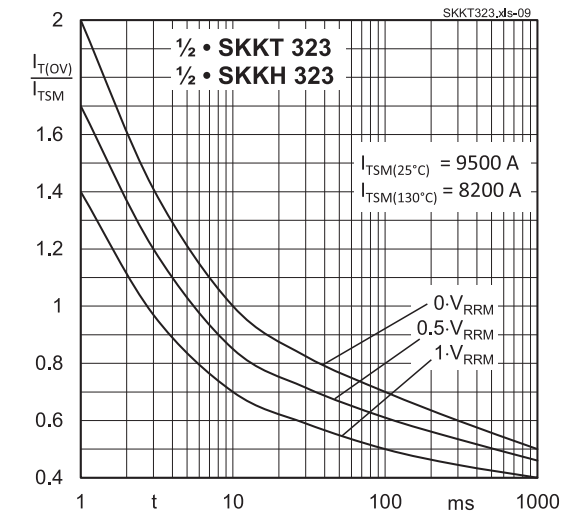


Fig. 8: Surge overload current vs. time

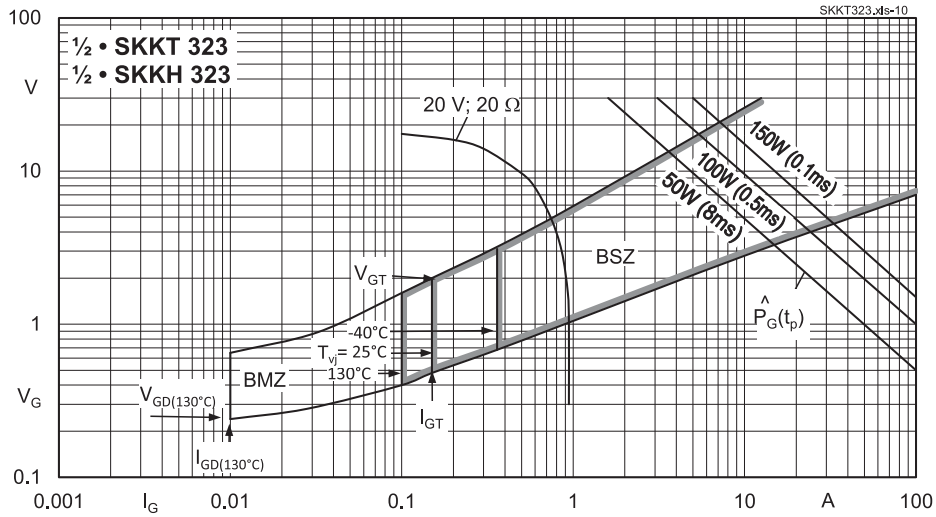
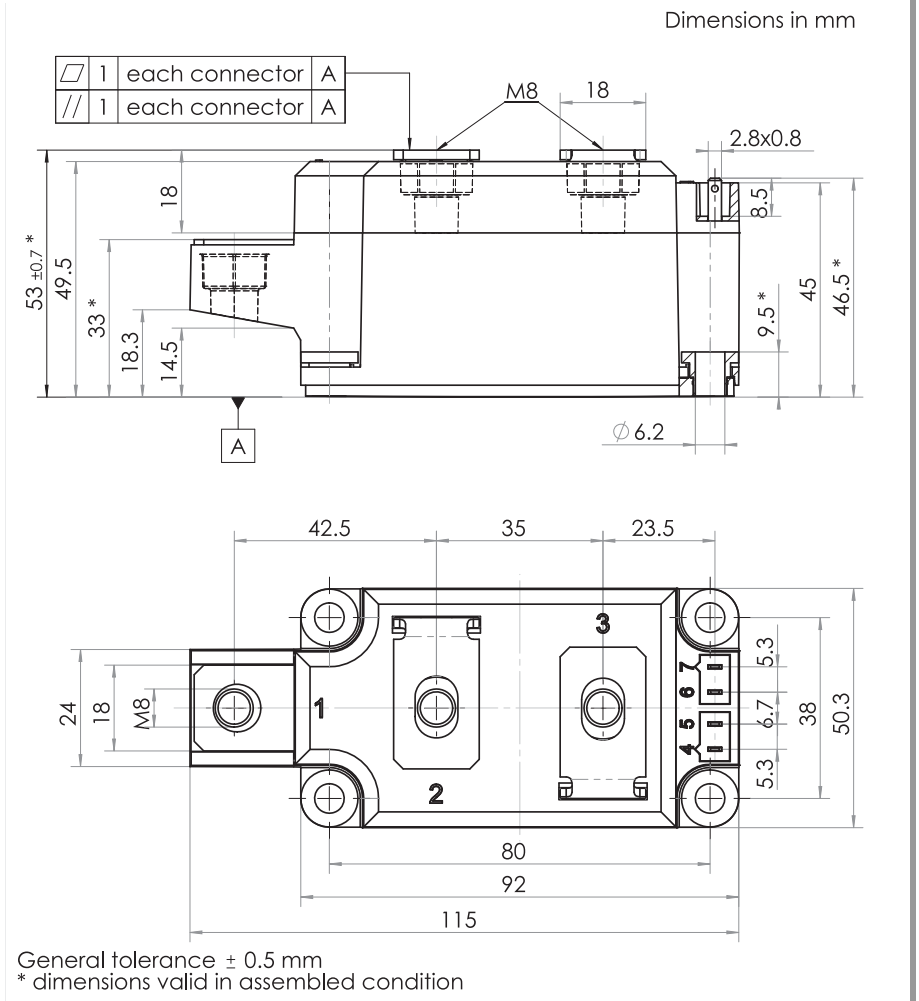


Fig. 9: Gate trigger characteristics



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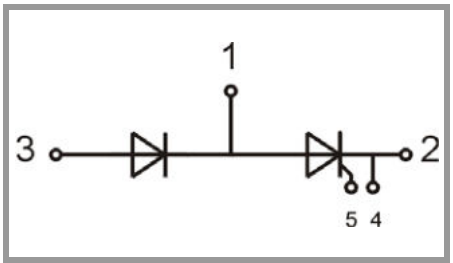

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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, chapter IX.

***IMPORTANT INFORMATION AND WARNINGS**

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