



SEMIPACK® 2

Thyristor / Diode Modules

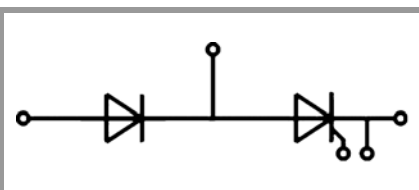
SKKH 215/18 E

Features*

- Heat transfer through aluminium oxide ceramic insulated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E63532

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)



SKKH

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Chip				
$I_{T(AV)}$	sinus 180°	$T_c = 85\text{ °C}$	215	A
		$T_c = 100\text{ °C}$	153	A
I_{TSM}	10 ms	$T_j = 25\text{ °C}$	7000	A
		$T_j = 125\text{ °C}$	5700	A
i^2t		$T_j = 25\text{ °C}$	245000	A ² s
	10 ms	$T_j = 125\text{ °C}$	162450	A ² s
V_{RSM}			1900	V
V_{RRM}			1800	V
V_{DRM}			1800	V
$(di/dt)_{cr}$	$T_j = 125\text{ °C}$		200	A/μs
$(dv/dt)_{cr}$	$T_j = 125\text{ °C}$		1000	V/μs
T_j			-40 ... 125	°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 = 600 A				1.5	V
V _{T(TO)}	T _j = 125 °C				0.85	V
r _T	T _j = 125 °C				1.2	mΩ
I _{DD} ; I _{RD}	T _j = 125 °C, V _{DD} = V _{DRM} ; V _{RD} = V _{RRM}				60	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 = 125 °C			150		μs
I _H	T _j = 25 °C			150	400	mA
I _L	T _j = 25 °C, R _G = 33 Ω			300	1000	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 = 125 °C, d.c.				0.25	V
I _{GD}	T _j = 125 °C, d.c.				10	mA
R _{th(j-c)}	cont.	per chip			0.12	K/W
		per module			0.06	K/W
R _{th(j-c)}	sin. 180°	per chip			0.125	K/W
		per module			0.065	K/W
R _{th(j-c)}	rec. 120°	per chip			0.14	K/W
		per module			0.07	K/W
Module						
R _{th(c-s)}	chip			0.04		K/W
	module			0.027		K/W
M _s	to heatsink M5		4.25		5.75	Nm
M _t	to terminals M6		4.25		5.75	Nm
a					5 * 9.81	m/s ²
w				165		g

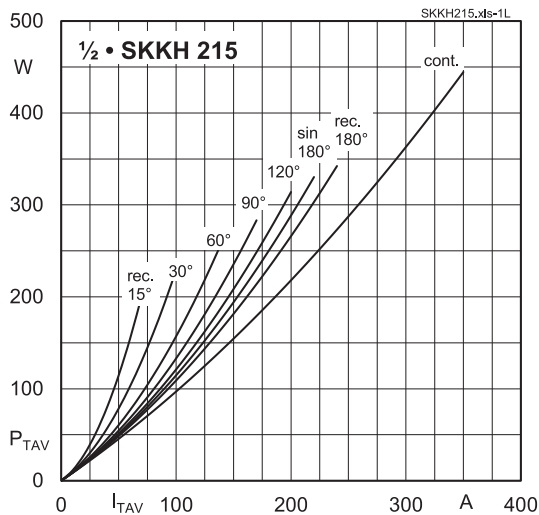


Fig. 1L: Power dissipation per thyristor vs. on-state current

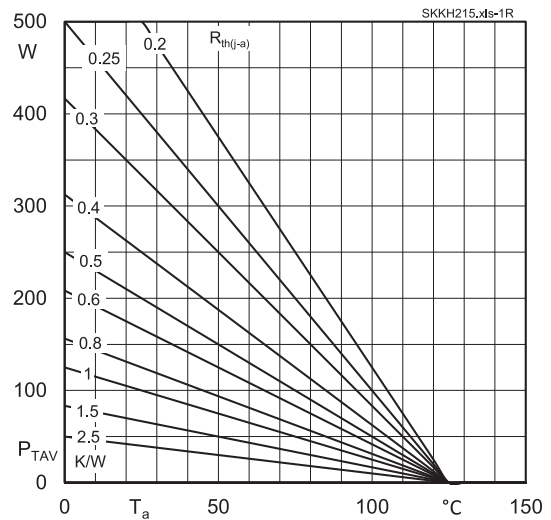


Fig. 1R: Max. power dissipation per chip vs. ambient temperature

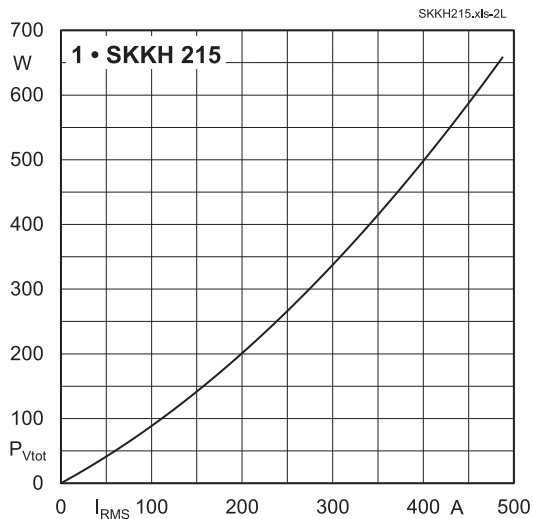


Fig. 2L: Max. power dissipation of one module vs. rms current

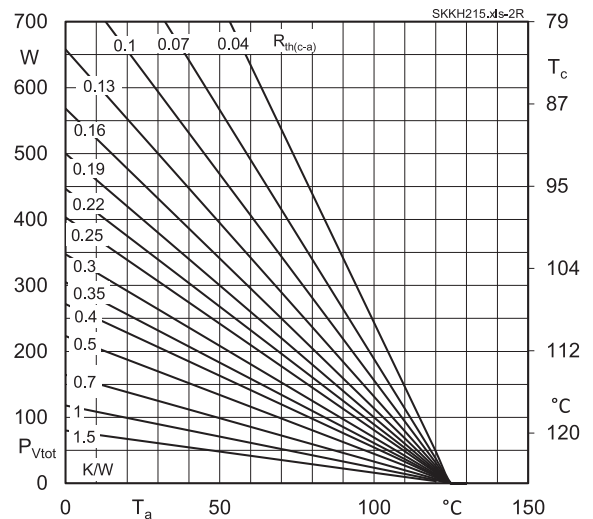


Fig. 2R: Max. power dissipation of one module vs. case temperature

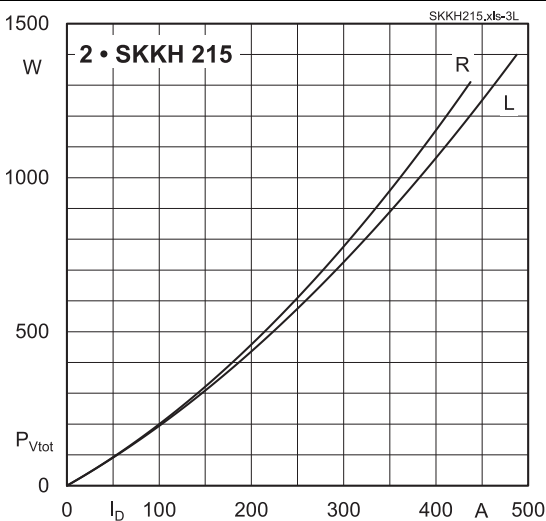


Fig. 3L: Max. power dissipation of two modules vs. direct current

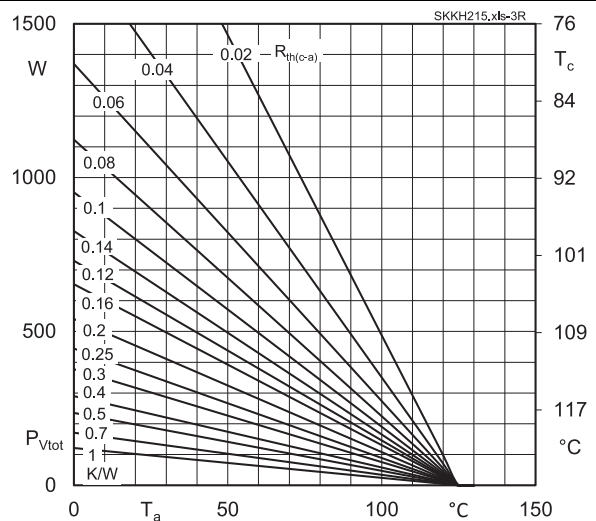


Fig. 3R: Max. power dissipation of two modules vs. case temperature

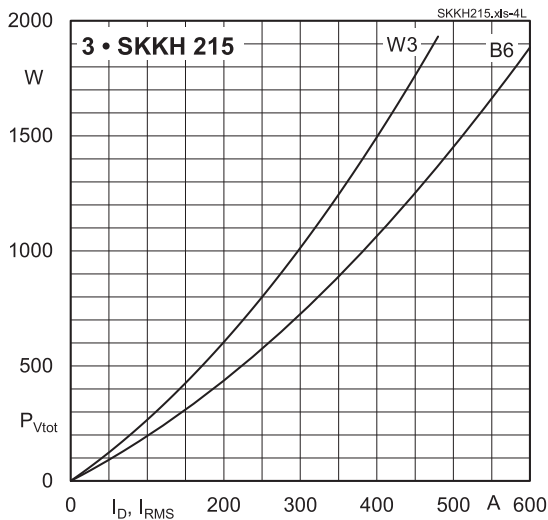


Fig. 4L: Max. power dissipation of three modules vs. direct current

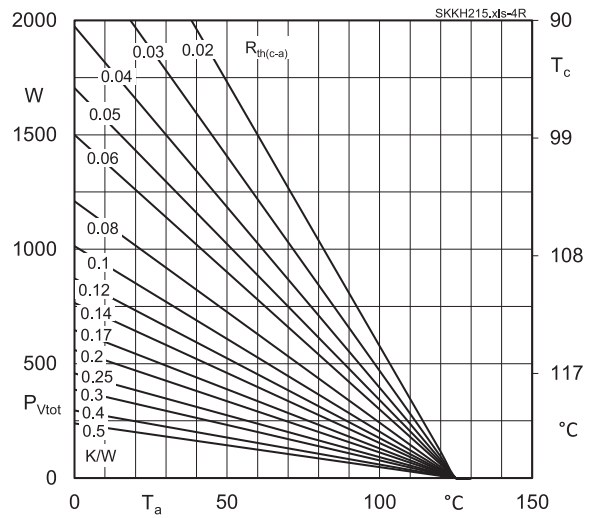


Fig. 4R: Max. power dissipation of three modules vs. case temperature

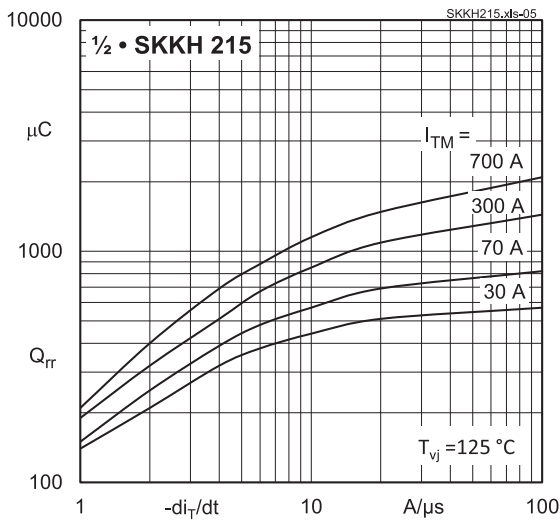


Fig. 5: Recovered charge vs. current decrease

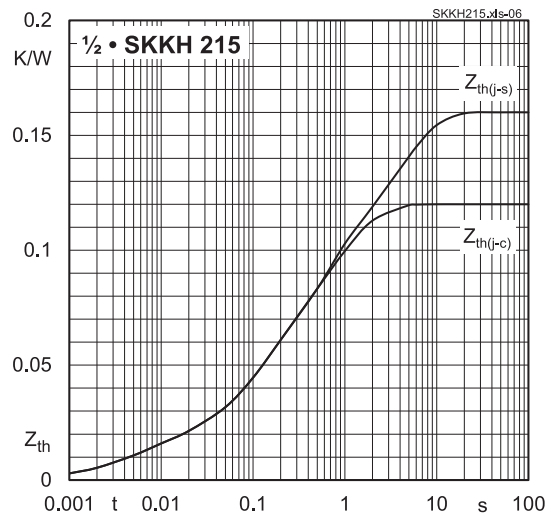


Fig. 6: Transient thermal impedance vs. time

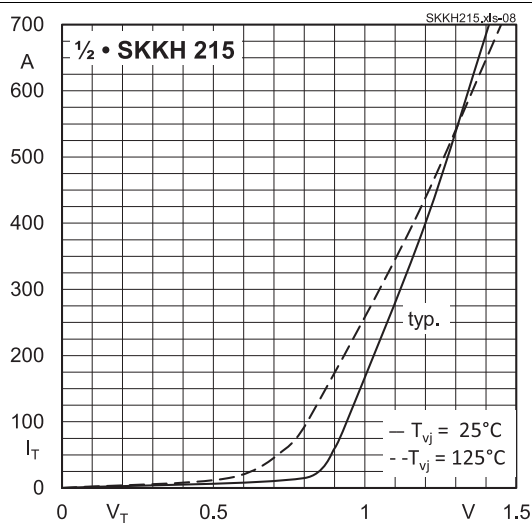


Fig. 7: On-state characteristics

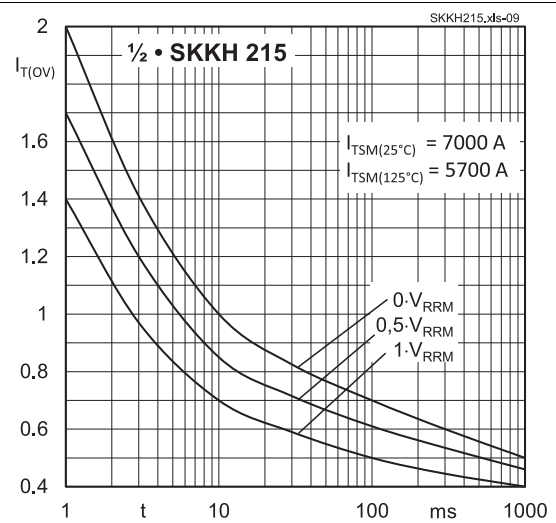


Fig. 8: Surge overload current vs. time

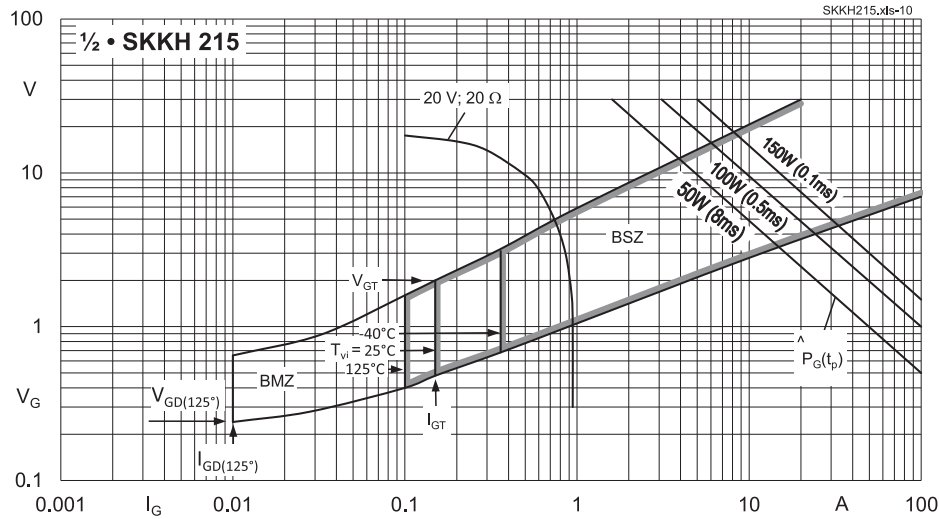
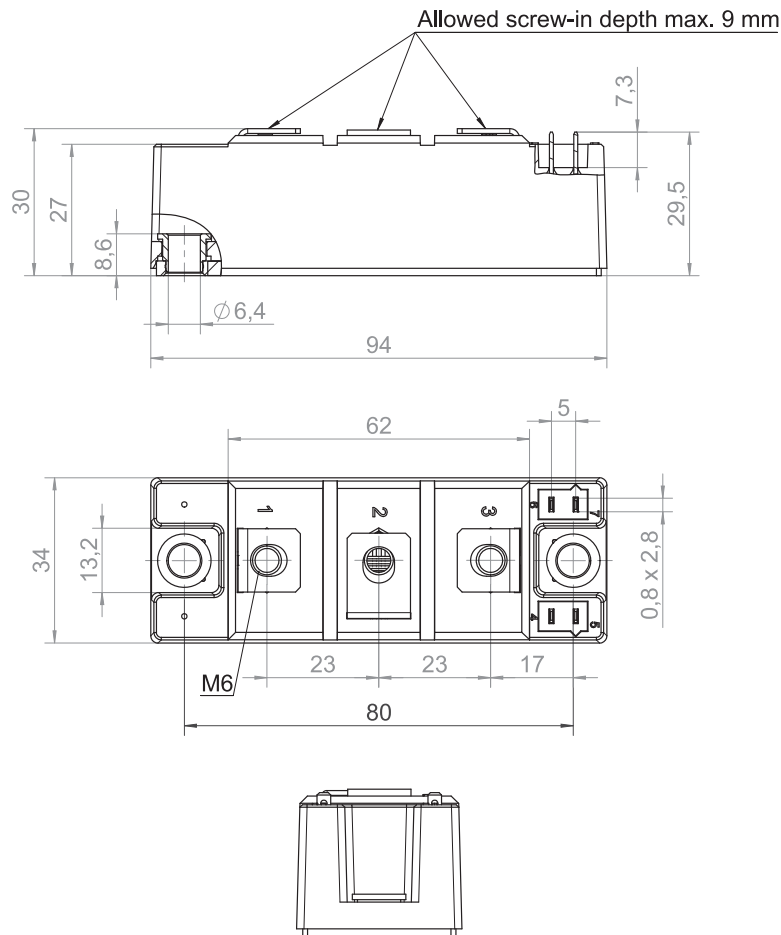
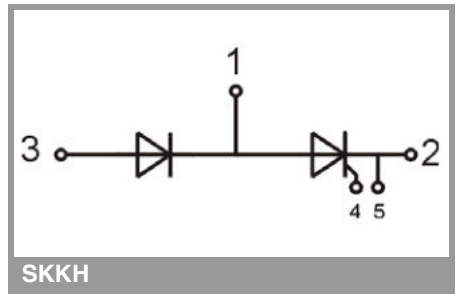


Fig. 9: Gate trigger characteristics



General tolerance $\pm 0,5$ mm

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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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