



SEMIPACK® 2

Thyristor Modules

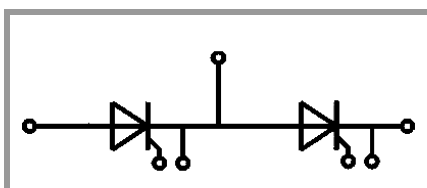
SKKT 215/18 E

Features*

- Heat transfer through aluminum 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)



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Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Chip				
I _{T(AV)}	sin. 180°	T _c = 85 °C	215	A
	T _j = 125 °C	T _c = 100 °C	153	A
I _{TSM}	t _p = 10 ms	T _j = 25 °C	7000	A
		T _j = 125 °C	5700	A
i ² t	t _p = 10 ms	T _j = 25 °C	245000	A ² s
		T _j = 125 °C	162450	A ² s
V _{RSM}	T _j = 25 °C		1900	V
V _{RRM}	T _j = 25 °C		1800	V
V _{DRM}	T _j = 25 °C		1800	V
(di/dt) _{cr}	T _j = 125 °C		200	A/μs
(dv/dt) _{cr}	T _j = 125 °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}	I _G = 1 A	T _j = 25 °C		1		μs
t _{gr}	di _G /dt = 1 A/μs	T _j = 25 °C		2		μs
	V _D = 0.67 * V _{DRM}					
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, P12 (reference)			0.04		K/W
	module, P12 (reference)			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

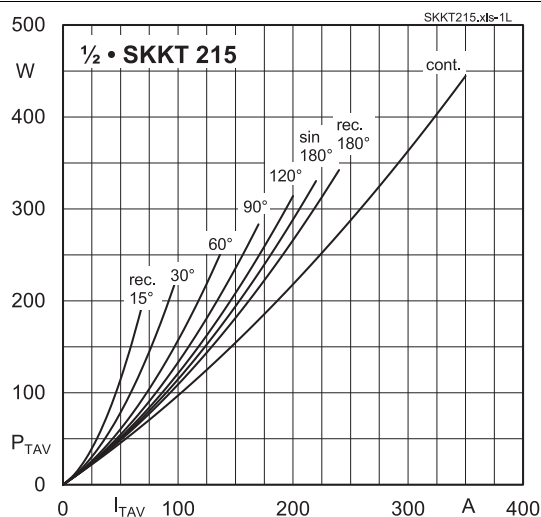


Fig. 1L: Power dissipation per thyristor vs. on-state current

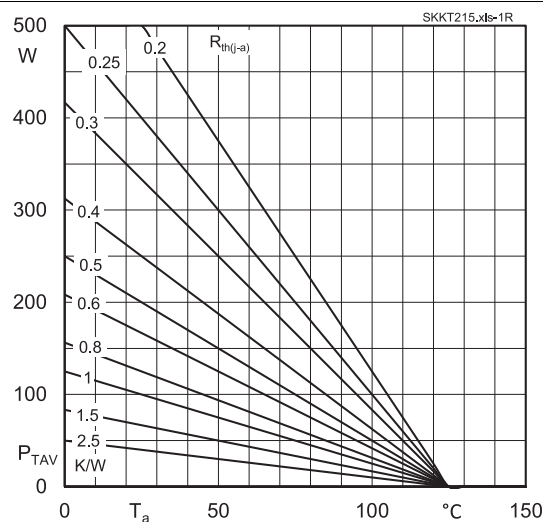


Fig. 1R: Max. power dissipation per chip vs. ambient temperature

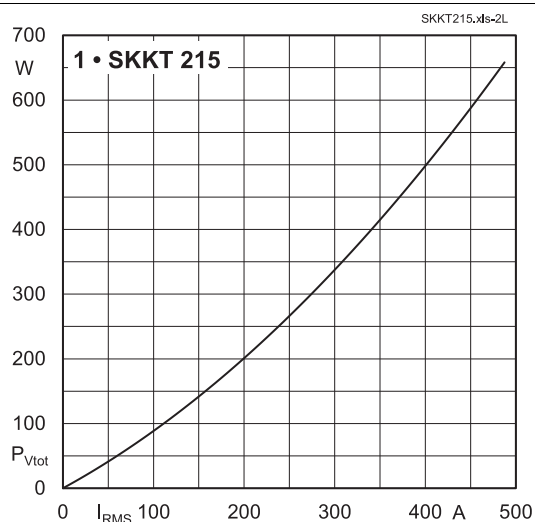


Fig. 2L: Max. power dissipation of one module vs. rms current

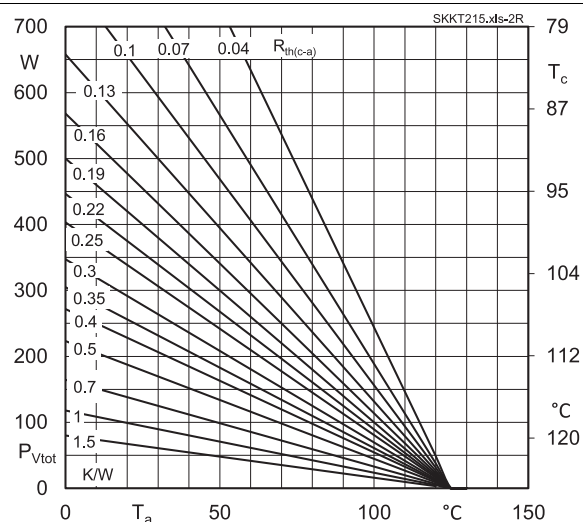


Fig. 2R: Max. power dissipation of one module vs. ambient temperature

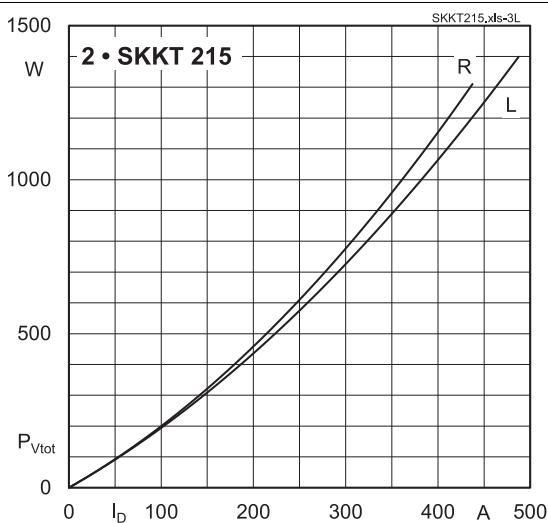


Fig. 3L: Max. power dissipation of two modules vs. direct current

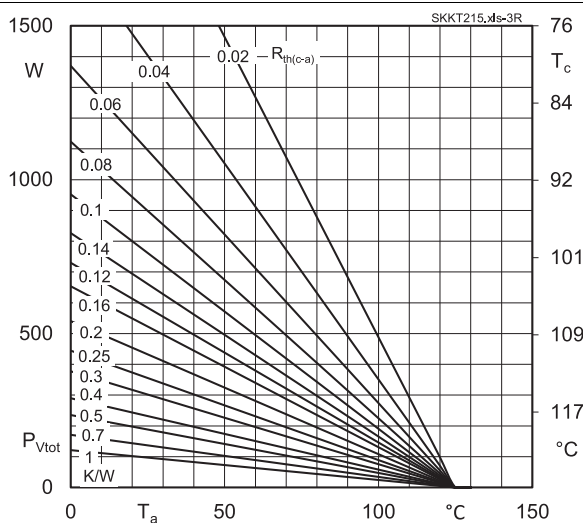


Fig. 3R: Max. power dissipation of two modules vs. ambient temperature

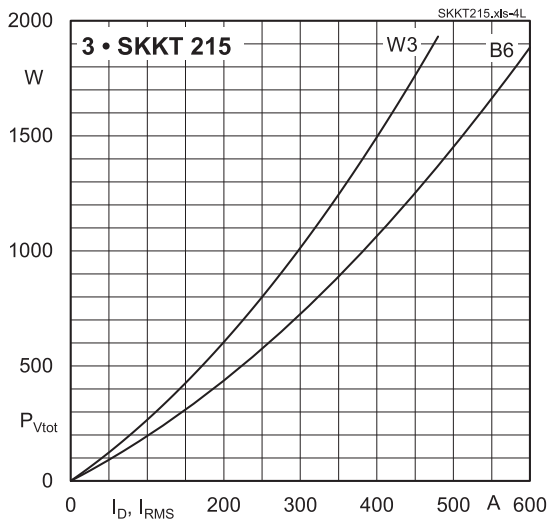


Fig. 4L: Max. power dissipation of three modules vs. direct current

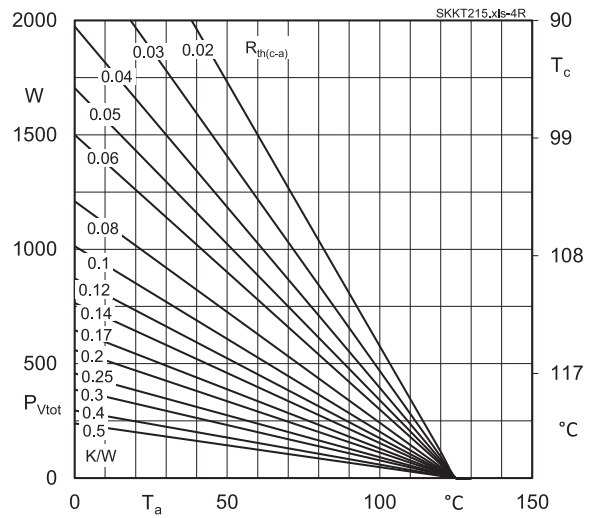


Fig. 4R: Max. power dissipation of three modules vs. ambient temperature

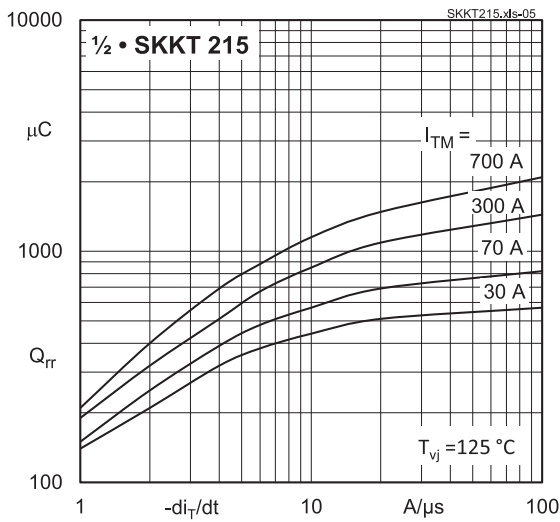


Fig. 5: Recovered charge vs. current decrease

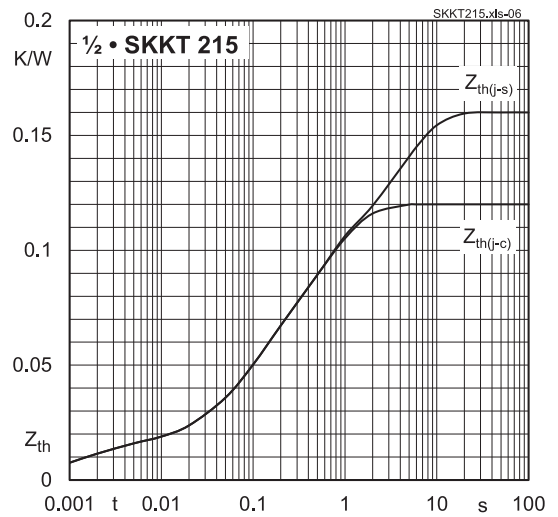


Fig. 6: Transient thermal impedance vs. time

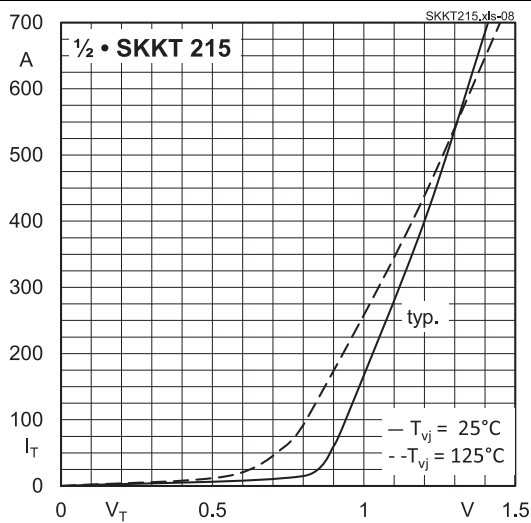


Fig. 7: On-state characteristics

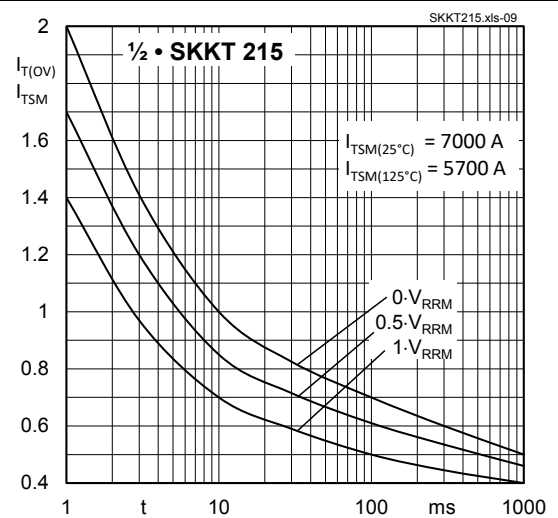


Fig. 8: Surge overload current vs. time

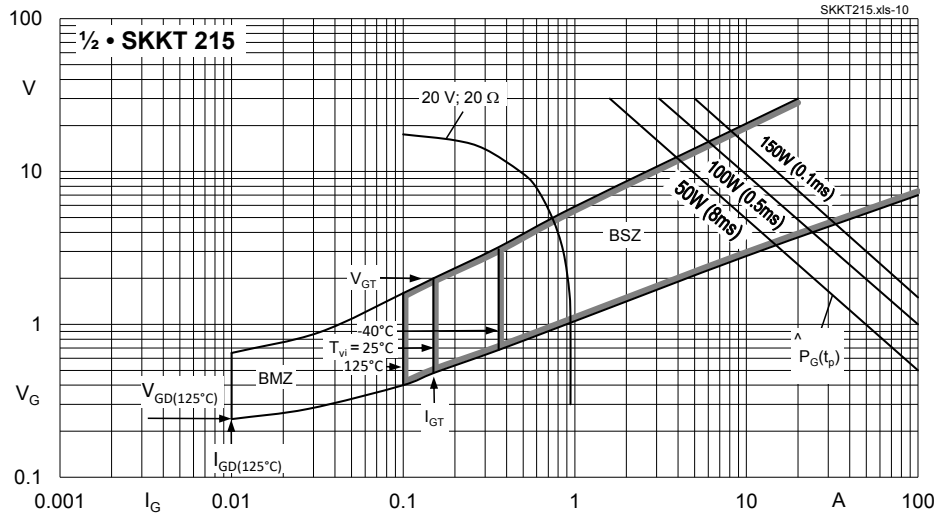
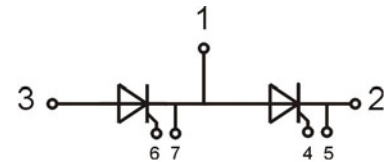
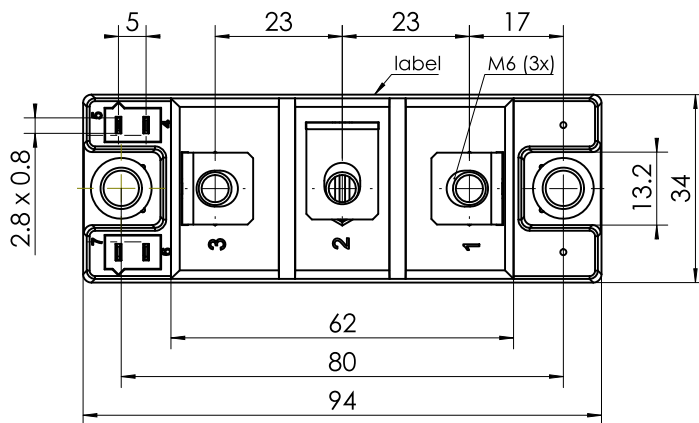
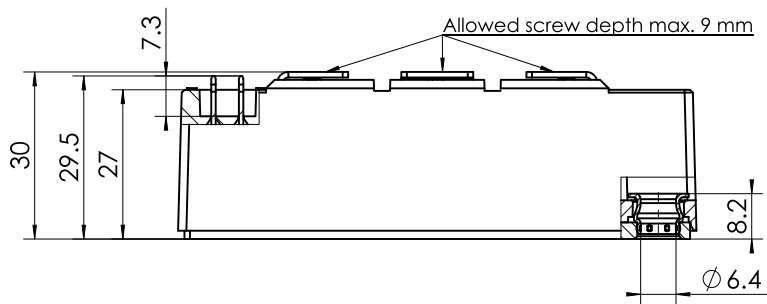


Fig. 9: Gate trigger characteristics

General tolerance ± 0.5 mm



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IMPORTANT INFORMATION AND WARNINGS

This is an electrostatic discharge sensitive device (ESDS) according to international standard IEC 61340.

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