



Thyristor / Diode Modules

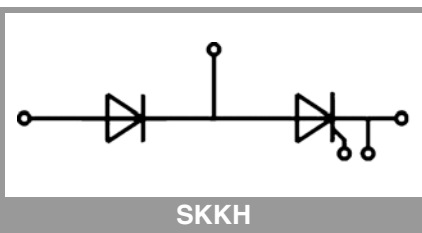
SKKH 58/16 E

Features*

- Heat transfer through aluminium oxide ceramic insulated metal baseplate
- UL recognized, file no. E63532

Typical Applications

- Rectifier for motor drives
- Process control
- Rectifier for power supplies



Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Chip				
I _{T(AV)}	sin. 180°	T _c = 85 °C	55	A
	T _j = 130 °C	T _c = 100 °C	41	A
I _{TSM}	10 ms	T _j = 25 °C	1500	A
		T _j = 130 °C	1200	A
i ² t	10 ms	T _j = 25 °C	11250	A ² s
		T _j = 130 °C	7200	A ² s
V _{RSM}	T _j = 25 °C		1700	V
V _{RRM}	T _j = 25 °C		1600	V
V _{DRM}	T _j = 25 °C		1600	V
(di/dt) _{cr}	T _j = 130 °C		140	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 = 180 A			1.5	1.75	V
V _{T(TO)}	T _j = 130 °C			0.85	1.00	V
r _T	T _j = 130 °C			4.00	4.8	mΩ
I _{DD} ;I _{RD}	T _j = 130 °C, V _{DD} = V _{DRM} ; V _{RD} = V _{RRM}				20	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			170		μs
I _H	T _j = 25 °C			150	250	mA
I _L	T _j = 25 °C, R _G = 33 Ω			300	600	mA
V _{GT}	T _j = 25 °C, d.c.		2.5			V
I _{GT}	T _j = 25 °C, d.c.		100			mA
V _{GD}	T _j = 130 °C, d.c.				0.25	V
I _{GD}	T _j = 130 °C, d.c.				4	mA
R _{th(j-c)}	continuous DC	per chip			0.42	K/W
		per module			0.21	K/W
R _{th(j-c)}	sin. 180°	per chip			0.49	K/W
		per module			0.245	K/W
R _{th(j-c)}	rec. 120°	per chip			0.51	K/W
		per module			0.255	K/W
Module						
R _{th(c-s)}	chip			0.09		K/W
	module			0.05		K/W
M _s	to heatsink M5		4.25		5.75	Nm
M _t	to terminals M5		2.55		3.45	Nm
a					5 * 9.81	m/s ²
w				75		g

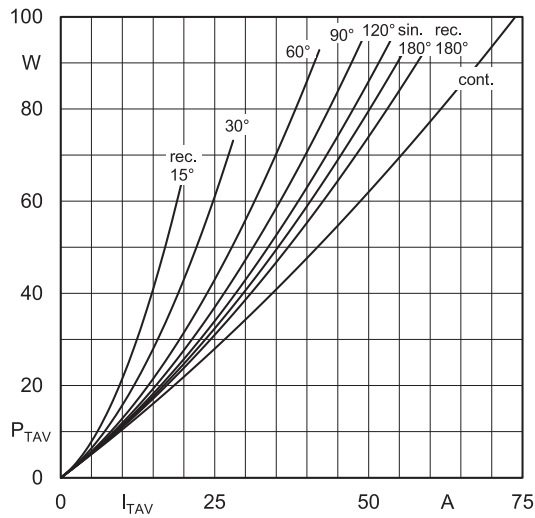


Fig. 1L: Power dissipation per thyristor/diode vs. on-state current

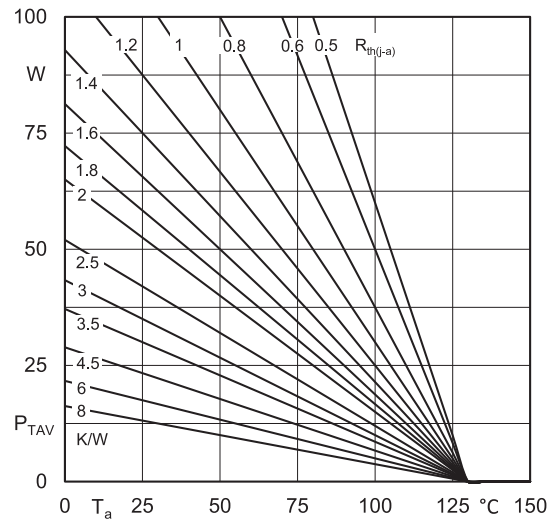


Fig. 1R: Max. power dissipation per chip vs. ambient temperature

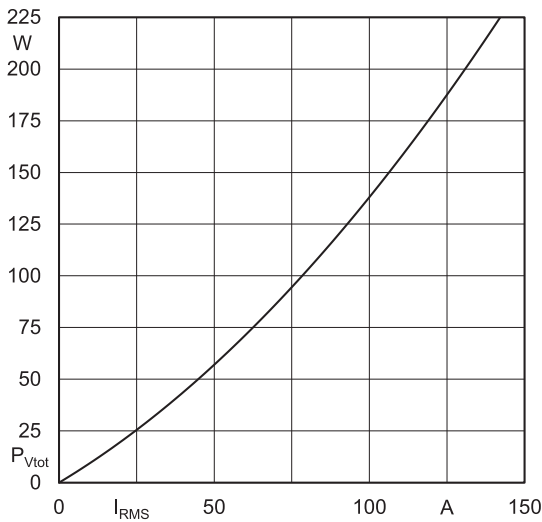


Fig. 2L: Max. power dissipation of one module vs. rms current

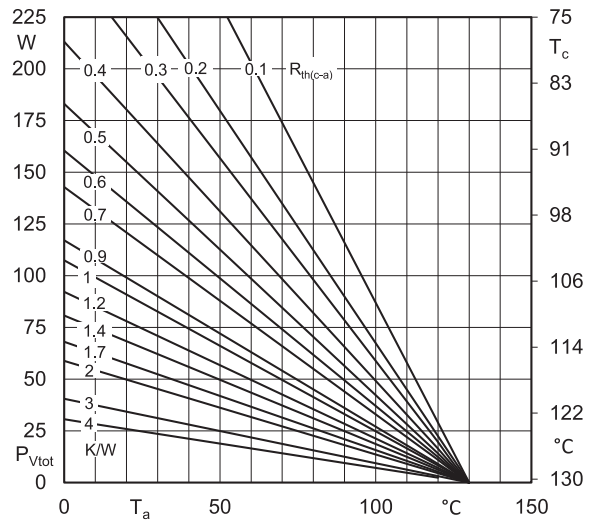


Fig. 2R: Max. power dissipation of one module vs. case temperature

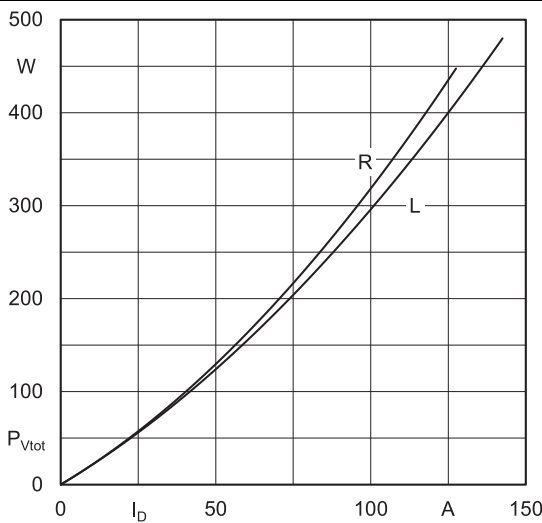


Fig. 3L: Max. power dissipation of two modules vs. direct current

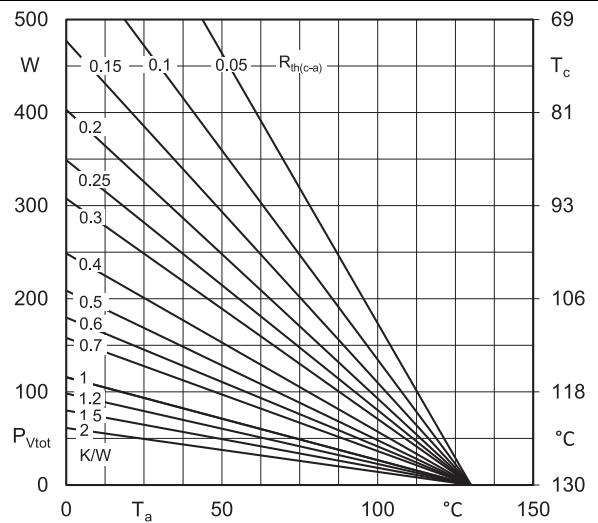


Fig. 3R: Max. power dissipation of two modules vs. case temperature

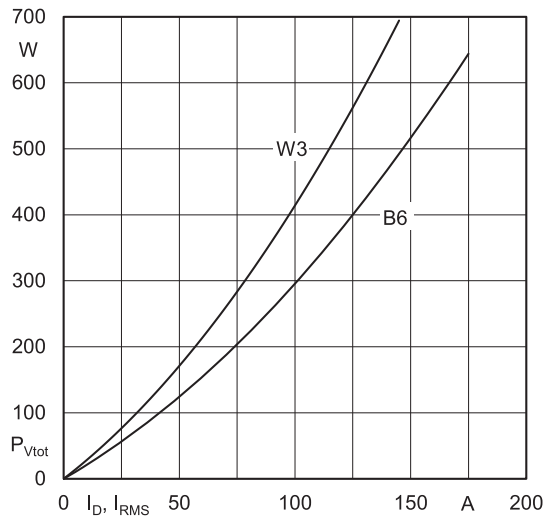


Fig. 4L: Max. power dissipation of three modules vs. direct current

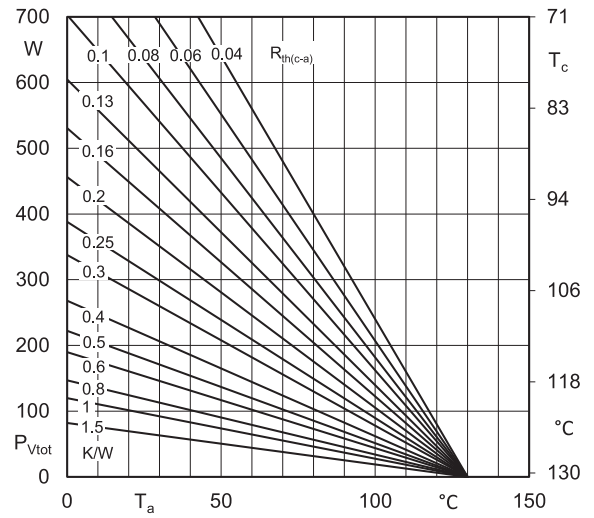


Fig. 4R: Max. power dissipation of three modules vs. case temperature

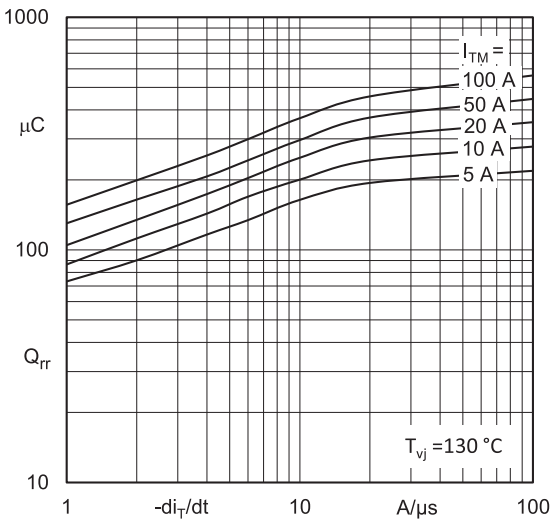


Fig. 5: Recovered charge vs. current decrease

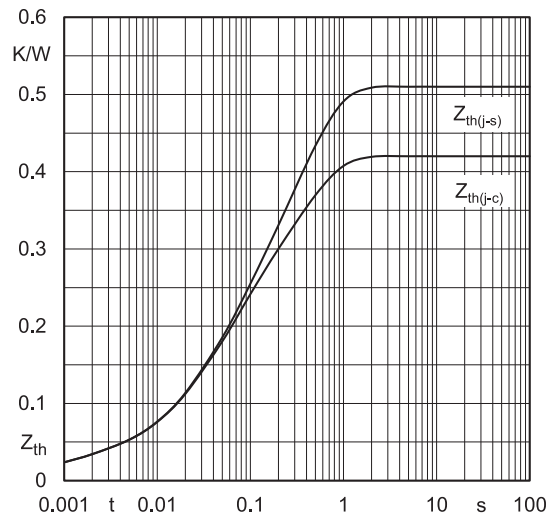


Fig. 6: Transient thermal impedance vs. time

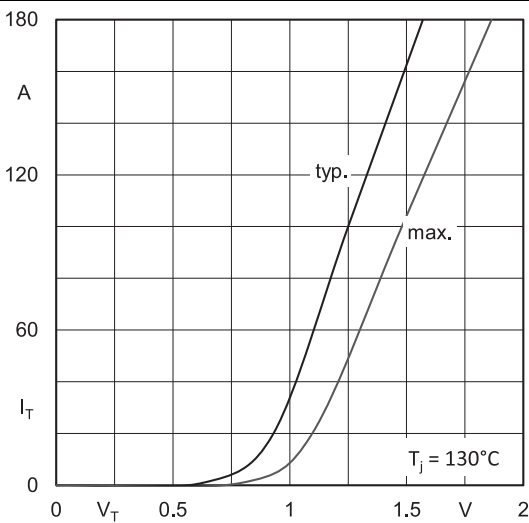


Fig. 7: On-state characteristics

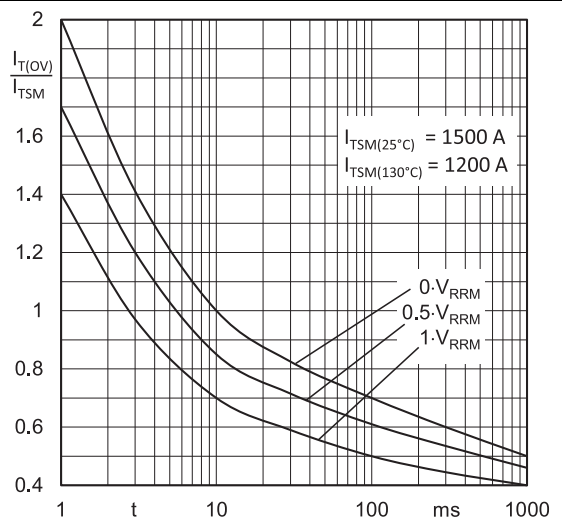


Fig. 8: Surge overload current vs. time

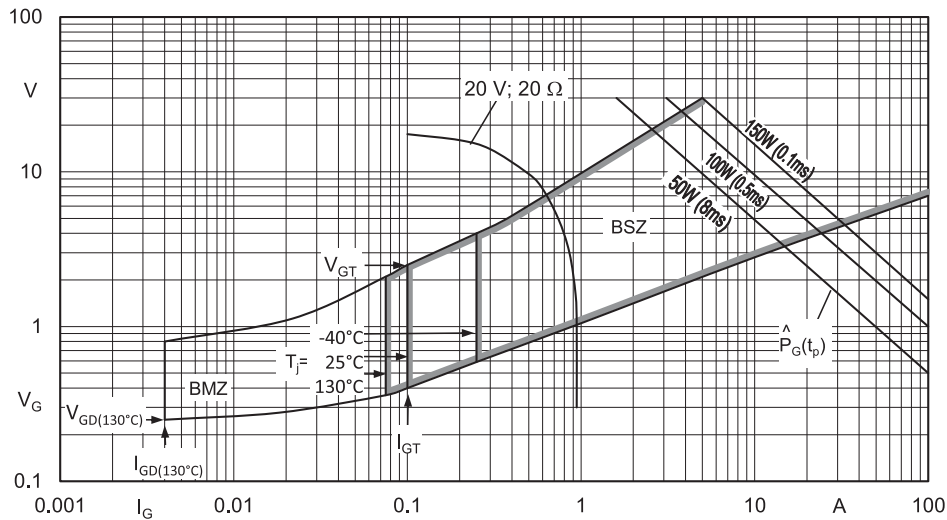
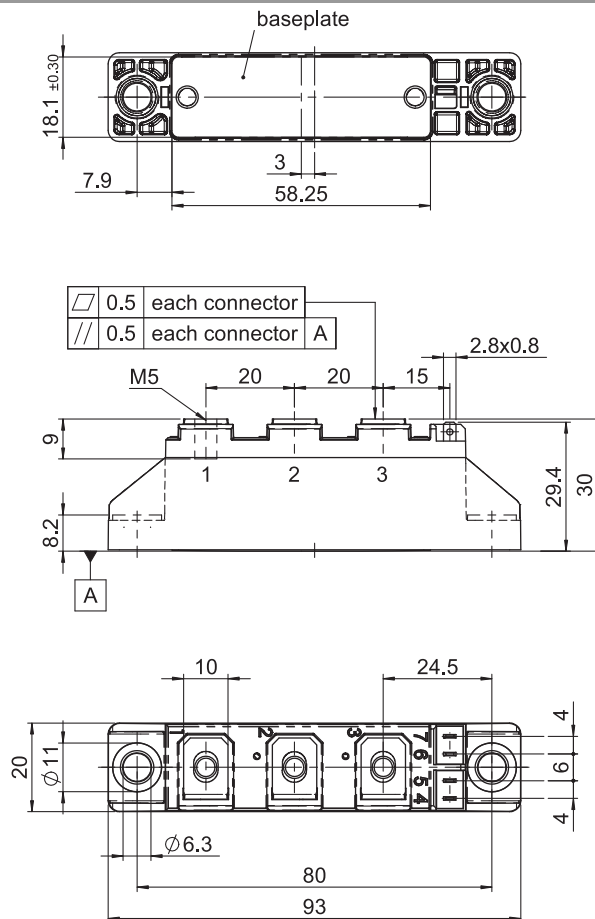
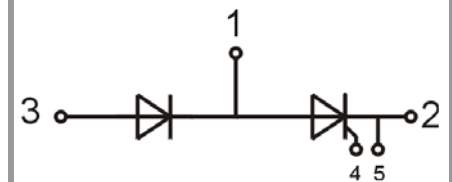


Fig. 9: Gate trigger characteristics



general tolerance $\pm 0.5\text{mm}$

SEMI-PACK 1



SKKH

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

*IMPORTANT INFORMATION AND WARNINGS

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