SEMIPACK® 3

Thyristor / Diode Modules

SKKT 273

SKKH 273

Preliminary Data

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
- Thyristor with center gate
- UL recognition applied for file no. E63532

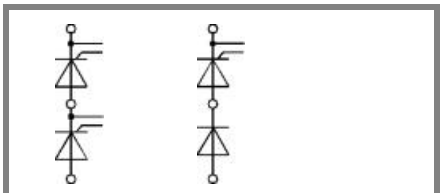
Typical Applications

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

1) See the assembly instructions

V_{RSM} V	V_{RRM}, V_{DRM} V	I_{TRMS} = 450 A (maximum value for continuous operation) I_{TAV} = 273 A (sin. 180; T_c = 85 °C)		
1300	1200	SKKT 273/12E	SKKH 273/12E	
1700	1600	SKKT 273/16E	SKKH 273/16E	

Symbol	Conditions	Values	Units
I_{TAV}	sin. 180; T_c = 85 (100) °C;	273 (202)	A
I_{TSM}	T_{vj} = 25 °C; 10 ms	9000	A
	T_{vj} = 130 °C; 10 ms	8000	A
i²t	T_{vj} = 25 °C; 8,3 ... 10 ms	405000	A²s
	T_{vj} = 130 °C; 8,3 ... 10 ms	320000	A²s
V_T	T_{vj} = 25 °C; I_T = 750 A	max. 1,6	V
$V_{T(TO)}$	T_{vj} = 130 °C	max. 0,9	V
r_T	T_{vj} = 130 °C	max. 0,92	mΩ
I_{DD}; I_{RD}	T_{vj} = 130 °C; V_{RD} = V_{RRM}; V_{DD} = V_{DRM}	max. 100	mA
t_{gd}	T_{vj} = 25 °C; I_G = 1 A; di_G/dt = 1 A/µs	1	µs
t_{gr}	V_D = 0,67 * V_{DRM}	2	µs
$(di/dt)_{cr}$	T_{vj} = 130 °C	max. 130	A/µs
$(dv/dt)_{cr}$	T_{vj} = 130 °C	max. 1000	V/µs
t_q	T_{vj} = 130 °C ,typ.	150	µs
I_H	T_{vj} = 25 °C; typ. / max.	150 / 500	mA
I_L	T_{vj} = 25 °C; R_G = 33 Ω; typ. / max.	300 / 2000	mA
V_{GT}	T_{vj} = 25 °C; d.c.	min. 2	V
I_{GT}	T_{vj} = 25 °C; d.c.	min. 150	mA
V_{GD}	T_{vj} = 130 °C; d.c.	max. 0,25	V
I_{GD}	T_{vj} = 130 °C; d.c.	max. 10	mA
$R_{th(j-c)}$	cont.; per thyristor / per module	0,104 / 0,052	K/W
$R_{th(j-c)}$	sin. 180; per thyristor / per module	0,108 / 0,054	K/W
$R_{th(j-c)}$	rec. 120; per thyristor / per module	0,122 / 0,061	K/W
$R_{th(c-s)}$	per thyristor / per module	0,08 / 0,04	K/W
T_{vj}		- 40 ... + 130	°C
T_{stg}		- 40 ... + 125	°C
V_{isol}	a. c. 50 Hz; r.m.s.; 1 s / 1 min.	3600 / 3000	V~
M_s	to heatsink	5 ± 15 %[1)]	Nm
M_t	to terminals	9 ± 15 %	Nm
a		5 * 9,81	m/s²
m	approx.	410	g
Case	SKKT	A 43a	
	SKKH	A 56a	



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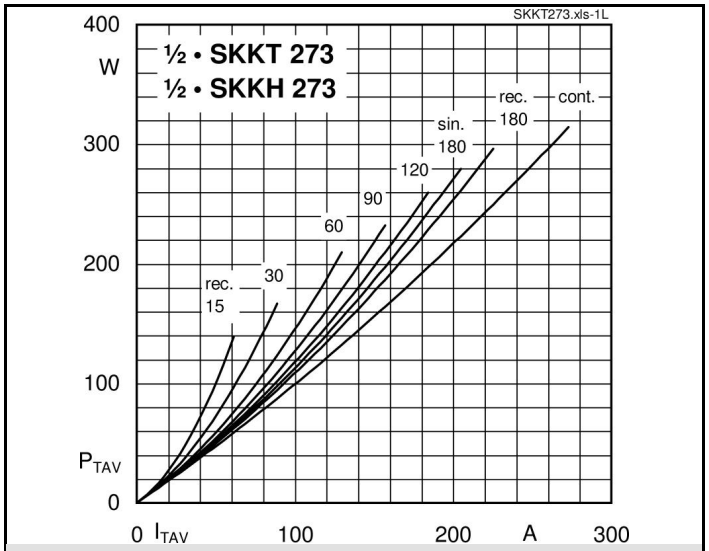

Fig. 1L Power dissipation per thyristor vs. on-state current

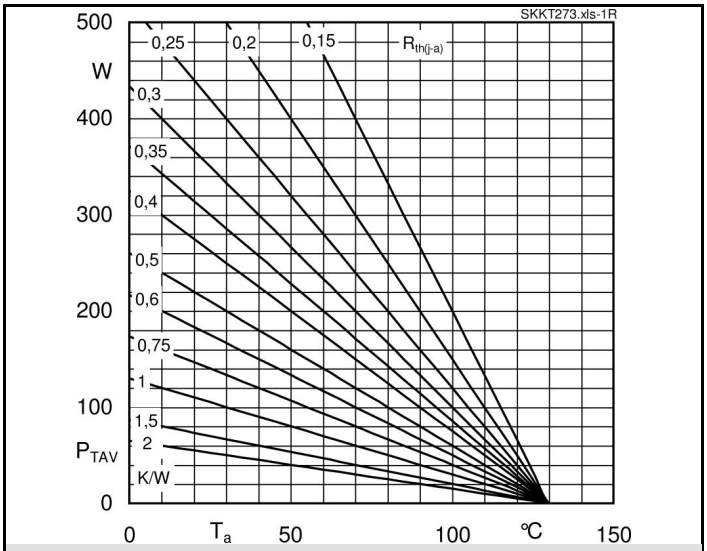

Fig. 1R Power dissipation per thyristor vs. ambient temp.

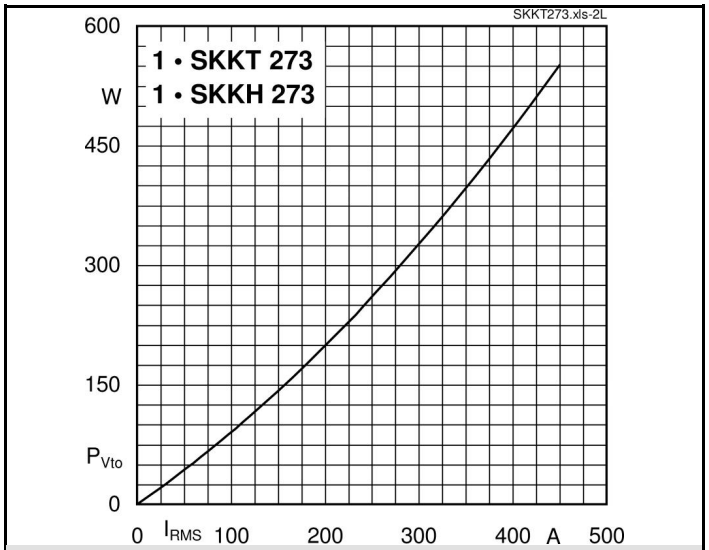

Fig. 2L Power dissipation per module vs. rms current

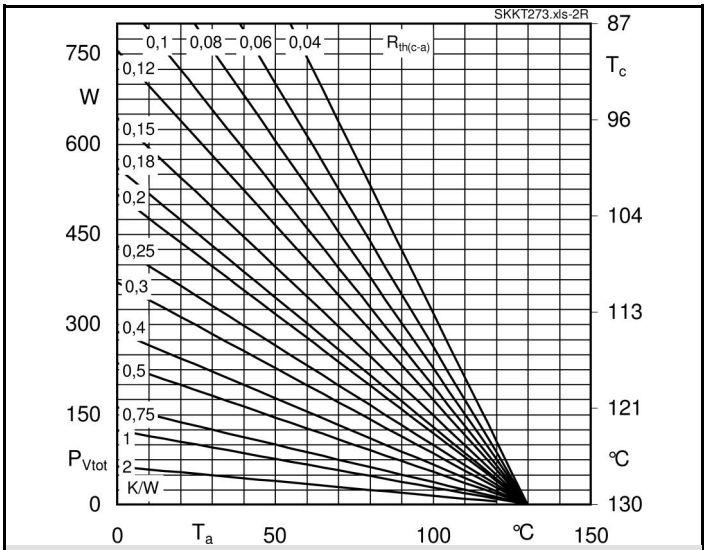

Fig. 2R Power dissipation per module vs. case temp.

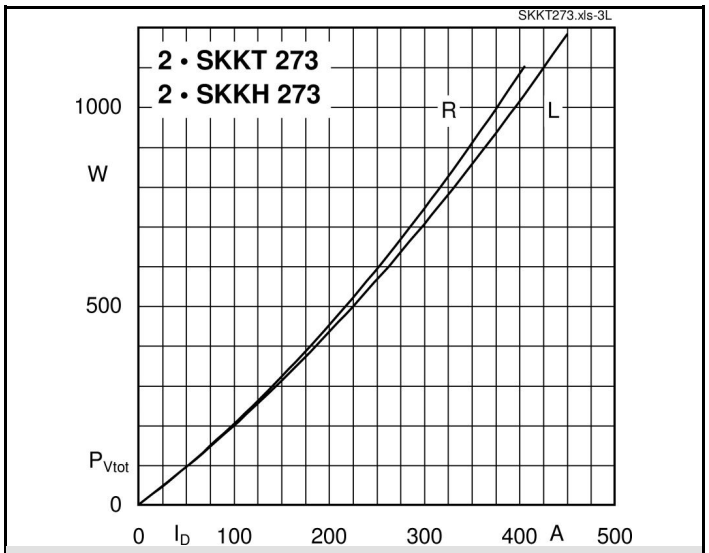

Fig. 3L Power dissipation of two modules vs. direct current

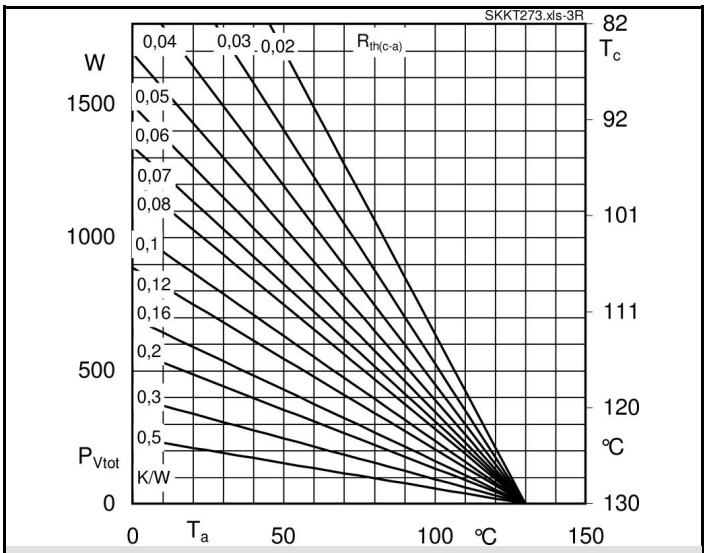

Fig. 3R Power dissipation of two modules vs. case temp.

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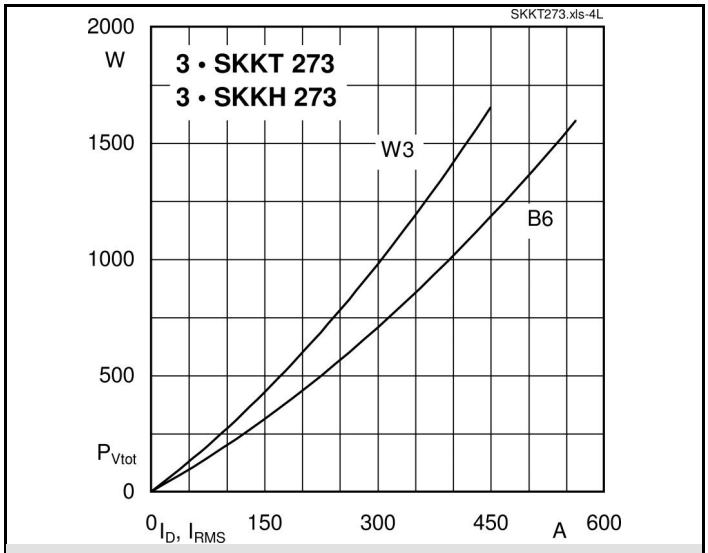

Fig. 4L Power dissipation of three modules vs. direct and rms current

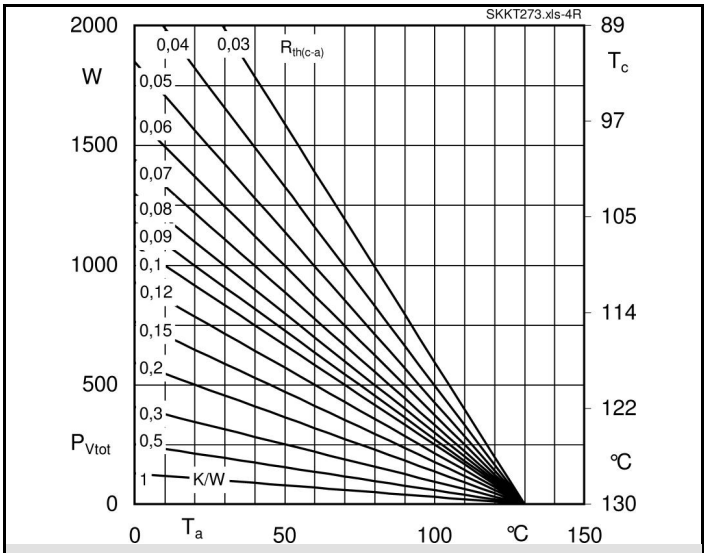

Fig. 4R Power dissipation of three modules vs. case temp.

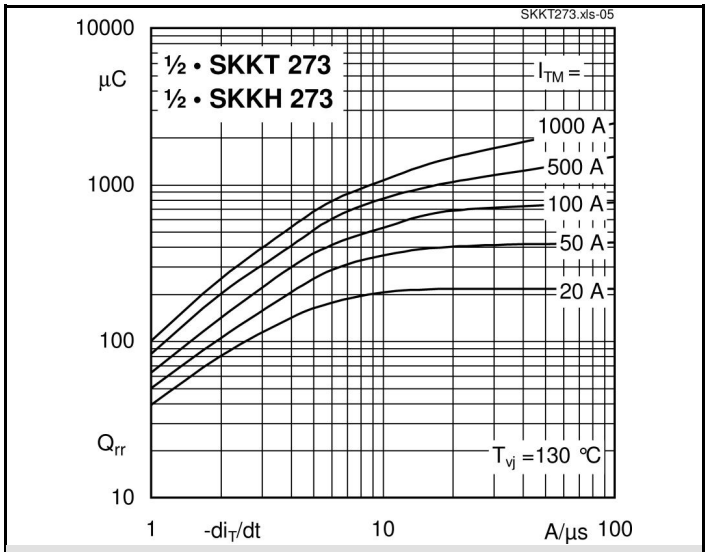

Fig. 5 Recovered charge vs. current decrease

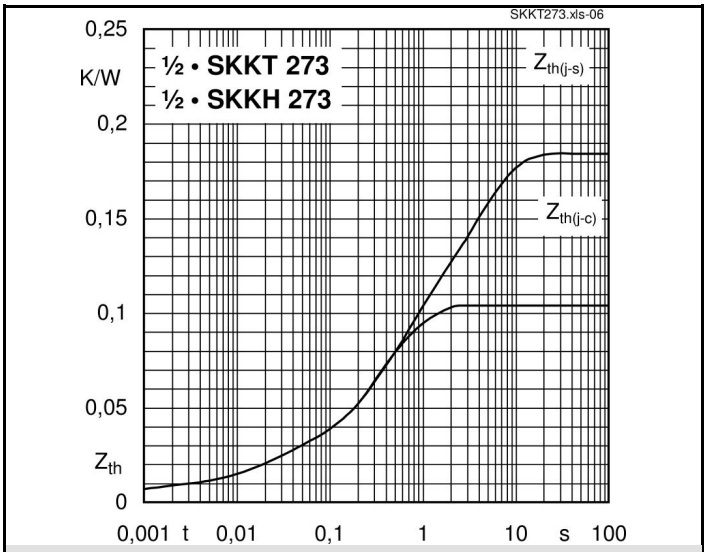

Fig. 6 Transient thermal impedance vs. time

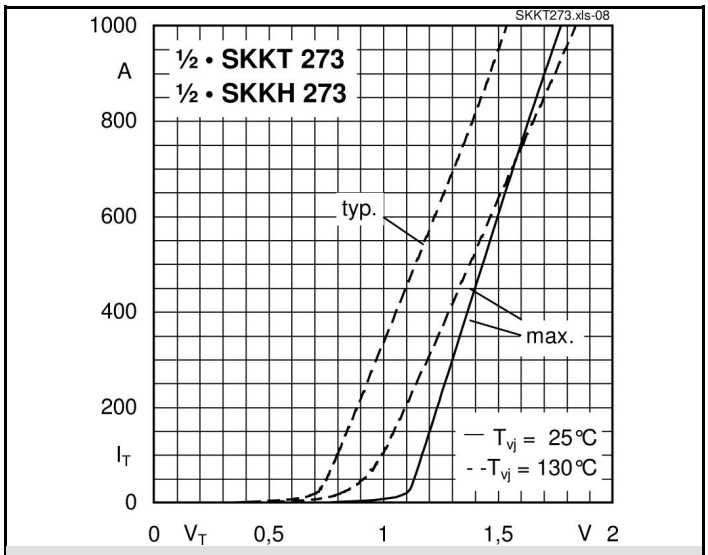

Fig. 7 On-state characteristics

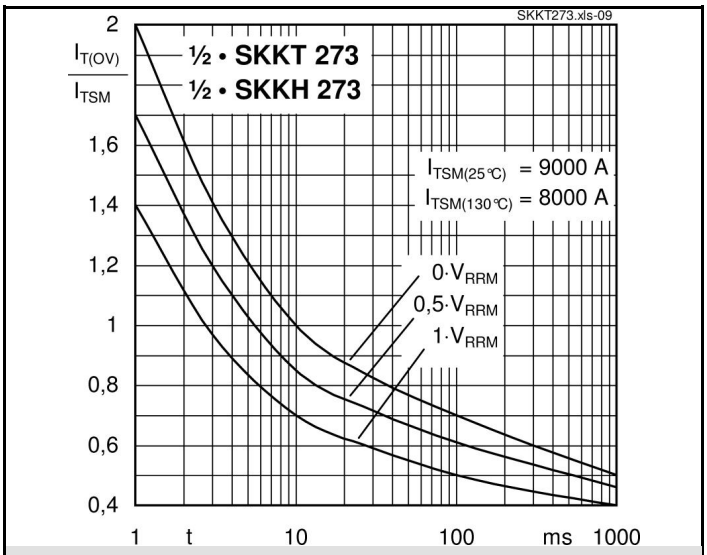

Fig. 8 Surge overload current vs. time

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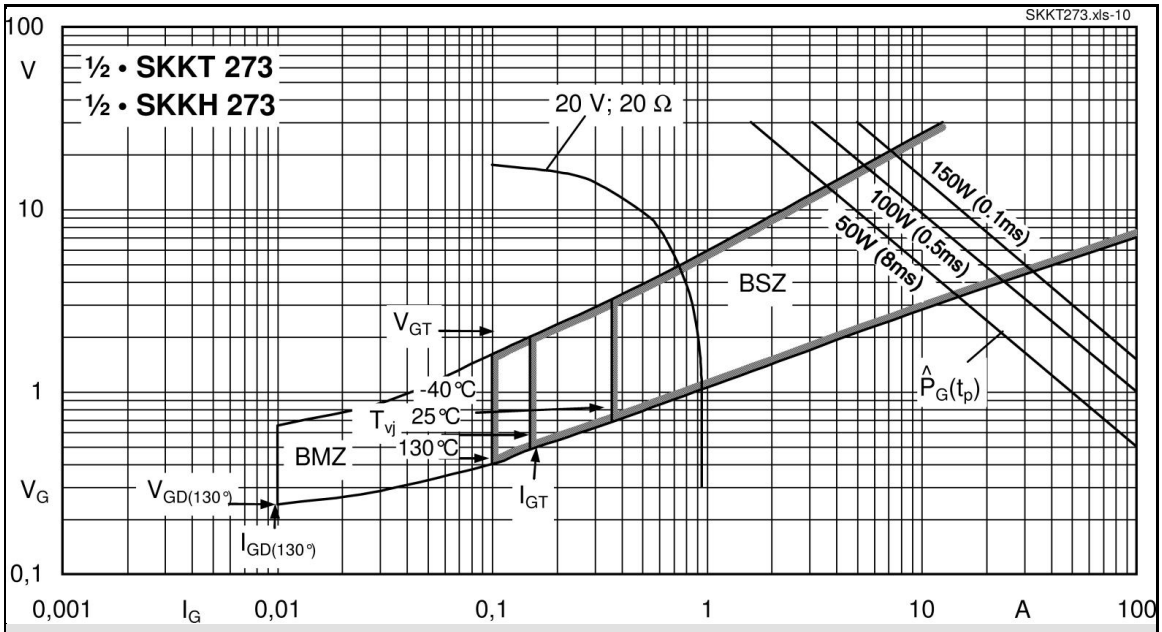
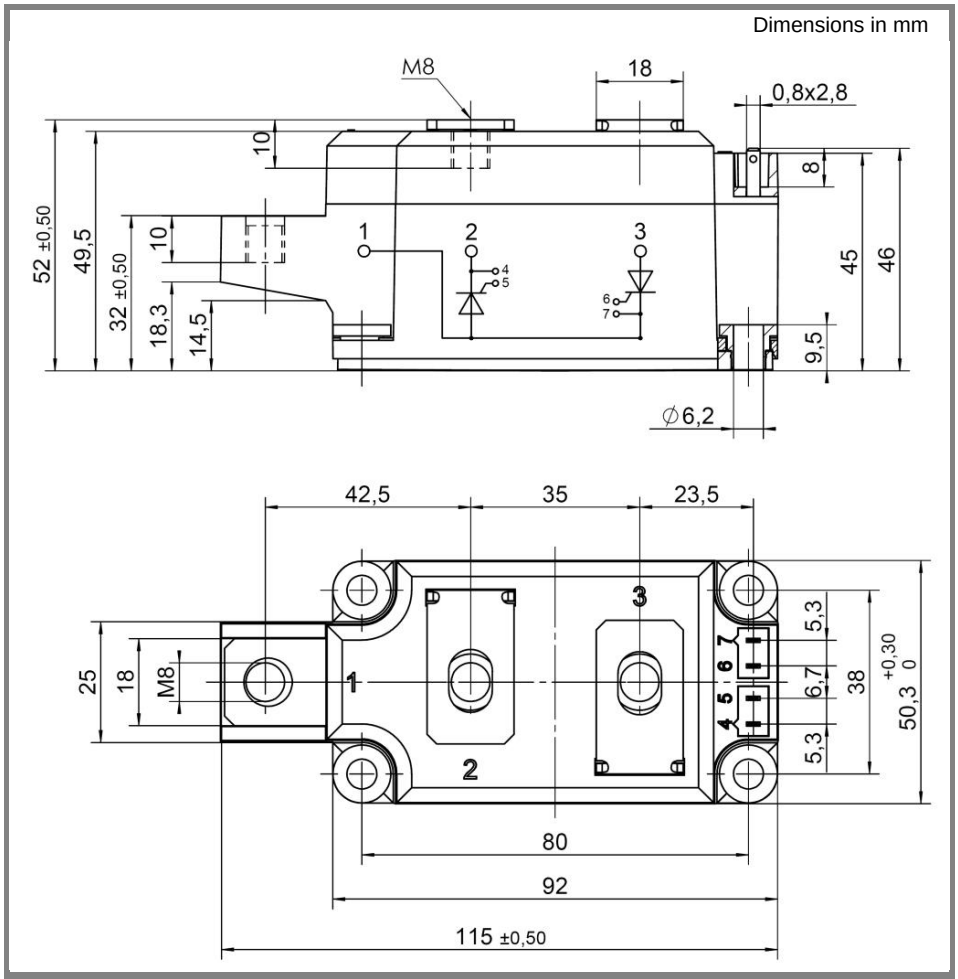
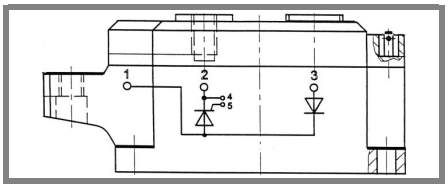


Fig. 9 Gate trigger characteristics



Case A 43a (SKKT)



Case A 56a SKKH

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