

SKKT 213, SKKH 213



SEMIPACK[®] 3

Thyristor / Diode Modules

SKKH 213

SKKT 213

Features

- Heat transfer through aluminium nitride ceramic isolated metal baseplate
- Chip soldered on direct copper bonded Al₂O₃ ceramic
- Thyristor with amplifying gate
- UL recognized, file no. E 63 532

Typical Applications

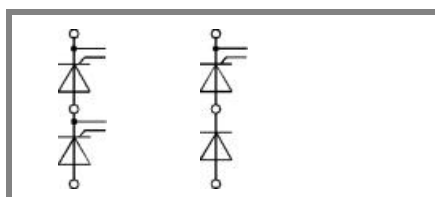
- DC motor control (e. g. for machine tools)
- AC motor starters
- Temperature control (e. g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

- 1) See the assembly instructions
- 2) The screws must be lubricated
- 3) V_{isol} 1 s / 1 min = 4800 / 4000 V

V_{RSM} V	V_{RRM}, V_{DRM} V	$I_{TRMS} = 370$ A (maximum value for continuous operation) $I_{TAV} = 213$ A (sin. 180; $T_c = 90$ °C)	
900	800	SKKT 213/08E	
1300	1200	SKKT 213/12E	SKKH 213/12E
1500	1400	SKKT 213/14E	SKKH 213/14E
1700	1600	SKKT 213/16E	SKKH 213/16E
1900	1800	SKKT 213/18E	SKKH 213/18E

Symbol	Conditions	Values	Units
I_{TAV}	sin. 180; $T_c = 85$ (100) °C;	230 (173)	A
I_D	P16/200F; $T_a = 35$ °C; B2 / B6	354 / 456	A
I_{RMS}	P16/200F; $T_a = 35$ °C; W1 / W3	425 / 3 * 360	A
I_{TSM}	$T_{vj} = 25$ °C; 10 ms	8500	A
	$T_{vj} = 130$ °C; 10 ms	7500	A
i^2t	$T_{vj} = 25$ °C; 8,3 ... 10 ms	361000	A ² s
	$T_{vj} = 130$ °C; 8,3 ... 10 ms	281000	A ² s
V_T	$T_{vj} = 25$ °C; $I_T = 750$ A	max. 1,9	V
$V_{T(TO)}$	$T_{vj} = 130$ °C	max. 0,95	V
r_T	$T_{vj} = 130$ °C	max. 1,3	mΩ
I_{DD}, I_{RD}	$T_{vj} = 130$ °C; $V_{RD} = V_{RRM}, V_{DD} = V_{DRM}$	max. 50	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. 250	A/μs
$(dv/dt)_{cr}$	$T_{vj} = 130$ °C	max. 1000	V/μs
t_q	$T_{vj} = 130$ °C	50 ... 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. 3	V
I_{GT}	$T_{vj} = 25$ °C; d.c.	min. 200	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	0,11 / 0,055	K/W
$R_{th(j-c)}$	sin. 180; per thyristor / per module	0,115 / 0,057	K/W
$R_{th(j-c)}$	rec. 120; per thyristor / per module	0,125 / 0,0625	K/W
$R_{th(c-s)}$	per thyristor / per module	0,08 / 0,04	K/W
T_{vj}		- 40 ... + 130	°C
T_{stg}		- 40 ... + 130	°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 % ²⁾	Nm
a		5 * 9,81	m/s ²
m	approx.	400	g
Case	SKKT	A 43	
	SKKH	A 56	

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SKKT SKKH

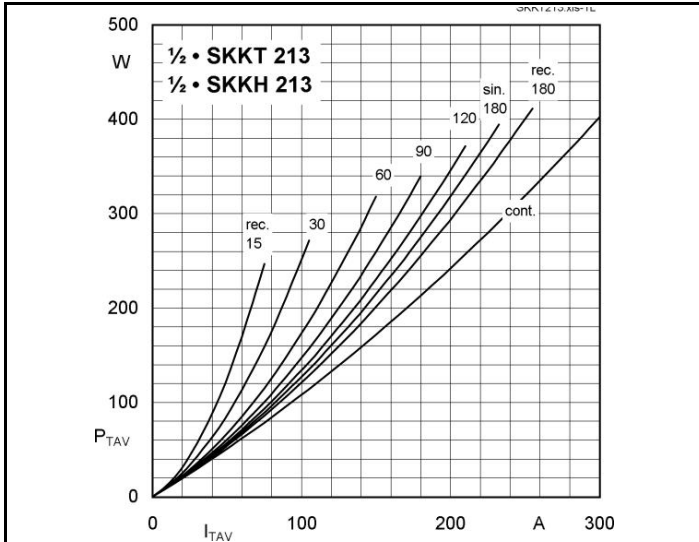


Fig. 1L Power dissipation per thyristor vs. on-state current

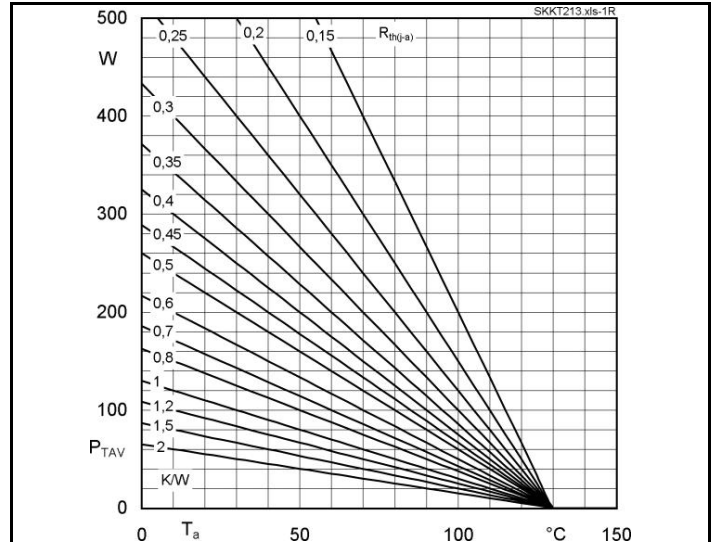


Fig. 1R Power dissipation per thyristor vs. ambient temp.

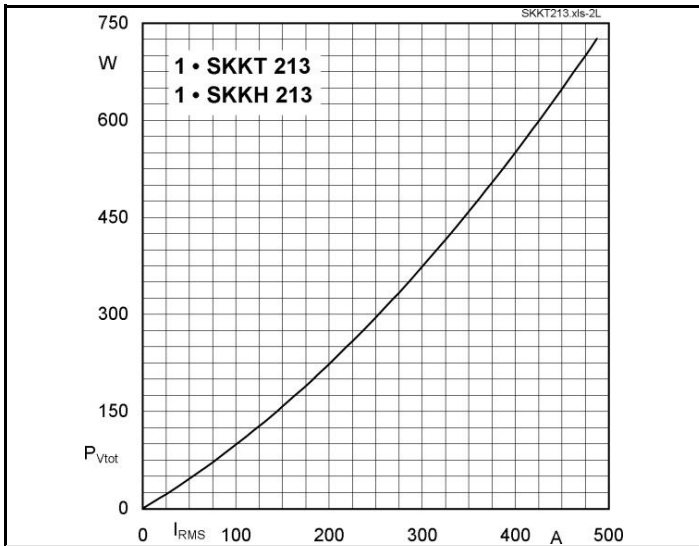


Fig. 2L Power dissipation per module vs. rms current

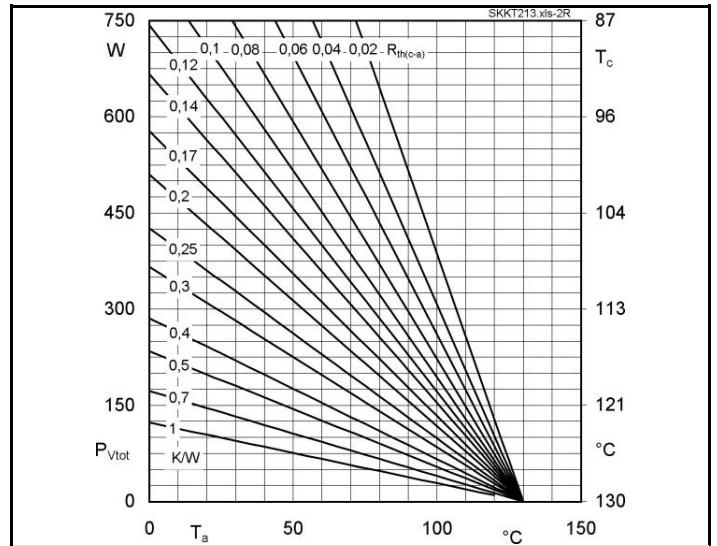


Fig. 2R Power dissipation per module vs. case temp.

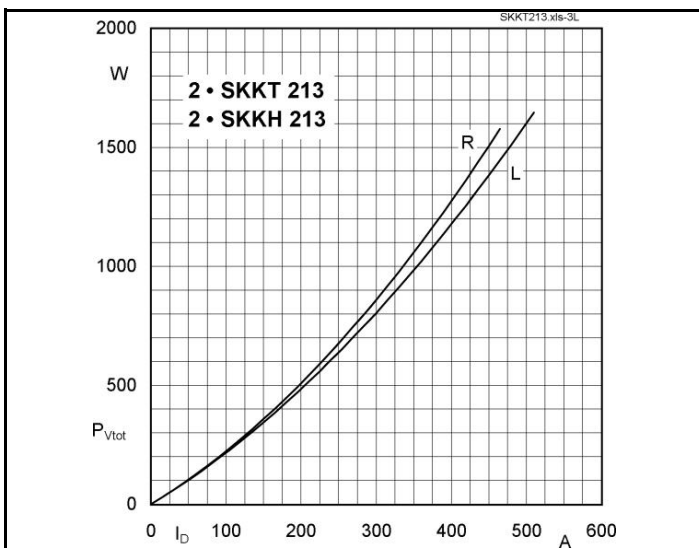


Fig. 3L Power dissipation of two modules vs. direct current

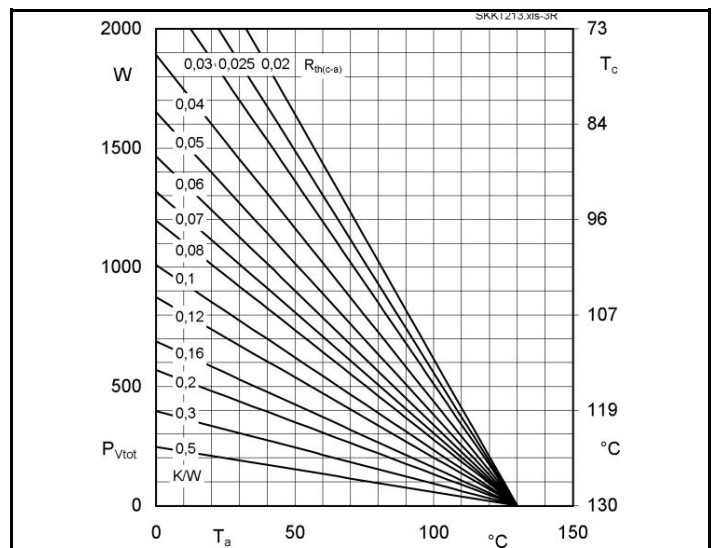


Fig. 3R Power dissipation of two modules vs. case temp.

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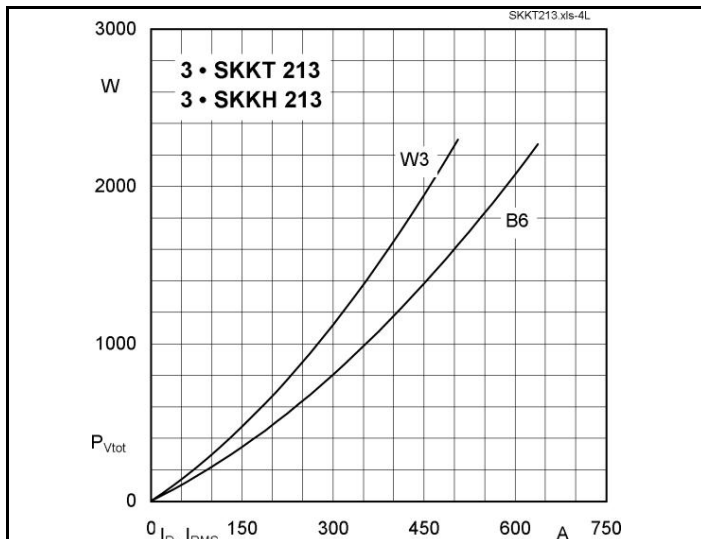


Fig. 4L Power dissipation of three modules vs. direct and rms current

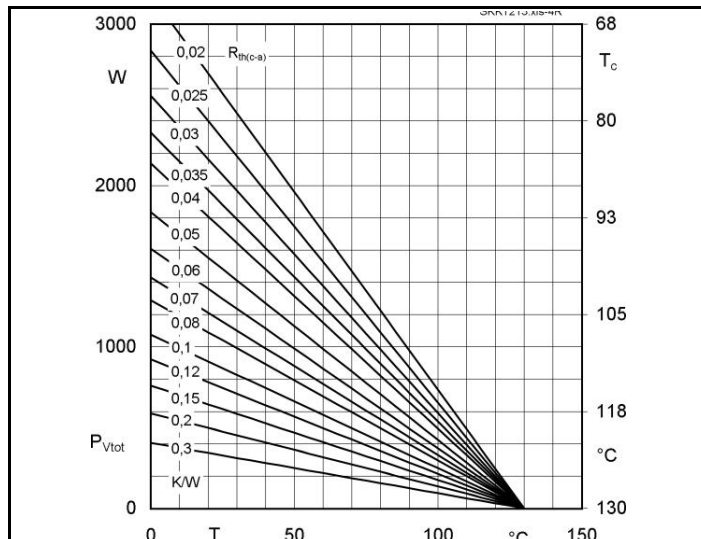


Fig. 4R Power dissipation of three modules vs. case temp.

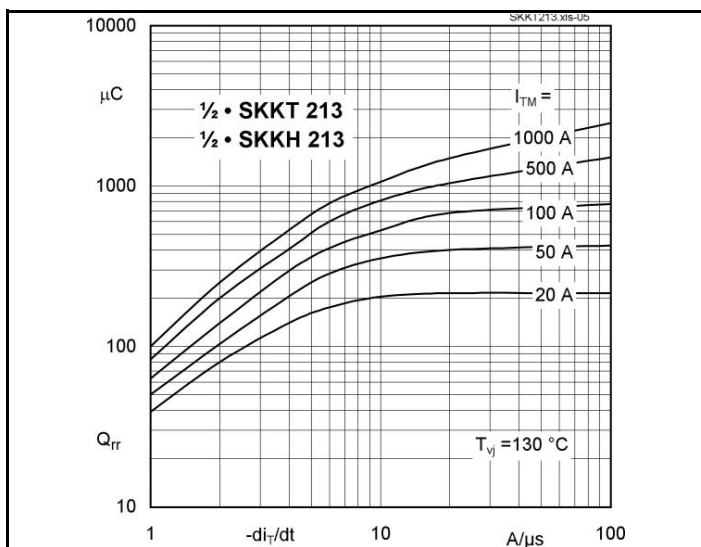


Fig. 5 Recovered charge vs. current decrease

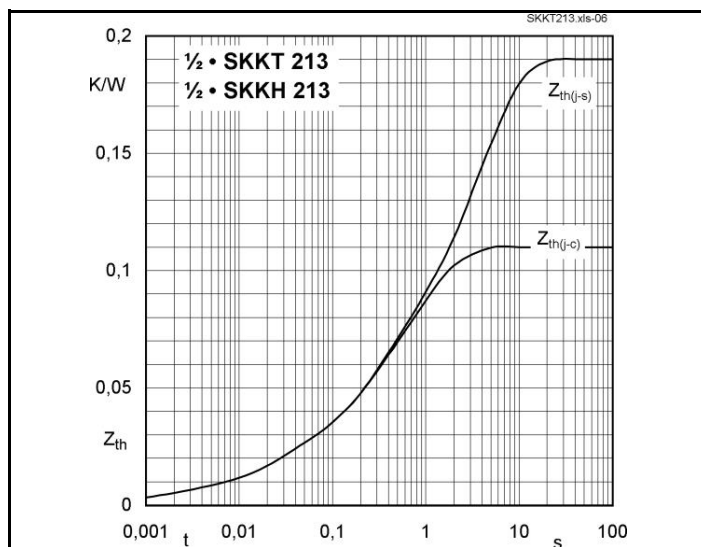


Fig. 6 Transient thermal impedance vs. time

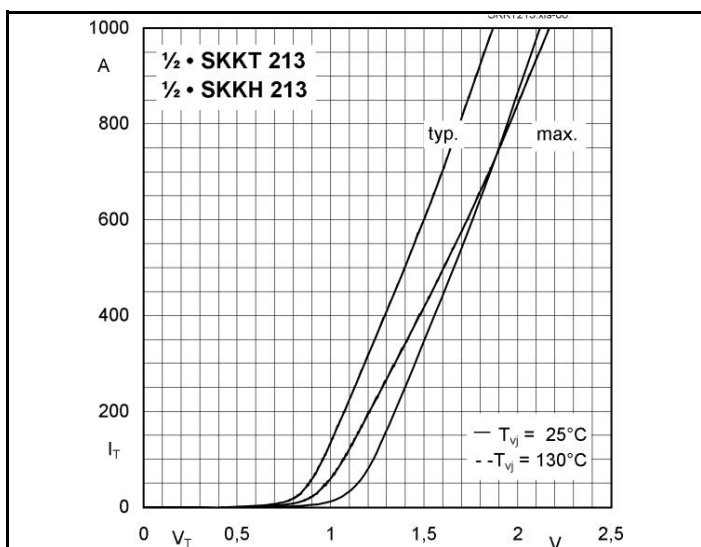


Fig. 7 On-state characteristics

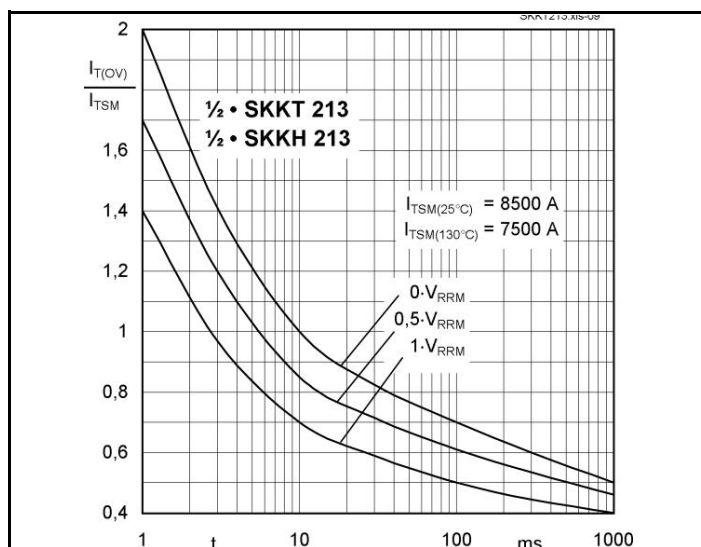


Fig. 8 Surge overload current vs. time

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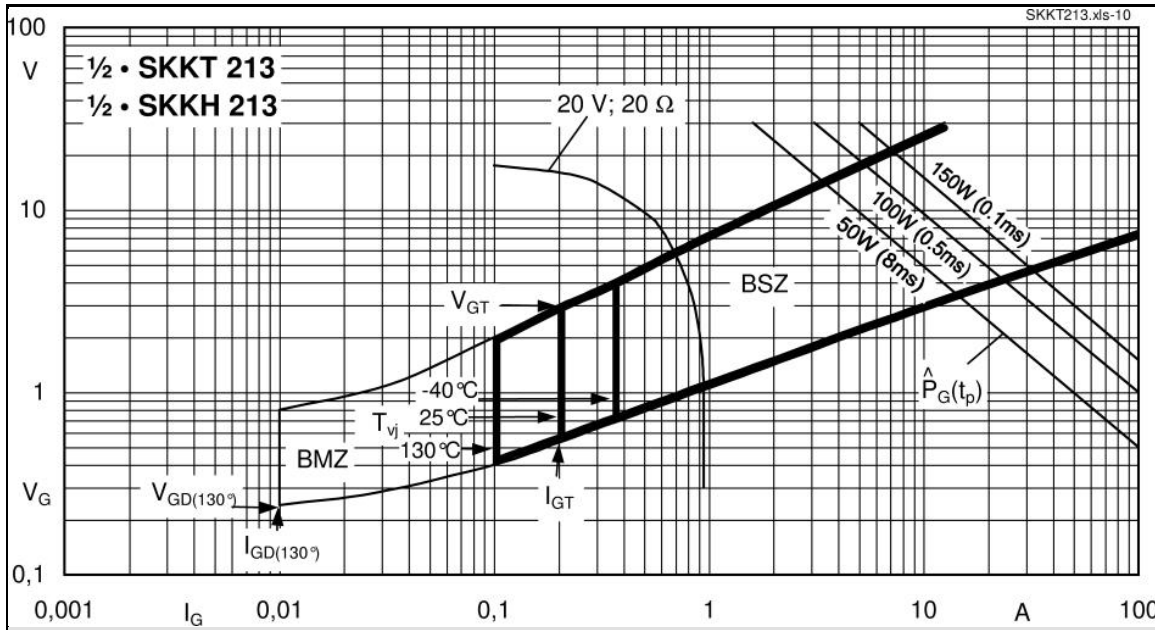
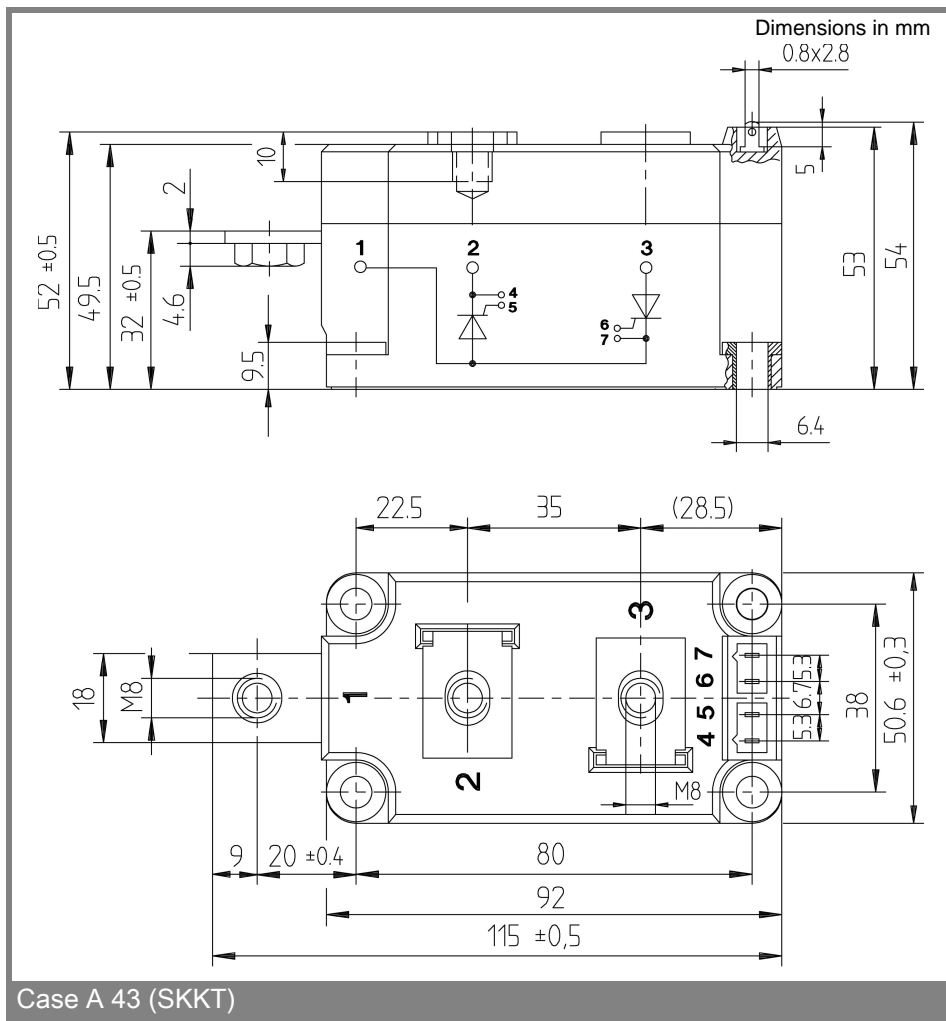


Fig. 9 Gate trigger characteristics



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