

SKKT 253, SKKH 253



SEMIPACK® 3

Thyristor / Diode Modules

SKKT 253

SKKH 253

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

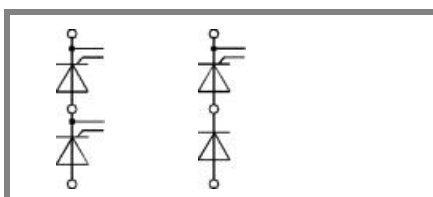
Typical Applications

- 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 lubricate

| V_{RSM} V | V_{RRM}, V_{DRM} V | $I_{TRMS} = 420$ A (maximum value for continuous operation) $I_{TAV} = 253$ A (sin. 180; $T_c = 85$ °C) | |
|----------------|-------------------------|--|--------------|
| 900 | 800 | SKKT 253/08E | SKKH 253/08E |
| 1300 | 1200 | SKKT 253/12E | SKKH 253/12E |
| 1500 | 1400 | SKKT 253/14E | SKKH 253/14E |
| 1700 | 1600 | SKKT 253/16E | SKKH 253/16E |
| 1900 | 1800 | SKKT 253/18E | SKKH 253/18E |

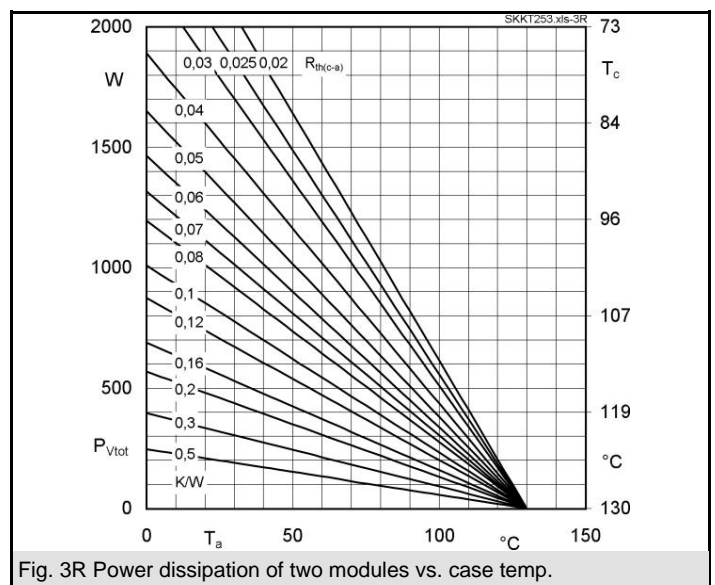
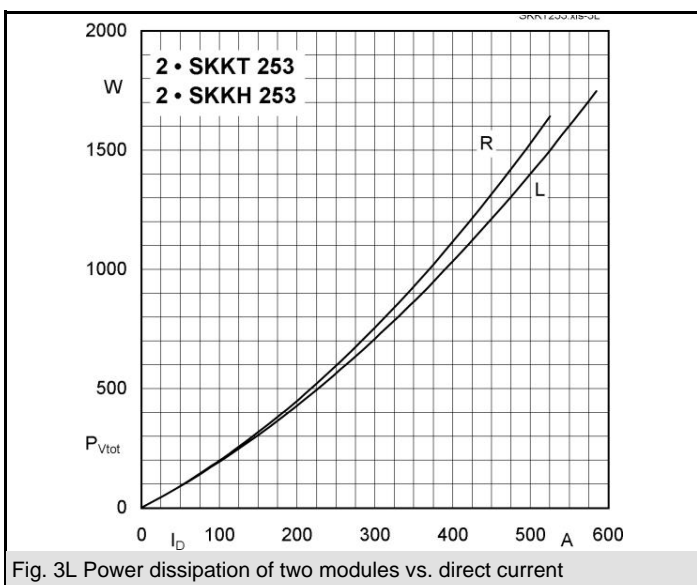
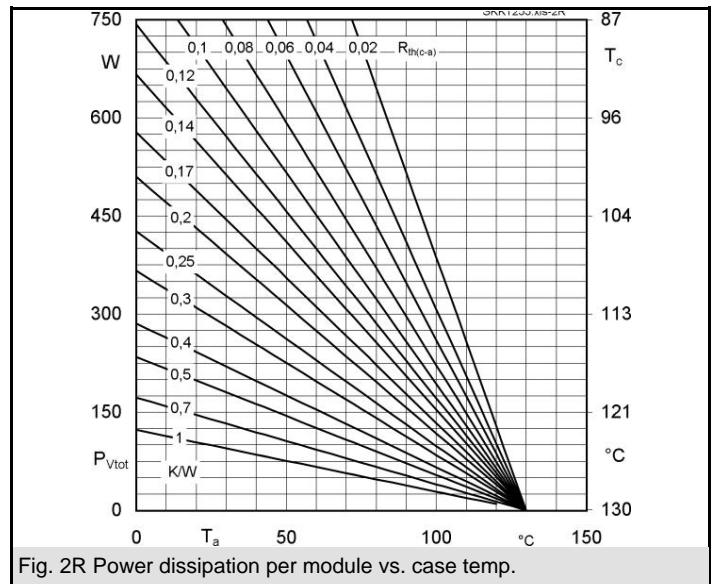
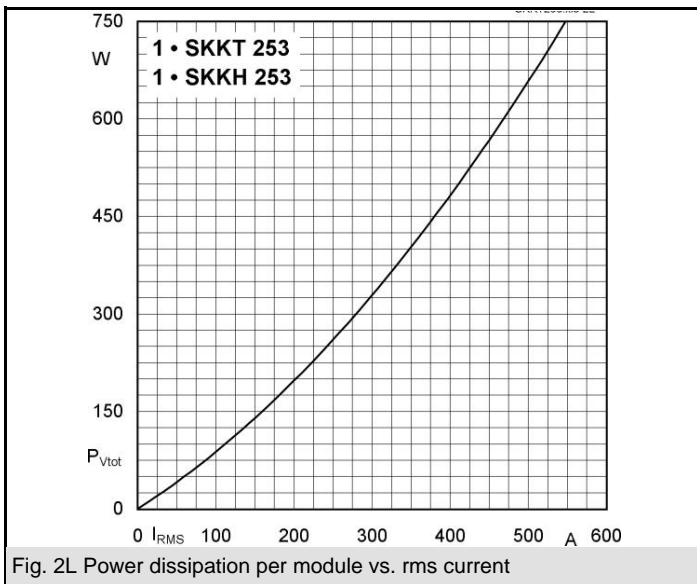
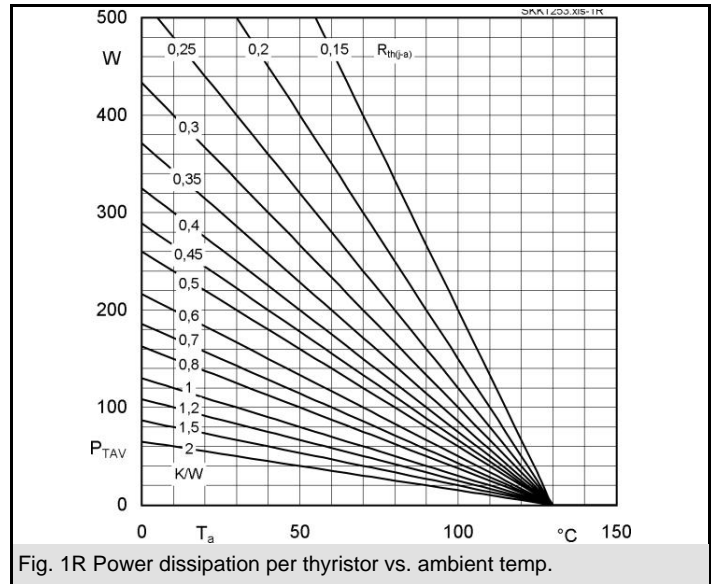
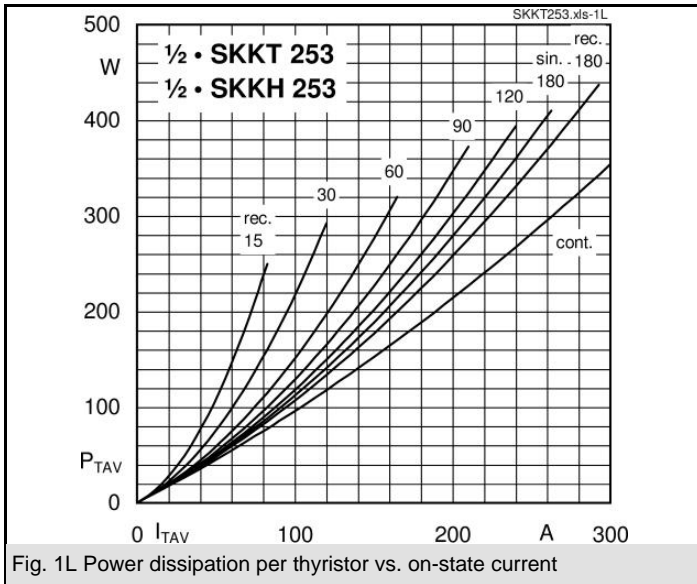
| Symbol | Conditions | Values | Units |
|------------------|---|------------------------|------------------|
| I_{TAV} | sin. 180; $T_c = 85$ (100) °C | 253 (191) | A |
| I_D | P16/200F; $T_a = 35$ °C; B2 / B6 | 387 / 502 | A |
| I_{RMS} | P16/200F; $T_a = 35$ °C; W1 / W3 | 465 / 3 * 400 | A |
| I_{TSM} | $T_{vj} = 25$ °C; 10 ms | 9000 | A |
| | $T_{vj} = 130$ °C; 10 ms | 8000 | A |
| i^2t | $T_{vj} = 25$ °C; 8,3 ... 10 ms | 405000 | A ² s |
| | $T_{vj} = 130$ °C; 8,3 ... 10 ms | 320000 | A ² s |
| V_T | $T_{vj} = 25$ °C; $I_T = 750$ A | max. 1,6 | V |
| $V_{T(TO)}$ | $T_{vj} = 130$ °C | max. 0,85 | V |
| r_T | $T_{vj} = 130$ °C | max. 1,1 | 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. 500 / 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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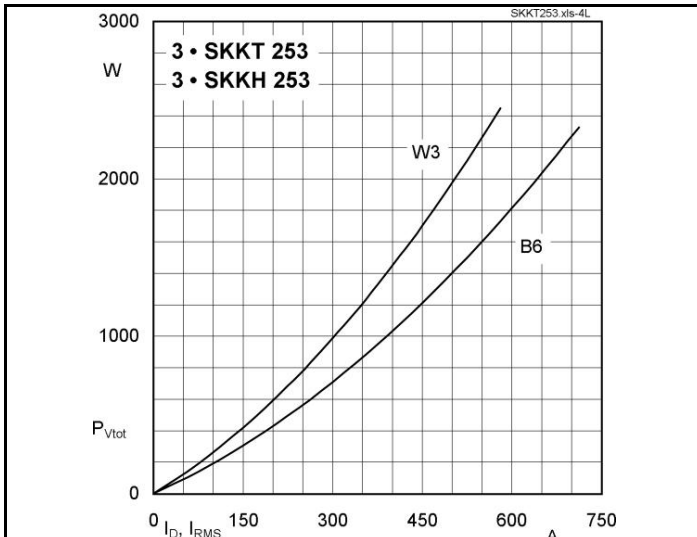


Fig. 4L Power dissipation of three modules vs. direct and rms current

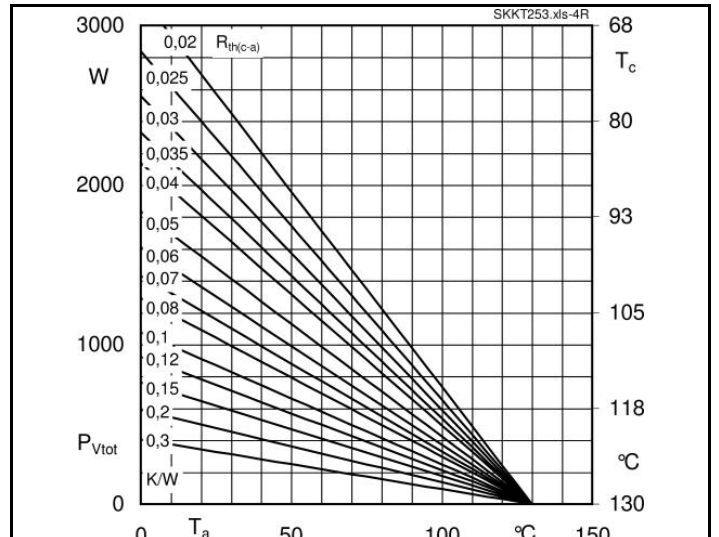


Fig. 4R Power dissipation of three modules vs. case temp.

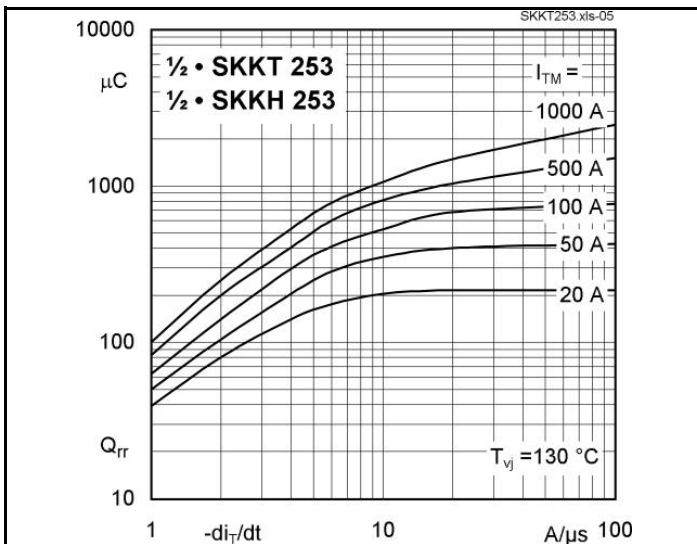


Fig. 5 Recovered charge vs. current decrease

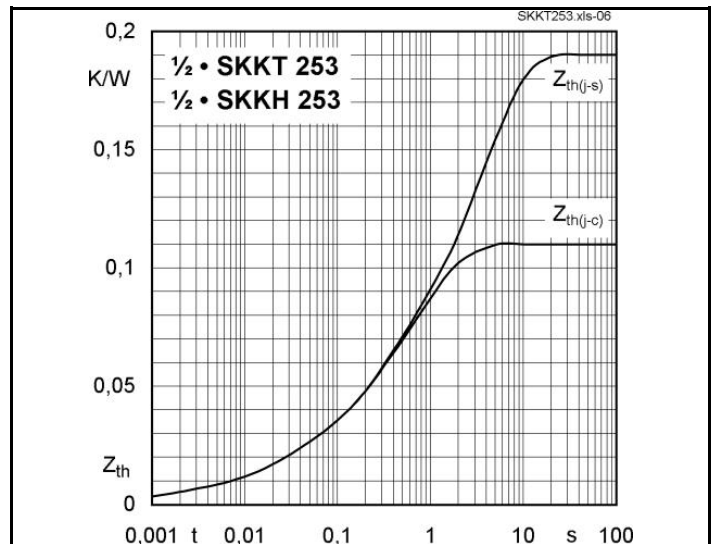


Fig. 6 Transient thermal impedance vs. time

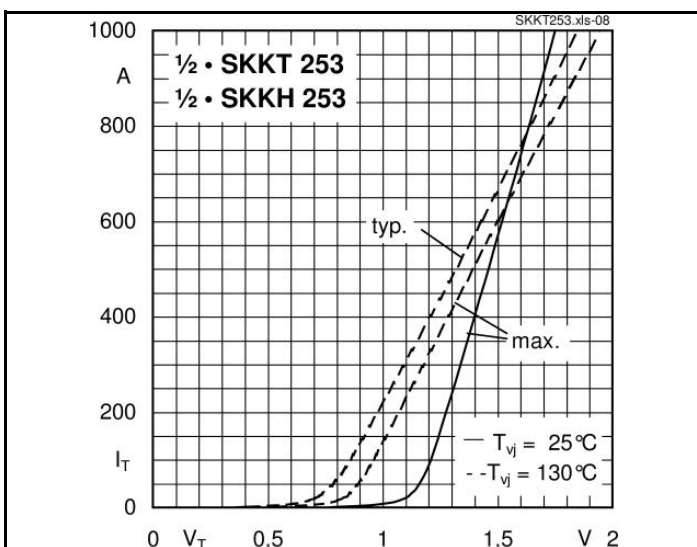


Fig. 7 On-state characteristics

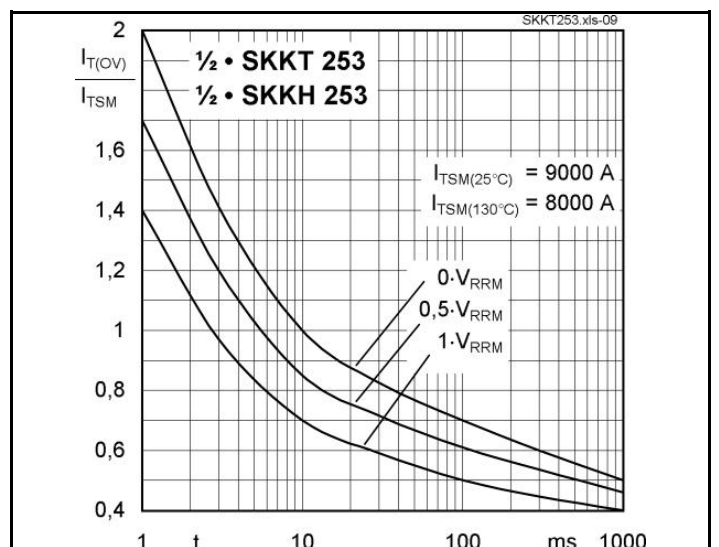


Fig. 8 Surge overload current vs. time

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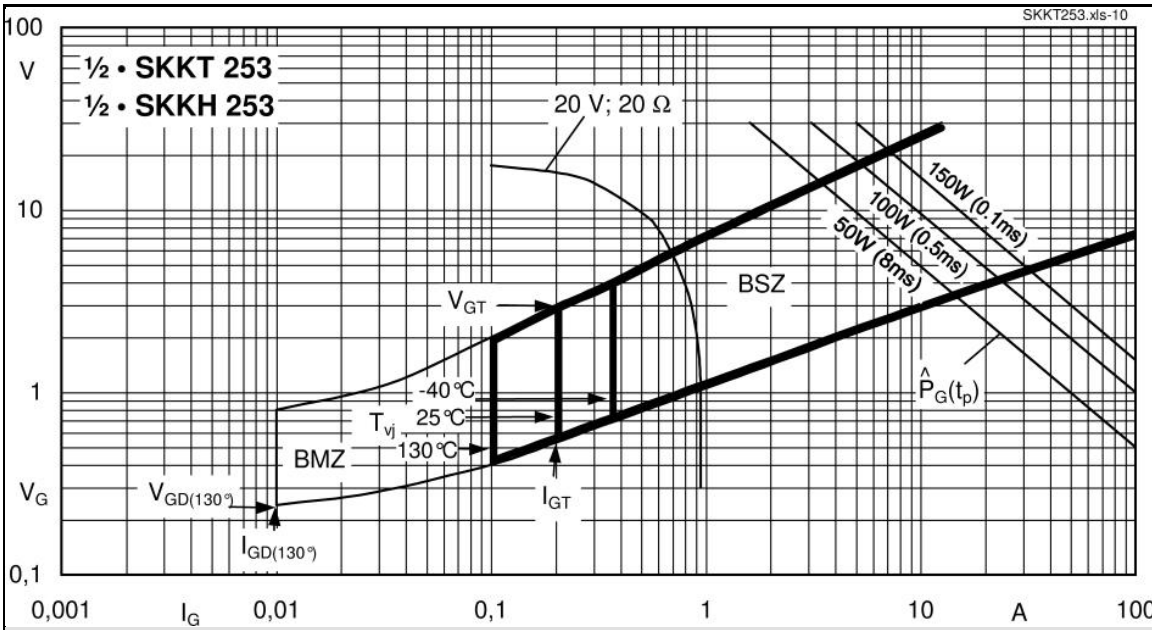
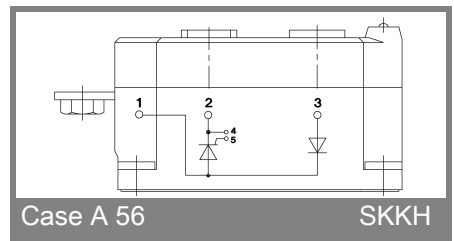
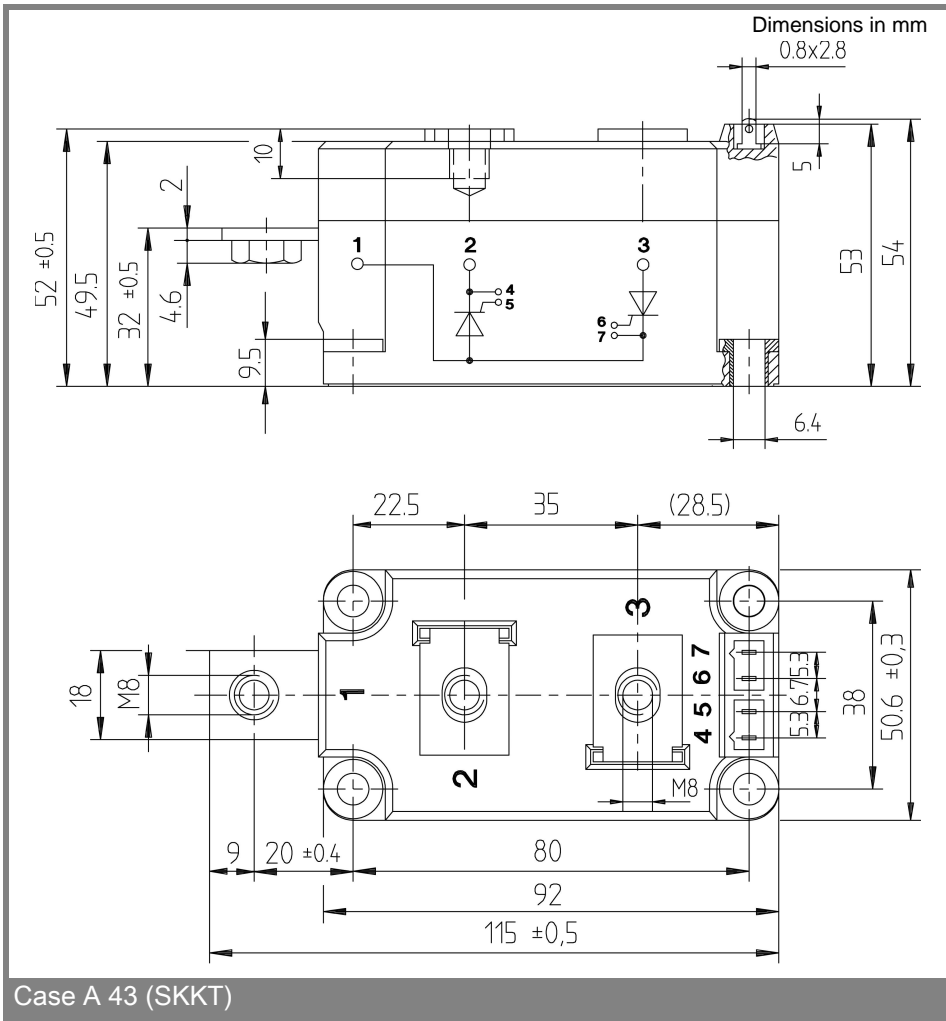


Fig. 9 Gate trigger characteristics



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