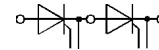


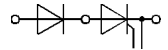
| V _{RSM} | V _{RRM} | (dv/dt) _{cr} | I _{TRMS} (maximum values for continuous operation) | | | |
|------------------|------------------|-----------------------|---|-----------------|-----------------|-----------------|
| | | | 370 A | 420 A | 370 A | 420 A |
| V | V | V/μs | I _{TAV} (sin. 180; T _{case} = 85 °C) | | | |
| | | | 230 A | 253 A | 230 A | 250 A |
| | | | SKKT | SKKT | SKKH | SKKH |
| 900 | 800 | 500 | 213/08 D | 253/08 D | – | 253/08 D |
| 1300 | 1200 | 1000 | 213/12 E | 253/12 E | 213/12 E | 253/12 E |
| 1500 | 1400 | 1000 | 213/14 E | 253/14 E | 213/14 E | 253/14 E |
| 1700 | 1600 | 1000 | 213/16 E | 253/16 E | 213/16 E | 253/16 E |
| 1900 | 1800 | 1000 | 213/18 E | 253/18 E | 213/18 E | 253/18 E |
| 2100 | 2000 | 1000 | 213/20 E | – | 213/20 E | – |
| 2300 | 2200 | 1000 | 213/22 E | – | 213/22 E | – |

SEMIPACK® 3 Thyristor / Diode Modules

SKKT 213 **SKKH 213**
SKKT 253 **SKKH 253**



SKKT



SKKH

| Symbol | Conditions | SKKT 213 SKKH 213 | SKKT 253 SKKH 253 | Units |
|------------------------------------|--|----------------------|-------------------------------------|------------------|
| I _{TAV} | sin. 180; (T _{case} = ...) | 213 (90°C) | 253 (85°C) | A |
| I _D | B2/B6 T _{amb} = 35 °C | 354/456 | 387/502 | A |
| I _{RMS} | W1/W3 P 16/200 F | 425/3 x 360 | 465/3 x 400 | A |
| I _{TSM} | T _{vj} = 25 °C; 10 ms | 8 500 | 9 000 | A |
| | T _{vj} = 130 °C; 10 ms | 7 500 | 8 000 | A |
| i ² t | T _{vj} = 25 °C; 8,3 ... 10 ms | 361 000 | 405 000 | A ² s |
| | T _{vj} = 130 °C; 8,3 ... 10 ms | 281 000 | 320 000 | A ² s |
| 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 | | 250 | A/μs |
| t _q | T _{vj} = 130 °C | | typ. 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. | | 0,3 / 2 | A |
| V _T | T _{vj} = 25 °C; I _T = 750 A | max. 1,9 | max. 1,7 | V |
| V _{T(TO)} | T _{vj} = 130 °C | 0,95 | 0,85 | V |
| r _T | T _{vj} = 130 °C | 1,3 | 1,1 | mΩ |
| I _{DD} ; I _{RD} | T _{vj} = 130 °C; V _{RD} = V _{RRM} V _{DD} = V _{DRM} | 50 | 50 | mA |
| V _{GT} | T _{vj} = 25 °C; d.c. | | 3 | V |
| I _{GT} | T _{vj} = 25 °C; d.c. | | 200 | mA |
| V _{GD} | T _{vj} = 130 °C; d.c. | | 0,25 | V |
| I _{GD} | T _{vj} = 130 °C; d.c. | | 10 | mA |
| R _{thjc} | cont. } sin. 180 } per thyristor / rec. 120 } per module | | 0,11 / 0,055 | °C/W |
| | | | 0,115 / 0,057 | °C/W |
| | | | 0,125 / 0,0625 | °C/W |
| R _{thch} | | | 0,08 / 0,04 | °C/W |
| T _{vj} , T _{stg} | | | – 40 ... + 130 | °C |
| V _{isol} | a. c. 50 Hz; r.m.s.; 1 s/1 min | | 3600 / 3000 | V~ |
| M ₁ | to heatsink } SI (US) units | | 5 (44 lb. in.) ± 15 % ¹⁾ | Nm |
| M ₂ | to terminals } | | 9 (80 lb. in.) ± 15 % ²⁾ | Nm |
| a | | | 5 · 9,81 | m/s ² |
| w | approx. | | 430 | g |
| Case | → page B 1 – 86 | SKKT: A 43 | SKKH: A 56 | |

¹⁾ See the assembly instructions

²⁾ The screws must be lubricated

Features

- Heat transfer through aluminium oxide 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)
- Temperature control (e.g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

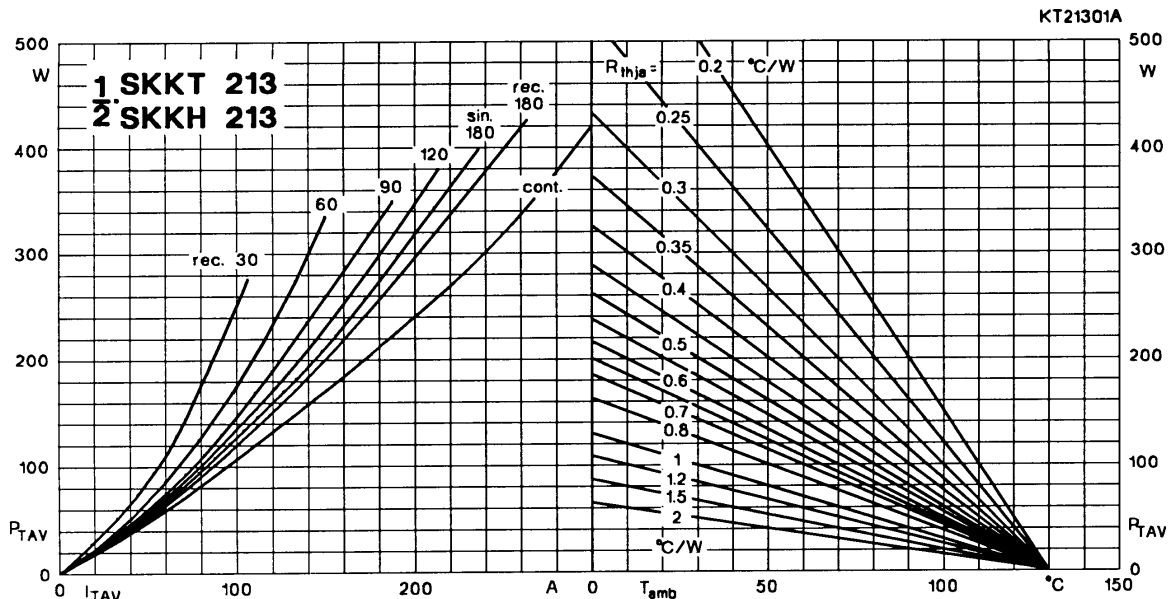


Fig. 1 a Power dissipation per thyristor vs. on-state current and ambient temperature

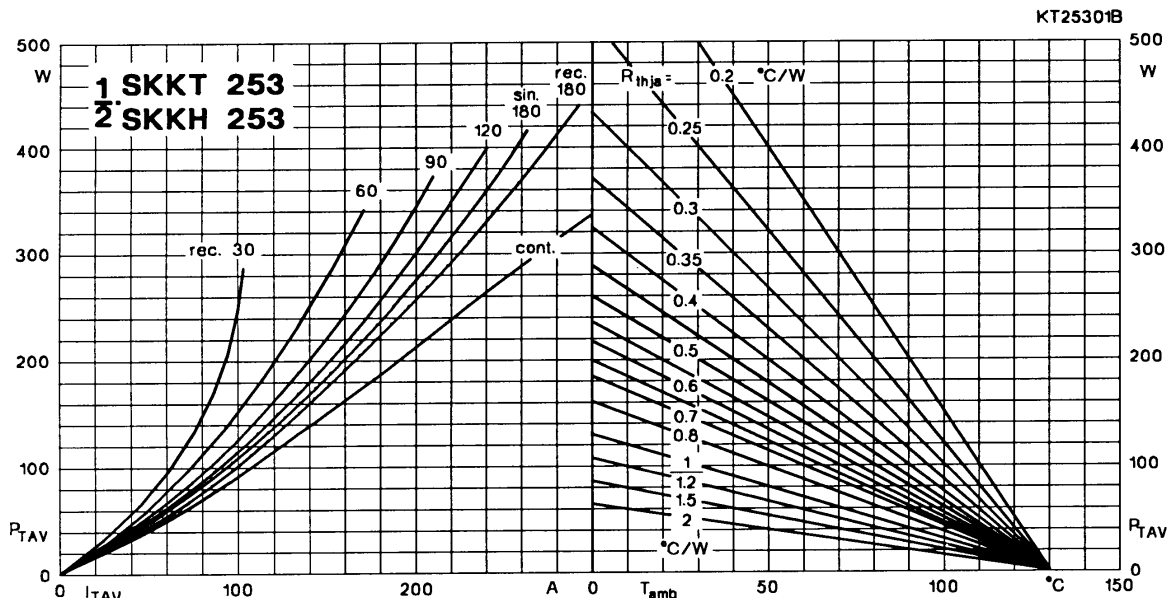


Fig. 1 b Power dissipation per thyristor vs. on-state current and ambient temperature

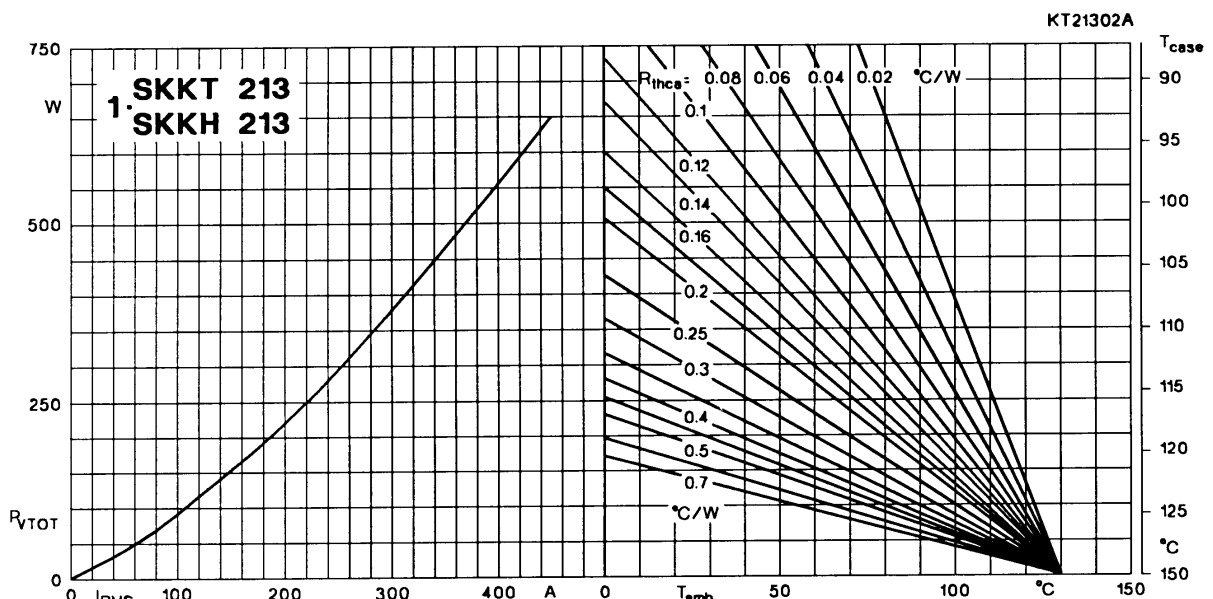


Fig. 2 a Power dissipation per module vs. rms current and case temperature

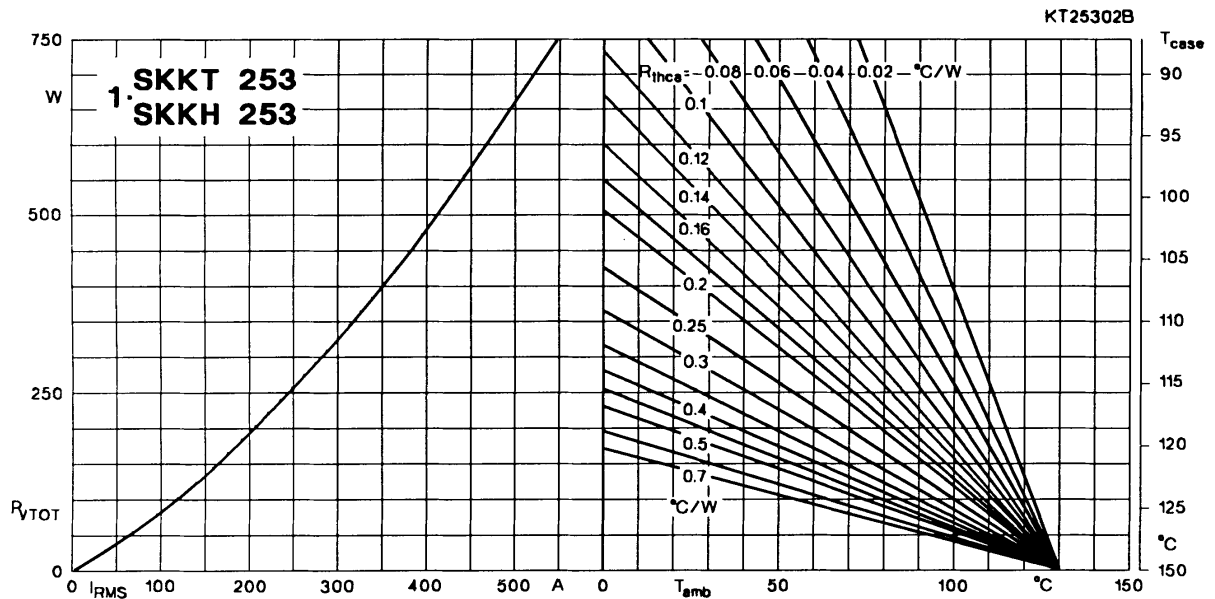


Fig. 2 b Power dissipation per module vs. rms current and case temperature

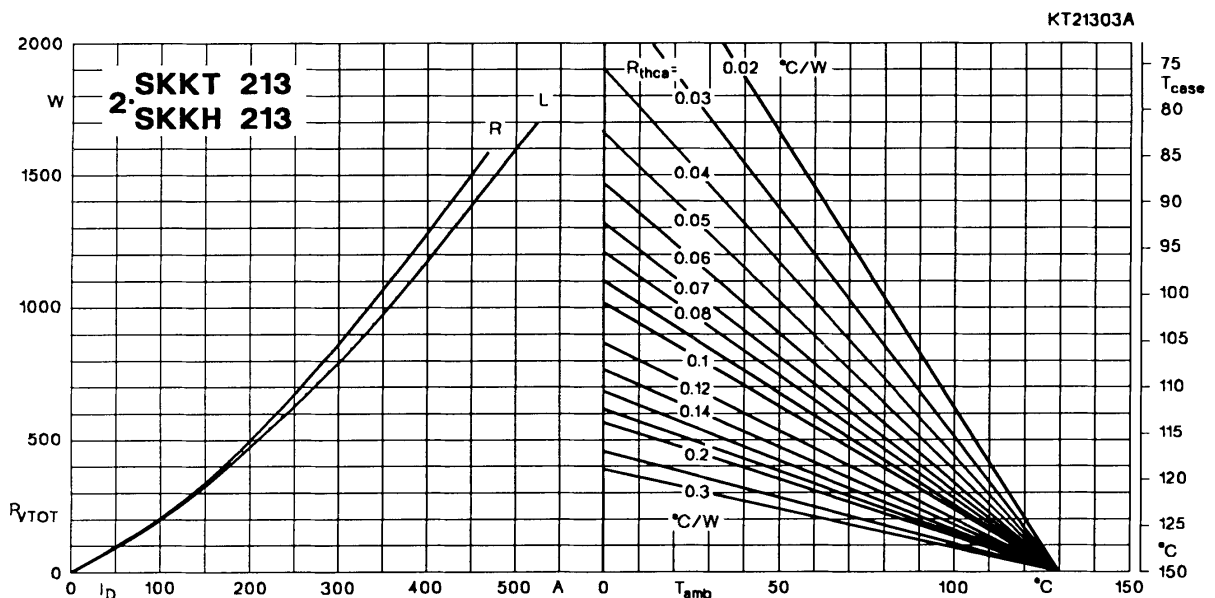


Fig. 3 a Power dissipation of two modules vs. direct current and case temperature

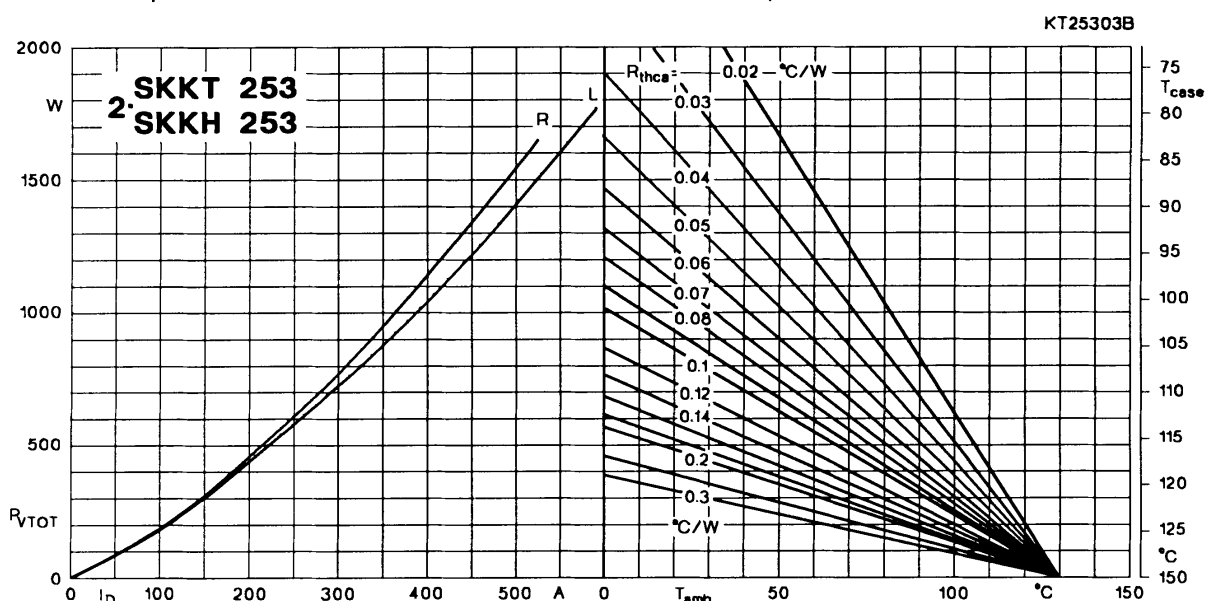


Fig. 3 b Power dissipation of two modules vs. direct current and case temperature

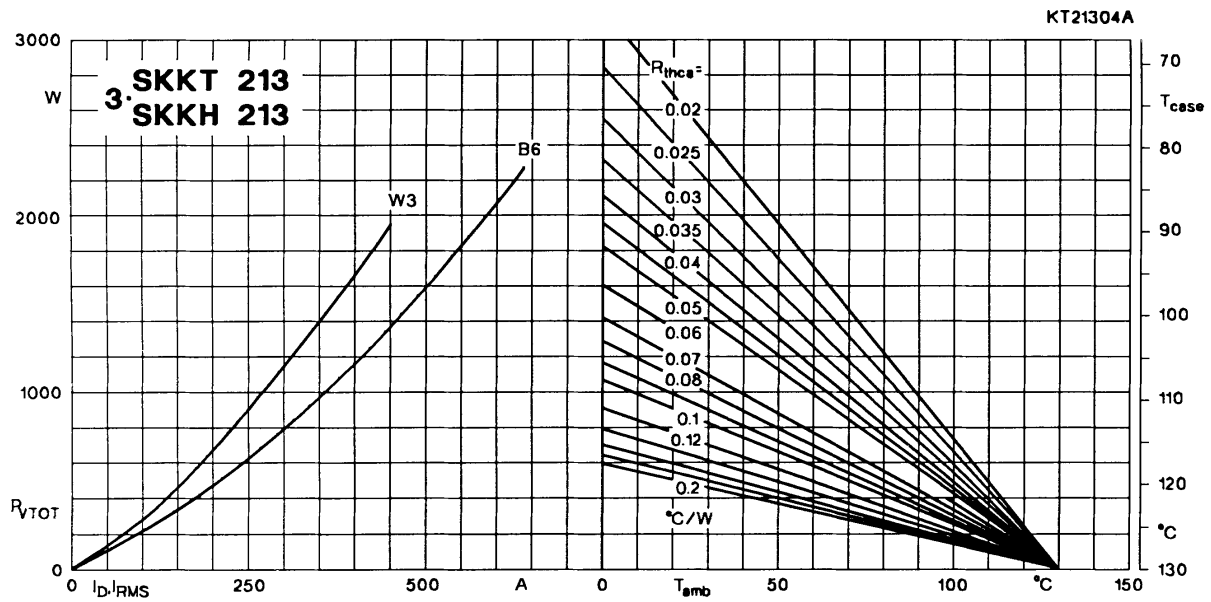


Fig. 4 a Power dissipation of three modules vs. direct and rms current and case temperature

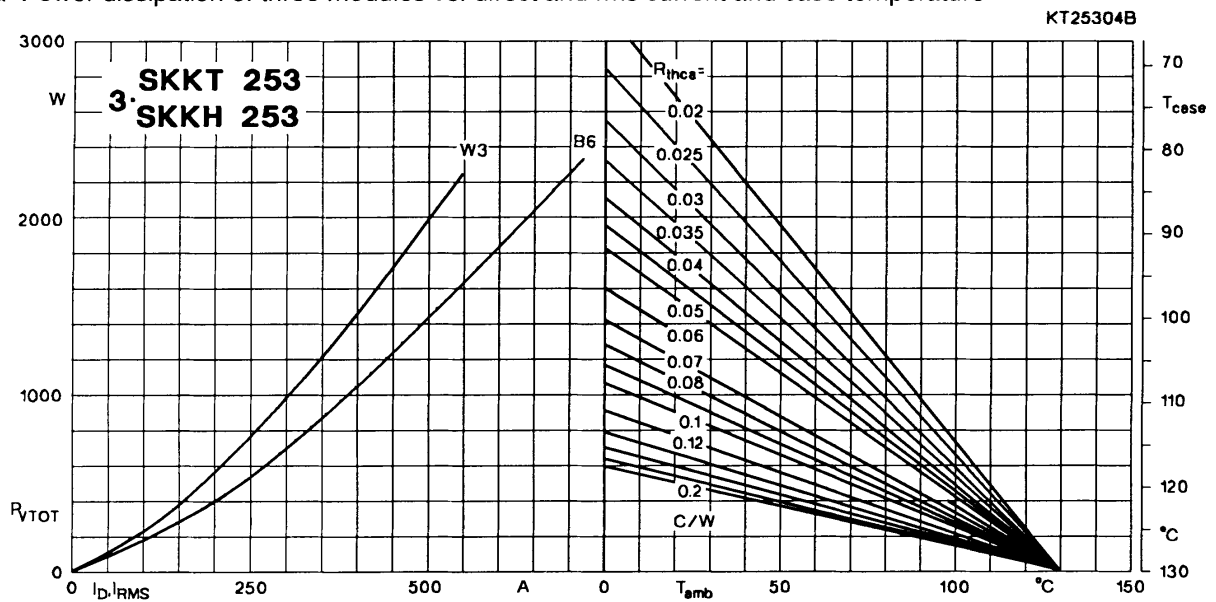


Fig. 4 b Power dissipation of three modules vs. direct and rms current and case temperature

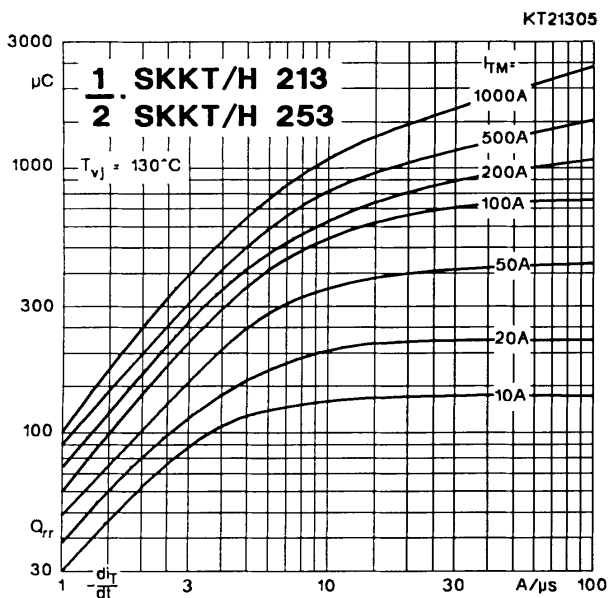


Fig. 5 Recovered charge vs. current decrease

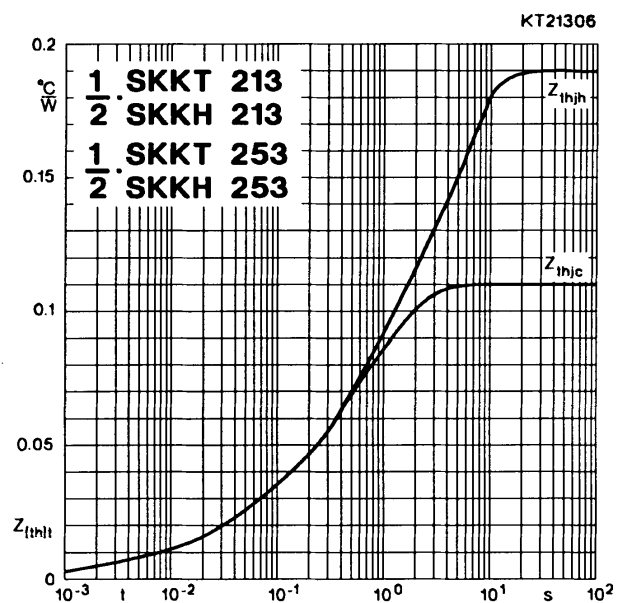


Fig. 6 Transient thermal impedance vs. time

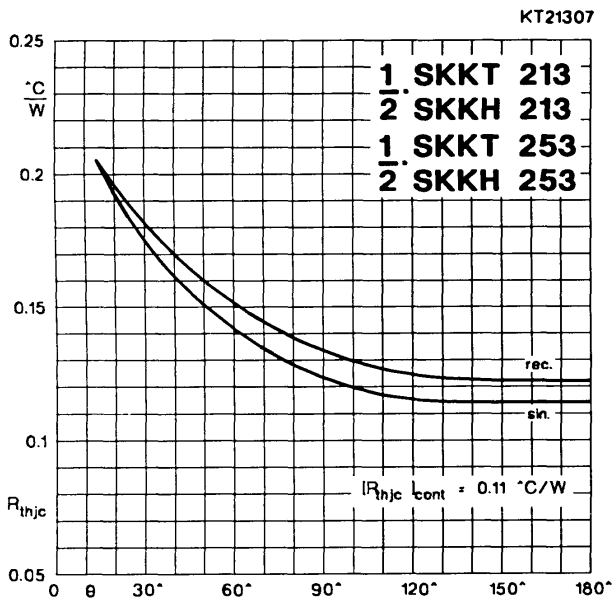


Fig. 7 Thermal resistance vs. conduction angle

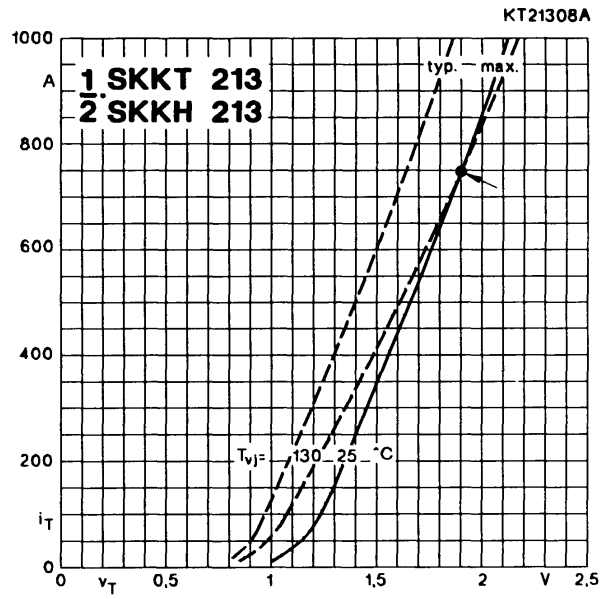


Fig. 8 a On-state characteristics

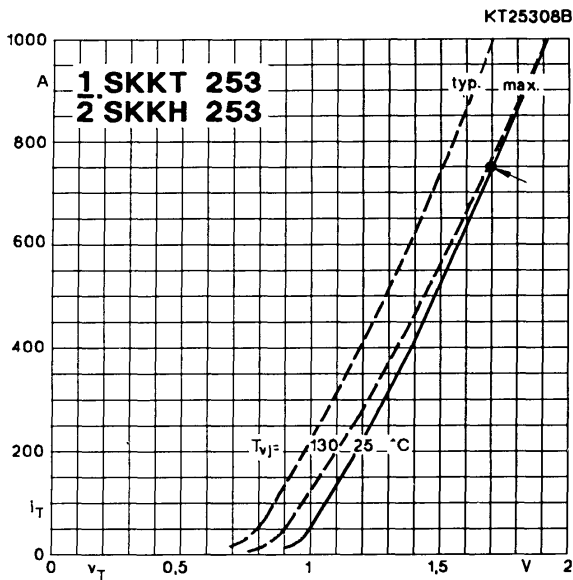


Fig. 8 b On-state characteristics

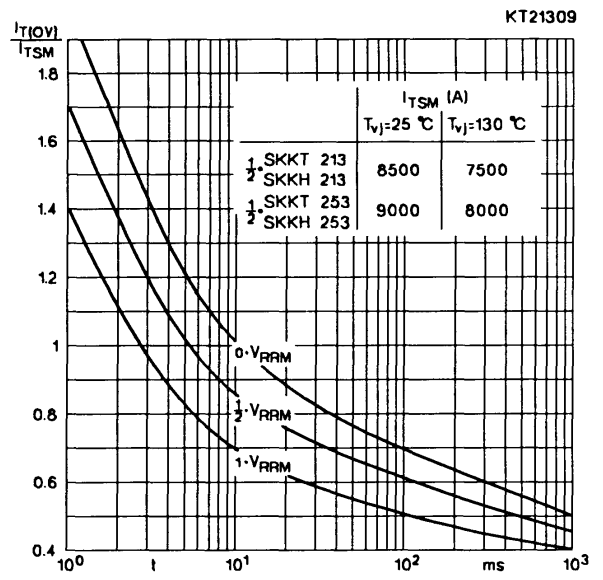


Fig. 9 Surge overload current vs. time

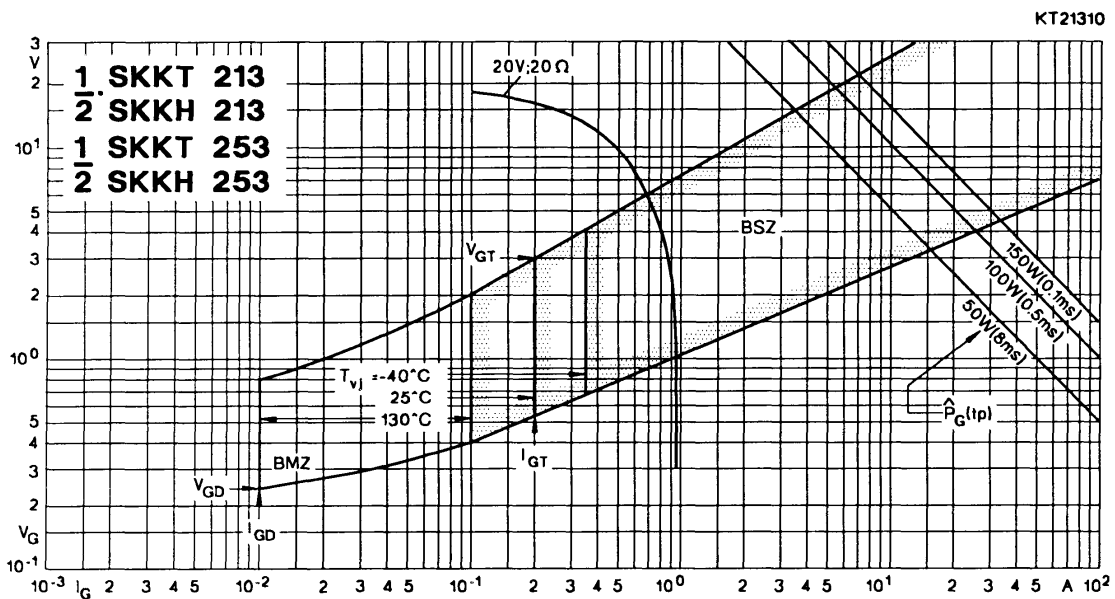
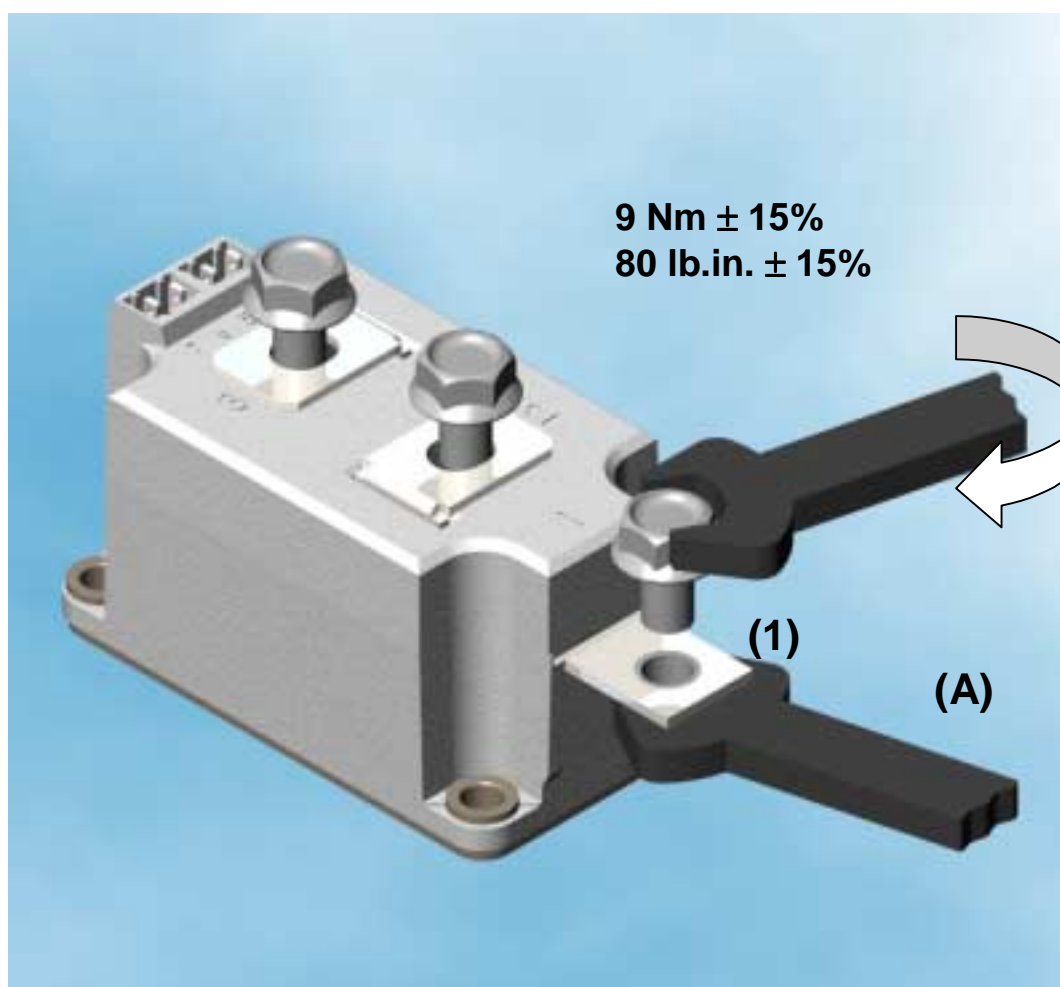


Fig. 10 Gate trigger characteristics

Ergänzung zu den Montagehinweisen im SEMIKRON Datenbuch

Bitte beachten Sie, daß beim Befestigen der Stromzuführung an Anschluß **(1)** – zur Vermeidung von Schäden am Gehäuse – die Mutter mit einem Maulschlüssel **(A)**, gegengehalten werden muß.



Supplement to the Assembly Instructions in the SEMIKRON Data Book

Please note that when connecting the power supply conductor to terminal **(1)**, a wrench (spanner) **(A)** should be used to restrain the nut on terminal **(1)** to avoid damage to the housing.