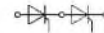
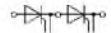


SEMPACK® 1 Thyristor/ Diode Modules

SKKT 19
SKKT 20
SKKT 20B



SKKT 19



SKKT 20

Features

- Heat transfer through aluminium oxide ceramic isolated metal baseplate
- Hard soldered joints for high reliability
- UL recognized, file no. E 63 532

Typical Applications

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

| V _{RSM} | V _{RRM} V _{DRM} | (dv/dt) _{cr} | I _{TRMS} (maximum value for continuous operation) | | |
|------------------|--------------------------------------|-----------------------|--|--------------|--------------|
| | | | 40 A | | |
| V | V | V/μs | I _{TAV} (sin. 180; T _{case} = 60 °C) | | |
| | | | 25 A | | |
| 700 | 600 | 500 | SKKT 19/06 D | SKKT 20/06 D | – |
| 900 | 800 | 500 | SKKT 19/08 D | SKKT 20/08 D | SKKT 20B08 D |
| 1300 | 1200 | 500 | SKKT 19/12 D | – | – |
| 1300 | 1200 | 1000 | SKKT 19/12 E | SKKT 20/12 E | SKKT 20B12 E |
| 1500 | 1400 | 1000 | SKKT 19/14 E | SKKT 20/14 E | SKKT 20B14 E |
| 1700 | 1600 | 1000 | SKKT 19/16 E | SKKT 20/16 E | SKKT 20B16 E |

| Symbol | Conditions | SKKT 19 | SKKT 20 SKKT 20B |
|----------------------------------|---|---------|--|
| I _{TAV} | sin. 180; T _{case} = 60 °C T _{case} = 85 °C | | 25 A 18 A |
| I _D | B2/B6 T _{amb} = 45 °C; P 3/180 T _{amb} = 35 °C; P 3/180 F | | 31 A/38 A 46 A/60 A |
| I _{RMS} | W1/W3 T _{amb} = 45 °C; P 3/180 | | 42 A/3 x 30 A |
| I _{TSM} | T _{vj} = 25 °C; 10 ms T _{vj} = 125 °C; 10 ms | | 320 A 280 A |
| i ² t | T _{vj} = 25 °C; 8,3 ... 10 ms T _{vj} = 125 °C; 8,3 ... 10 ms | | 510 A ² s 390 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} | | 1 μs |
| (di/dt) _{cr} | T _{vj} = 125 °C | | 150 A/μs |
| t _q | T _{vj} = 125 °C | | typ. 80 μs |
| I _H | T _{vj} = 25 °C; typ./max. | | 100/200 mA |
| I _L | T _{vj} = 25 °C; R _G = 33 Ω; typ./max. | | 250/400 mA |
| V _T | T _{vj} = 25 °C; I _T = 75 A | | max. 2,3 V |
| V _{T(TO)} | T _{vj} = 125 °C | | 1,0 V |
| r _T | T _{vj} = 125 °C | | 16 mΩ |
| I _D ; I _{RD} | T _{vj} = 125 °C; V _{DD} = V _{DRM} ; V _{RD} = V _{RRM} | | max. 10 mA |
| V _{GT} | T _{vj} = 25 °C; d. c. | | 3 V |
| I _{GT} | T _{vj} = 25 °C; d. c. | | 150 mA |
| V _{GD} | T _{vj} = 125 °C; d. c. | | 0,25 V |
| I _{GD} | T _{vj} = 125 °C; d. c. | | 5 mA |
| R _{thjc} | cont. } sin. 180 } rec. 120 } per thyristor/per module | | 1,2 °C/W / 0,6 °C/W 1,3 °C/W / 0,65 °C/W 1,35 °C/W / 0,68 °C/W |
| R _{thch} | | | 0,2 °C/W / 0,1 °C/W |
| T _{vj} | | | – 40 ... +125 °C |
| T _{stg} | | | – 40 ... +125 °C |
| V _{isol} | a. c. 50 Hz; r. m. s.; 1 s/1 min | | 3600 V– / 3000 V– |
| M ₁ | to heatsink } SI units / US units | | 5 Nm/44 lb. in. ± 15 % ¹⁾ |
| M ₂ | to terminals } | | 3 Nm/26 lb. in. ± 15 % |
| a | | | 5 · 9,81 m/s ² |
| w | approx. | | 120 g |
| Case | → page B 1 – 93 | | SKKT 19: A 5 SKKT 20: A 46 SKKT 20B: A 48 |

¹⁾ See the assembly instructions

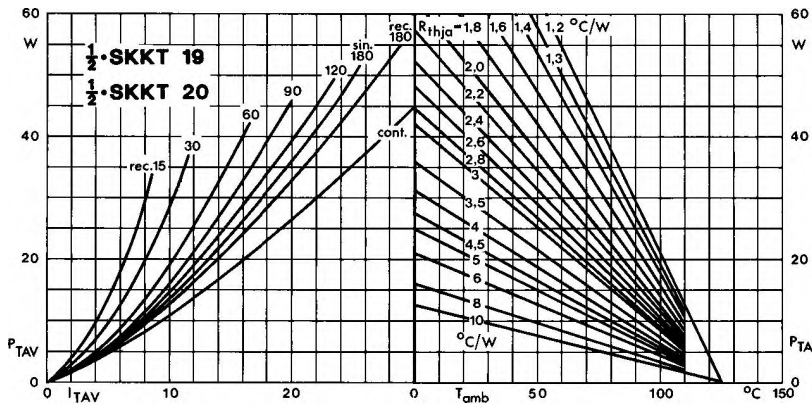


Fig. 1 Power dissipation per thyristor vs. on-state current and ambient temperature

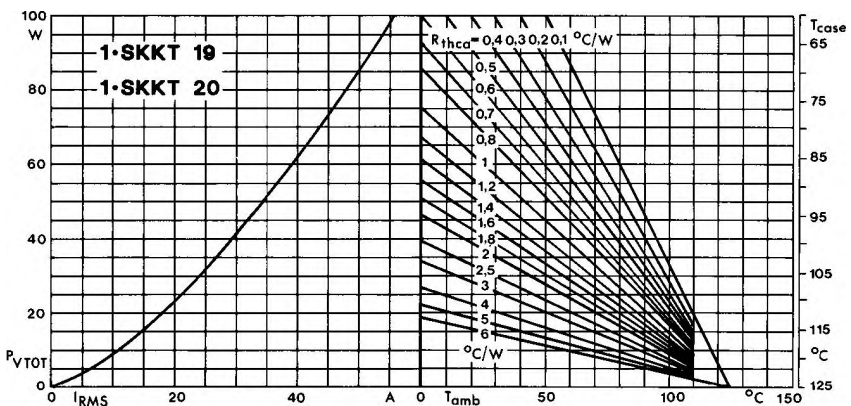


Fig. 2 Power dissipation per module vs. rms current and case temperature

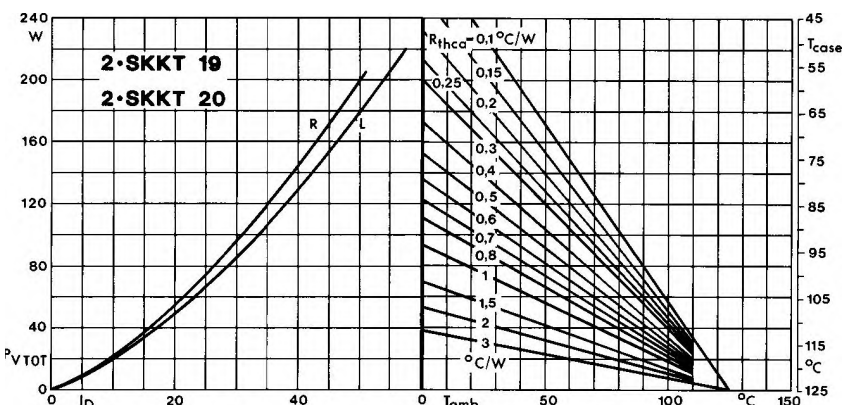


Fig. 3 Power dissipation of two modules vs. direct current and case temperature

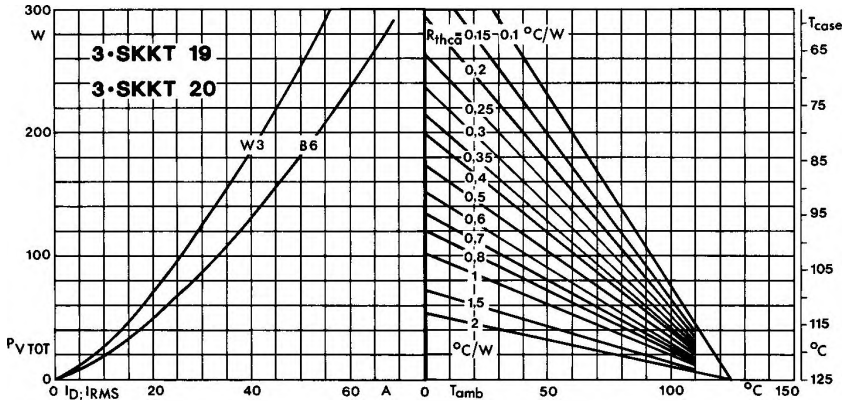


Fig. 4 Power dissipation of three modules vs. direct and rms current and case temperature

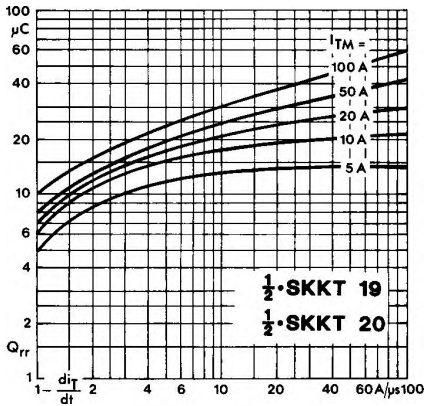


Fig. 5 Recovered charge vs. current decrease

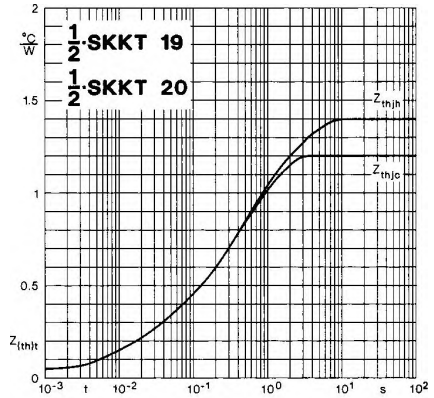


Fig. 6 Transient thermal impedance vs. time

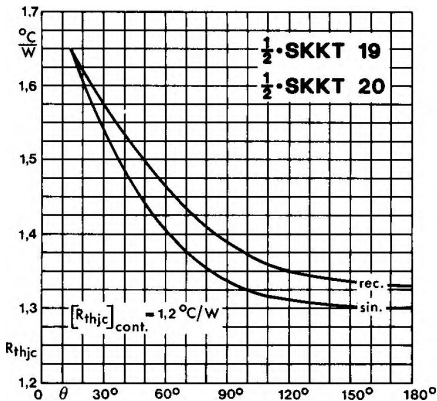


Fig. 7 Thermal resistance vs. conduction angle

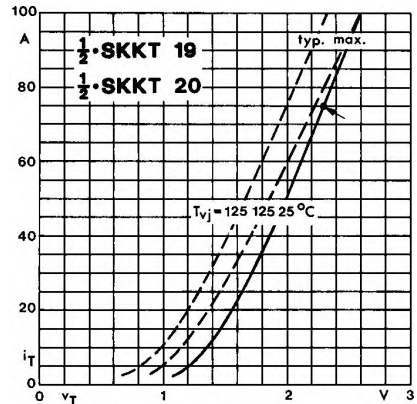


Fig. 8 On-state characteristics

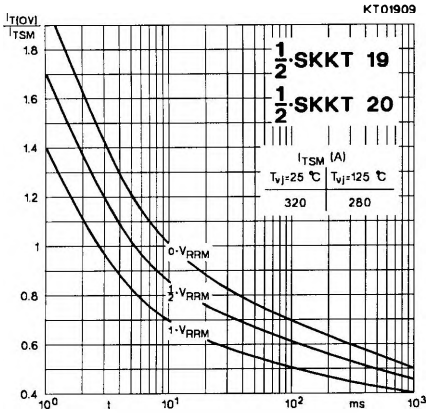


Fig. 9 Surge overload current vs. time

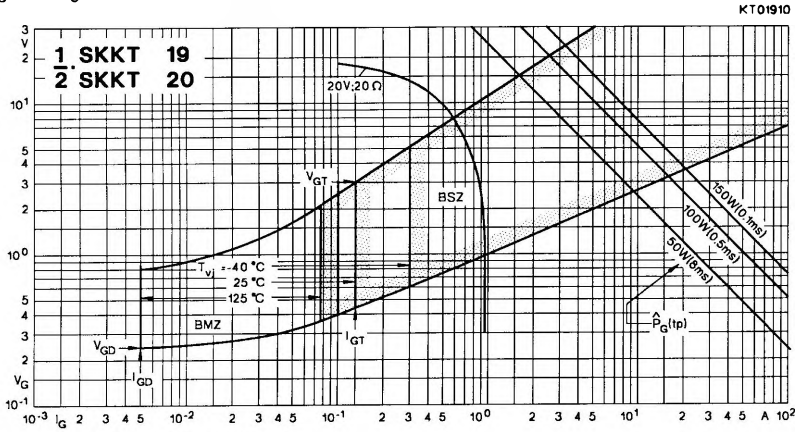


Fig. 10 Gate trigger characteristics