

Thyristors

SKT 491 SKT 551



V_{RSM}	V_{RRM} V_{DRM}	$\left(\frac{dv}{dt}\right)_{cr}$	I_{TRMS} (maximum values for continuous operation)	
			1000 A	1200 A
V	V	V/ μ s	I_{TAV} (sin. 180; $T_{case} = \dots$; DSC)	
			640 A (58 °C)	765 A (61 °C)
500	400	500	SKT 491/04 D	–
900	800	1000	SKT 491/08 E	SKT 551/08 E
1300	1200	500	SKT 491/12 D	SKT 551/12 D
		1000	SKT 491/12 E	SKT 551/12 E
1500	1400	1000	SKT 491/14 E	SKT 551/14 E
1700	1600	1000	SKT 491/16 E	SKT 551/16 E
1900	1800	1000	SKT 491/18 E	SKT 551/18 E
2100	2000	1000	SKT 491/20 E	–
2300	2200	1000	SKT 491/22 E	–

Symbol	Conditions	SKT 491	SKT 551
I_{TAV}	sin. 180; ($T_{case} = \dots$), DSC	490 A (80 °C)	550 A (85 °C)
I_{TSM}	$T_{vj} = 25\text{ °C}$ $T_{vj} = 125\text{ °C}$	8000 A 7000 A	9000 A 8000 A
i^2t	$T_{vj} = 25\text{ °C}$ $T_{vj} = 125\text{ °C}$	320 000 A ² s 245 000 A ² s	405 000 A ² s 320 000 A ² s
t_{gd}	$T_{vj} = 25\text{ °C}$; $I_G = 1\text{ A}$; $di_G/dt = 1\text{ A}/\mu\text{s}$	typ. 1 μ s	
t_{gr}	$V_D = 0,67 \cdot V_{DRM}$	typ. 1 μ s	
$(di/dt)_{cr}$	$f = 50 \dots 60\text{ Hz}$	125 A/ μ s	
I_H	$T_{vj} = 25\text{ °C}$; typ./max.	150 mA/500 mA	
I_L	$T_{vj} = 25\text{ °C}$; $R_G = 33\text{ }\Omega$; typ./max.	500 mA/2 A	
t_q	$T_{vj} = 125\text{ °C}$	typ. 50 ... 150 μ s	
V_T	$T_{vj} = 25\text{ °C}$; $I_T = 1500\text{ A}$; max.	2,1 V	1,65 V
$V_{T(TO)}$	$T_{vj} = 125\text{ °C}$	1,1 V	0,925 V
r_T	$T_{vj} = 125\text{ °C}$	0,7 m Ω	0,45 m Ω
I_{DD} , I_{RD}	$T_{vj} = 125\text{ °C}$; $V_{DD} = V_{DRM}$; $V_{RD} = V_{RRM}$	50 mA	50 mA
V_{GT}	$T_{vj} = 25\text{ °C}$	3 V	
I_{GT}	$T_{vj} = 25\text{ °C}$	250 mA	
V_{GD}	$T_{vj} = 125\text{ °C}$	0,25 V	
I_{GD}	$T_{vj} = 125\text{ °C}$	10 mA	
R_{thjc}	cont.; sin. 180; DSC/SSC	0,045 °C/W	
	rec. 120; DSC/SSC	0,047/0,100 °C/W	
R_{thch}	DSC/SSC	0,054/0,113 °C/W	
T_{vj}		0,012/0,024 °C	
T_{stg}		– 40 ... + 125 °C	
		– 40 ... + 130 °C	
F	SI units	5,2 ... 8 kN	
	US units	1200 ... 1800 lbs.	
w		105 g	
Case	→ page B 3–32	B 11	

Features

- Hermetic metal/ceramic cases
- Capsule packages for double sided cooling
- Shallow design with single sided cooling
- International standard cases
- Off-state and reverse voltages up to 1800 V
- Amplifying gates

Typical Applications

- DC motor control
(e. g. for machine tools)
- Controlled rectifiers
(e. g. for battery charging)
- AC controllers
(e. g. for temperature control)

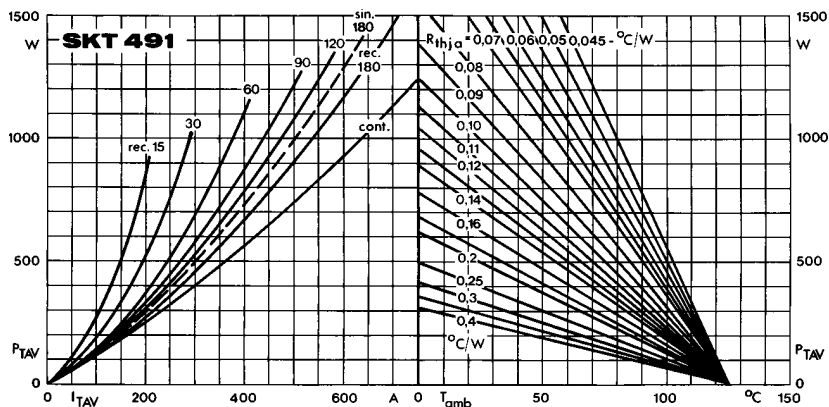


Fig. 1 a Power dissipation vs. on-state current and ambient temperature

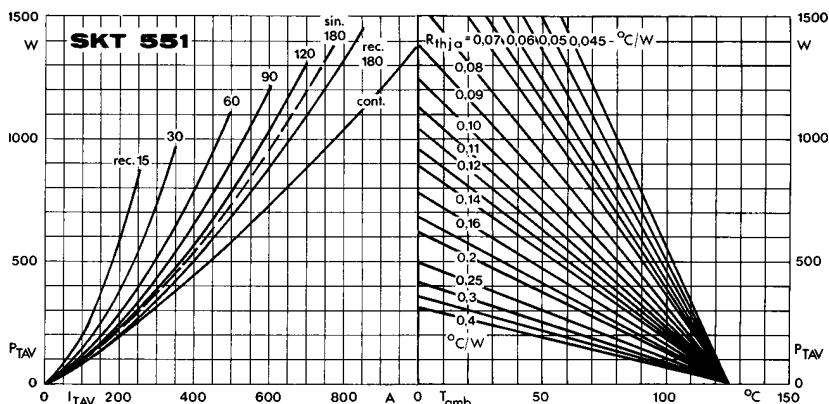


Fig. 1 b Power dissipation vs. on-state current and ambient temperature

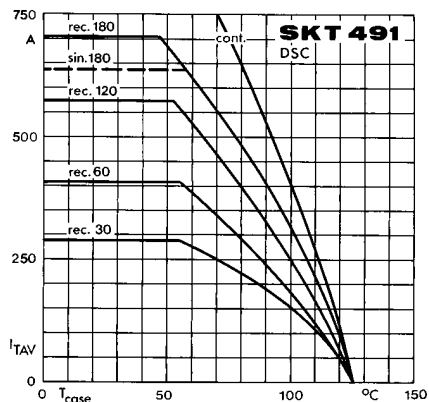


Fig. 2 a Rated on-state current vs. case temperature

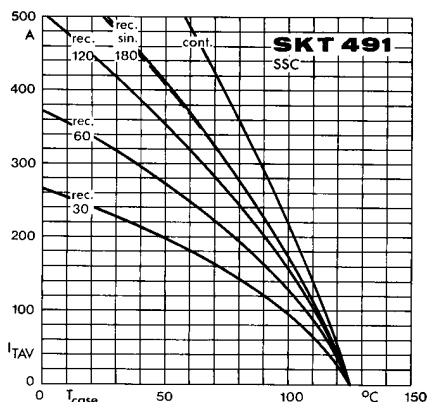


Fig. 2 b Rated on-state current vs. case temperature

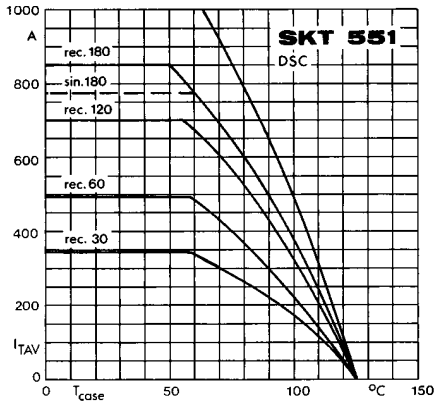


Fig. 2 c Rated on-state current vs. case temperature

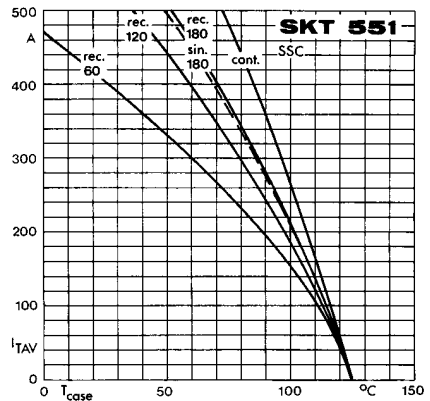


Fig. 2 d Rated on-state current vs. case temperature

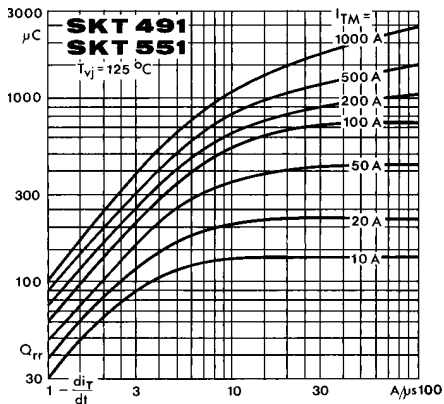


Fig. 3 Recovered charge vs. current decrease

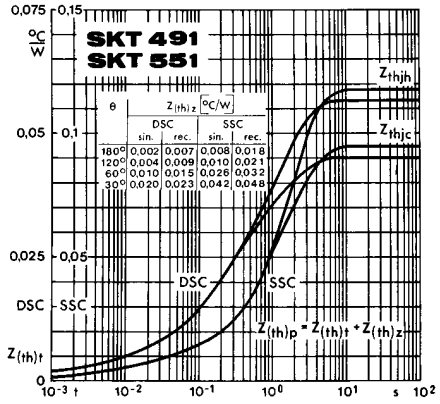


Fig. 4 Transient thermal impedance vs. time

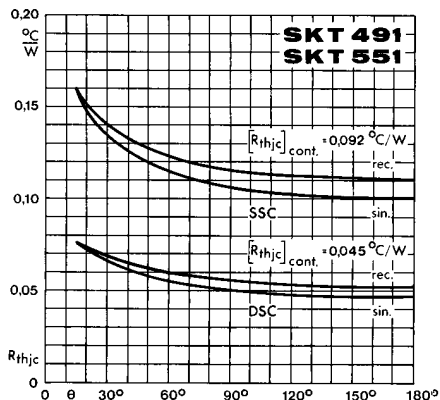


Fig. 5 Thermal resistance vs. conduction angle

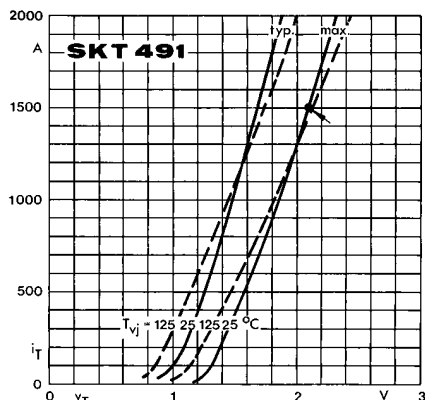


Fig. 6 a On-state characteristics

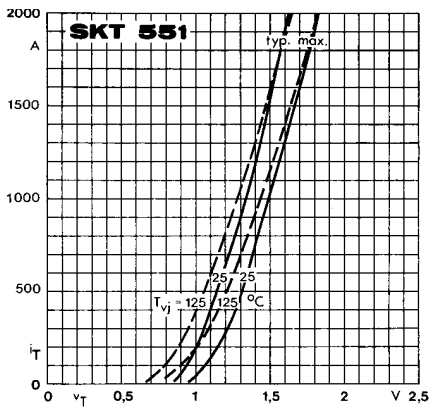


Fig. 6 b On-state characteristics

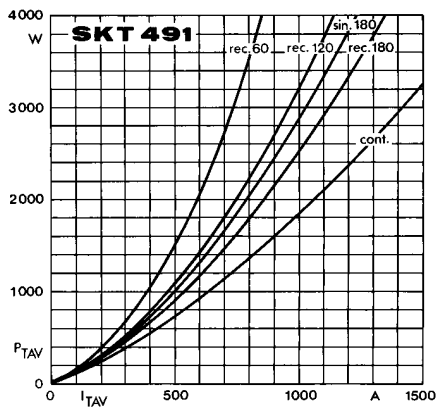


Fig. 7 a Power dissipation vs. on-state current

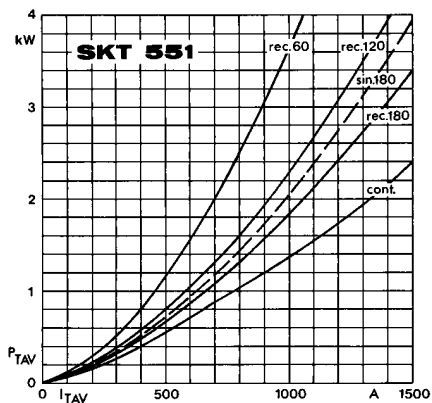


Fig. 7 b Power dissipation vs. on-state current

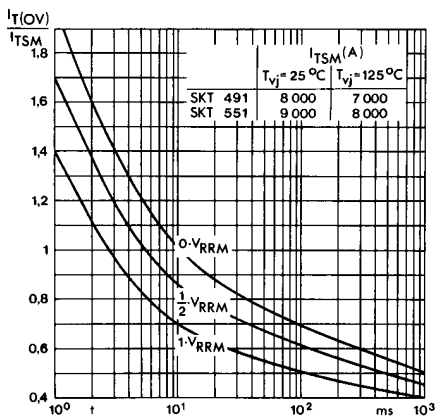


Fig. 8 Surge overload current vs. time

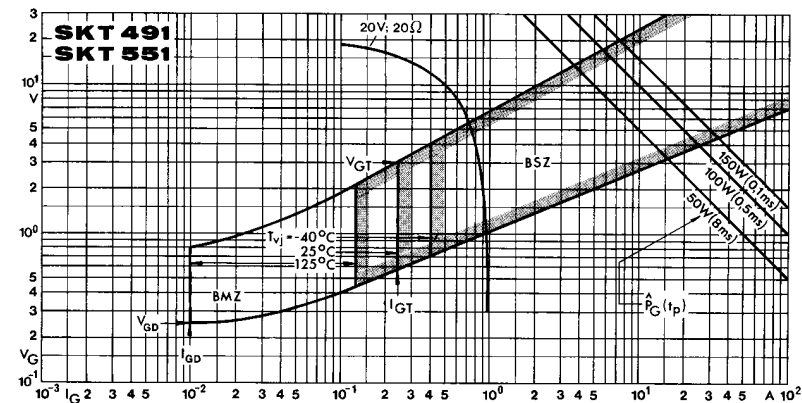


Fig. 9 Gate trigger characteristics