

## SEMPACK® 3 Fast Thyristor/ Diode Modules

### SKFT 150 SKFH 150



$V_{DRM}$ $V_{RRM}$	$t_q$ ( $T_{vj} = 125\text{ °C}$ )	$I_{TRMS}$ (maximum values for continuous operation) 350 A	
V	$\mu\text{s}$	$I_{TAV}$ (sin. 180; $T_{case} = 76\text{ °C}$ ; 50 Hz) 150 A	
800	15	<b>SKFT 150/08 DS</b> <b>SKFT 150/08 DT</b>	<b>SKFH 150/08 DS</b> <b>SKFH 150/08 DT</b>
1000	15	<b>SKFT 150/10 DS</b> <sup>1)</sup>	–

### Thyristor data

Symbol	Conditions	SKFT 150 SKFH 150	Units
$I_{TM}$	sin. 180; $T_{case} = 60\text{ °C}$ ; 500 Hz	610	A
$I_{TSM}$	$T_{vj} = 25\text{ °C}$ ; 10 ms $T_{vj} = 125\text{ °C}$ ; 10 ms	6 500 5 500	A A
$i^2t$	$T_{vj} = 25\text{ °C}$ ; 8,3 ... 10 ms $T_{vj} = 125\text{ °C}$ ; 8,3 ... 10 ms	211 000 151 000	$\text{A}^2\text{ s}$ $\text{A}^2\text{ s}$
$t_{gd}$	$T_{vj} = 25\text{ °C}$ ; $I_g = 1\text{ A}$ ; $di_g/dt = 1\text{ A}/\mu\text{s}$	1	$\mu\text{s}$
$t_{gr}$	$V_D = 0,67 \cdot V_{DRM}$	1	$\mu\text{s}$
$(di/dt)_{cr}$	non-repetitive/ $f = 50 \dots 60\text{ Hz}$	1000 / 400	$\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$	$T_{vj} = 125\text{ °C}$	500	$\text{V}/\mu\text{s}$
$I_H$	$T_{vj} = 25\text{ °C}$ ; typ./max.	200 / 400	$\text{mA}$
$I_L$	$T_{vj} = 25\text{ °C}$ ; $R_G = 33\ \Omega$ ; typ./max.	1 / 2	A
$V_T$	$T_{vj} = 125\text{ °C}$ ; $I_T = 1200\text{ A}$ ; max.	2,45	V
$V_{T(TO)}$	$T_{vj} = 125\text{ °C}$	1,9	V
$r_T$	$T_{vj} = 125\text{ °C}$	0,4	$\text{m}\Omega$
$I_D$ ; $I_R$	$T_{vj} = 125\text{ °C}$ ; $V_{DRM}$ ; $V_{RRM}$	80	$\text{mA}$
$V_{GT}$	$T_{vj} = 25\text{ °C}$	4	V
$I_{GT}$	$T_{vj} = 25\text{ °C}$	250	$\text{mA}$
$V_{GD}$	$T_{vj} = 125\text{ °C}$	0,25	V
$I_{GD}$	$T_{vj} = 125\text{ °C}$	10	$\text{mA}$



SKFT

SKFH

### Features

- Heat transfer through ceramic isolated metal baseplate
- Interdigitated amplifying gates
- Precious metal pressure contacts
- UL recognition, file no. E63 532

### Typical Applications

- Self-commutated inverters
- DC choppers
- AC motor speed control
- Inductive heating
- Uninterruptible power supplies
- Electronic welders
- General power switching applications

### Fast rectifier diode data

$t_{rr}$	$T_{vj} = 25\text{ °C}$ ; $I_F = 1\text{ A}$ ; – $di_F/dt = 15\text{ A}/\mu\text{s}$ ; $V_R = 30\text{ V}$	2	$\mu\text{s}$
$Q_{rr}$	} $T_{vj} = 125\text{ °C}$ ; $I_F = 150\text{ A}$ ; – $di_F/dt = 100\text{ A}/\mu\text{s}$ ; $V_R = 100\text{ V}$	250	$\mu\text{C}$
$I_{RM}$		175	A
$I_R$	$T_{vj} = 125\text{ °C}$ ; $V_R = V_{RRM}$	80	$\text{mA}$
$V_F$	$T_{vj} = 25\text{ °C}$ ; $I_F = 1200\text{ A}$ ; max.	1,85	V
$V_{(TO)}$	$T_{vj} = 125\text{ °C}$	1,25	V
$r_T$	$T_{vj} = 125\text{ °C}$	0,5	$\text{m}\Omega$

<sup>1)</sup> Available in limited quantities

**Common data**

Symbol	Conditions	SKFT 150 SKFH 150
R <sub>thjc</sub> R <sub>thch</sub> T <sub>vj</sub> T <sub>stg</sub>	cont. } per thyristor/per module	0,16/0,08 °C/W 0,04/0,02 °C/W -40 ... + 125 °C -40 ... + 125 °C
V <sub>isol</sub> M <sub>1</sub> M <sub>2</sub> w	a. c. 50 Hz; r. m. s.; 1 s/1 min. Case to heatsink } SI units/ Busbars to terminals } US units approx.	300 V ~ /2500 V ~ 5 Nm/44 lb. in. ± 15 % 9 Nm/80 lb. in. ± 15 % 940 g
Case	→ page B 2-59	SKFT SKFH A 25 A 32

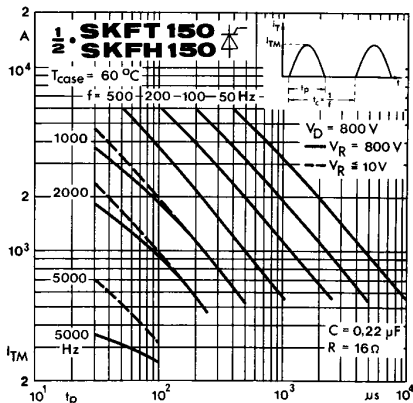


Fig. 1 a Rated peak on-state current vs. pulse duration

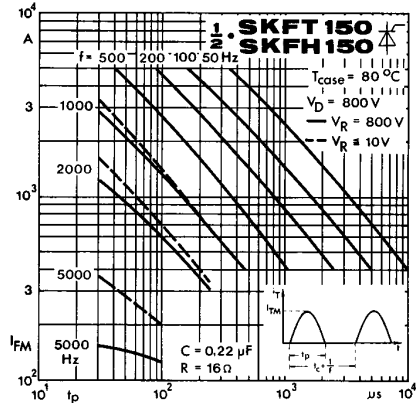


Fig. 1 b Rated peak on-state current vs. pulse duration

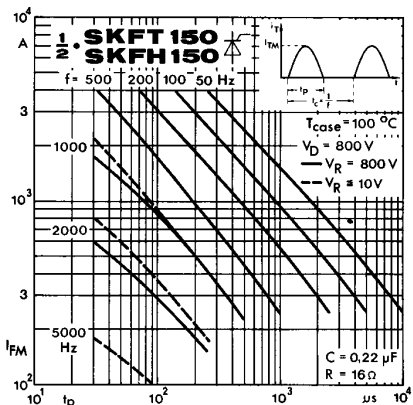


Fig. 1 c Rated peak on-state current vs. pulse duration

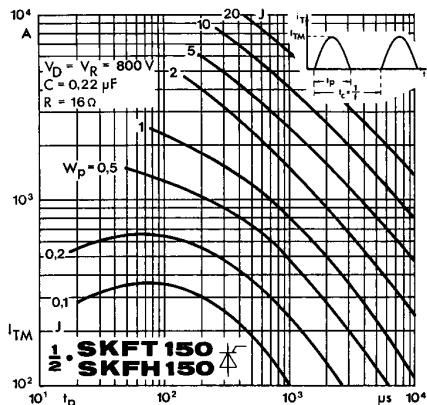


Fig. 2 Energy dissipation per pulse

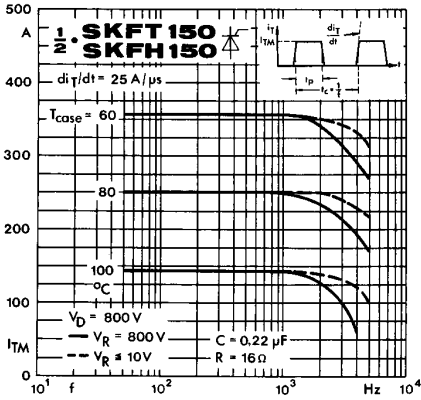


Fig. 3 a Rated peak on-state current vs. pulse duration

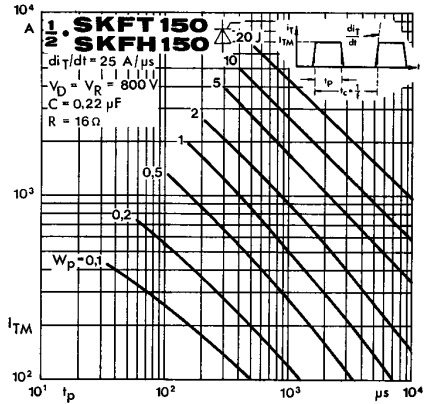


Fig. 4 a Energy dissipation per pulse

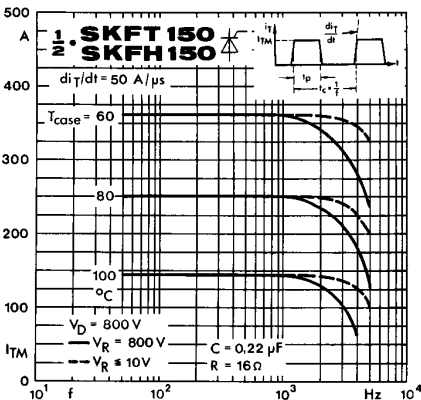


Fig. 3 b Rated peak on-state current vs. pulse duration

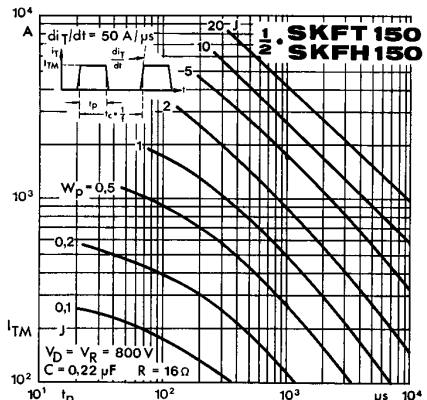


Fig. 4 b Energy dissipation per pulse

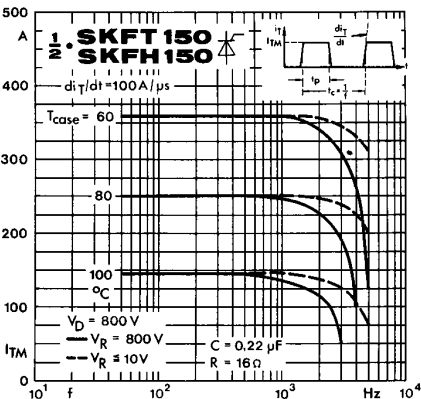


Fig. 3 c Rated peak on-state current vs. pulse duration

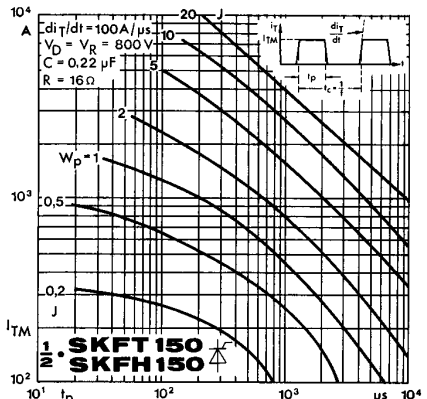


Fig. 4 c Energy dissipation per pulse

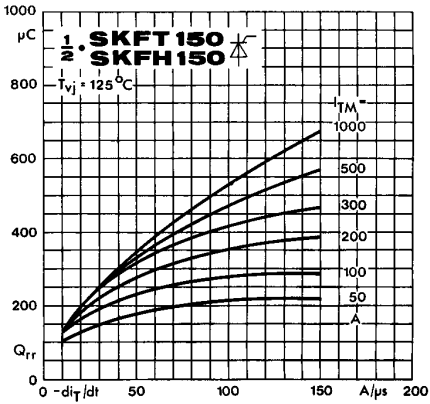


Fig. 5 Recovered charge vs. current decrease

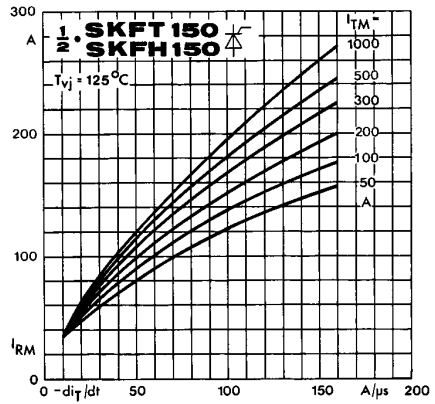


Fig. 6 Peak recovery current vs. current decrease

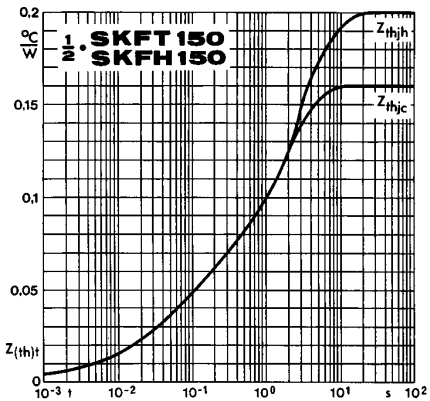


Fig. 7 Transient thermal impedance vs. time

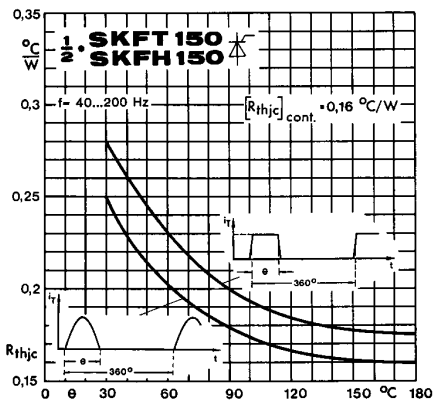


Fig. 8 Thermal resistance vs. conduction angle, 40...200 Hz

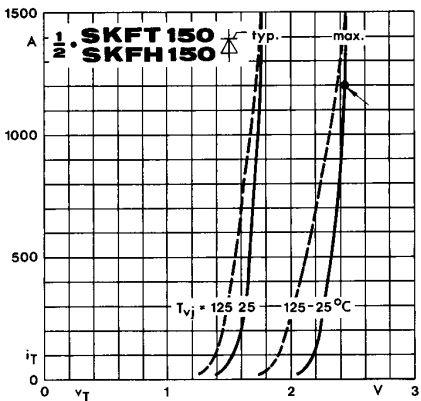


Fig. 9 On-state characteristics

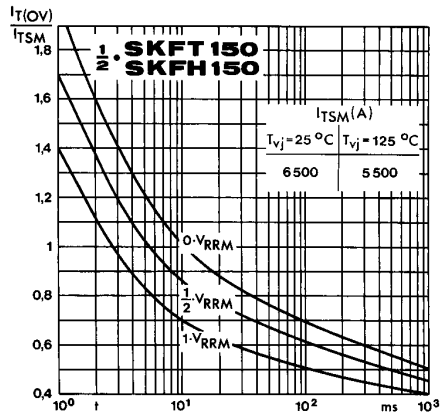


Fig. 10 Surge overload current vs. time

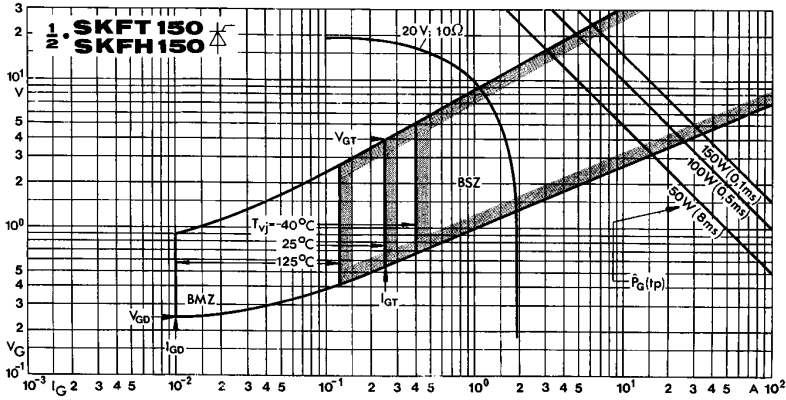


Fig. 11 Gate trigger characteristics

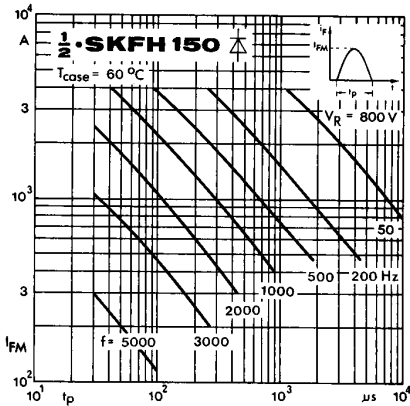


Fig. 12 a Rated sinusoidal peak forward current

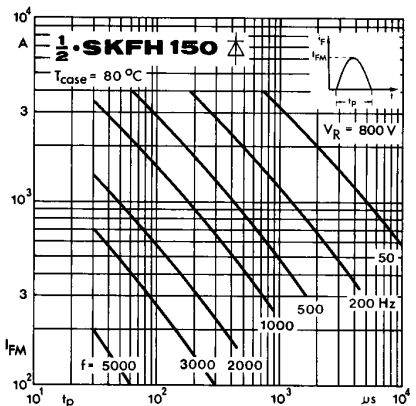


Fig. 12 b Rated sinusoidal peak forward current

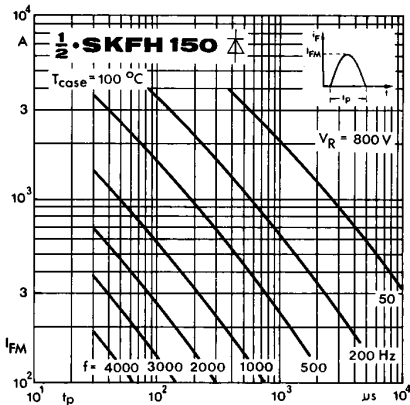


Fig. 12 c Rated sinusoidal peak forward current

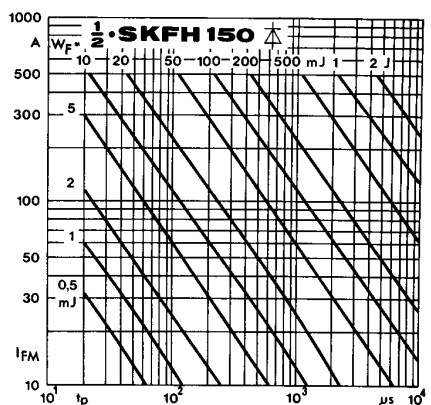


Fig. 13 Forward energy dissipation, sinusoidal

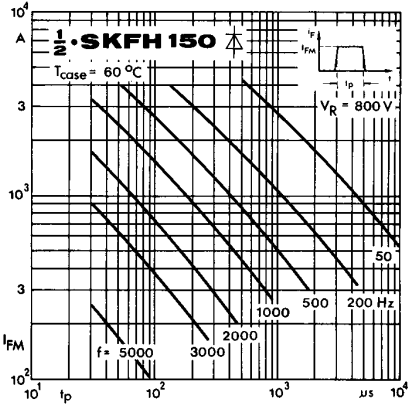


Fig. 14 a Rated rectangular peak forward current

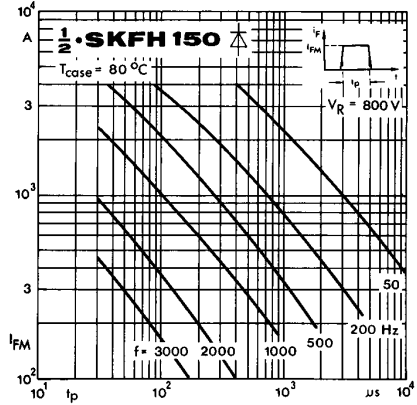


Fig. 14 b Rated rectangular peak forward current

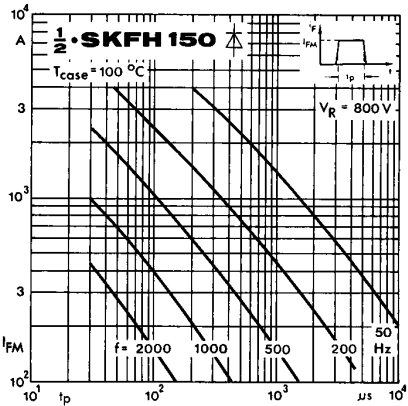


Fig. 14 c Rated rectangular peak forward current

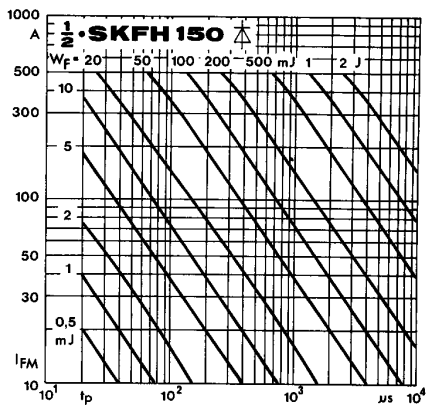


Fig. 15 Forward energy dissipation, rectangular

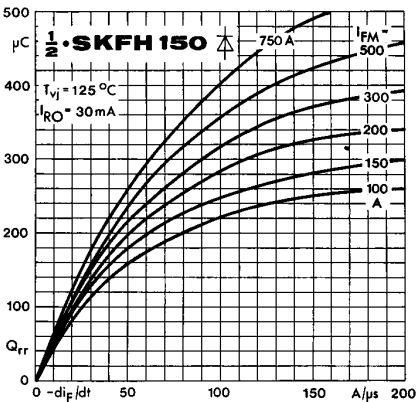


Fig. 16 Recovered charge vs. current decrease

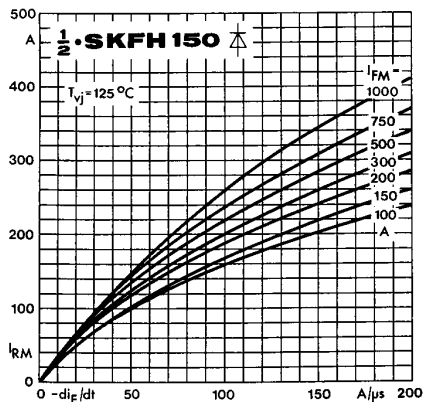


Fig. 17 Peak recovery current vs. current decrease

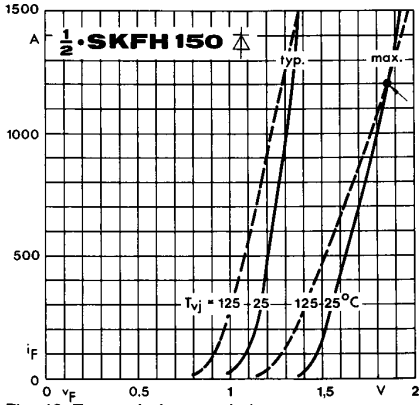


Fig. 19 Forward characteristics

