

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	μs	I_{TAV} (sin. 180; $T_{case} = 76\text{ °C}$; 50 Hz) 150 A	
800	15	SKFT 150/08 DS SKFT 150/08 DT	SKFH 150/08 DS SKFH 150/08 DT
1000	15	SKFT 150/10 DS ¹⁾	–



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	μs
t_{gr}	$V_D = 0,67 \cdot V_{DRM}$	1	μs
$(di/dt)_{cr}$	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	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	mA
V_{GT}	$T_{vj} = 25\text{ °C}$	4	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



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	μs
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	μC
I_{RM}		175	A
I_R	$T_{vj} = 125\text{ °C}$; $V_R = V_{RRM}$	80	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	$\text{m}\Omega$

¹⁾ Available in limited quantities

Common data

Symbol	Conditions	SKFT 150 SKFH 150
R _{thjc} R _{thch} T _{vj} T _{stg}	cont. } per thyristor/per module	0,16/0,08 °C/W 0,04/0,02 °C/W -40 ... + 125 °C -40 ... + 125 °C
V _{isol} M ₁ M ₂ 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

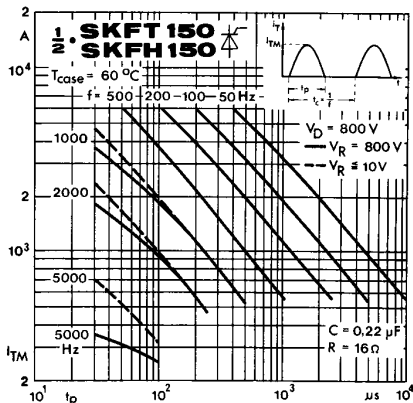


Fig. 1 a Rated peak on-state current vs. pulse duration

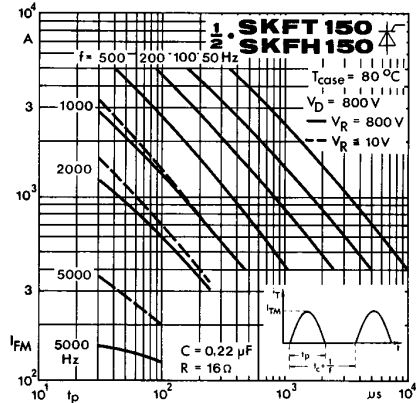


Fig. 1 b Rated peak on-state current vs. pulse duration

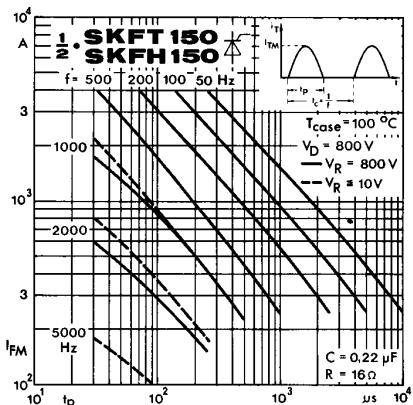


Fig. 1 c Rated peak on-state current vs. pulse duration

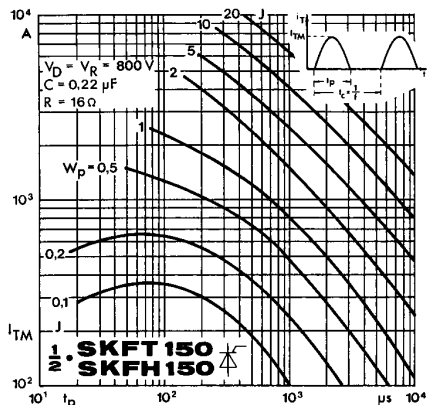


Fig. 2 Energy dissipation per pulse

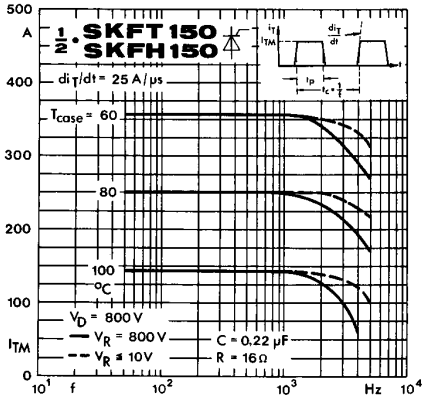


Fig. 3 a Rated peak on-state current vs. pulse duration

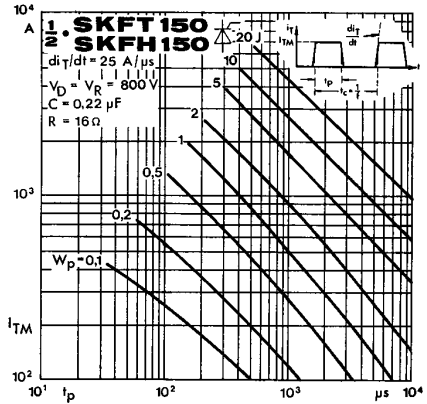


Fig. 4 a Energy dissipation per pulse

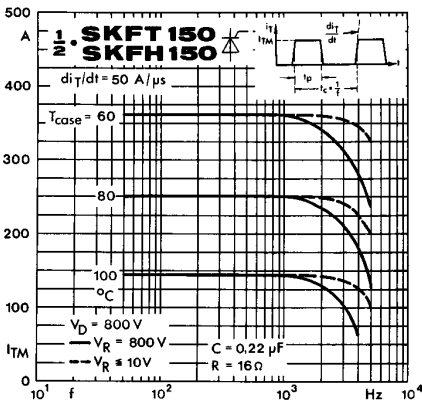


Fig. 3 b Rated peak on-state current vs. pulse duration

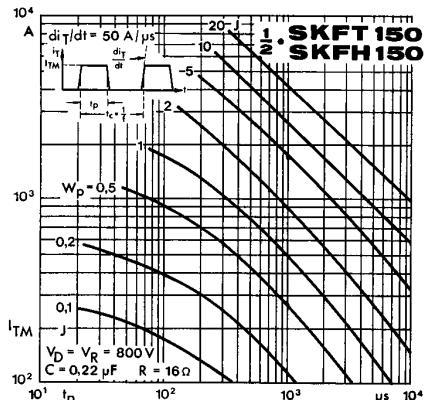


Fig. 4 b Energy dissipation per pulse

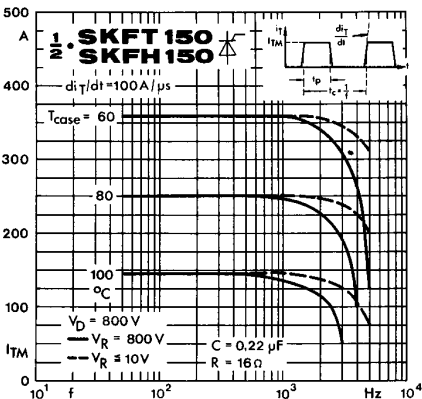


Fig. 3 c Rated peak on-state current vs. pulse duration

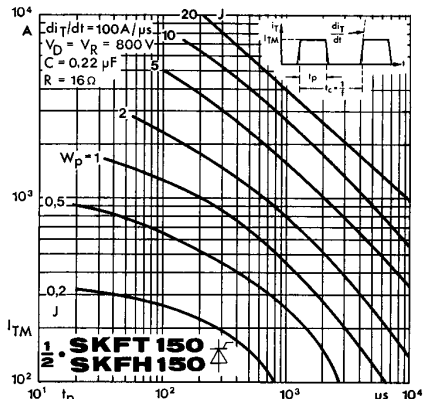


Fig. 4 c Energy dissipation per pulse

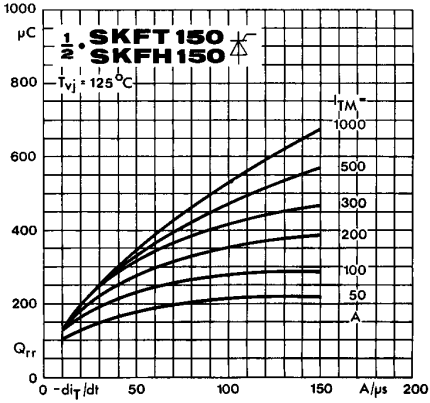


Fig. 5 Recovered charge vs. current decrease

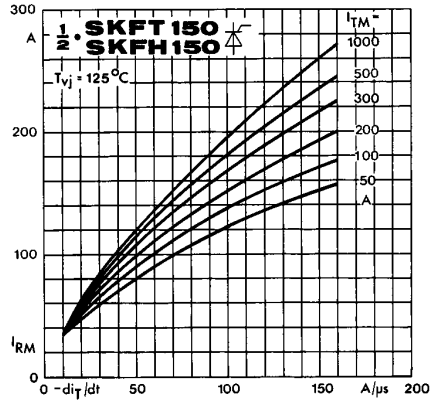


Fig. 6 Peak recovery current vs. current decrease

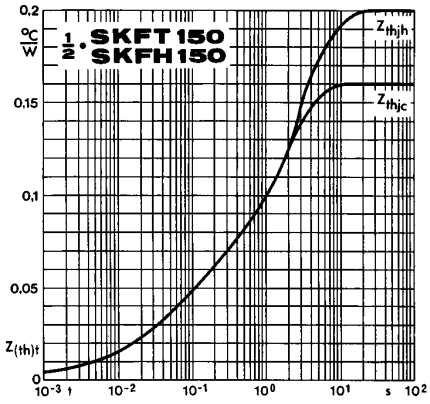


Fig. 7 Transient thermal impedance vs. time

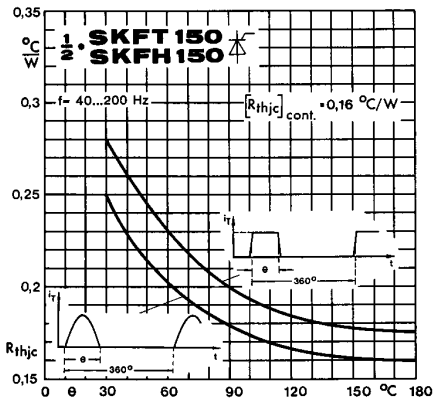


Fig. 8 Thermal resistance vs. conduction angle, 40...200 Hz

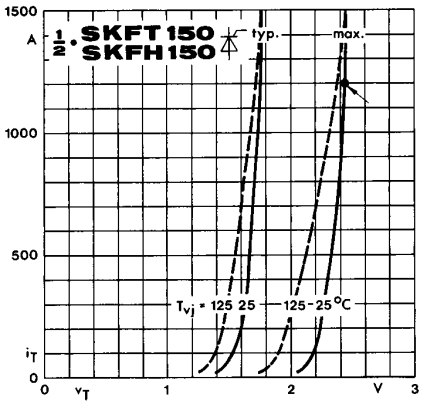


Fig. 9 On-state characteristics

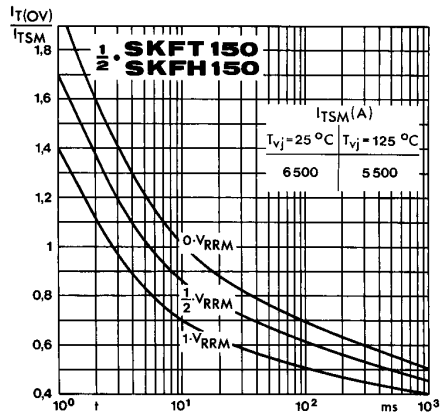


Fig. 10 Surge overload current vs. time

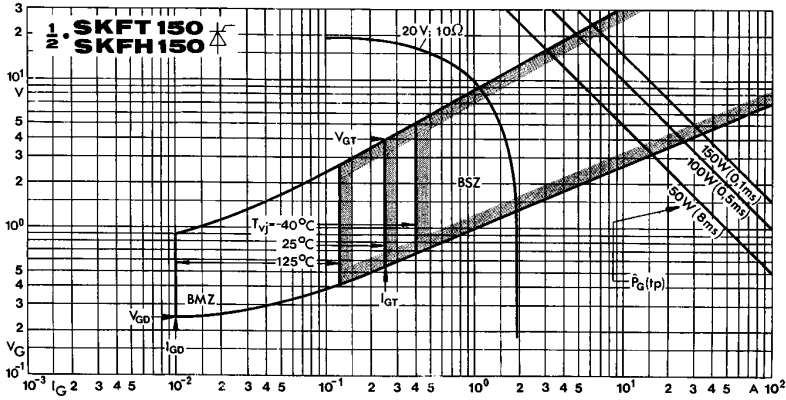


Fig. 11 Gate trigger characteristics

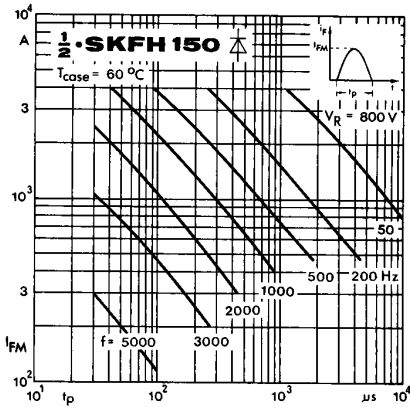


Fig. 12 a Rated sinusoidal peak forward current

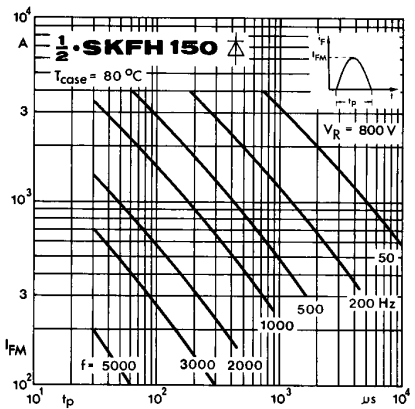


Fig. 12 b Rated sinusoidal peak forward current

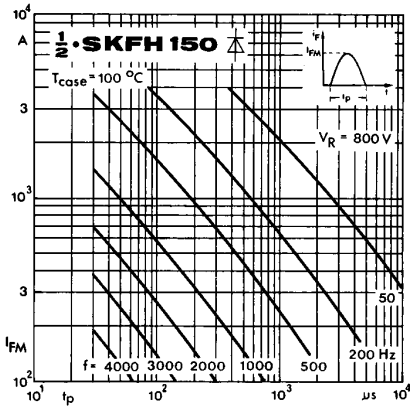


Fig. 12 c Rated sinusoidal peak forward current

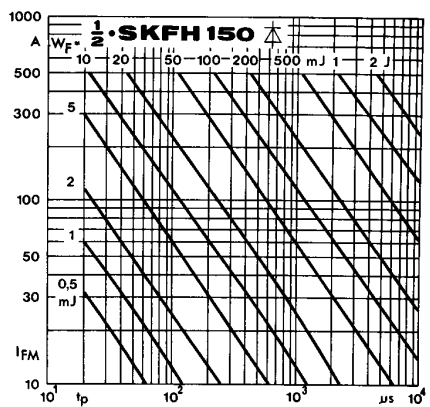


Fig. 13 Forward energy dissipation, sinusoidal

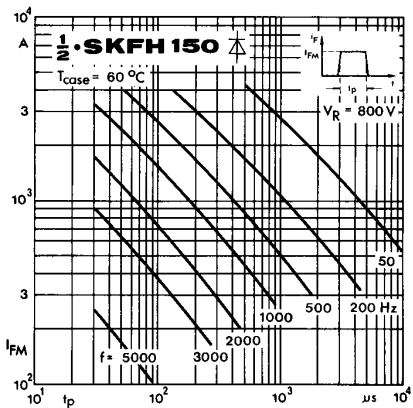


Fig. 14 a Rated rectangular peak forward current

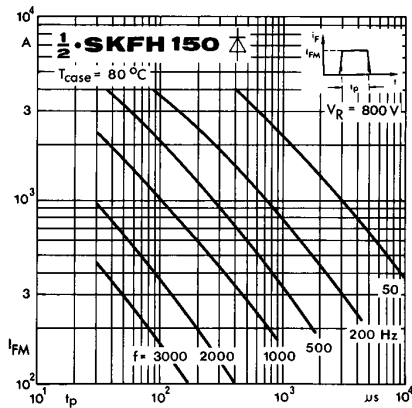


Fig. 14 b Rated rectangular peak forward current

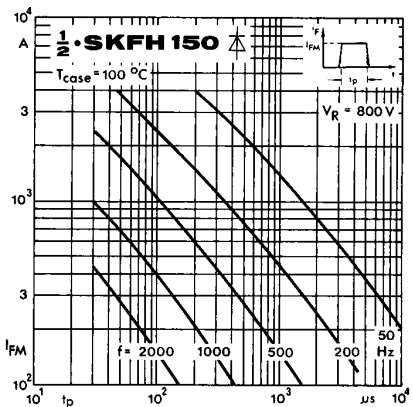


Fig. 14 c Rated rectangular peak forward current

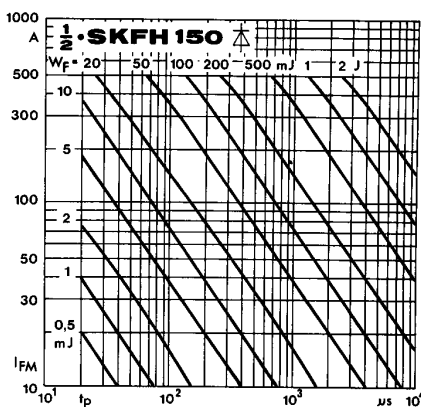


Fig. 15 Forward energy dissipation, rectangular

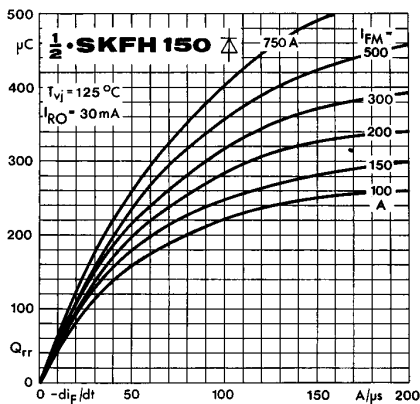


Fig. 16 Recovered charge vs. current decrease

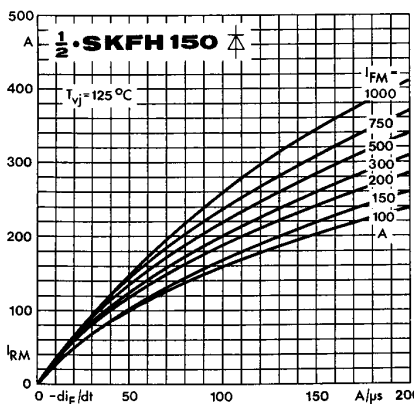


Fig. 17 Peak recovery current vs. current decrease

