

Section 10: High Voltage Rectifiers

V_{RRM}	$V_{(BR)}$	V_{VRMS}	Types	I_{FAV} $T_{amb} = -45^{\circ}C$	I_{FAV} $T_{oil} = 75^{\circ}C$	I_{FN} $T_{amb} = 45^{\circ}C$	V_F $I_F = 1A$	N	R_{thja}
V	V	V		A	A	A	V		$^{\circ}C/W$
6 000	7 500	2 500	HSK E 2500/1100-0,3	0,45	0,45	0,3	5	5	60
8 000	10 000	3 500	HSK E 3500/1550-0,3	0,4	0,4	0,3	7	7	50
12 000	15 000	5 000	HSK E 5000/2200-0,25	0,35	0,35	0,25	10	10	45
8 000	10 000	3 500	HSK E 3500/1550-0,5	0,65	0,78	0,5	8	7	25
12 000	15 000	5 000	HSK E 5000/2200-0,5	0,6	0,72	0,5	11	10	15
16 000	20 000	7 500	HSK E 7500/3300-0,4	0,55	0,66	0,4	16	15	15
24 000	30 000	10 000	HSK E 10000/4500-0,4	0,5	0,6	0,4	20	19	13
32 000	40 000	14 000	HSK E 14000/6300-0,4	0,5	0,6	0,4	27	26	10
40 000	50 000	17 000	HSK E 17000/7600-0,3	0,45	0,54	0,3	32	32	9
8 000	10 000	3 500	HSK E 3500/1550-1,2	1,5	1,8	1,2	8	7	10
12 000	15 000	5 000	HSK E 5000/2200-1,2	1,45	1,75	1,2	11	10	7
16 000	20 000	7 500	HSK E 7500/3300-1,2	1,35	1,6	1,2	16	14	5,5
24 000	30 000	10 000	HSK E 10000/4500-1,2	1,3	1,55	1,2	20	19	5
8 000	10 000	3 500	HSK E 3500/1550-2	2,9	3,5	2,0	9	7	–
7 200	9 000	3 000	SKV 1/2B 3000/2700-1,2¹⁾	0,8	–	0,6	8	7	11
14 000	18 000	6 000	SKV 1/2B 6000/5400-0,5¹⁾	0,45	–	0,25	13	14	11

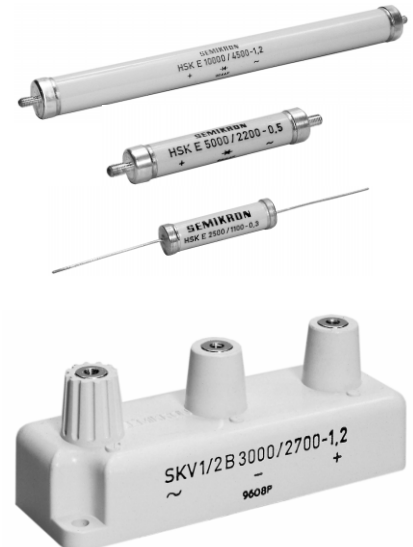
Symbol	Conditions	HSK...- 0,3 - 0,25 - 0,4 - 0,5	HSK...-1,2	HSK...- 2	SKV... ¹⁾
$I_{F(OV)}$	$t_p = 1\text{ s}$ $t_p = 100\text{ ms}$	1 A 2,5 A	2 A 5 A	4 A 10 A	1 A 2,5 A
I_{FSM}	$T_{vj} = 25^{\circ}C$ $T_{vj} = 150^{\circ}C$	60 A 50 A	140 A 120 A	270A 240A	60 A 50 A
i^2t	$T_{vj} = 25^{\circ}C$ $T_{vj} = 150^{\circ}C$	18 A ² s 12,5 A ² s	100 A ² s 72 A ² s	365 A ² s 290 A ² s	18 A ² s 12,5 A ² s
I_R	$T_{vj} = 25^{\circ}C; V_R = V_{RRM}$	5 μA	5 μA	5 μA	5 μA
I_{RSM}	$T_{vj} = 25^{\circ}C; t_p = 10\ \mu s$ $T_{vj} = 150^{\circ}C; t_p = 10\ \mu s$	0,5 A 0,4 A	1 A 0,8 A	2 A 1,6 A	0,5 A 0,4 A
T_{vj} T_{stg}		– 40...+150 $^{\circ}C$ – 40...+150 $^{\circ}C$			– 25...+150 $^{\circ}C$ – 25...+150 $^{\circ}C$
Case		F 1/F 2	F 2	F 2	F 5

¹⁾ All data are given for a single arm

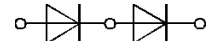
High Voltage Rectifiers < 50 kV

HSK E

SKV 1/2 B



HSK



SKV

Features

HSK E

- Hermetically sealed in ceramic tube
- Suitable for solder or screw connections
- Can be mounted in air or oil
- Avalanche characteristics

SKV 1/2 B

- Series connected pair in plastic housing with screw terminals
- Good arrangement for construction of bridge rectifiers
- Avalanche characteristics

Typical Applications

- High voltage power supplies
- Measuring equipment
- Lasers

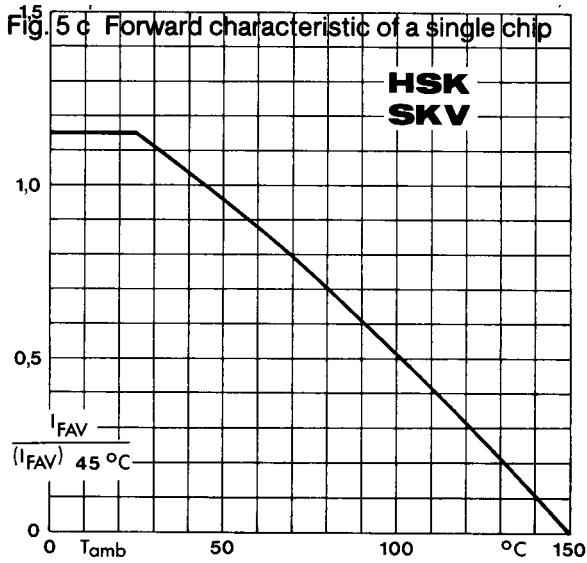


Fig. 1 Rated forward current vs. ambient temperature

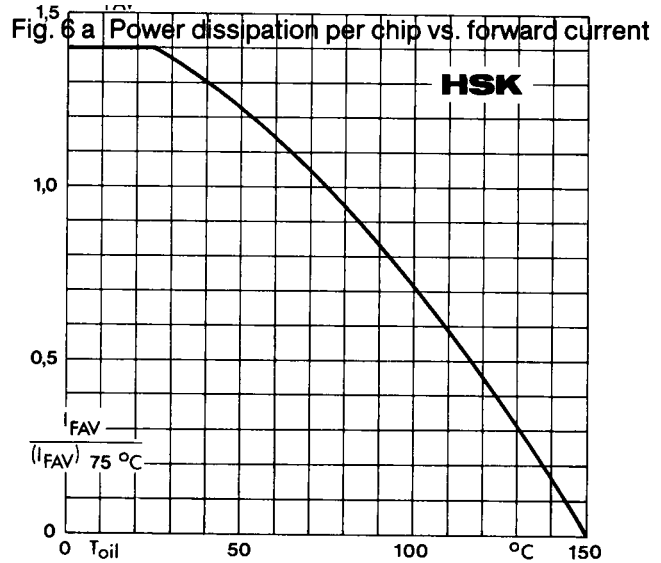


Fig. 2 Rated forward current vs. oil temperature

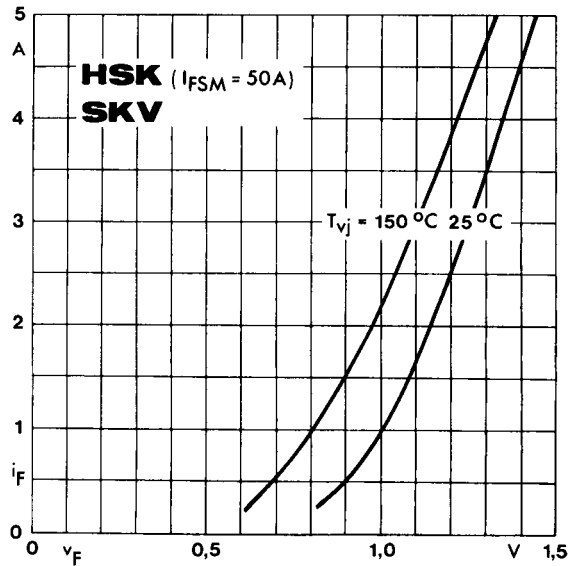


Fig. 5 a Forward characteristic of a single chip

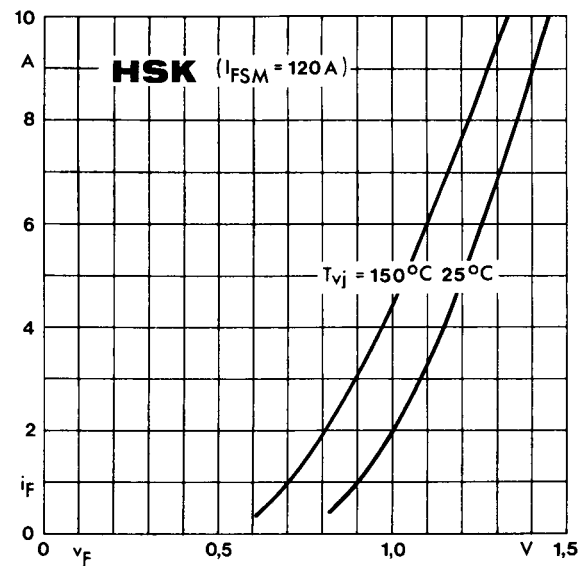
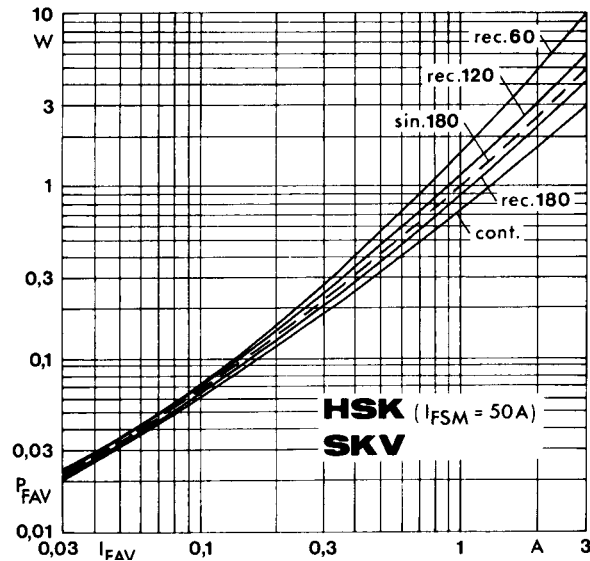
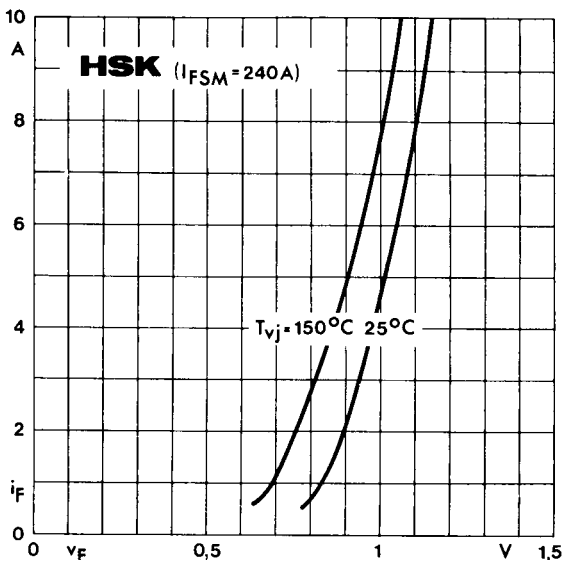


Fig. 5 b Forward characteristic of a single chip



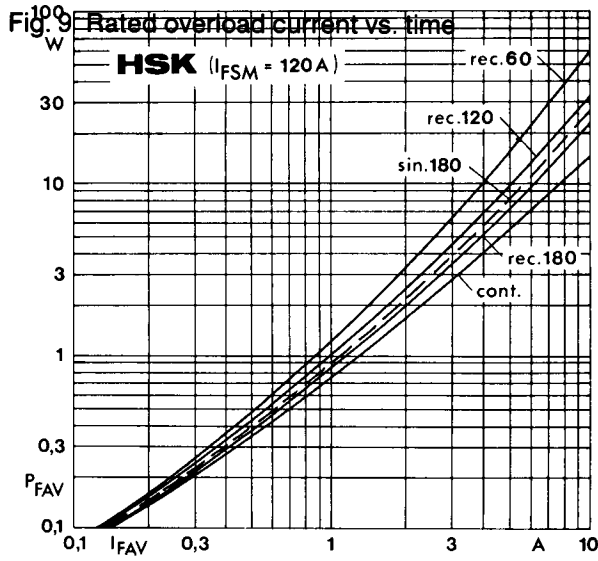


Fig. 6 b Power dissipation per chip vs. forward current

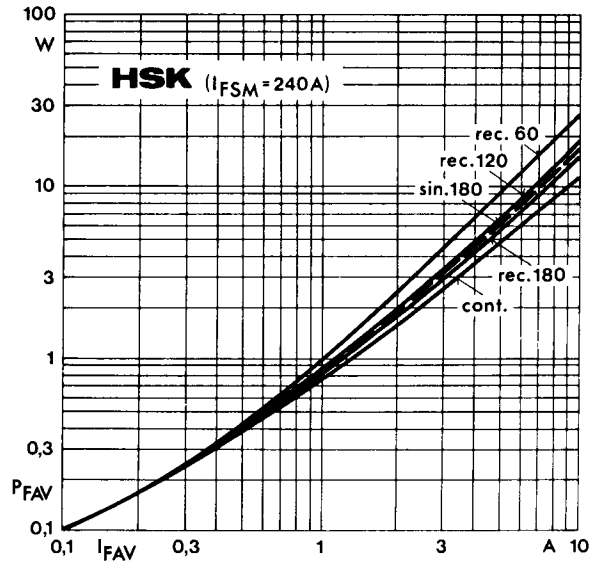
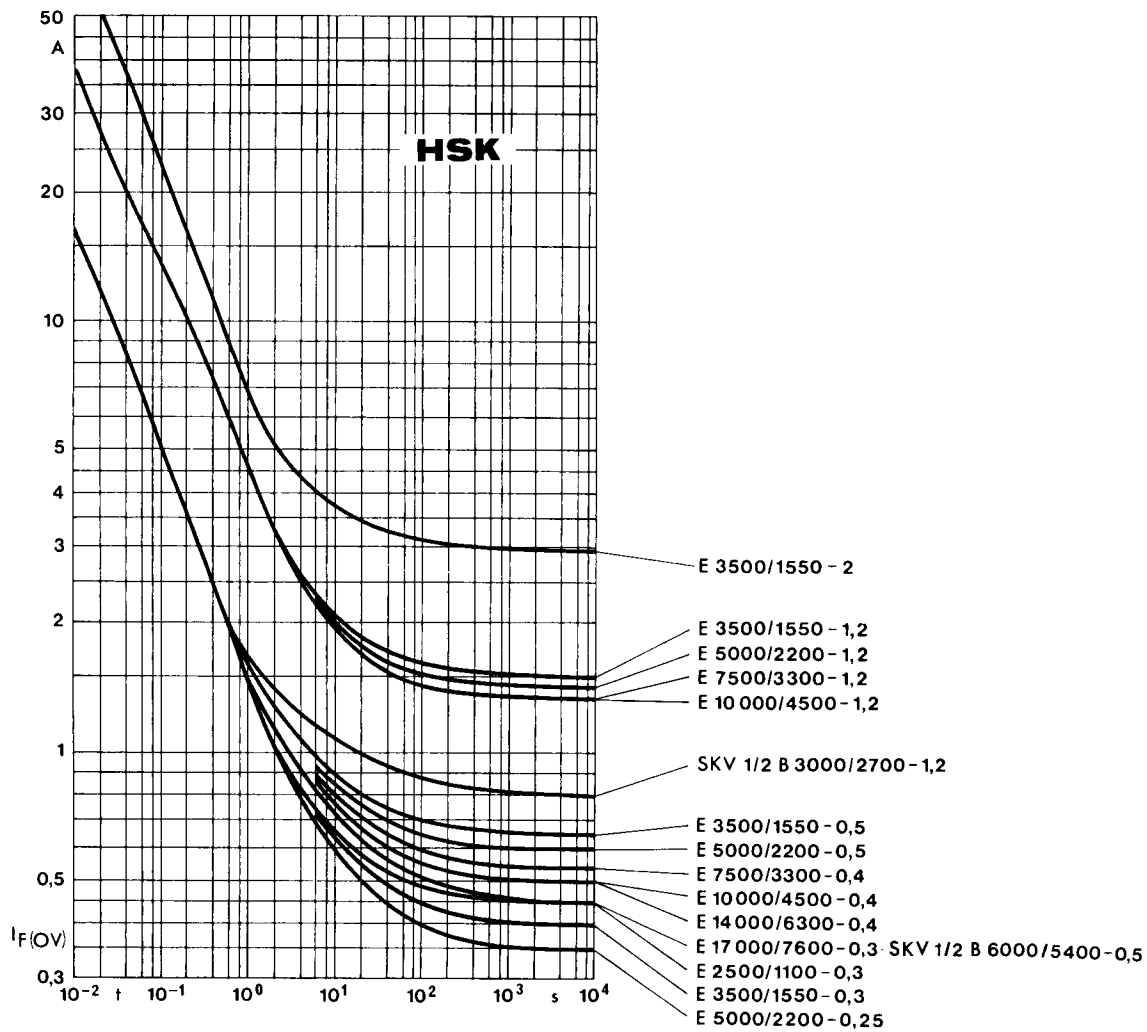


Fig. 6 c Power dissipation per chip vs. forward current



HSK E
Dimensions in mm
Case F 1

three phase bridge assembled
from three SKV modules

Type	L mm	w g
HSK E 2500/1100-03	42	6
HSK E 3500/1550-03	62	9
HSK E 5000/2200-0,25	77	13

Dimensions in mm

HSK E
Case F 2

Type	L mm	Ø D mm	w g
HSK E 3500/1550-0,5	68	15	43
HSK E 5000/2200-0,5	83	15	48
HSK E 7500/3300-0,4	108	15	57
HSK E 10000/4500-0,4	128	15	65
HSK E 14000/6300-0,4	168	15	76
HSK E 17000/7600-0,3	198	15	92
HSK E 3500/1550-1,2	128	21	124
HSK E 5000/2200-1,2	168	21	155
HSK E 7500/3300-1,2	198	21	177
HSK E 10000/4500-1,2	228	21	202
HSK E 3500/1550-2	228	21	212

Dimensions in mm

SKV 1/2 B
Case F 5

Three phase bridge assembled