POWER ELECTRONICS

SINCE 1999

Diodi ad Alta Tensione

High Voltage Rectifiers

01

Dispositivi sigillati ermeticamente in tubi ceramici. Adatti per connessioni a saldare o a serraggio. Possono essere montati in aria o in olio. Dispositivi con carattersitiche a valanga. Da 2,5 KV a 180 KV.

Hermetically sealed in ceramic tubes devices. Suitable for solder or screw connections or clip-on contacts. They can be mounted in air or oil. Avalanche characteristics. From 2,5 KV to 180 KV.

CARATTERISTICHE TECNICHE COME PUNTI DI FORZA	> Tensioni da 2,5 KV a 180 KV > Correnti da 0,25 A a 30 A > Sigillati ermeticamente in tubi ceramici > Adatti per connessioni a saldare o a serraggio > Possono essere montati in aria o in olio > Caratteristica a valanga > Ingombro ridotto
CAMPI DI APPLICAZIONE	> Elettromedicale > Test qualità isolamento cavi elettrici > Apparecchiature Laser > Apparecchiature a Raggi X > Film sottile > Alimentatori HV > Attrezzatura misura AT

OCRAM si distingue per questi plus di prima qualità: la capacità di **personalizzare ogni strumento modellandolo sulle esigenze del cliente anche per pezzi singoli;** l'assoluta **sicurezza in fase operativa** che garantisce l'incolumità da qualsiasi danno; **la puntualità nelle consegne** (zero delay policy) e una accurata assistenza al cliente pre e post vendita.

PUNTI DI FORZA ED APPLICAZIONI

> **AC/DC**

ALIMENTATORI

TECHNICAL SPECS AS STRENGTHS	> *2,5 KV÷180 KV* > *0,25 A ÷ 30 A* > *Hermetically sealed in ceramic tubes* > *Suitable for solder or screw connections* > *Can be mounted in air or oil* > *Avalanche characteristics* > *Reduced overall dimensions*
APPLICATION FIELDS	> *Diagnostic medical equipments* > *High Voltage power supplies* > *Lasers* > *X-Ray equipment* > *Electronic beam welding* > *Electrostatic precipitators* > *Cable test Equipments*

OCRAM *provides its customers with the highest quality standards.*

We can satisfy our customers' needs by ***dimensionally customizing our devices,*** *guaranteeing the most accurate operational safety standards, in pursuing a* ***zero delay policy*** *and ensuring a total customer care.*

STRENGTHS AND APPLICATIONS

> **AC/DC**

POWER SUPPLIES

DIODI AD ALTA TENSIONE

HIGH VOLTAGE RECTIFIERS

V_{RRM} V	$V_{(BR)}$ V	V_{VRMS} V	Types	I_{FAV} T_{amb}= 45°C A	I_{FAV} T_{oil}= 45°C A	I_{FN} T_{amb}= 45°C A	V_F I_F =1A V	N	R_{thja} °C/W
High Voltage Rectifiers < 50 kV HSK E									
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	-

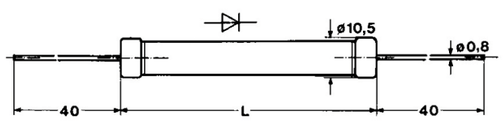
Symbol	Conditions	HSK...-0,3 -0,25 -0,4 -0,5	HSK...-1,2	HSK...-2
$I_{F(OV)}$	tp = 1 s tp = 100 ms	1 A 2,5 A	2 A 5 A	4 A 10 A
I_{FSM} i^2t	Tvj = 25 °C Tvj = 150 °C Tvj = 25 °C Tvj = 150 °C	60 A 50 A 18 A^2s 12,5 A^2s	140 A 120 A 100 A^2s 72 A^2s	270 A 240 A 365 A^2s 290 A^2s
I_R I_{RSM}	Tvj = 25 °C: $V_R = V_{RRM}$ Tvj = 25 °C: t_p = 10 µs Tvj = 150 °C: t_p = 10 µs	5 µA 0,5 A 0,5 A	5 µA 1 A 0,8 A	5 µA 2 A 1,6 A
Tvj Tstg		- 40...+150 °C - 40...+150 °C		
Case		F 1/F 2	F 2	F 2

> TECHNICAL DATA

< 50 kV HSK E

> DS_OCR_03
REV.00 – 22/04/2010

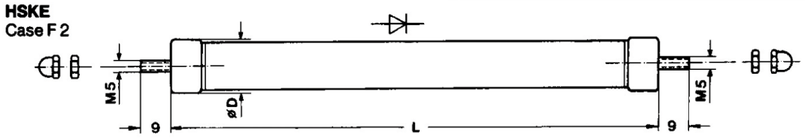
HSK E
Case F 1



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

HSKE
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		48
HSK E 7500/3300-0,4	108		57
HSK E 10000/4500-0,4	128		65
HSK E 14000/6300-0,4	168		76
HSK E 17000/7600-0,3	198		92
HSK E 3500/1550-1,2	128	21	124
HSK E 5000/2200-1,2	168		155
HSK E 7500/3000-1,2	198		177
HSK E 10000/4500-1,2	228		202
HSK E 3500/1550-2	228	21	212

Dimensions in mm

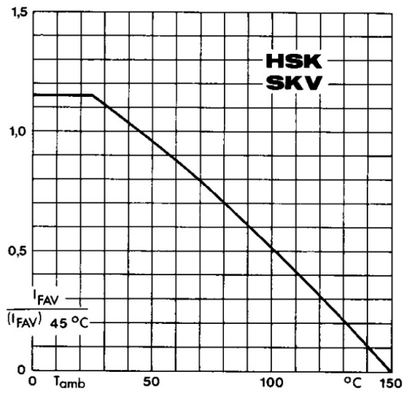


Fig. 1 Rated forward current vs. ambient temperature

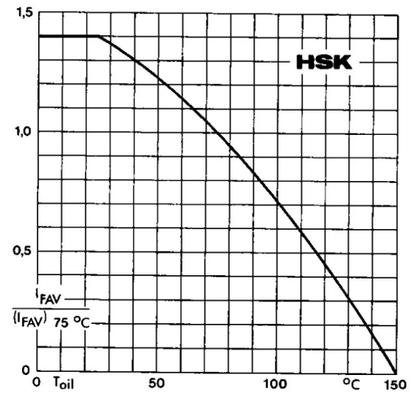


Fig. 2 Rated forward current vs. oil temperature

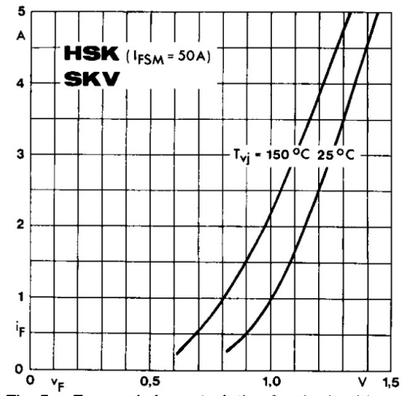


Fig. 5 a Forward characteristic of a single chip

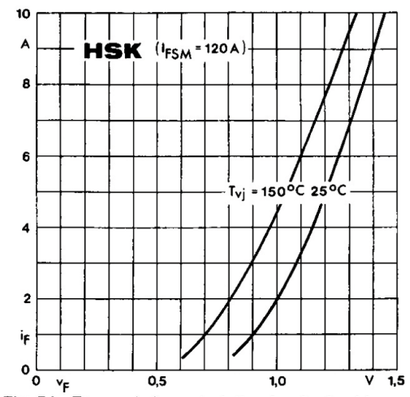


Fig. 5 b Forward characteristic of a single chip

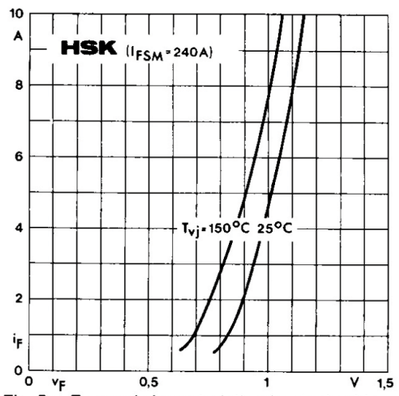


Fig. 5 c Forward characteristic of a single chip

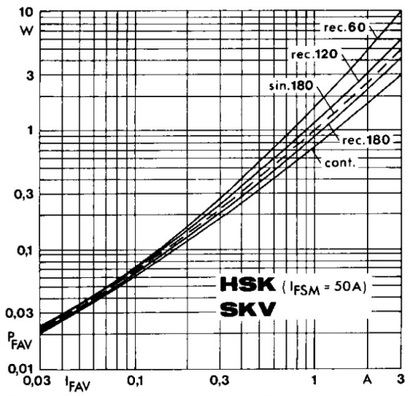


Fig. 6 a Power dissipation per chip vs. forward current

> TECHNICAL DATA

< 50 kV HSK E

> DS_OCR_O3
REV.00 – 22/04/2010

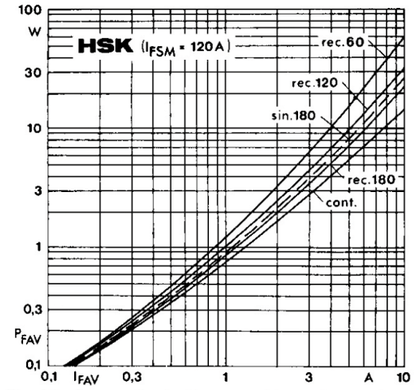


Fig. 6 b Power dissipation per chip vs. forward current

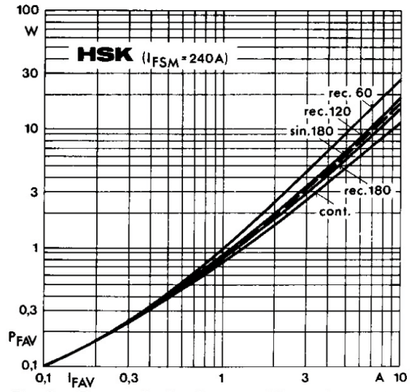


Fig. 6 c Power dissipation per chip vs. forward current

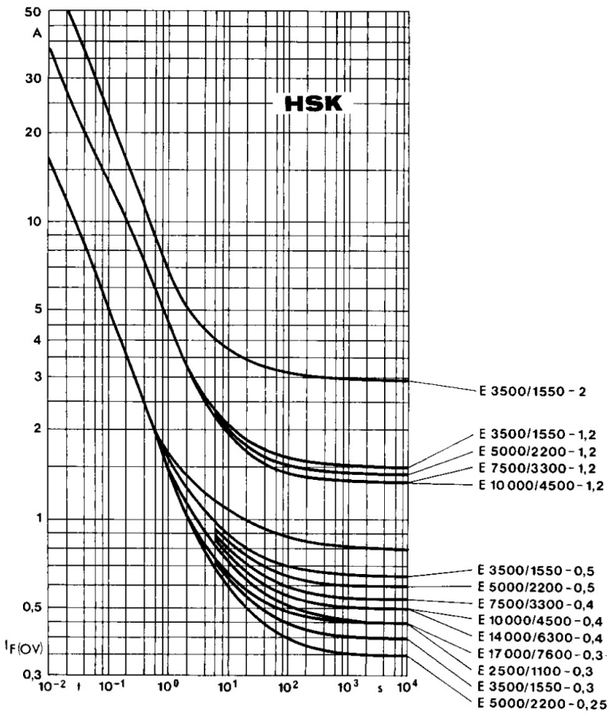


Fig. 9 Rated overload current vs. time

DIODI AD ALTA TENSIONE

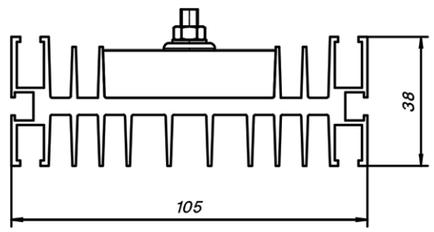
HIGH VOLTAGE RECTIFIERS

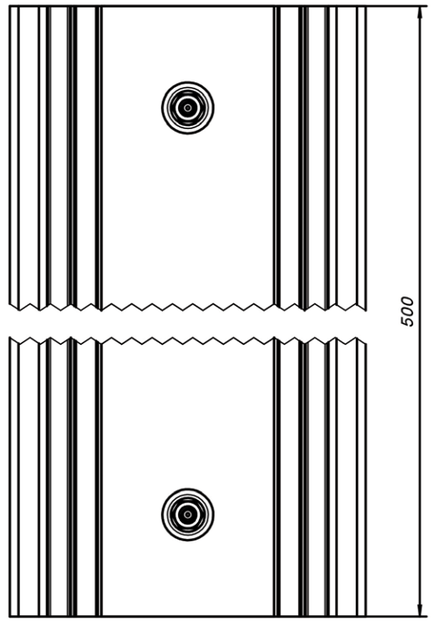
Symbol	Conditions	Values	Units
HSKE 8000/3600-30 A			
IFav	Tamb. 40°C	30	A
IFsm	Tvj 25°C; 10ms	2500	A
IFsm	Tvj 180°C; 10ms	2000	A
I^2t	Tvj=25°C; 8,3... 10ms	31000	A^2s
I^2t	Tvj=180°C; 8,3... 10ms	20000	A^2s
Vf	Tvj=25°C; If=500A	max. 13,5	V
V(to)	Tvj 180°C	max. 7,65	V
Visol	To heatsink	30000	V~
Vrrm		20000	V
Weight		2	Kg
Dimensions		500 x 105 x 43,50	mm

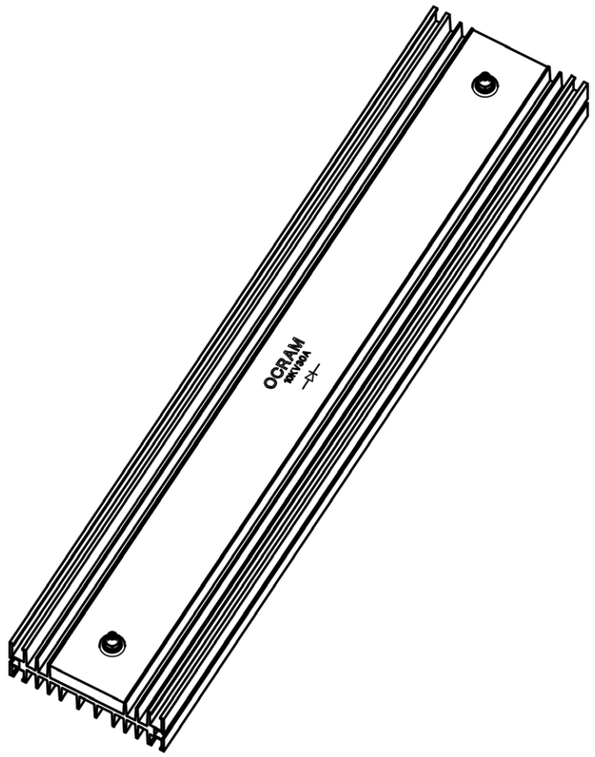
> TECHNICAL DATA

HSKE 8000/3600-30 A

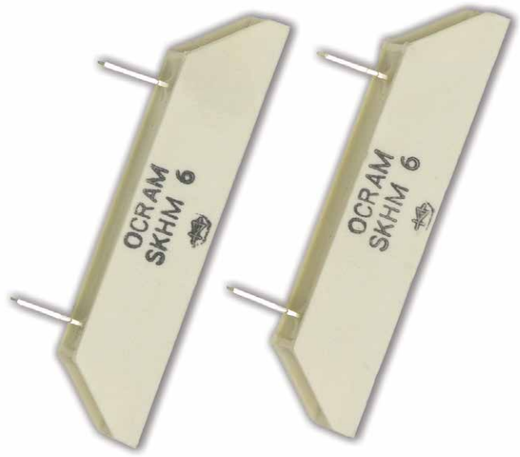
DS_OCR_08
REV.00 - 10/02/2015

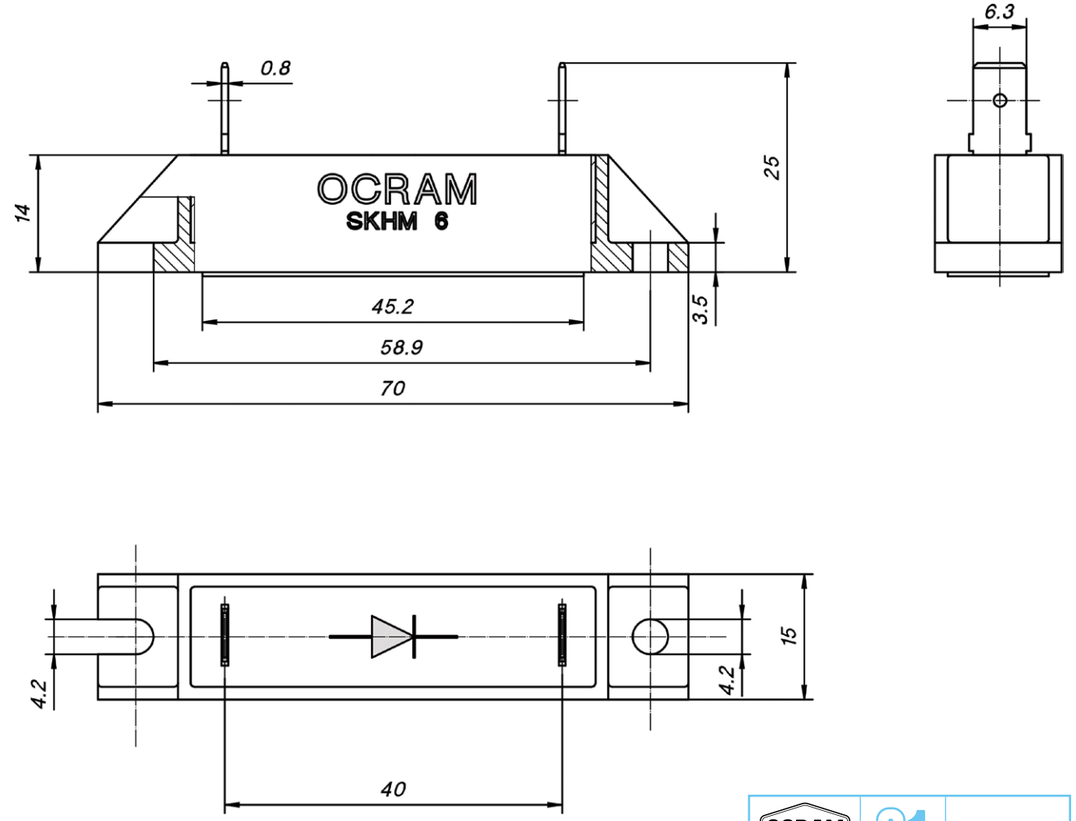






Parameters	Conditions	Values	Units
SKHM6			
Vrsm		6000	V
Vrrm		6000	V
IFav	Tcase = 49°C, sin. 180°C	6,4	A
IFav	Tcase = 45°C, rec. 180°C	7	A
IFrms		10	A
IFsm	Tvj = 25°C	60	A
IFsm	Tvj = 130°C	50	A
I^2t	Tvj = 25°C	18	A^2s
I^2t	Tvj = 130°C	12,5	A^2s
Ir	Tvj = 25°C	max. 2	µA
Vf	If = 10A	max. 8	V
V(to)	Tvj = 130°C	5	V
rf	Tvj = 130°C	300	mΩ
Rthja		25	°C/W
Rthjc		1,3	°C/W
Rthch		0,5	°C/W
Tvj		da -25 a +130	°C
Tstg		da -25 a +150	°C
Weight		ca. 23	g
Visol		9000	V~





DIODI AD ALTA TENSIONE

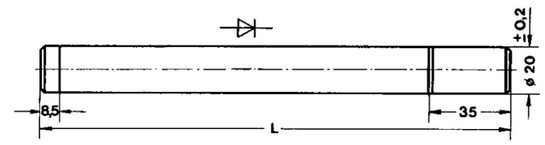
HIGH VOLTAGE RECTIFIERS

V_{RRM} V	$V_{(BR)}$ V	V_{RWM} V	Types	V_F I_F = 30 A V	N	R_{thjoil} °C/W
High Voltage Rectifiers 80 ÷ 180 KV SKXA						
80 000	100 000	75 000	SKXA 75 000	160	54	2,6
80 000	100 000	75 000	SKXA 75 M	210	61	2,3
105 000	130 000	100 000	SKXA 100 M	225	74	2,2
160 000	200 000	150 000	SKXA 150 M	340	108	1,4
180 000	220 000	170 000	SKXA 180 M	340	108	1,4

Symbol	Conditions	SKXA
I_{FAV}	T_{oil} = 75°C	0,35 A
I_{FN}	T_{amb} = 45°C	0,28 A
$I_{F(OV)}$	tp = 1s tp = 100 ms	2,6 A 7,5 A
I_{FSM}	Tvj = 25 °C; 10 ms Tvj = 125 °C; 10 ms	100 A 90 A
i^2t	Tvj = 25 °C; 8,3 ... 10 ms Tvj = 125 °C; 8,3 ... 10 ms	50 A^2s 40 A^2s
I_R	Tvj = 25 °C; V_R = V_{RRM}	1,5 µA
Tvj Tstg		- 40...+125 °C - 40...+125 °C
Case		F3

80 ÷ 180 kV SKXA

SKXA
Case F 3



Type	L^{+1}_{-2} mm	w g
SKXA 75000	124	105
SKXA 75 M	142	118
SKXA 100 M	170	143
SKXA 150 M	230	192
SKXA 180 M	230	192

Dimensions in mm

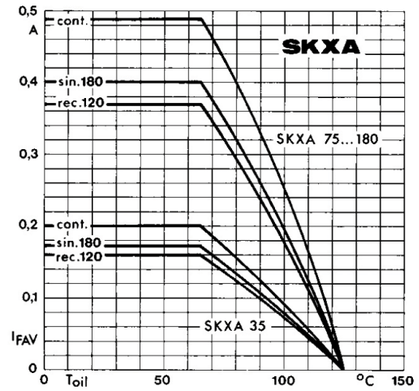


Fig. 3 Rated forward current vs. oil temperature

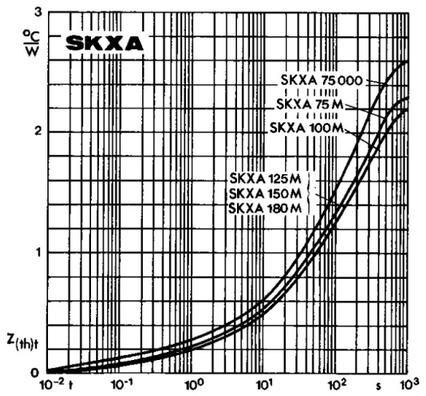


Fig. 4 b Transient thermal impedance vs. time

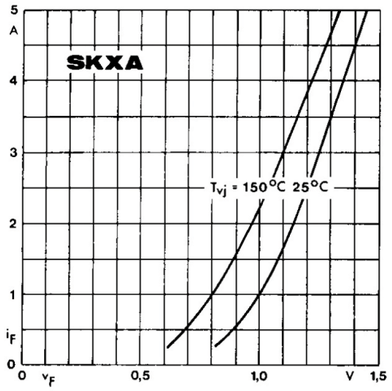


Fig. 5 Forward characteristic of a single chip

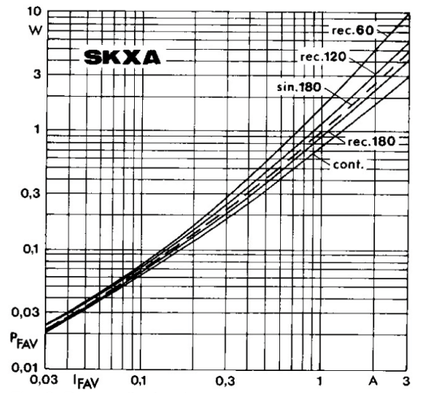


Fig. 6 Power dissipation per chip vs. forward current

> TECHNICAL DATA

80 ÷ 180 kV SKXA

> DS_OCR_O4
REV.00 – 22/04/2010

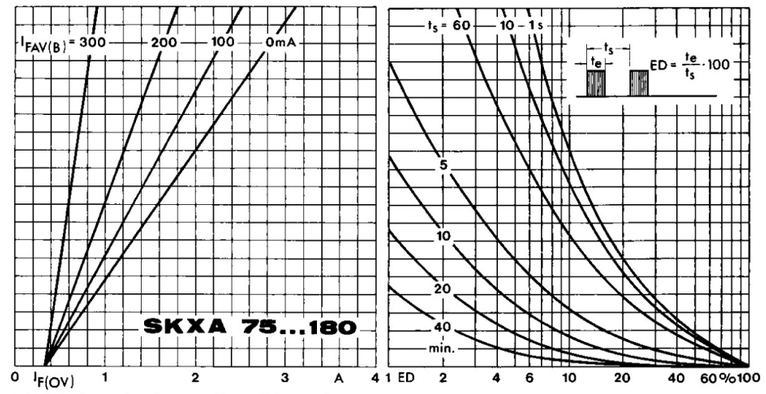


Fig. 7 Rated overload current vs. duty cycle

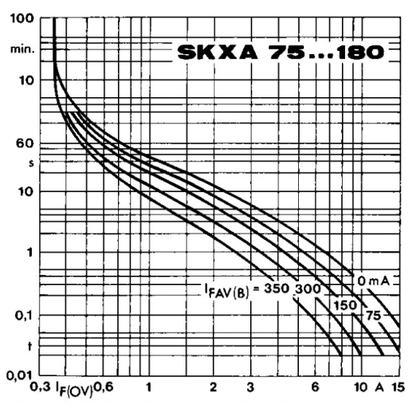


Fig. 8 Rated overload current vs. time

CONTATTI

CONTACTS

Ocram S.r.l. - Power Electronics
Via Rovigo, 1 - 36031 Dueville (VI)
Italy
Tel. +39 0444.946448
Fax +39 0444.298900

info@ocramitaly.it
www. ocramitaly.it

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