V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 3 A			6,7 A		
	I_{FAV} (sin. 180; T_{amb} = 45 °C) 1,15 A			1,8 A		
V	**Types**	$C_{max.}$ µF	$R_{min.}$ Ω	**Types**	$C_{max.}$ µF	$R_{min.}$ Ω
1000	**SK 1/10**	500	4	**SK 3/10**	2000	1
1200	**SK 1/12**	400	6	**SK 3/12**	1600	2
1400	**SK 1/14**	300	8	**SK 3/14**	1200	3
1600	**SK 1/16**	200	10	**SK 3/16**	800	4
$V_{(BR)}$ min	**Avalanche Types**					
1300	**SKa 1/13**	400	6	**SKa 3/13**	1600	2
1700	**SKa 1/17**	200	10	**SKa 3/17**	800	4

Symbol	**Conditions**	**SK 1 SKa 1**	**SK 3 SKa 3**	**Units**
I_{FAV}	T_{ref} = 85 °C; L = 10 mm; sin. 180	1,45	3,3	A
	T_{amb} = 45 °C; p.c.b. 50 x 50 mm	1,15	1,8	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	60	180	A
	T_{vj} = 150 °C; 10 ms	50	150	A
i^2t	T_{vj} = 25 °C; 8,3 . . . 10 ms	18	162	A^2s
	T_{vj} = 150 °C; 8,3 . . . 10 ms	12,5	112,5	A^2s
Q_{rr}	T_{vj} = 150 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$;			
	I_F = 10 A; V_R = 100 V; typ.	10	25	µC
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$ / $V_{(BR)min}$	4	4	µA
	T_{vj} = 150 °C; $V_R = V_{RRM}$ / $V_{(BR)min}$	400	600	µA
P_{RSM}	SKa-Types only			
	T_{vj} = 150 °C; t_p = 10 µs	1	3	kW
V_F	T_{vj} = 25 °C; I_F = 10 A; max.	1,5	1,2	V
$V_{(TO)}$	T_{vj} = 150 °C	0,85	0,85	V
r_T	T_{vj} = 150 °C	75	30	mΩ
C_j	V_R = 0; f = 1 MHz; typ.	45	110	pF
R_{thjr}	L = 10 mm	40	18	°C/W
R_{thja}	p.c.b. 50 x 50 mm	85	60	°C/W
T_{vj}		– 40 ... + 150		°C
T_{stg}		– 40 ... + 150		°C
T_{solder}	max. 10 s; L ≥ 9 mm	250		°C
a		5 · 9,81		m/s^2
w	approx.	0,5	1	g

Rectifier Diodes

SK 1 **SK 3**
SKa 1 **SKa 3**

Features

- Axial lead diodes
- Taped for automatic insertion
- Available with formed leads on request
- Plastic material carries Underwriters Laboratories flammability classification 94V-0

SKa types

- Avalanche type reverse characteristics
- Minimum avalanche breakthrough voltages 1300 V and 1700 V
- Transient voltage proof within specified limits

Typical Applications

- All-purpose rectifier diodes
- For p.c.b. mounting

SKa types

- DC supply for magnets or solenoids (brakes, valves, etc.)
- Series connections for high voltage applications (dust precipitators)

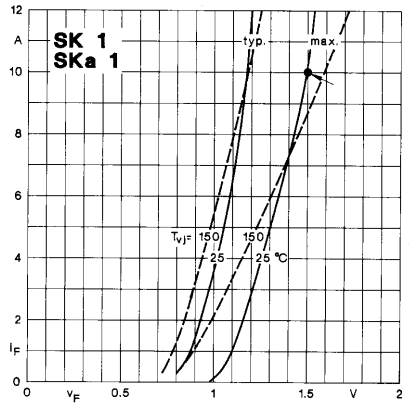


Fig. 6 a Forward characteristics

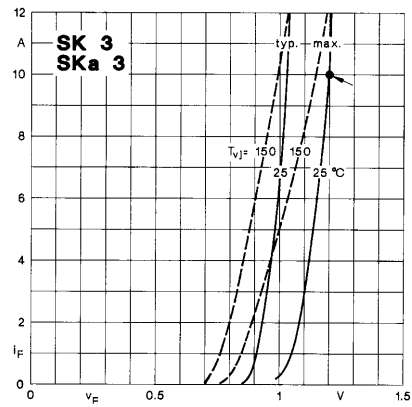


Fig. 6 b Forward characteristics

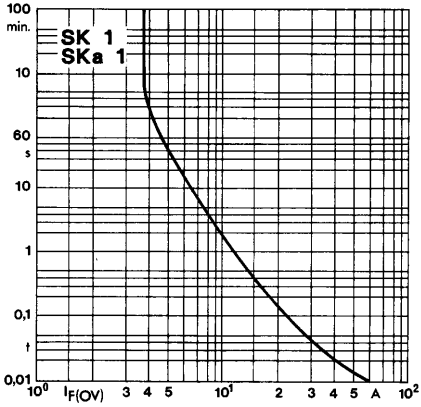


Fig. 10 a Rated overload current vs. time

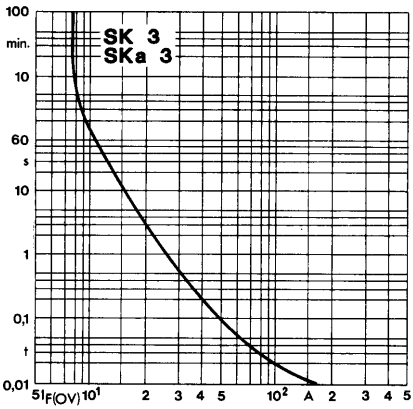


Fig. 10 b Rated overload current vs. time

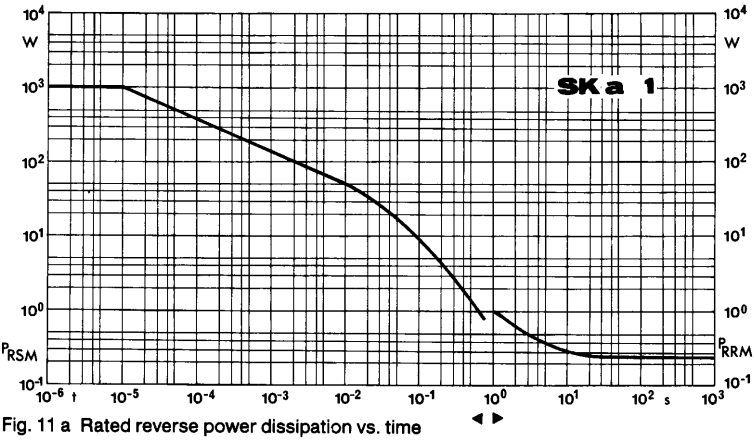


Fig. 11 a Rated reverse power dissipation vs. time

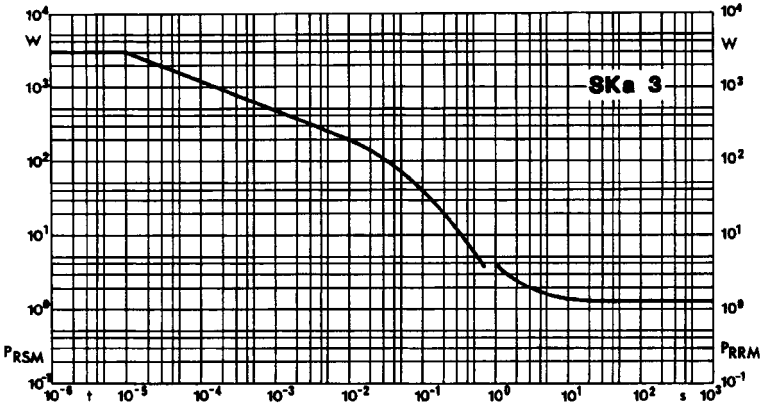


Fig. 11 b Rated reverse power dissipation vs. time

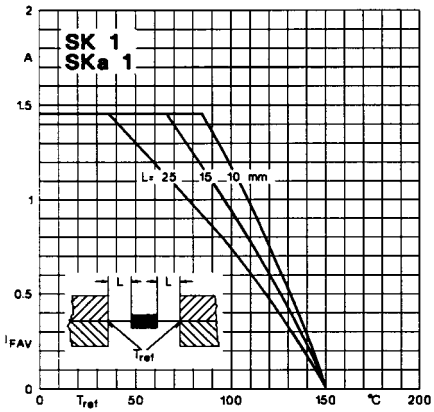


Fig. 14 a Rated forward current vs. reference temp.

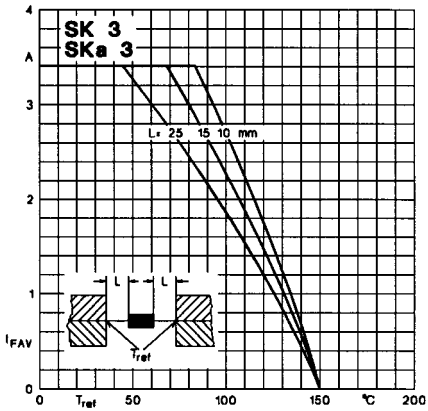


Fig. 14 b Rated forward current vs. reference temp.

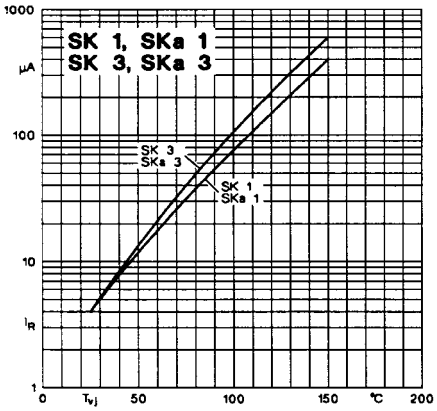


Fig. 15 Reverse current vs. virt. junction temp.

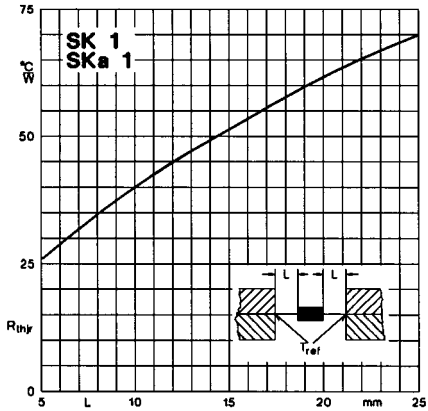


Fig. 16 a Thermal resistance vs. lead length

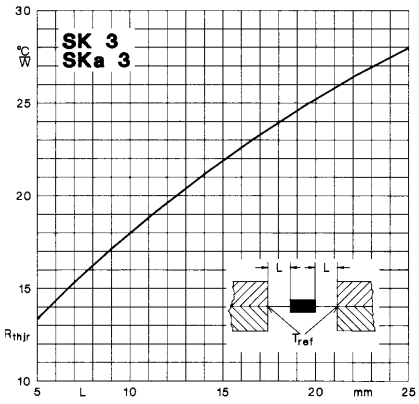
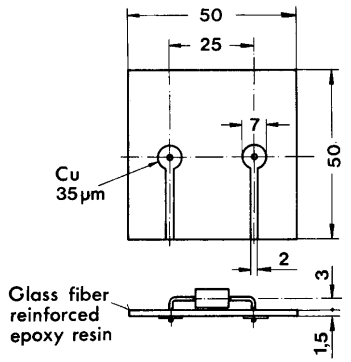


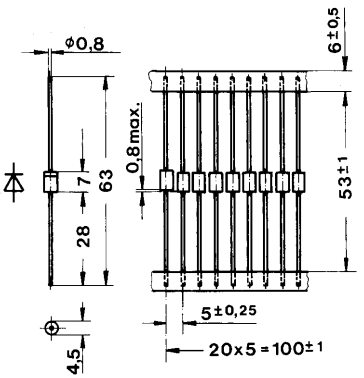
Fig. 16 b Thermal resistance vs. lead length

P.C.B. for R_{thja} = 85 °C/W (SK 1)
R_{thja} = 60 °C/W (SK 3)



SK 1
SKa 1

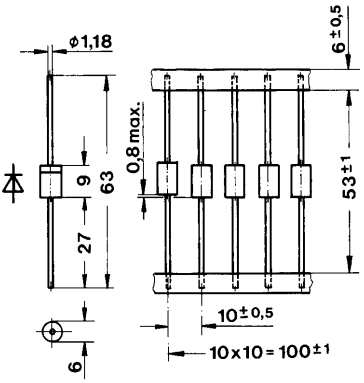
Case E 33



3500 diodes per reel

SK 3
SKa 3

Case E 34



1500 diodes per reel

Reel dimensions page B 8 – 2

Dimensions in mm

V_{RSM} / V_{RRM}	I_{FRMS} (maximum values for continuous operation) 200 A		260 A		500 A	
	I_{FAV} (sin. 180; T_{case} = 100 °C) 125 A		165 A		320 A	
V						
	SKN	**SKR**	**SKN**	**SKR**	**SKN**	**SKR**
200	**100/02**	**100/02**	**130/02**	**130/02***	**240/02**	**240/02***
400	**100/04**	**100/04**	**130/04**	**130/04***	**240/04**	**240/04***
800	**100/08**	**100/08**	**130/08**	**130/08***	**240/08**	**240/08***
1200	**100/12**	**100/12**	**130/12**	**130/12***	**240/12**	**240/12***
1400	**100/14**	**100/14**	**130/14**	**130/14***	**240/14**	**240/14***
1600	**100/16**	**100/16**	**130/16**	**130/16***	**240/16**	**240/16***
1800	**100/18♦**	**100/18♦**	**130/18♦**	**130/18♦**	**240/18♦**	**240/18♦**

Symbol	**Conditions**	**SKN 100 SKR 100**	**SKN 130 SKR 130**	**SKN 240 SKR 240**
I_{FAV}	sin. 180; T_{case} = 100 °C	125 A	165 A	320 A
	= 125 °C	100 A	130 A	240 A
I_{FSM}	T_{vj} = 25 °C; 10 ms	1 750 A	2 500 A	6 000 A
	T_{vj} = 180 °C; 10 ms	1 500 A	2 000 A	5 000 A
i^2t	T_{vj} = 25 °C | 8,3...	15 000 A^2s	31 000 A^2s	180 000 A^2s
	T_{vj} = 180 °C | 10 ms	11 500 A^2s	20 000 A^2s	125 000 A^2s
Q_{rr}	T_{vj} = 160 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$	typ. 100 µC	typ. 120 µC	typ. 200 µC
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	1 mA	1 mA	2 mA
	T_{vj} = 180 °C; $V_R = V_{RRM}$	15 mA	22 mA	60 mA
V_F	T_{vj} = 25 °C; (I_F = ...); max.	1,55V (400A)	1,5V (500A)	1,4V (750A)
$V_{(TO)}$	T_{vj} = 180 °C	0,85 V	0,85 V	0,85 V
r_T	T_{vj} = 180 °C	1,8 mΩ	1,3 mΩ	0,6 mΩ
R_{thjc}		0,45 °C/W	0,35 °C/W	0,20 °C/W
R_{thch}		0,08 °C/W	0,08 °C/W	0,03 °C/W
T_{vj}		– 40 ... + 180 °C		
T_{stg}		– 55 ... + 180 °C		
M	SI units/US units	10Nm/90lb.in.	10Nm/90lb.in.	30Nm/270lb.in.
a		5 · 9,81 m/s^2	5 · 9,81 m/s^2	5 · 9,81 m/s^2
w	approx.	100 g	100 g	250 g
RC	P_R = 2 W	0,25µF + 50Ω	0,25µF + 50Ω	0,5µF + 30Ω
R_p	P_R = 20 W	50 kΩ	50 kΩ	50 kΩ
Case		E 13	E 14	E 15

Rectifier Diodes

SKN 100 SKR 100
SKN 130 SKR 130
SKN 240 SKR 240

Features

- Reverse voltages up to 1600 V
- Hermetic metal cases with glass insulators
- Threaded studs ISO M 12, M16 x 1,5 (SKR 130 also 1/2–20 UNF or 3/8–24 UNF, SKR 240 also 3/4–16 UNF)
- **SKN**: anode to stud **SKR**: cathode to stud

Typical Applications

- All-purpose mean power rectifier diodes
- Cooling via heatsinks
- Non-controllable and half-controllable rectifiers
- Free-wheeling diodes

♦ available in limited quantities
* available with UNF threads: 3/8–24 UNF 2 A (e.g. SKR130/02 UNF 3/8) or 1/2–20 UNF 2 A (e.g. SKR 130/02 UNF), SKR 240/02 UNF with 3/4–16 UNF 2 A thread

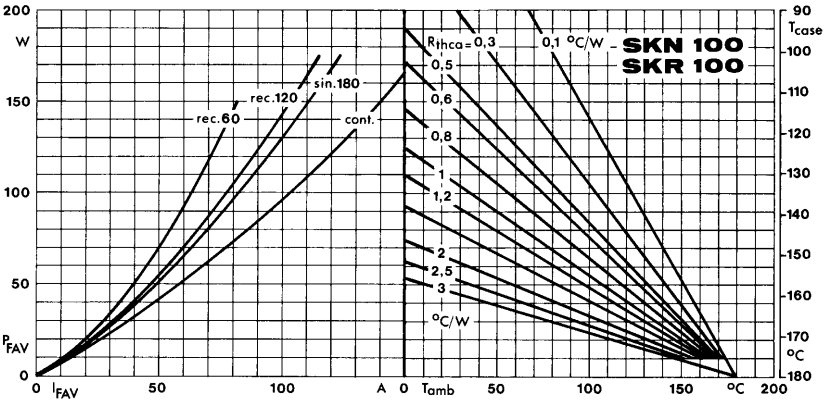


Fig. 1 a Power dissipation vs. forward current and case temperature

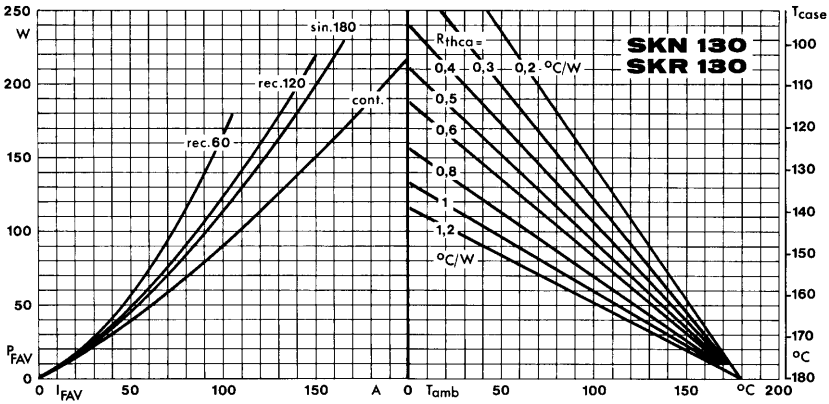


Fig. 1 b Power dissipation vs. forward current and case temperature

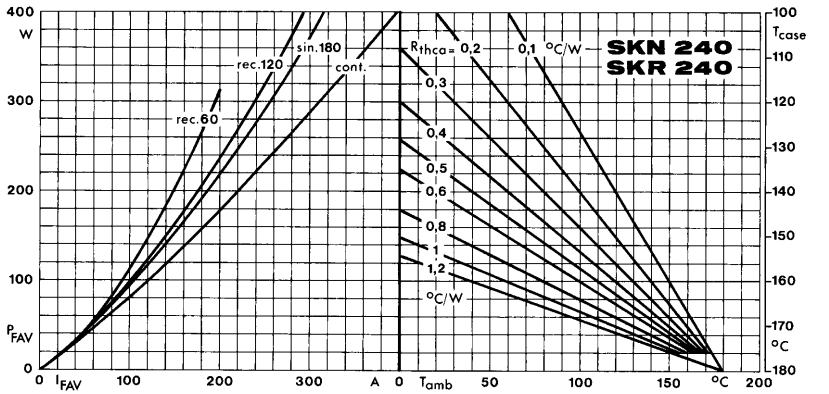


Fig. 1 c Power dissipation vs. forward current and case temperature

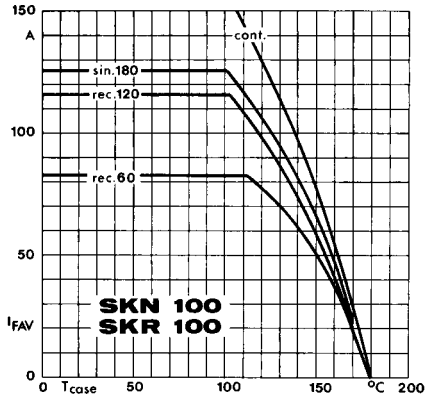


Fig. 3 a Rated forward current vs. case temperature

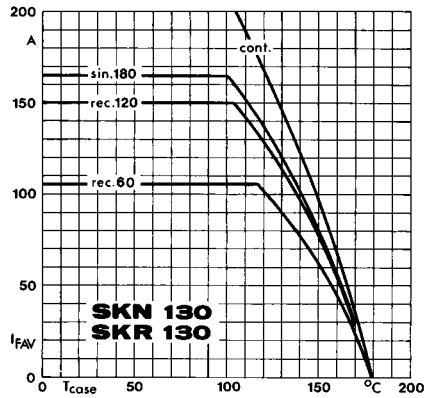


Fig. 3 b Rated forward current vs. case temperature

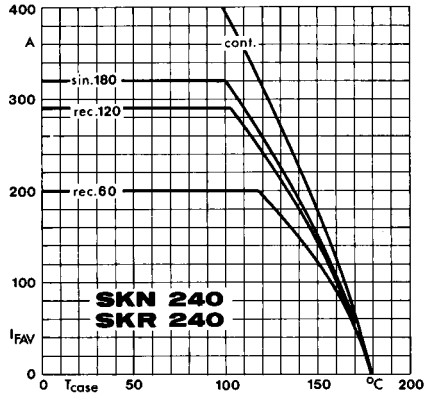


Fig. 3 c Rated forward current vs. case temperature

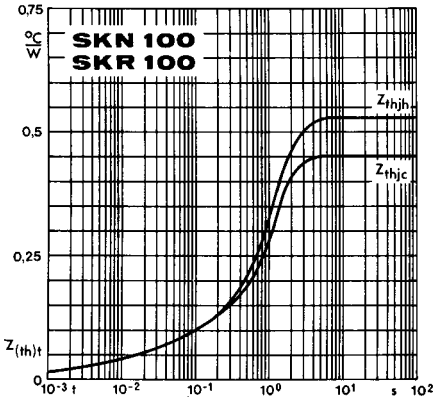


Fig. 5 a Transient thermal impedance vs. time

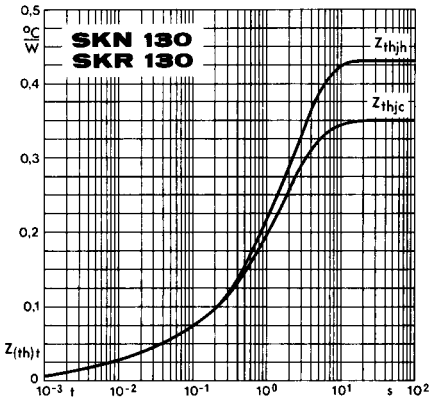


Fig. 5 b Transient thermal impedance vs. time

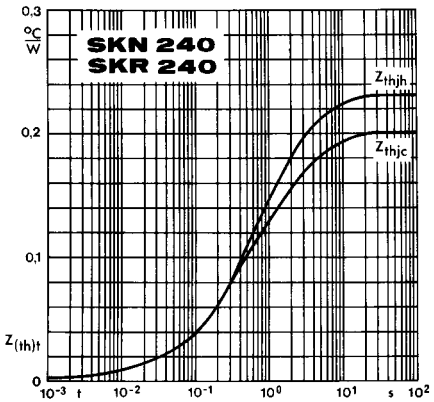


Fig. 5 c Transient thermal impedance vs. time

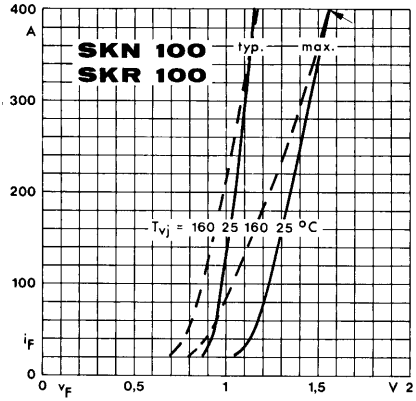


Fig. 6 a Forward characteristics

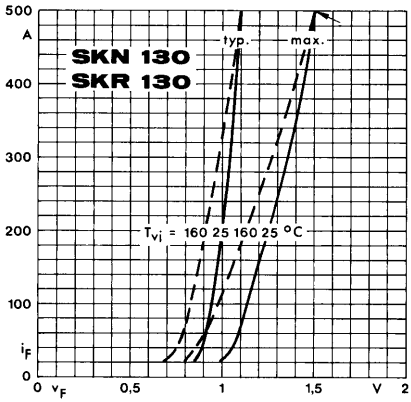


Fig. 6 b Forward characteristics

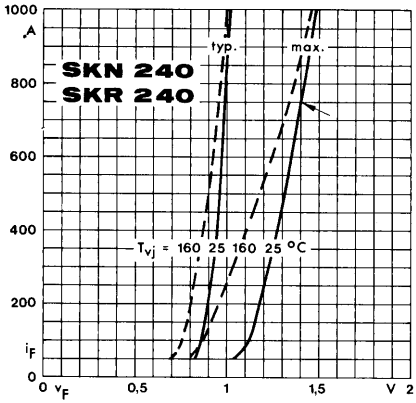


Fig. 6 c Forward characteristics

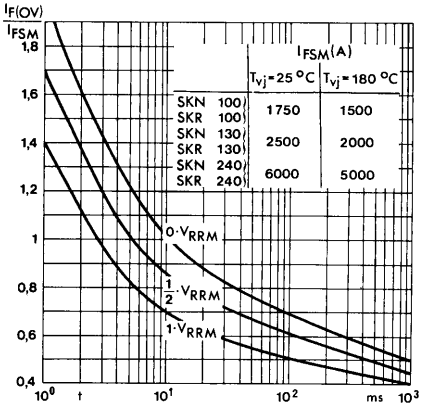


Fig. 7 Surge overload current vs. time

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 260 A			
	I_{FAV} (sin. 180; T_{case} = 85 °C) 160 A		168 A	
	t_{rr} = 500 ns		t_{rr} = 800 ns	
V				
800	**SKN 135 F 08** **SKN 136 F 08**	**SKR 135 F 08** **SKR 136 F 08**	– –	– –
1000	**SKN 135 F 10** **SKN 136 F 10**	**SKR 135 F 10** **SKR 136 F 10**	– –	– –
1200	**SKN 135 F 12** **SKN 136 F 12**	**SKR 135 F 12** **SKR 136 F 12**	**SKN 140 F 12** **SKN 141 F 12**	**SKR 140 F 12** **SKR 141 F 12**
1400	– –	– –	**SKN 140 F 14** **SKN 141 F 14**	**SKR 140 F 14** **SKR 141 F 14**
1500	– –	– –	**SKN 140 F 15** **SKN 141 F 15**	**SKR 140 F 15** **SKR 141 F 15**

Symbol	**Conditions**	**SKN135F SKR135F SKN136F SKR136F**	**SKN140F SKR140F SKN141F SKR141F**	**Units**
I_{FAV}	sin. 180; T_{case} = 85 °C; 1000 Hz	160	168	A
	T_{case} = 100 °C; 1000 Hz	135	140	A
	sin. 180/ rec. 120; T_{amb} = 45 °C; K 1,1	54/ 52	55/53,5	A
	P 1/200	97/ 93	100/ 96	A
	K 0,55	80/ 76	82/ 78	A
	T_{amb} = 35 °C; P 1/120 F	136/130	141/134	A
	K1,1 F	110/105	114/109	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	2500	2500	A
	T_{vj} = 150 °C; 10 ms	2100	2100	A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	31000	31000	A^2s
	T_{vj} = 150 °C; 8,3 ... 10 ms	22000	22000	A^2s
Q_{rr}	T_{vj} = 150 °C; V_R = 400 V; I_F = 100 A	50	90	µC
	I_F = 300 A	75	135	µC
I_{RM}	$-\frac{di}{dt} = 100 \frac{A}{\mu s}$; I_F = 100 A	53	90	A
	I_F = 300 A	69	115	A
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	1	1	mA
	T_{vj} = 150 °C; $V_R = V_{RRM}$	100	100	mA
t_{rr}	T_{vj} = 25 °C; $I_F = I_R$ = 1 A	max. 500	max. 800	ns
	T_{vj} = 150 °C; $I_F = I_R$ = 1 A	typ. 1	typ. 1,6	µs
V_F	T_{vj} = 25 °C; I_F = 300 A	max. 1,95	max. 1,80	V
$V_{(TO)}$	T_{vj} = 150 °C	1,1	1,1	V
r_T	T_{vj} = 150 °C	2,3	2	mΩ
R_{thjc}		0,2		°C/W
R_{thch}		0,08		°C/W
T_{vj}		– 40 . . . + 150		°C
T_{stg}		– 55 . . . + 150		°C
M	SI (US) units	10 (90 lb.in.)		Nm
a		5 · 9,81		m/s^2
w	approx.	100		g
Case	135 F, 140 F	E 14		
	136 F, 141 F	E 31		

Fast Recovery Rectifier Diodes

SKN 135 F **SKR 135 F**
SKN 136 F **SKR 136 F**
SKN 140 F **SKR 140 F**
SKN 141 F **SKR 141 F**

Features

- Small recovered charge
- Soft recovery
- Up to 1500 V reverse voltage
- Hermetic metal cases with glass insulators
- Threaded studs M12
- **SKN**: anode to stud
  SKR: cathode to stud

Typical Applications

- Inverse diodes for GTO and asymmetric thyristors
- Inverters and choppers
- A. C. motor control, uninterruptible power supplies (UPS)

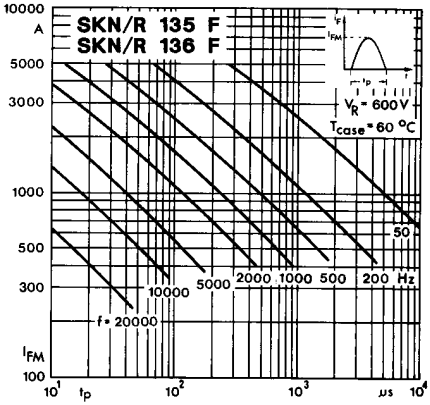


Fig. 1 a Rated sinusoidal peak forward current

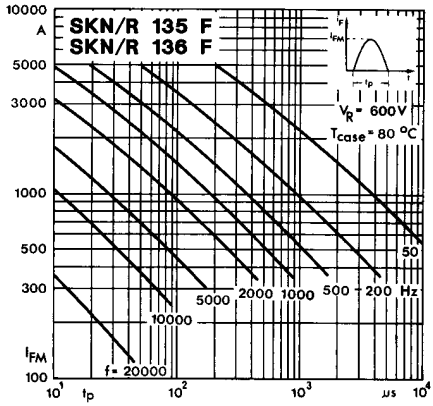


Fig. 1 b Rated sinusoidal peak forward current

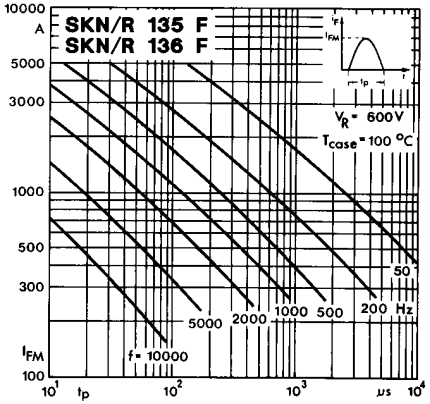


Fig. 1 c Rated sinusoidal peak forward current

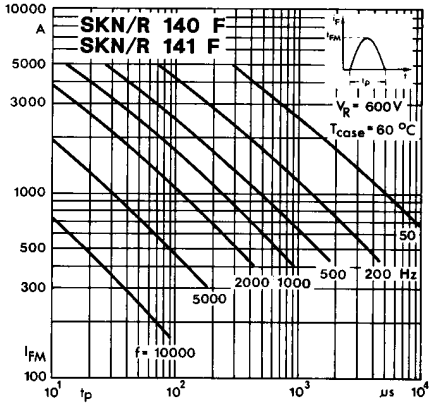


Fig. 1 d Rated sinusoidal peak forward current

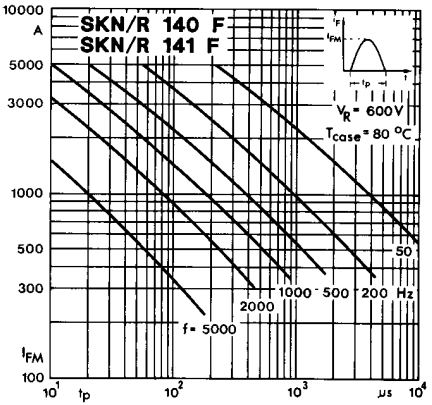


Fig. 1 e Rated sinusoidal peak forward current

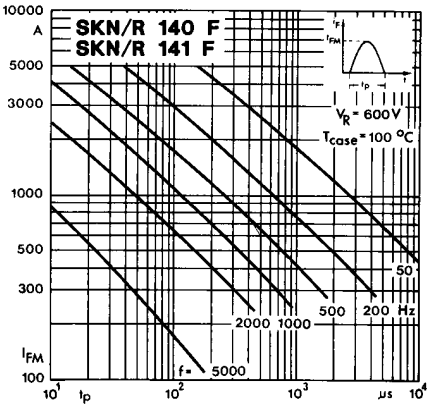


Fig. 1 f Rated sinusoidal peak forward current

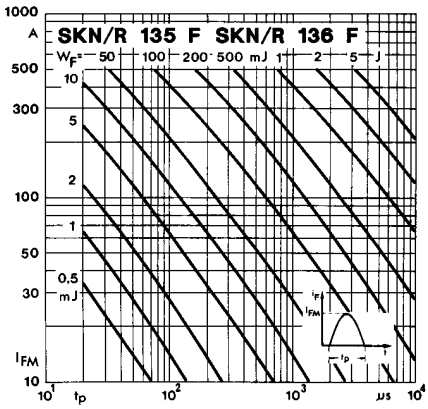


Fig. 2 a Forward energy dissipation, sinusoidal

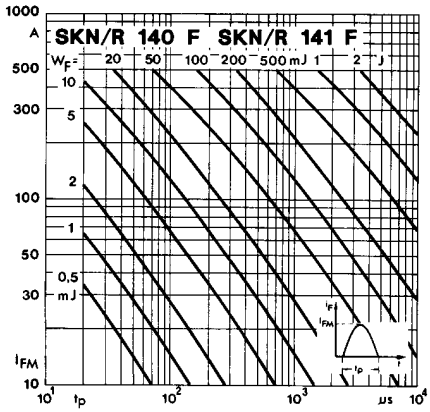


Fig. 2 b Forward energy dissipation, sinusoidal

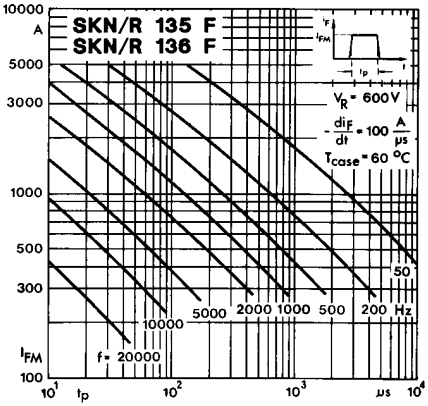


Fig. 3 a Rated rectangular peak forward current

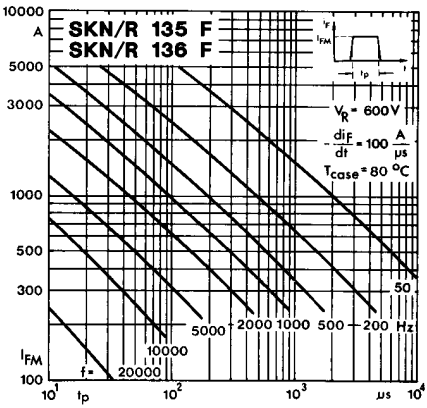


Fig. 3 b Rated rectangular peak forward current

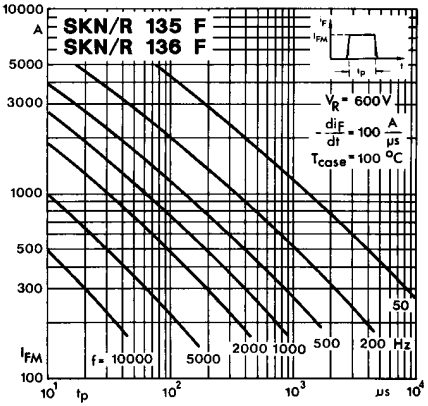


Fig. 3 c Rated rectangular peak forward current

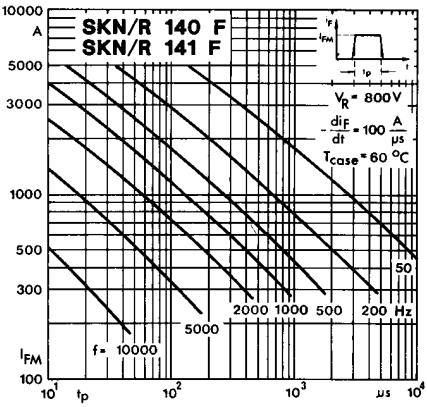


Fig. 3 d Rated rectangular peak forward current

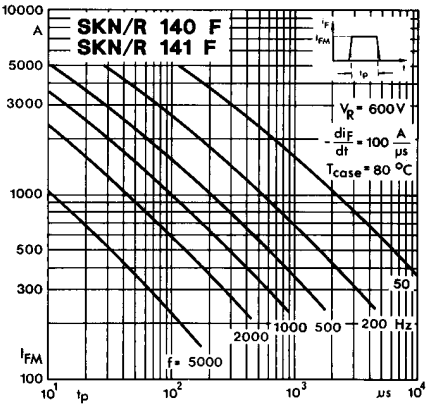


Fig. 3 e Rated rectangular peak forward current

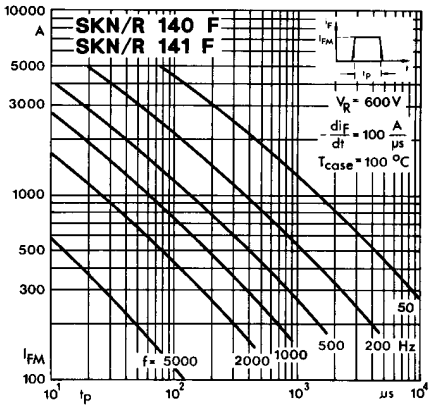


Fig. 3 f Rated rectangular peak forward current

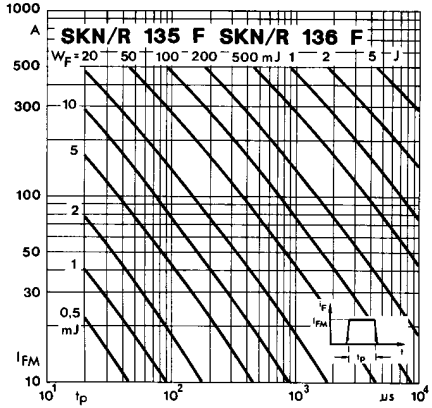


Fig. 4 a Forward energy dissipation, rectangular

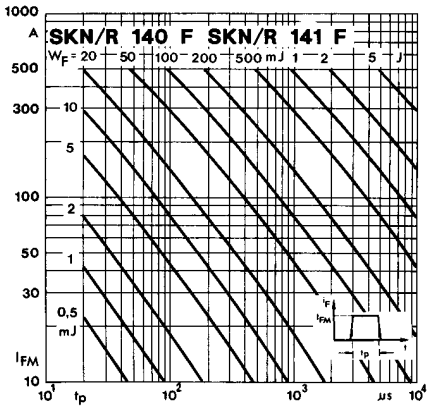


Fig. 4 b Forward energy dissipation, rectangular

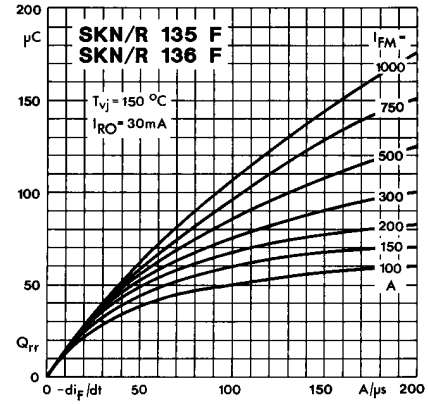


Fig. 5 a Recovered charge

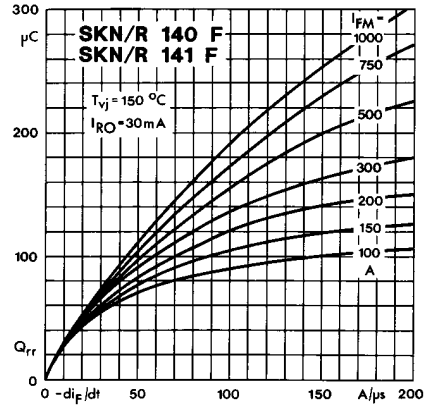


Fig. 5 b Recovered charge

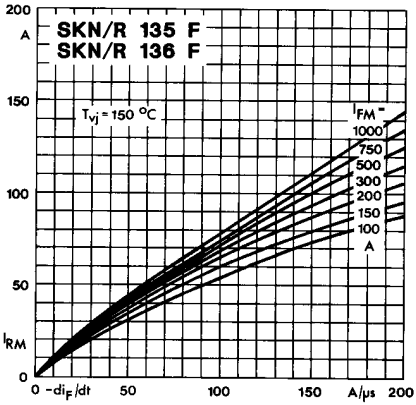


Fig. 6 a Peak reverse recovery current

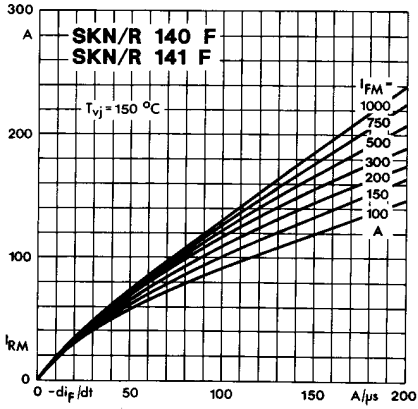


Fig. 6 b Peak reverse recovery current

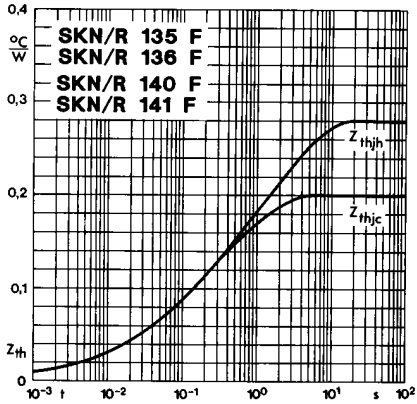


Fig. 7 Transient thermal impedance

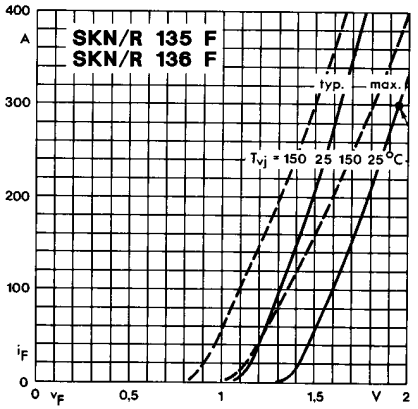


Fig. 8 a Forward characteristics

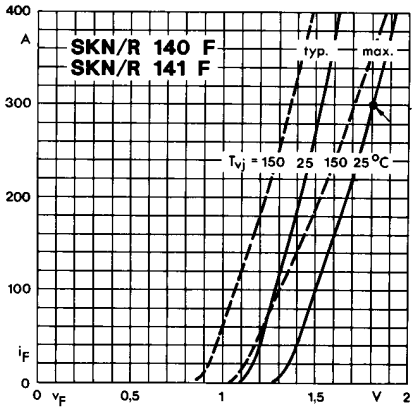


Fig. 8 b Forward characteristics

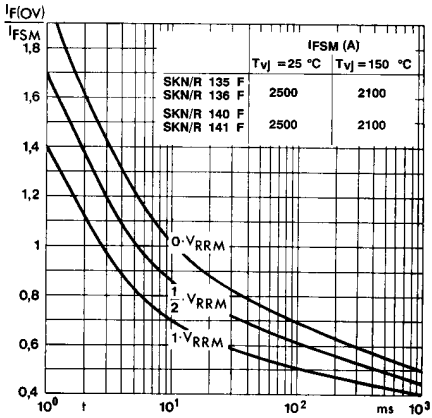
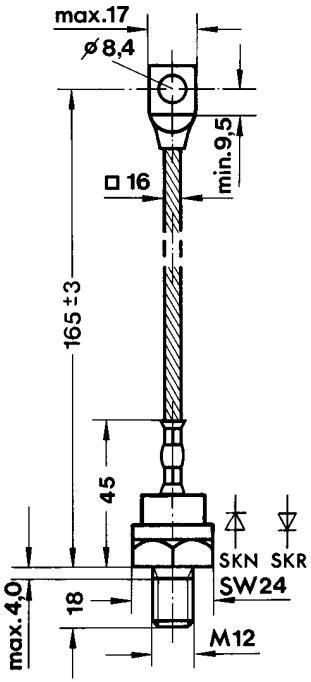


Fig. 9 Rated surge overload current

SKN 135 F
SKR 135 F
SKN 140 F
SKR 140 F

Case E 14

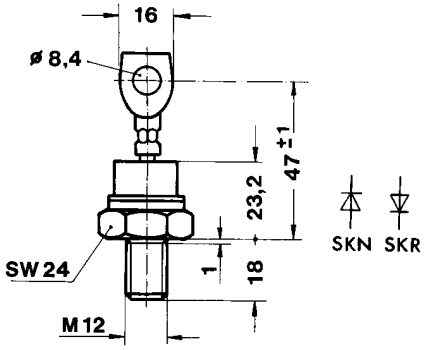
IEC: A 9 MA[1)]
DIN 41 887: 105 B 2[1)]
BS 3934: SO-29 B
JEDEC: DO-205 AC (DO-30)[1)2)]



Dimensions in mm

SKN 136 F
SKR 136 F
SKN 141 F
SKR 141 F

Case E 31



Dimensions in mm

1) modified
2) These types are also available with the original DO-205 AA (DO-8) dimensions with thread 3/8-24.

V_{RSM} / V_{RRM}	I_{FRMS} (maximum values for continuous operation) 5 A	10 A
	I_{FAV} (sin. 180; T_{amb} = 45 °C)	
V	2,5 A	5 A
200	–	**SKN 5/02**
400	**SKN 2,5/04**	**SKN 5/04**
800	**SKN 2,5/08**	**SKN 5/08**
1200	**SKN 2,5/12**	**SKN 5/12**
1600	**SKN 2,5/16**	**SKN 5/16**
Avalanche Types		
$V_{(BR)min}$	I_{FAV} (sin. 180 °C; T_{amb} = 45 °C)	
V	2 A	3,7 A
1300	**SKNa 2/13**	**SKNa 4/13**
1700	**SKNa 2/17**	**SKNa 4/17**

Rectifier Diodes

SKN 2,5 **SKNa 2**
SKN 5 **SKNa 4**

Symbol	Conditions	SKN2,5	SKNa2	SKN5	SKNa4	Units
I_{FAV}	T_{amb} = 45 °C; sin. 180	2,5	2	5	3,7	A
	rec. 120	2,4	1,9	4,8	3,5	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	180		190		A
	T_{vj} = T_{vjmax}; 10 ms	150		160		A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	160		180		A^2s
	T_{vj} = T_{vjmax}; 8,3 ... 10 ms	110		130		A^2s
R_{RSM}	T_{vj} = 150 °C; t_p = 10 µs	–	3	–	3	W
Q_{rr}	T_{vj} = 160 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$	typ. 15		typ. 18		µC
I_R	T_{vj} = 25 °C; V_R = V_{RRM}	0,1	–	0,1	–	mA
	V_R = $V_{(BR)min}$	–	4	–	4	µA
	T_{vj} = 180 °C; V_R = V_{RRM}	1,5	–	2,2	–	mA
V_F	T_{vj} = 25 °C;	1,2		1,25	1,2	V
	(I_F = . . .); max.	(10)		(15)	(10)	A
$V_{(TO)}$	T_{vj} = T_{vjmax}	0,85		0,85	0,85	V
r_T	T_{vj} = T_{vjmax}	30		25	30	mΩ
R_{thja}		55		25		°C/W
R_{thjc}		2,5		1,8		°C/W
T_{vjmin}		– 40		– 40		°C
T_{vjmax}		+180	+150	+180	+150	°C
T_{stg}		– 55 ... + 180				°C
M	SI units	0,8				Nm
	US units	7				lb.in.
a		5 · 9,81				m/s^2
w	approx.	6		20		g
RC	P_R = 1 W	500				Ω
		0,02				µF
R_p	P_R = 2 W	270				kΩ
Case		E 5		E 6		

Features

- Reverse voltages up to 1600 V, Avalanche types up to 1700 V
- Hermetic metal cases with glass insulators
- Anode side threaded stud ISO M4 (SKN 2,5, SKNa 2 with lead wire in addition)
- **SKN:** anode to stud
- SKN 5, SKNa 4 with integrated cooling fins

Typical Applications

- All-purpose rectifier diodes
- For severe ambient conditions

Avalanche Types

- DC supply for magnets or solenoids (brakes, valves, etc.)
- Field coil supply for DC motos
- Series connections for high voltage applications (dust precipitators)

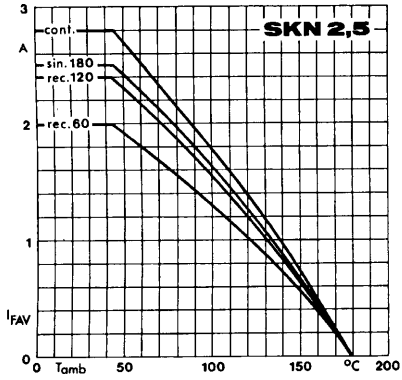


Fig. 4 a Rated forward current vs. ambient temperature

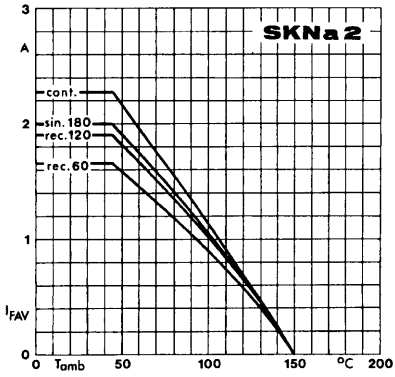


Fig. 4 b Rated forward current vs. ambient temperature

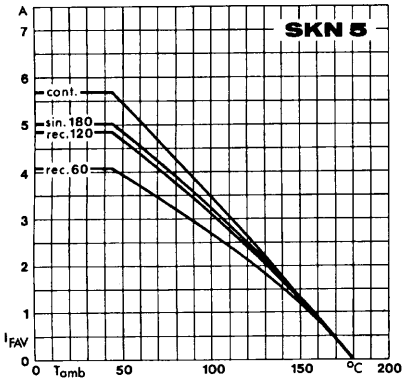


Fig. 4 c Rated forward current vs. ambient temperature

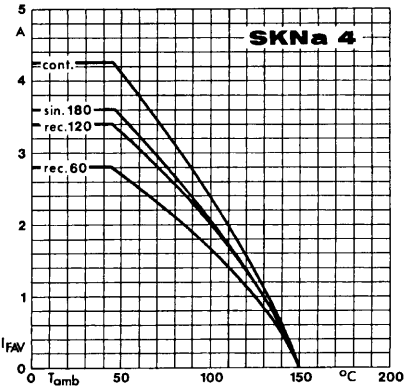


Fig. 4 d Rated forward current vs. ambient temperature

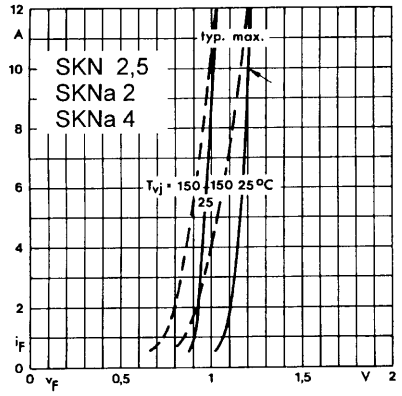


Fig. 6 a Forward characteristics

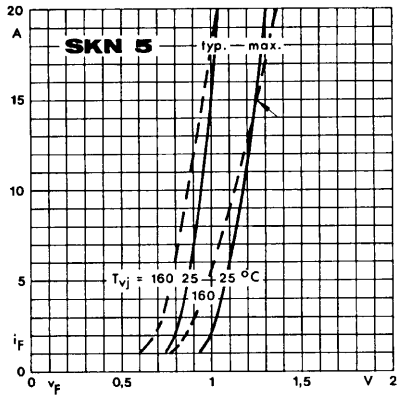


Fig. 6 b Forward characteristics

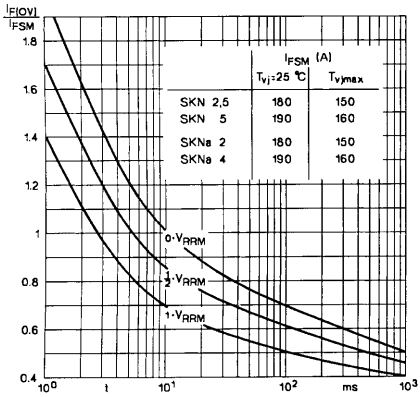


Fig. 7 Surge overload current vs. time

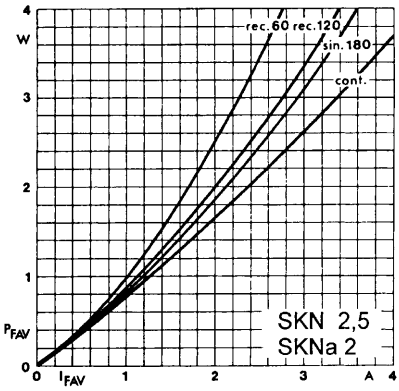


Fig. 8 a Power dissipation vs. forward current

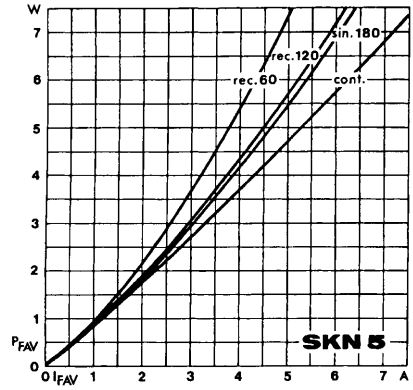


Fig. 8 b Power dissipation vs. forward current

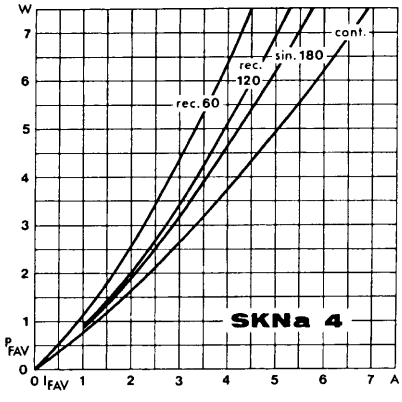


Fig. 8 c Power dissipation vs. forward current

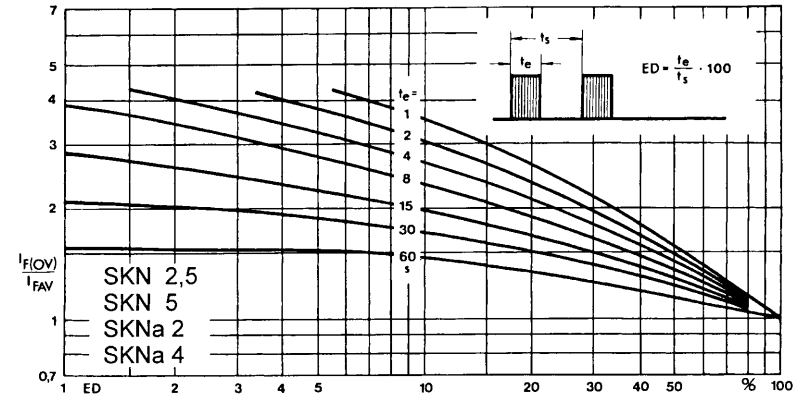


Fig. 9 Rated overload current vs. duty cycle

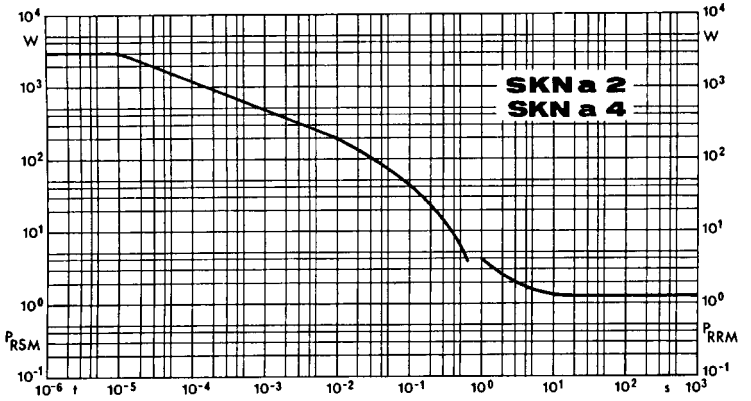
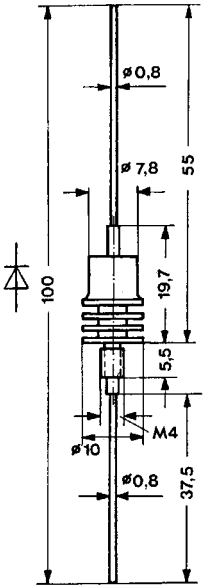


Fig. 11 Rated reverse power dissipation vs. time

SKN 2,5
SKNa 2

Case E 5

IEC: A 2*
BS 3934: SO-16*
JEDEC: DO-1*

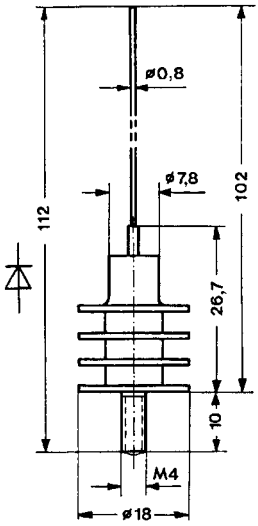


* modified

Dimensions in mm

SKN 5
SKNa 4

Case E 6



Dimensions in mm

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 40 A			
	I_{FAV} (sin. 180; T_{case} = 100 °C) 25 A			
V				
200	**SKN 20/02**	**SKR 20/02**	**SKN 26/02**	**SKR 26/02***
400	**SKN 20/04**	**SKR 20/04**	**SKN 26/04**	**SKR 26/04***
800	**SKN 20/08**	**SKR 20/08**	**SKN 26/08**	**SKR 26/08***
1200	**SKN 20/12**	**SKR 20/12**	**SKN 26/12**	**SKR 26/12***
1400	**SKN 20/14**	**SKR 20/14**	**SKN 26/14**	**SKR 26/14***
1600	**SKN 20/16**	**SKR 20/16**	**SKN 26/16**	**SKR 26/16***
Avalanche Types				
$V_{(BR)min}$ V	I_{FAV} = 25 A (T_{case} = 73 °C)			
1300	**SKNa 20/13**			
1700	**SKNa 20/17**			

Symbol	**Conditions**	**SKN 20 SKR 20**	**SKNa 20**	**SKN 26 SKR 26**
I_{FAV}	sin. 180; T_{case} = 93 °C	–	20 A	–
	= 100 °C	25 A	18 A	25 A
	= 125 °C	20 A	11 A	20 A
I_{FSM}	T_{vj} = 25 °C; 10 ms	375 A		
	T_{vj} = T_{vjmax}; 10 ms	320 A		
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	700 A^2s		
	T_{vj} = T_{vjmax}; 8,3 ... 10 ms	510 A^2s		
P_{RSM}	T_{vj} > 250 °C, tp = 10 µs	–	6 kW	–
Q_{rr}	T_{vj} = 160 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$	typ. 20 µC		
I_R	T_{vj} = 25 °C; V_R = V_{RRM}	0,3 mA	–	0,3 mA
	V_R = $V_{(BR)min}$	–	10 µA	–
	T_{vj} = 180 °C; V_R = V_{RRM}	4 mA	–	4 mA
V_F	T_{vj} = 25 °C; I_F = 60 A; max.	1,55 V		
$V_{(TO)}$	T_{vj} = T_{vjmax}	0,85 V		
r_T	T_{vj} = T_{vjmax}	11 mΩ		
R_{thjc}		2 °C/W		
R_{thch}		1 °C/W		
T_{vjmin}		– 40 °C		
T_{vjmax}		180 °C	150 °C	180 °C
T_{stg}		– 55 ... + 180 °C		
M	SI units/US units	2,0 Nm/18 lb. in.		
a		5 · 9,81 m/s^2		
w	approx.	10 g		8 g
RC	P_R = 1 W	0,05 µF + 200 Ω		
R_p	P_R = 4 W	150 kΩ		
Case		E 9		E 8

Rectifier Diodes

SKN 20 SKR 20
SKNa 20
SKN 26 SKR 26

Features

- Reverse voltages up to 1600 V, Avalanche Types to 1700 V
- Hermetic metal cases with glass insulators
- Threaded studs ISO M6 (SKR 26 also 10 – 32 UNF)
- **SKN**: anode to stud **SKR**: cathode to stud

Typical Applications

- All-purpose mean power rectifier diodes
- Cooling via metal plates or heatsinks
- Non-controllable and half-controllable rectifiers
- Free-wheeling diodes

Avalanche Types

- DC supply for magnets or solenoids (brakes, valves, etc.)
- Field coil supply for DC motors
- Series connections for high voltage applications

* available with UNF thread 10 – 32 UNF 2 A; e.g. SKR 26/02 UNF

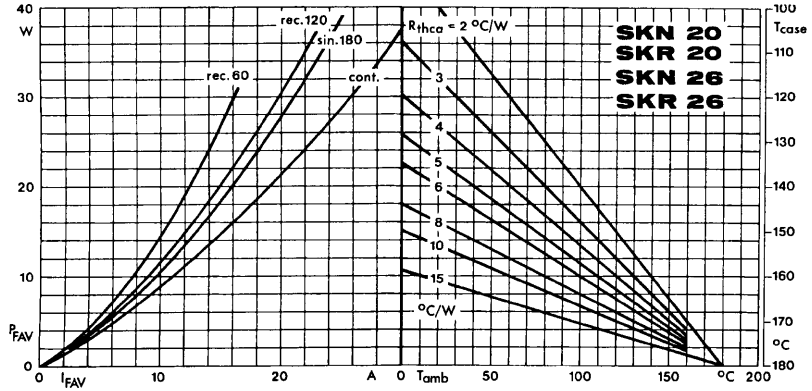


Fig. 1a Power dissipation vs. forward current and case temperature

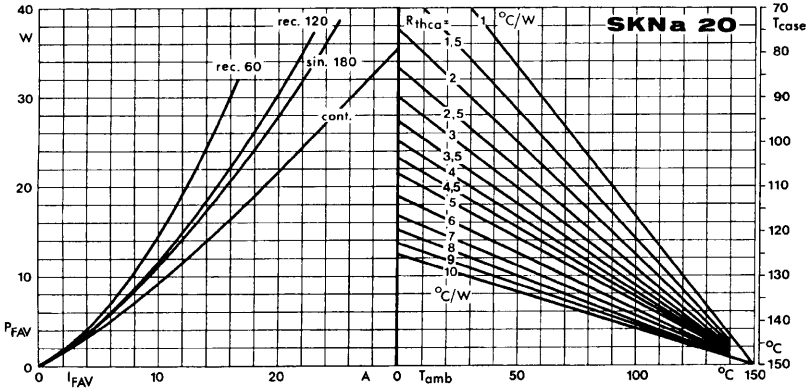


Fig. 1b Power dissipation vs. forward current and case temperature

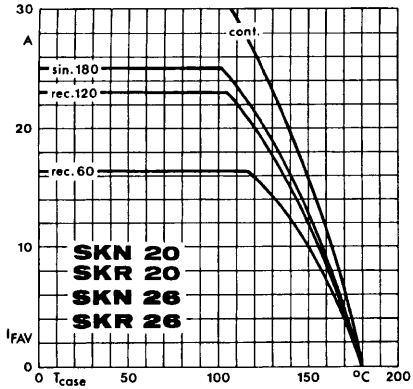


Fig. 3a Rated forward current vs. case temperature

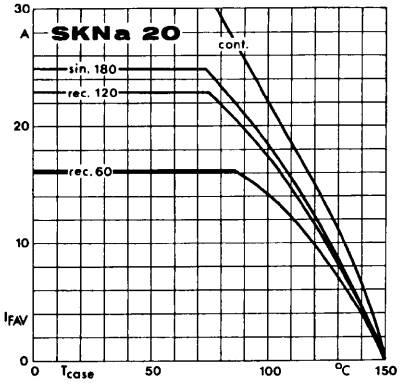


Fig. 3 b Rated forward current vs. case temperature

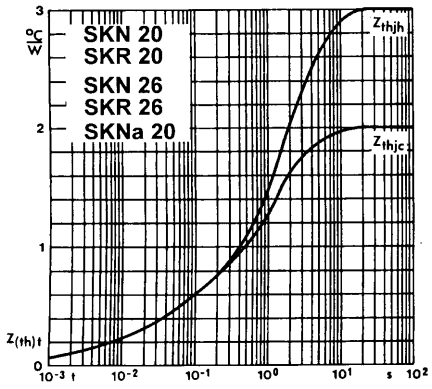


Fig. 5 Transient thermal impedance vs. time

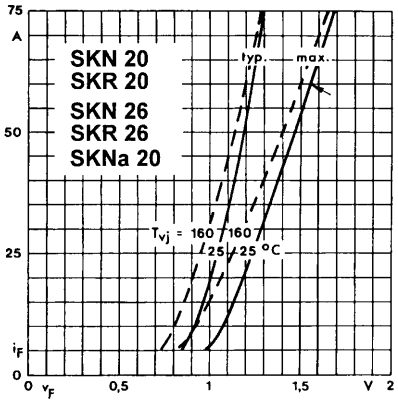


Fig. 6 Forward characteristics

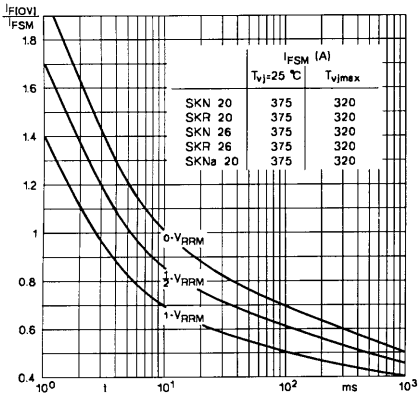


Fig. 7 Surge overload current vs. time

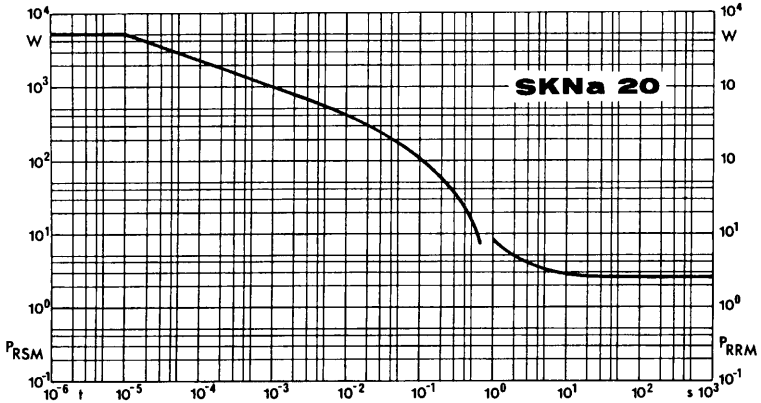
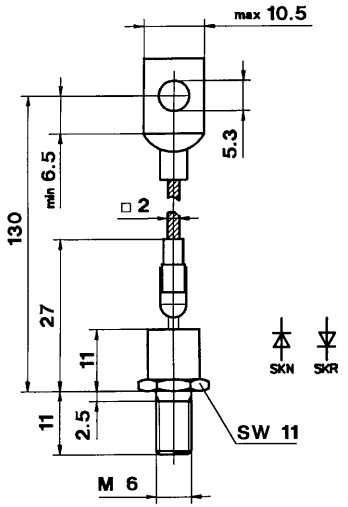


Fig. 11 Rated reverse power dissipation vs. time

SKN 20
SKR 20
SKNa 20

Case E 9

IEC: A 16 M*
DIN 41 886: 102 A 2
BS 3934: SO-31



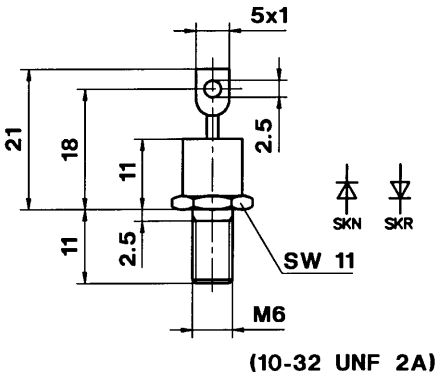
modified

Dimensions in mm

SKN 26
SKR 26

Case E 8

IEC: A 4 M*, A 3 U
DIN 41 886: 102 D 2*
BS 3934: SO-10
JEDEC: DO-203 AA
(DO-4)



* modified

Dimensions in mm

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 100 A	
	I_{FAV} (sin. 180; T_{case} = . . .) 50 A (105 °C)	50 A (95 °C)
	t_{rr} = 200 ns	
V		
400	**SKN 2 F 50/04** **SKN 2 F 50/04 UNF**	**SKR 2 F 50/04** **SKR 2 F 50/04 UNF**
600	**SKN 2 F 50/06** **SKN 2 F 50/06 UNF**	**SKR 2 F 50/06** **SKR 2 F 50/06 UNF**
800	**SKN 2 F 50/08** **SKN 2 F 50/08 UNF**	**SKR 2 F 50/08** **SKR 2 F 50/08 UNF**
1000	**SKN 2 F 50/10** **SKN 2 F 50/10 UNF**	**SKR 2 F 50/10** **SKR 2 F 50/10 UNF**

Fast Recovery Rectifier Diodes

SKN 2 F 50
SKR 2 F 50

Symbol	Conditions	SKN 2 F 50	SKR 2 F 50	Units
I_{FAV}	sin.180; (T_{case} = . . .); f = 5000 Hz	50 (105 °C)	50 (95 °C)	A
	sin.180/rec.120; T_{amb} = 45 °C; K5	12/11	12/11	A
	K3	18/17	17/16	A
	K1,1	33/31	31/29	A
I_{FSM}	T_{vj} = 25 °C; 10 ms	1100	800	A
	T_{vj} = 150 °C; 10 ms	940	670	A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	6000	3200	A^2s
	T_{vj} = 150 °C; 8,3 ... 10 ms	4400	2200	A^2s
Q_{rr}	T_{vj} = 130 °C; I_F = 100 A;	3		µC
I_{RM}	$-di_F = 30 \frac{A}{\mu s}$; V_R = 30 V	10		A
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	0,4		mA
	T_{vj} = 130 °C; $V_R = V_{RRM}$	50		mA
t_{rr}	T_{vj} = 25 °C; $I_{F = IR}$ = 1 A	max. 200		ns
	T_{vj} = 130 °C; $I_{F = IR}$ = 1 A	typ. 400		ns
V_F	T_{vj} = 25 °C; I_F = 50 A	max. 1,8		V
$V_{(TO)}$	T_{vj} = 150 °C	1,2		V
r_T	T_{vj} = 150 °C	4		mΩ
R_{thjc}		0,5	0,65	°C/W
R_{thch}		0,25		°C/W
T_{vj}		– 40 . . . + 150		°C
T_{stg}		– 55 . . . + 150		°C
M	SI units	2,5		Nm
	US units	22		lb.in.
a		5 · 9,81		m/s^2
w	approx.	20		g
Case		E10		

Features

- Small recovered charge
- Soft recovery
- Up to 1000 V reverse voltage
- Hermetic metal cases with glass insulators
- Threaded studs ISO M6 or 1/4-28 UNF
- **SKN:** anode to stud
  SKR: cathode to stud

Typical Applications

- Inverse diodes for power transistors, GTO thyristors, asymmetric thyristors
- SMPS, inverters, choppers
- For severe ambient conditions

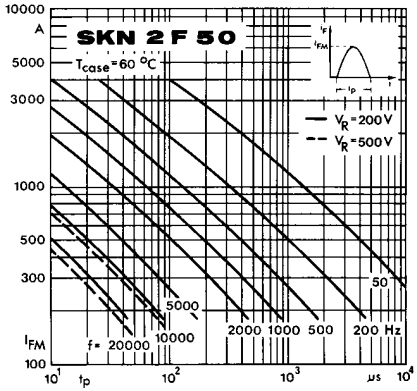


Fig. 1 a Rated sinusoidal peak forward current

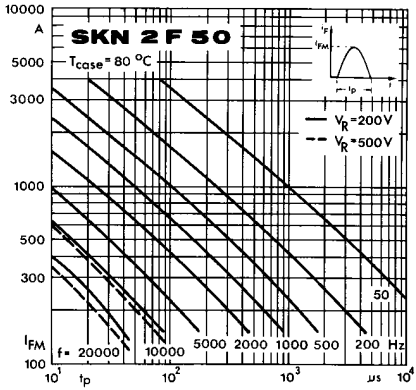


Fig. 1 b Rated sinusoidal peak forward current

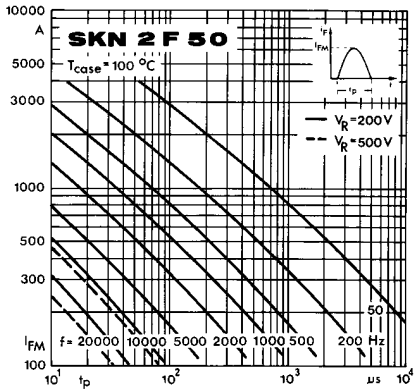


Fig. 1 c Rated sinusoidal peak forward current

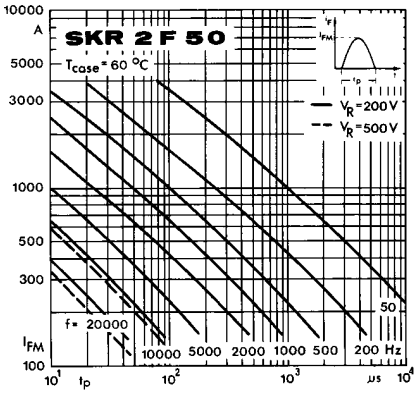


Fig. 1 d Rated sinusoidal peak forward current

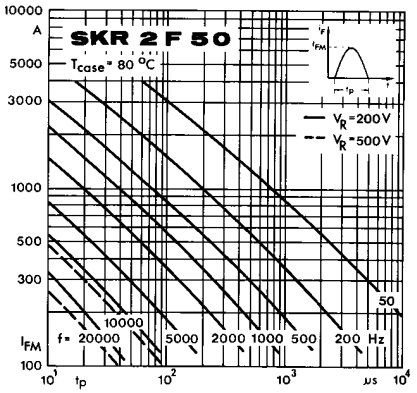


Fig. 1 e Rated sinusoidal peak forward current

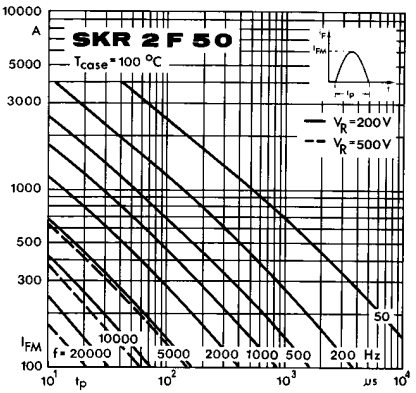


Fig. 1 f Rated sinusoidal peak forward current

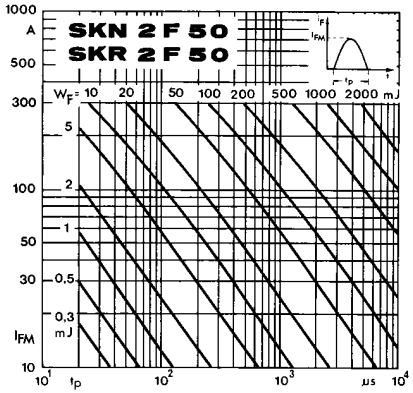


Fig. 2 Forward energy dissipation, sinusoidal

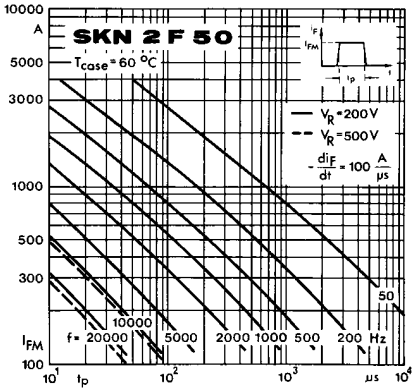


Fig. 3 a Rated rectangular peak forward current

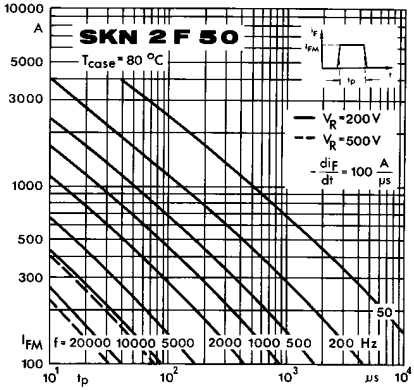


Fig. 3 b Rated rectangular peak forward current

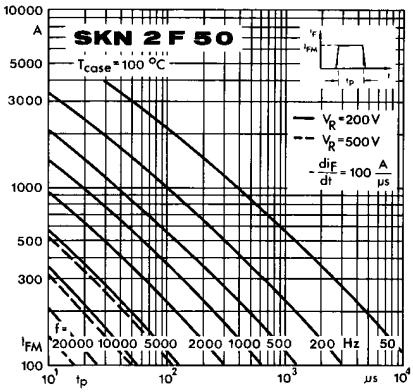


Fig. 3 c Rated rectangular peak forward current

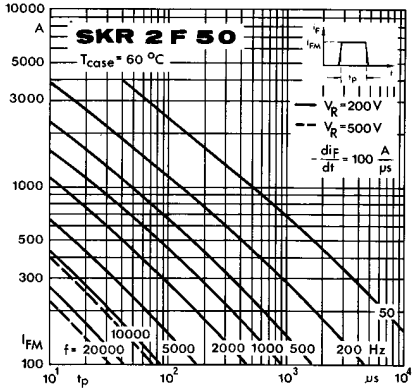


Fig. 3 d Rated rectangular peak forward current

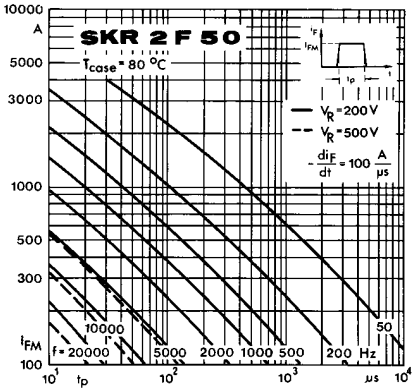


Fig. 3 e Rated rectangular peak forward current

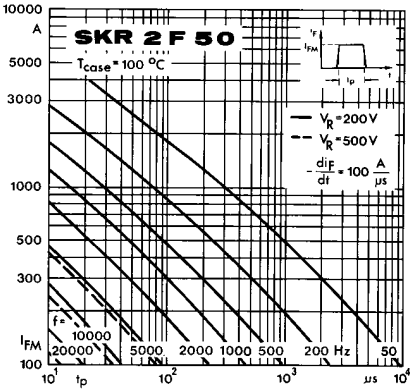


Fig. 3 f Rated rectangular peak forward current

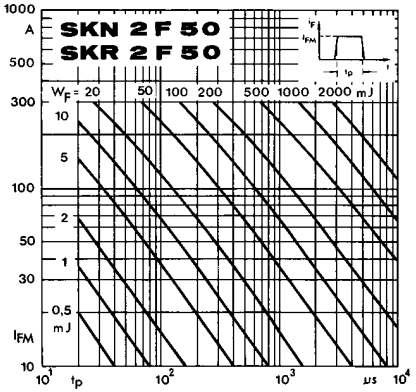


Fig. 4 Forward energy dissipation, rectangular

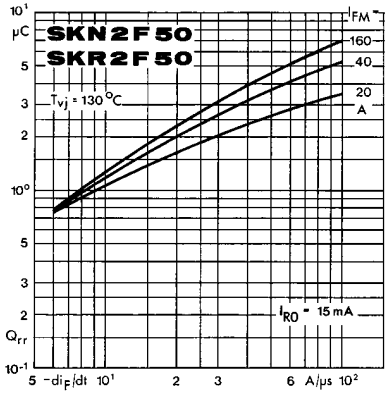


Fig. 5 Recovered charge

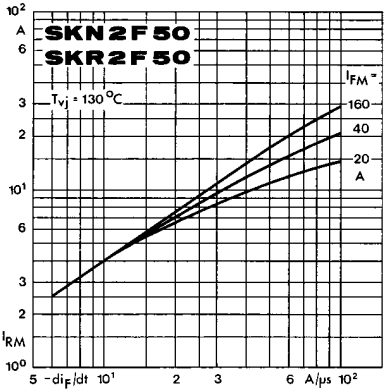


Fig. 6 Peak reverse recovery current

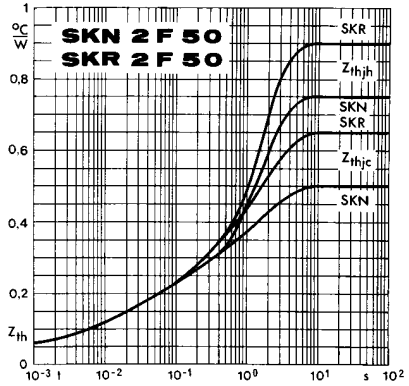


Fig. 7 Transient thermal impedance

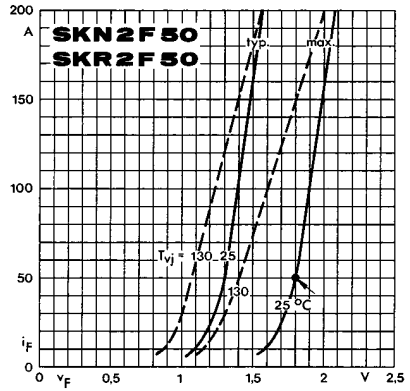


Fig. 8 Forward characteristics

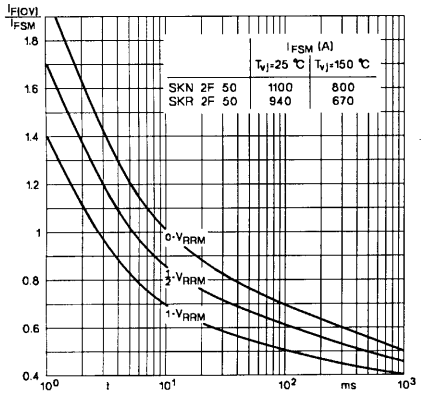
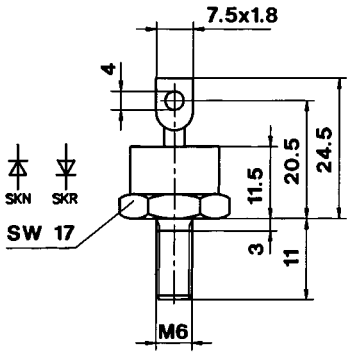


Fig. 9 Rated surge overload current

SKN 2 F 50
SKR 2 F 50

Case E 10

IEC-Publ. 191-2: A 4 M

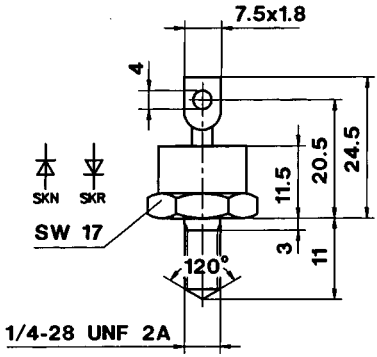


Dimensions in mm

SKN 2 F 50 . . . UNF
SKR 2 F 50 . . . UNF

Case E 10 UNF

IEC-Publ. 191-2: A 4 U
JEDEC: DO-203 AB (DO-5)



Dimensions in mm

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 700 A		
	I_{FAV} (sin. 180; T_{case} = 100 °C) 420 A		400 A
V			
200	**SKN 320/02**	**SKR 320/02**	–
400	**SKN 320/04**	**SKR 320/04**	–
800	**SKN 320/08**	**SKR 320/08**	–
1200	**SKN 320/12**	**SKR 320/12**	–
1400	**SKN 320/14**	**SKR 320/14**	
1600	**SKN 320/16**	**SKR 320/16**	–
1800	–	–	**SKN 400/18**
2400	–	–	**SKN 400/24**
2700	–	–	**SKN 400/27**
3000	–	–	**SKN 400/30**

Symbol	**Conditions**	**SKN 320 SKR 320**	**SKN 400**
I_{FAV}	sin. 180; T_{case} = 87 °C	–	450 A
	= 100 °C	420 A	400 A
	= 125 °C	320 A	–
I_{FSM}	T_{vj} = 25 °C; 10 ms	9 000 A	9 000 A
	$T_{vj\ max.}$; 10 ms	8 000 A	7 500 A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	400 000 A^2s	400 000 A^2s
	$T_{vj\ max.}$; 8,3 ... 10 ms	300 000 A^2s	280 000 A^2s
Q_{rr}	T_{vj} = 160 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$	typ. 300 µC	typ. 400 µC
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	3 mA	3 mA
	$T_{vj\ max.}$; $V_R = V_{RRM}$	100 mA	60 mA
V_F	T_{vj} = 25 °C; (I_F = . . .); max.	1,35 V (1000 A)	1,45 V (1200 A)
$V_{(TO)}$	$T_{vj\ max.}$	0,8 V	0,9 V
r_T	$T_{vj\ max.}$	0,45 mΩ	0,5 mΩ
R_{thjc}		0,16 °C/W	0,11 °C/W
R_{thch}		0,015 °C/W	0,01 °C/W
T_{vj}		– 40 ... + 180 °C	– 40 ... + 160 °C
T_{stg}		– 55 ... + 180 °C	– 55 ... + 160 °C
M	SI units/US units	60 Nm/530 lb. in.	
a		5 · 9,81 m/s^2	
w	approx.	500 g	
RC	P_R = 2 W	1 µF + 20 Ω	
R_p	P_R = 20 W	25 kΩ	
Case		E 16	E 17

Rectifier Diodes

SKN 320 SKR 320
SKN 400

Features

- Reverse voltages up to 3000 V
- Hermetic metal cases with glass insulators; SKN 400 ceramic insulator with extra long creepage distances
- Threaded studs ISO M24 x 1,5
- **SKN**: anode to stud
  SKR: cathode to stud

Typical Applications

- SKN/SKR 320: all-purpose high power rectifier diodes
- SKN 400: high voltage rectifier diode, especially for traction applications
- Cooling via heatsinks
- Non-controllable and half-controllable rectifiers, free-wheeling diodes

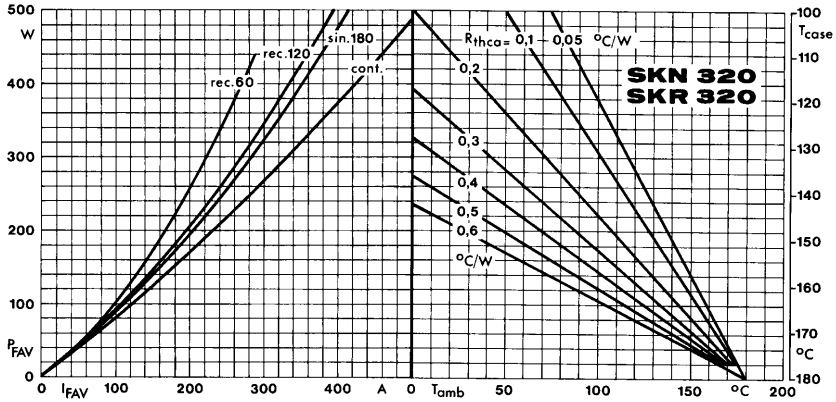


Fig. 1 a Power dissipation vs. forward current and case temperature

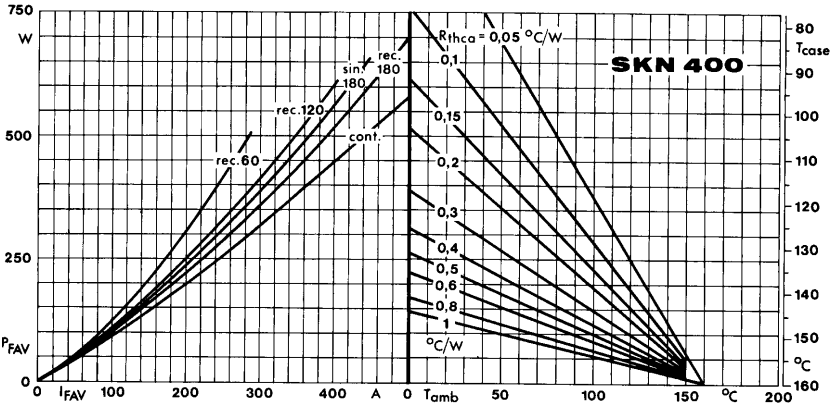


Fig. 1 b Power dissipation vs. forward current and case temperature

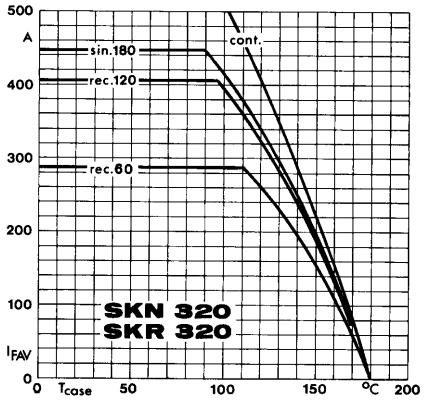


Fig. 3 a Rated forward current vs. case temperature

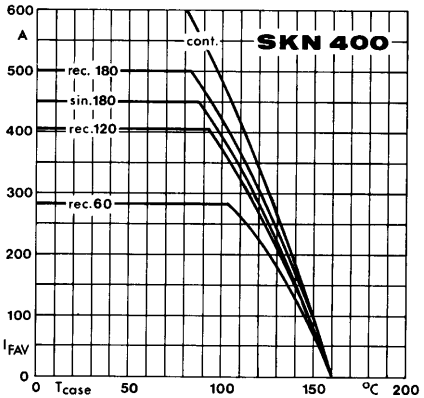


Fig. 3 b Rated forward current vs. case temperature

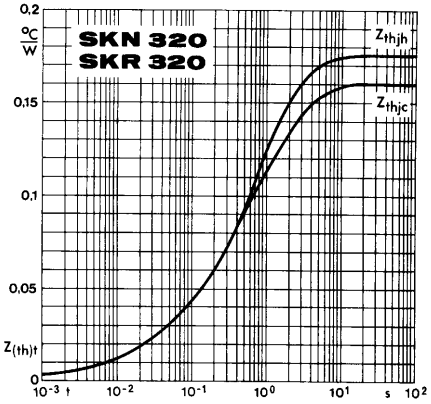


Fig. 5 a Transient thermal impedance vs. time

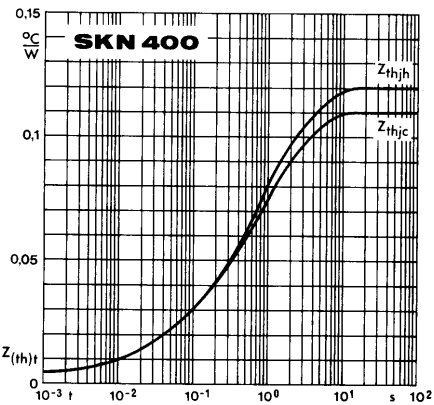


Fig. 5 b Transient thermal impedance vs. time

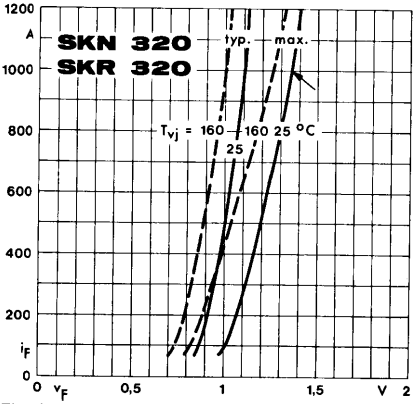


Fig. 6 a Forward characteristics

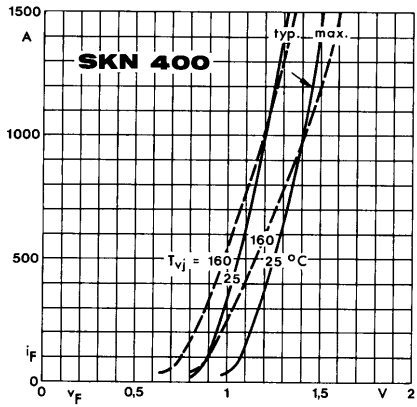


Fig. 6 b Forward characteristics

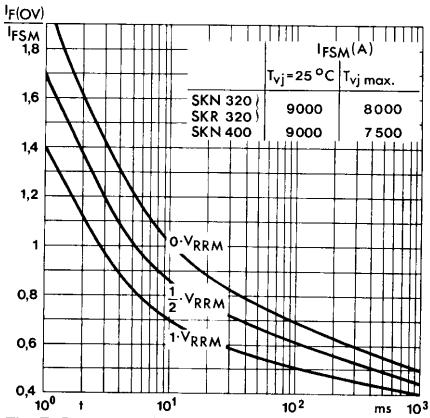
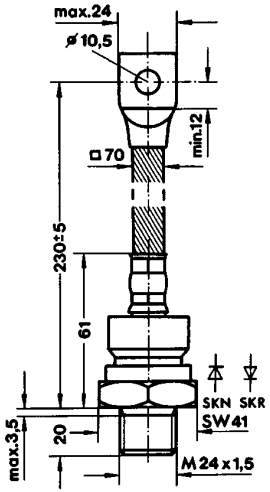


Fig. 7 Surge overload current vs. time

SKN 320
SKR 320

Case E 16

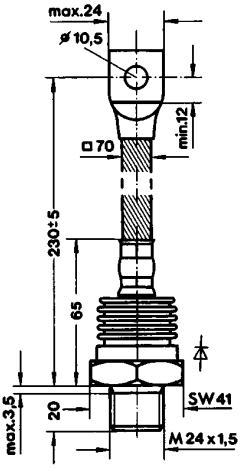
IEC: A 22 B
DIN 41 888: 107 B



SKN 400

Case E 17

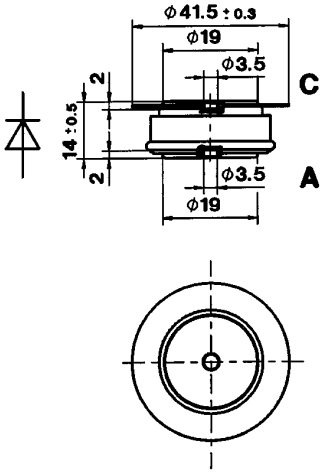
IEC: A 22 B
DIN 41 888: 107 B 2



SKN 450
SKN 501

Case E 18

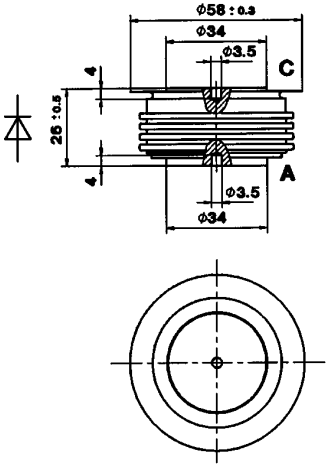
DIN 41 814: 151 A 2
JEDEC: DO-200 AA



SKN 870

Case E 19

DIN 41 814: 153 C 2
JEDEC: DO-200 AB



Dimensions in mm

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 41 A			
	I_{FAV} (sin. 180; T_{case} = 85 °C) 26 A			
	t_{rr} = 150 ns		t_{rr} = 250 ns	
V				
400	**SKN 2F17/04** **SKN 2F17/04UNF**	**SKR 2F17/04** **SKR 2F17/04UNF**	– –	– –
600	**SKN 2F17/06** **SKN 2F17/06UNF**	**SKR 2F17/06** **SKR 2F17/06UNF**		
800	**SKN 2F17/08** **SKN 2F17/08UNF**	**SKR 2F17/08** **SKR 2F17/08UNF**	**SKN 3F20/08** **SKN 3F20/08UNF**	**SKR 3F20/08** **SKR 3F20/08UNF**
1000	**SKN 2F17/10** **SKN 2F17/10UNF**	**SKR 2F17/10** **SKR 2F17/10UNF**	**SKN 3F20/10** **SKN 3F20/10UNF**	**SKR 3F20/10** **SKR 3F20/10UNF**
1200	– –	– –	**SKN 3F20/12** **SKN 3F20/12UNF**	**SKR 3F20/12** **SKR 3F20/12UNF**

Symbol	**Conditions**	**SKN 2 F 17** **SKR 2 F 17**	**SKN 3 F 20** **SKR 3 F 20**	**Units**
I_{FAV}	sin.180; T_{case} = 85 °C; f=5000 Hz	26	26	A
	= 104 °C	–	20	A
	= 113 °C	17	–	A
	sin.180/rec.120; T_{amb} = 5 °C; K9	6,7 /6,5		A
	K5	10/9,5		A
I_{FSM}	T_{vj} = 25 °C; 10 ms	450	375	A
	T_{vj} = 150 °C; 10 ms	380	310	A
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	1000	700	A^2s
	T_{vj} = 150 °C; 8,3 ... 10 ms	720	480	A^2s
Q_{rr}	T_{vj} = 130 °C; I_F = 50 A;	1,0	1,5	µC
I_{RM}	$-\frac{di_F}{dt} = 15\frac{A}{\mu s}$; $V_R = 30V$	4,5	5	A
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	max. 0,2	max. 0,2	mA
	T_{vj} = 130 °C; $V_R = V_{RRM}$	max. 16	max. 20	mA
t_{rr}	T_{vj} = 25 °C; $I_F = I_R$ = 1 A	max. 150	max. 250	ns
	T_{vj} = 130 °C; $I_F = I_R$ = 1 A	typ. 300	typ. 500	ns
V_F	T_{vj} = 25 °C; I_F = 50 A	max. 2,15		V
$V_{(TO)}$	T_{vj} = 130 °C	1,3		V
r_T	T_{vj} = 130 °C	12		mΩ
R_{thjc}		1,2		°C/W
R_{thch}		0,5		°C/W
T_{vj}		– 40 . . . + 150		°C
T_{stg}		– 55 . . . + 150		°C
M	SI units	1,5		Nm
	US units	13		lb.in.
a		5 · 9,81		m/s^2
w		7		g
Case		E7		

Fast Recovery Rectifier Diodes

SKN 2 F 17 **SKR 2 F 17**
SKN 3 F 20 **SKR 3 F 20**

Features

- Small recovered charge
- Soft recovery
- Up to 1200 V reverse voltage
- Hermetic metal cases with glass insulators
- Threaded studs ISO M5 or 10-32 UNF
- **SKN:** anode to stud
  SKR: cathode to stud

Typical Applications

- Inverse diodes for power transistors, GTO thyristors asymmetric thyristors
- SMPS, inverters, choppers
- For severe ambient conditions

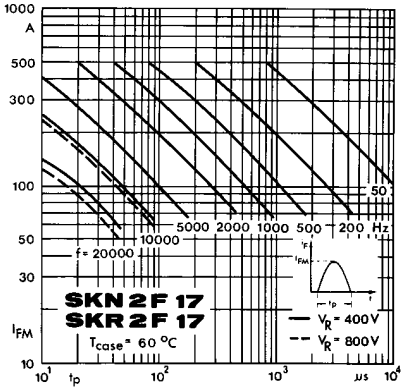


Fig. 1 a Rated sinusoidal peak forward current

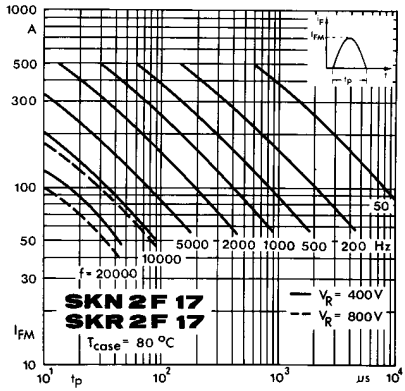


Fig. 1 b Rated sinusoidal peak forward current

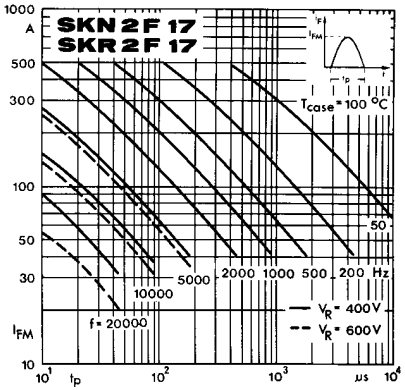


Fig. 1 c Rated sinusoidal peak forward current

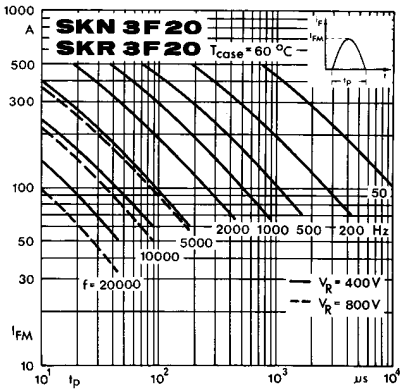


Fig. 1 d Rated sinusoidal peak forward current

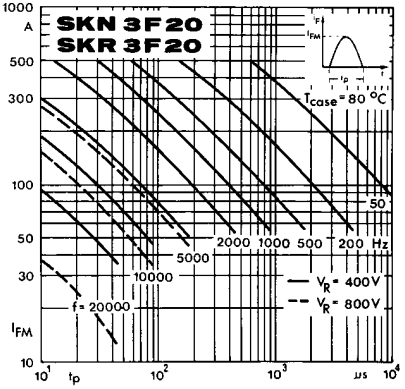


Fig. 1 e Rated sinusoidal peak forward current

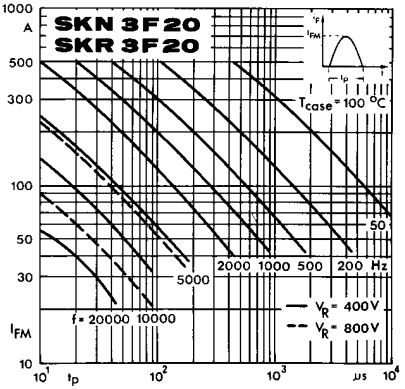


Fig. 1 f Rated sinusoidal peak forward current

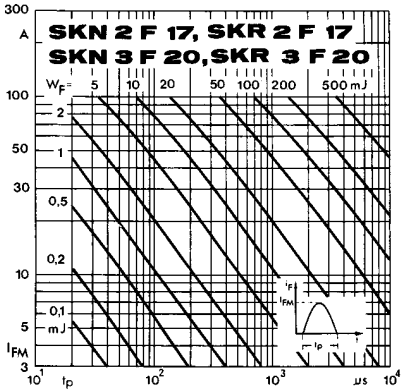


Fig. 2 Forward energy dissipation, sinusoidal

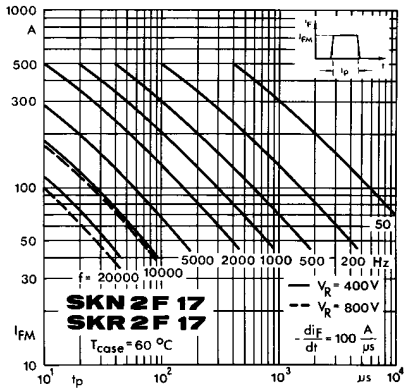


Fig. 3 a Rated rectangular peak forward current

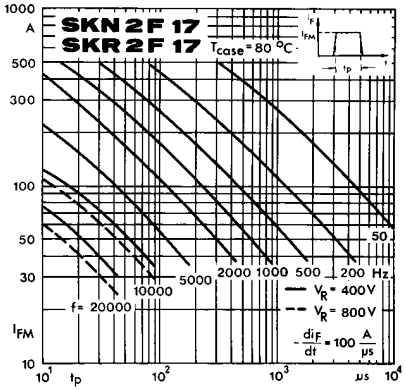


Fig. 3 b Rated rectangular peak forward current

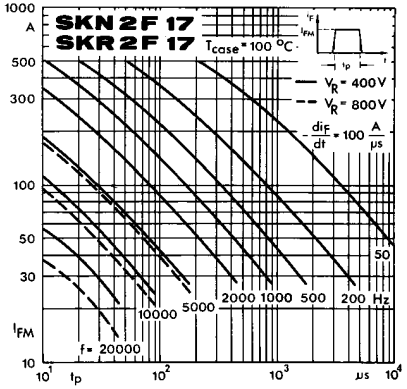


Fig. 3 c Rated rectangular peak forward current

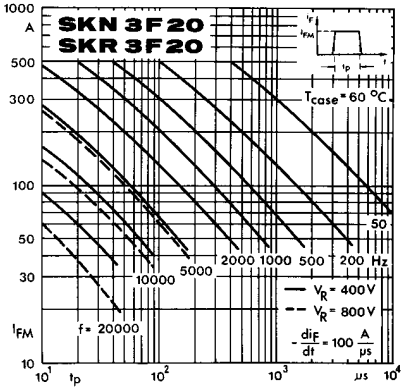


Fig. 3 d Rated rectangular peak forward current

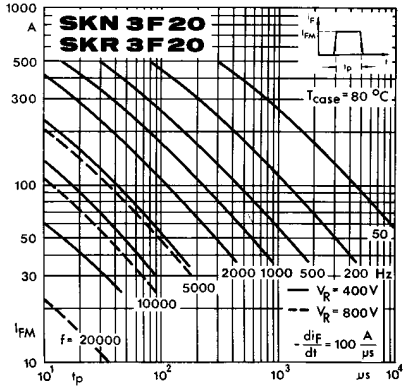


Fig. 3 e Rated rectangular peak forward current

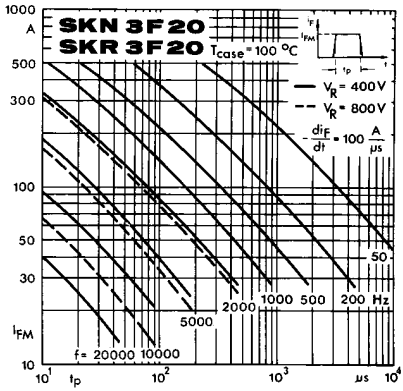


Fig. 3 f Rated rectangular peak forward current

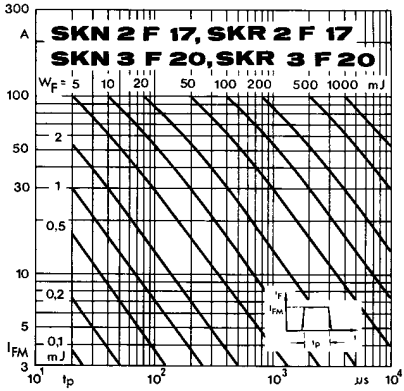


Fig. 4 Forward energy dissipation, rectangular

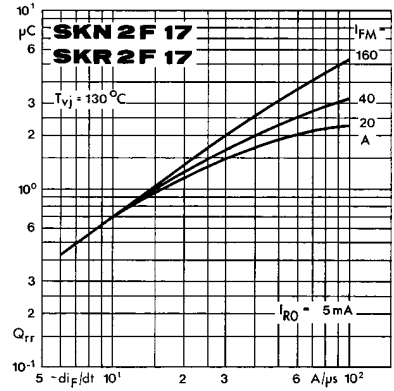


Fig. 5 a Recovered charge

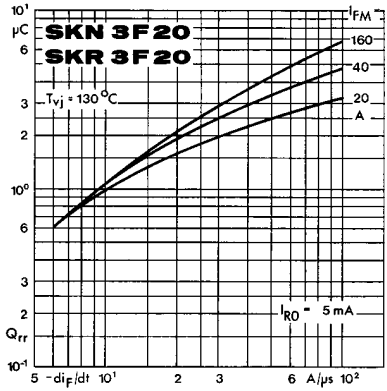


Fig. 5 b Recovered charge

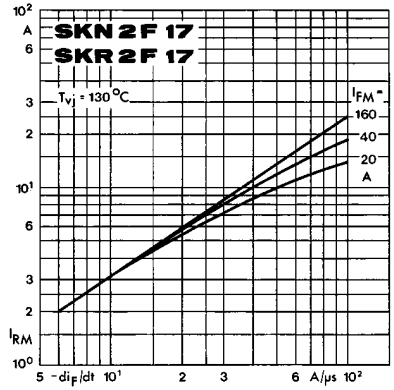


Fig. 6 a Peak reverse recovery current

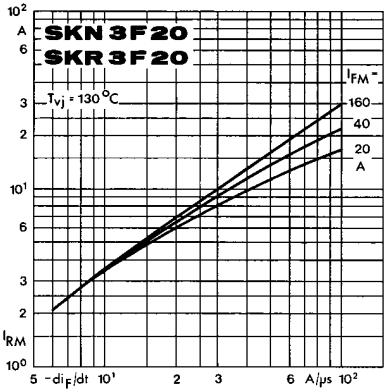


Fig. 6 b Peak reverse recovery current

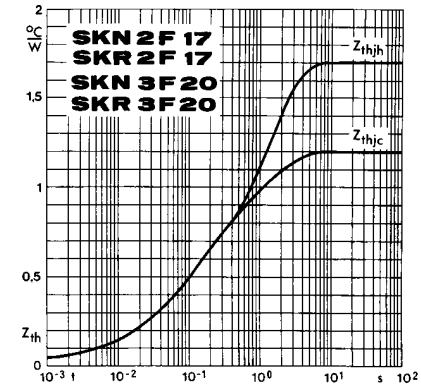


Fig. 7 Transient thermal impedance

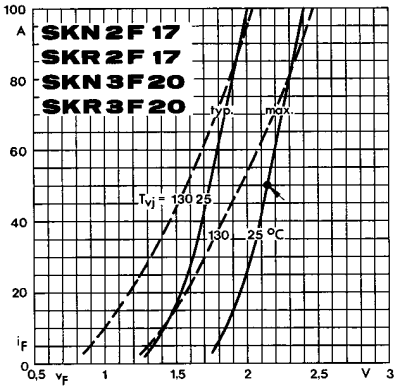


Fig. 8 Forward characteristics

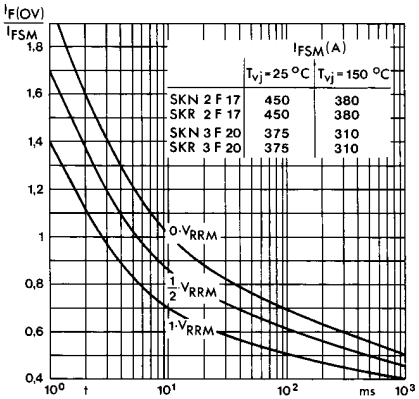
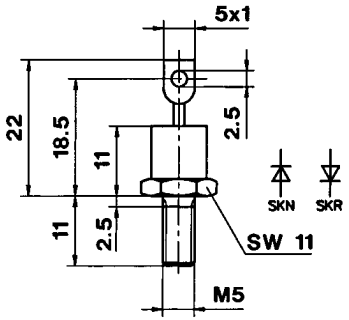


Fig 9 Rated surge overload current

SKN 2 F 17
SKR 2 F 17
SKN 3 F 20
SKR 3 F 20

Case E 7

IEC-Publ. 191-2: A 3 M
DIN 41 885: 101 C 2
BS 3934: SO-10
JEDEC: DO-203 AA (DO-4) metric

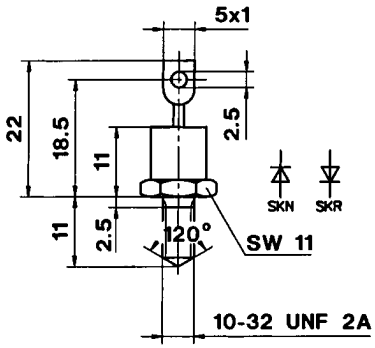


Dimensions in mm

SKN 2 F 17 . . . UNF
SKR 2 F 17 . . . UNF
SKN 3 F 20 . . . UNF
SKR 3 F 20 . . . UNF

Case E 7 UNF

IEC-Publ. 191-2: A 3 U
BS 3934: SO-10
JEDEC: DO-203 AA (DO-4)



Dimensions in mm

Rectifier Diodes

SKN 45 SKR 45
SKN 70 SKR 70
SKN 71 SKR 71

V_{RSM} V_{RRM}	I_{FRMS} (maximum values for continuous operation) 80 A		150 A			
	I_{FAV} (sin. 180; T_{case} = . . .) 50 A (118 °C)		95 A (100 °C)			
V						
200	**SKN45/02**	**SKR45/02**	**SKN70/02**	**SKR70/02**	**SKN71/02***	**SKR71/02***
400	**SKN45/04**	**SKR45/04**	**SKN70/04**	**SKR70/04**	**SKN71/04***	**SKR71/04***
800	**SKN45/08**	**SKR45/08**	**SKN70/08**	**SKR70/08**	**SKN71/08***	**SKR71/08***
1200	**SKN45/12**	**SKR45/12**	**SKN70/12**	**SKR70/12**	**SKN71/12***	**SKR71/12***
1400	**SKN45/14**	**SKR45/14**	**SKN70/14**	**SKR70/14**	**SKN71/14**	**SKR71/14***
1600	**SKN45/16**	**SKR45/16**	**SKN70/16**	**SKR70/16**	**SKN71/16***	**SKR71/16***

Symbol	Conditions	SKN 45 SKR 45	SKN 70 SKR 70	SKN 71 SKR 71
I_{FAV}	sin. 180; T_{case} = 100 °C		95 A	
	= 118 °C	50 A		
	= 125 °C	45 A	70 A	
I_{FSM}	T_{vj} = 25 °C; 10 ms	700 A	1150 A	
	T_{vj} = 180 °C; 10 ms	600 A	1000 A	
i^2t	T_{vj} = 25 °C; 8,3 ... 10 ms	2500 A^2s	6600 A^2s	
	T_{vj} = 180 °C; 8,3 ... 10 ms	1800 A^2s	5000 A^2s	
Q_{rr}	T_{vj} = 160 °C; $-\frac{di_F}{dt} = 10\ \frac{A}{\mu s}$	typ. 70 µC	typ. 70 µC	
I_R	T_{vj} = 25 °C; $V_R = V_{RRM}$	0,6 mA	0,6 mA	
	T_{vj} = 180 °C; $V_R = V_{RRM}$	10 mA	10 mA	
V_F	T_{vj} = 25 °C; (I_F = . . .); max.	1,6 V (150 A)	1,5 V (200 A)	
$V_{(TO)}$	T_{vj} = 180 °C	0,85 V	0,85 V	
r_T	T_{vj} = 180 °C	5 mΩ	3 mΩ	
R_{thjc}		0,85 °C/W	0,55 °C/W	
R_{thch}		0,25 °C/W	0,2 °C/W	
T_{vj}		– 40 ... + 180 °C		
T_{stg}		– 55 ... + 180 °C		
M	M 8 } SI units	4 Nm/35 lb. in.		
	1/4-28 UNF 2 A } US units	2,5 Nm/22 lb. in.		
a		5 · 9,81 m/s^2		
w	approx.	30 g		
RC	(P_R = . . .)	0,1 µ +100 Ω (1 W)	0,1 µF +100 Ω (2 W)	
R_p	P_R = 6 W	80 kΩ	80 kΩ	
Case		E 12	E 12	E 11

Features

- Reverse voltages up to 1600 V
- Hermetic metal cases with glass insulators
- Threaded studs ISO M8 (SKN/R 71 also 1/4-28 UNF)
- **SKN**: anode to stud
  SKR: cathode to stud

Typical Applications

- All-purpose mean power rectifier diodes
- Cooling via heatsinks
- Non-controllable and half-controllable rectifiers
- Free-wheeling diodes

* available with UNF thread 1/4-28 UNF 2 A; e.g. SKN 71/02 UNF

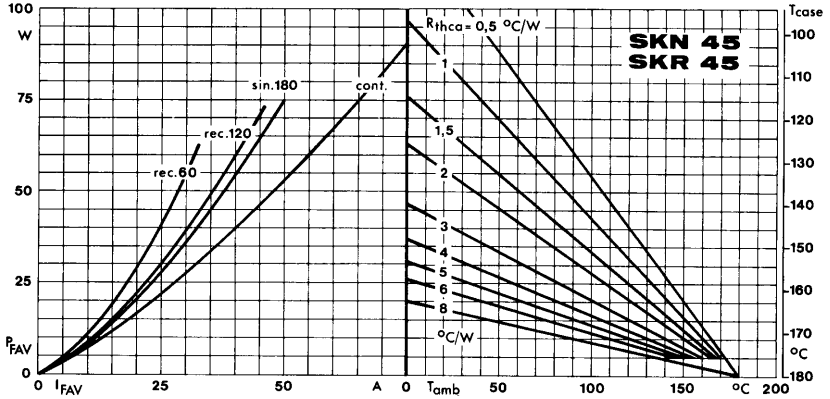


Fig. 1 a Power dissipation vs. forward current and case temperature

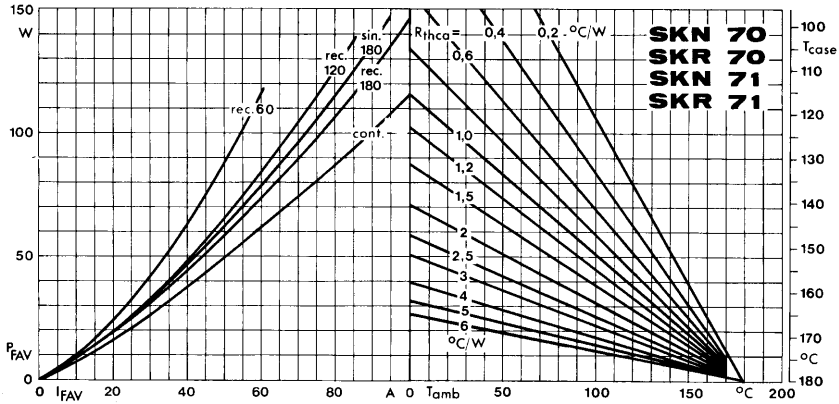


Fig. 1 b Power dissipation vs. forward current and case temperature

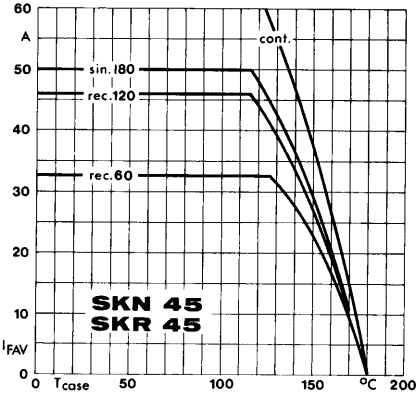


Fig. 3 a Rated forward current vs. case temperature

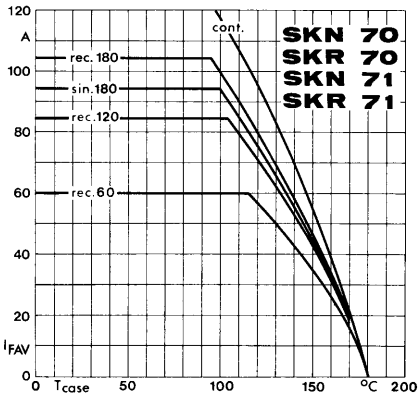


Fig. 3 b Rated forward current vs. case temperature

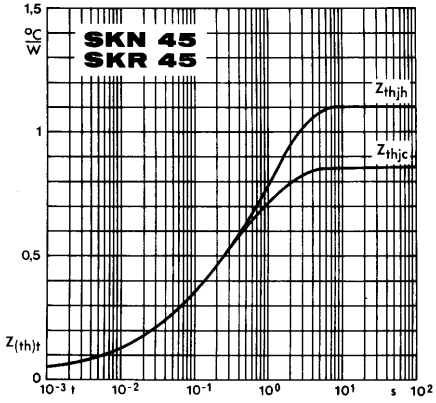


Fig. 5 a Transient thermal impedance vs. time

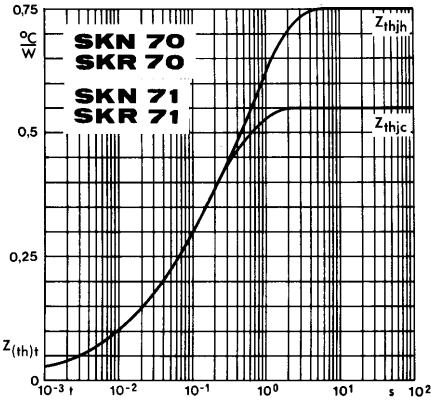


Fig. 5 b Transient thermal impedance vs. time

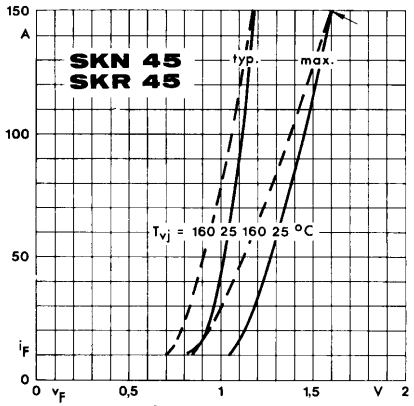


Fig. 6 a Forward characteristics

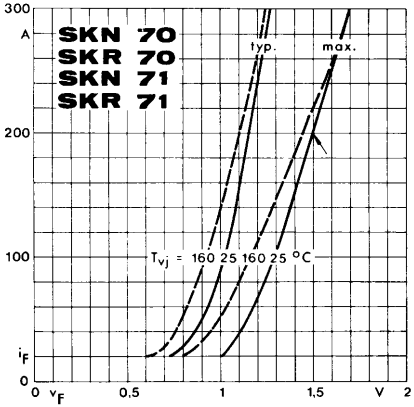
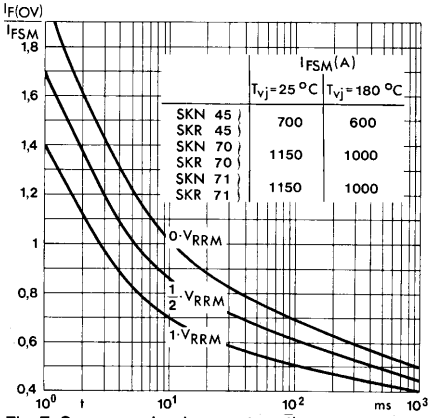


Fig. 6 b Forward characteristics



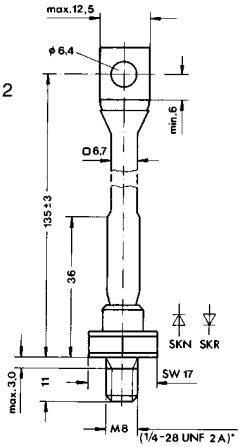
	I_{FSM} (A) T_{vj} = 25 °C	T_{vj} = 180 °C
SKN 45 / SKR 45	700	600
SKN 70 / SKR 70	1150	1000
SKN 71 / SKR 71	1150	1000

Fig. 7 Surge overload current vs. time

SKN 45, SKR 45
SKN 70, SKR 70

Case E 12

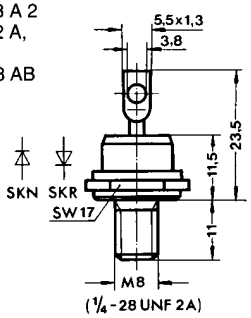
IEC: A 16 U; A 17 M B 2
DIN 41 886: 103 A 2
BS 3934: SO-32 A,
SO-32 B



SKN 71
SKR 71

Case E 11

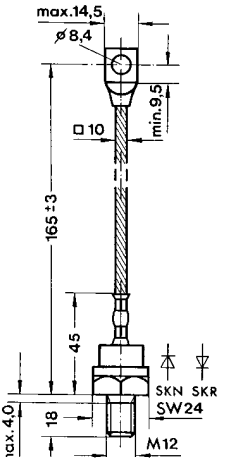
IEC: A 16 U; A 17 M B 2
DIN 41 886: 103 A 2
BS 3934: SO-32 A,
SO-32 B
JEDEC: DO-203 AB
(DO-5)



SKN 100
SKR 100

Case E 13

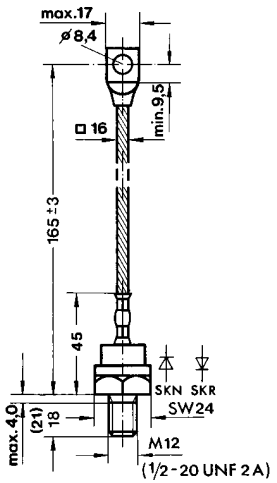
IEC: A 9 MA[1)]
DIN 41 887: 105 B 2[1)]
BS 3934: SO-29 B
JEDEC: DO-205 AC



SKN 130
SKR 130

Case E 14

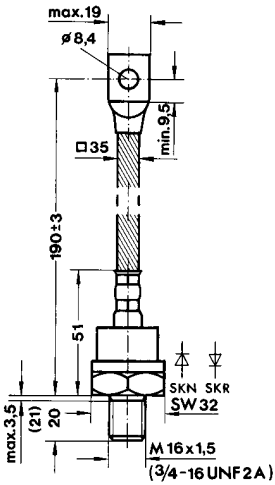
IEC: A 9 MA[1)]
DIN 41 887: 105 B 2[1)]
BS 3934: SO-29 B
JEDEC: DO-205 AC
(DO-30)[2)]



SKN 240
SKR 240

Case E 15

IEC: A 15 M
DIN 41 887: 106 B 2
BS 3934: SO-42
JEDEC: DO-205 AB
(DO-9)



[1)] modified
[2)] available with thread ½-20 UNF 2 A or ⅜-28 UNF 2 A

Dimensions in mm