

Rectifier Diodes

SKN 320 SKR 320 SKN 400



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

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

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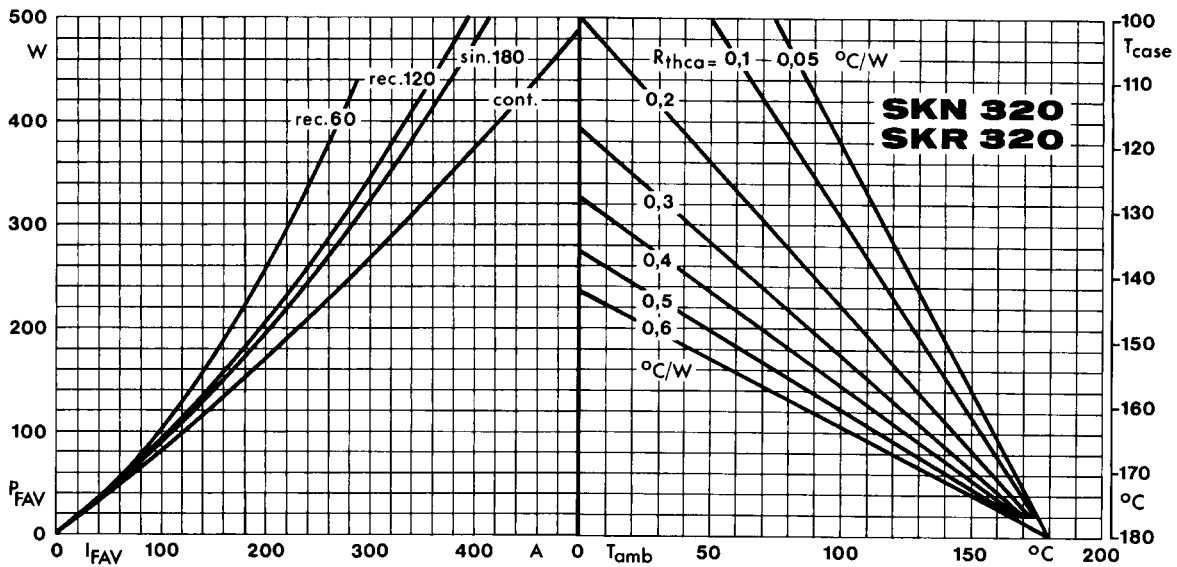


Fig. 1 a Power dissipation vs. forward current and case temperature

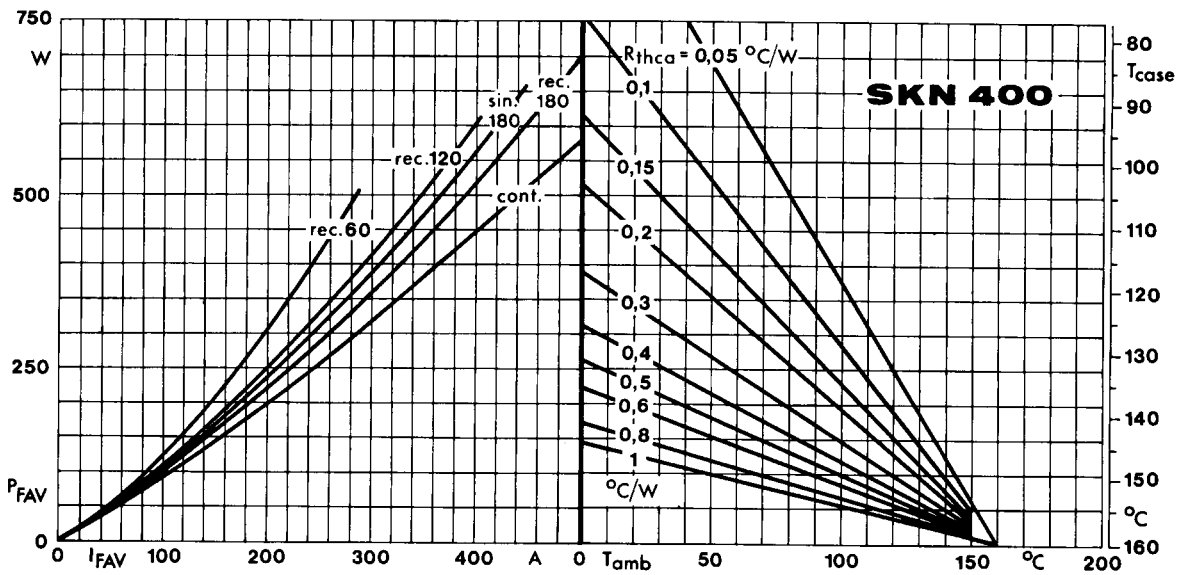


Fig. 1 b Power dissipation vs. forward current and case temperature

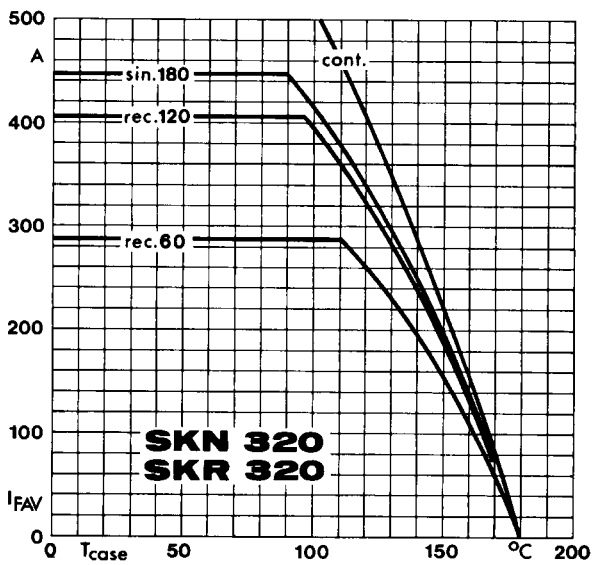


Fig. 3 a Rated forward current vs. case temperature

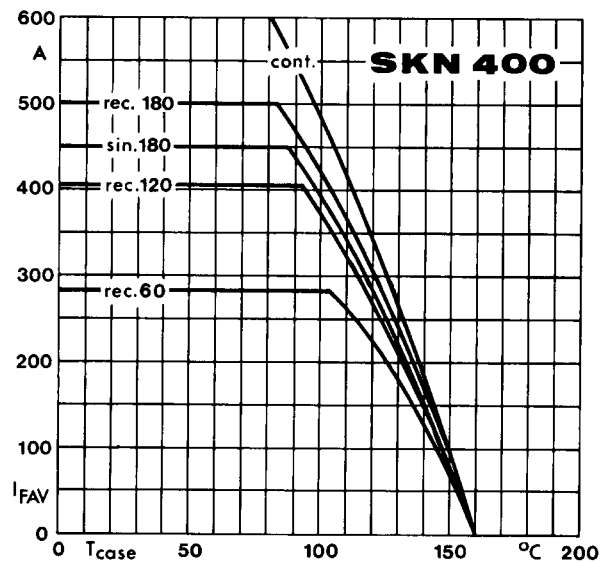


Fig. 3 b Rated forward current vs. case temperature

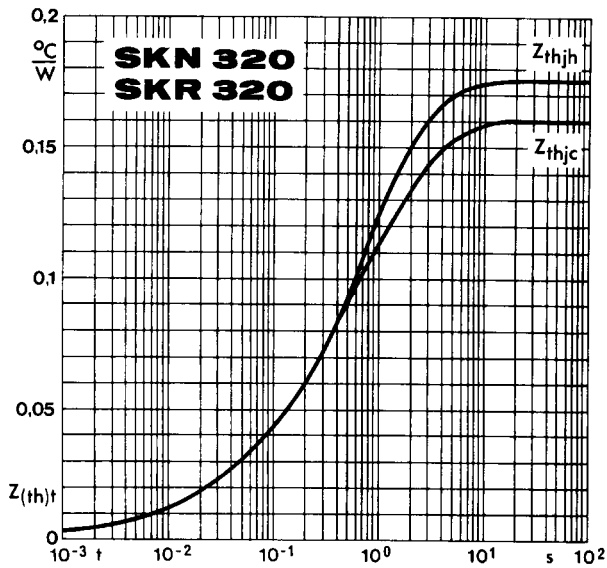


Fig. 5 a Transient thermal impedance vs. time

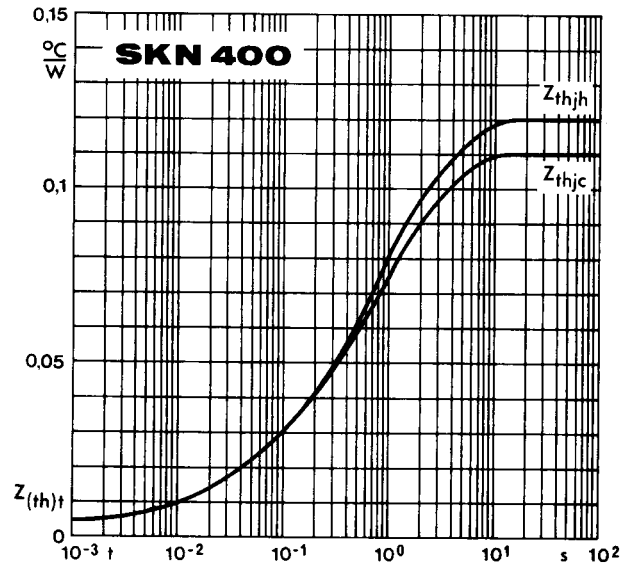


Fig. 5 b Transient thermal impedance vs. time

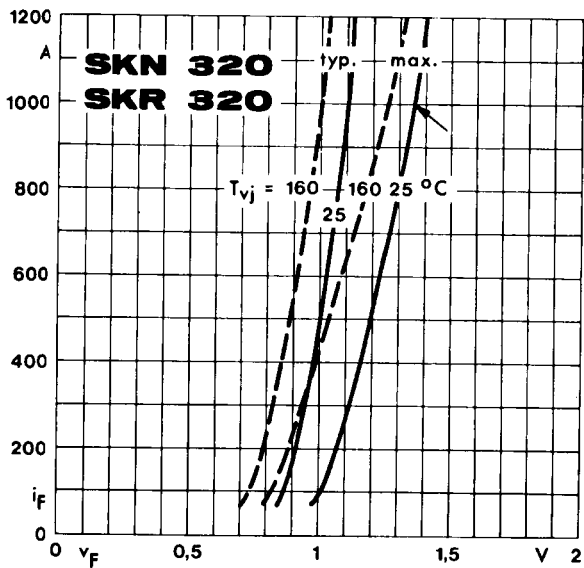


Fig. 6 a Forward characteristics

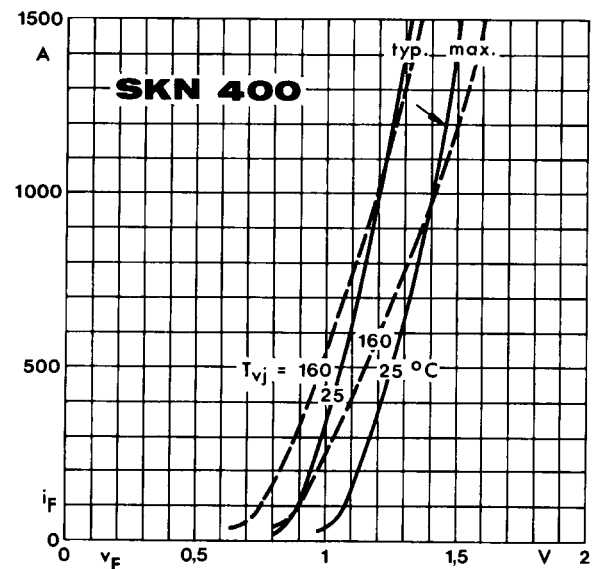


Fig. 6 b Forward characteristics

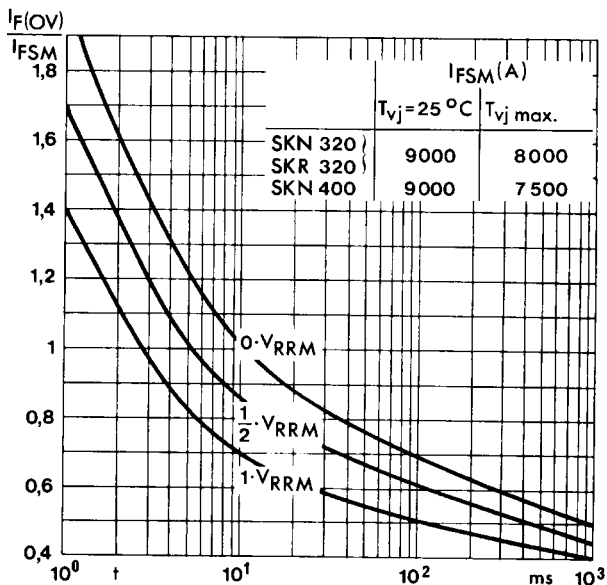
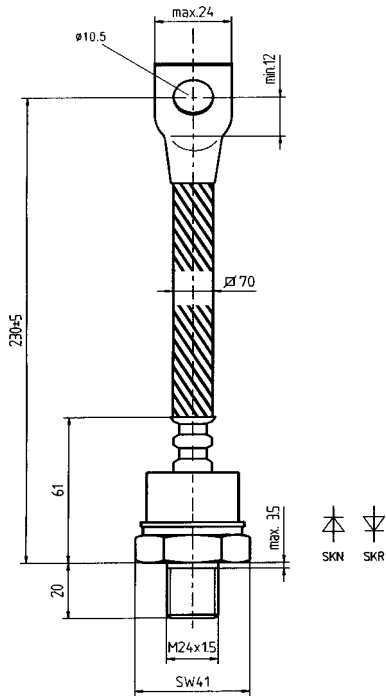


Fig. 7 Surge overload current vs. time

SKN 320
SKR 320

Case E 16

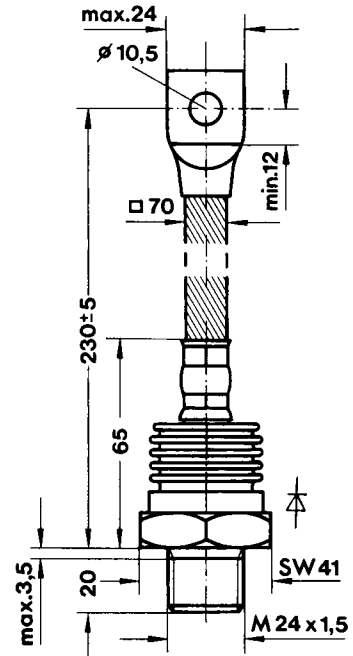
IEC: A 22 B
DIN 41 888: 107 B



SKN 400

Case E 17

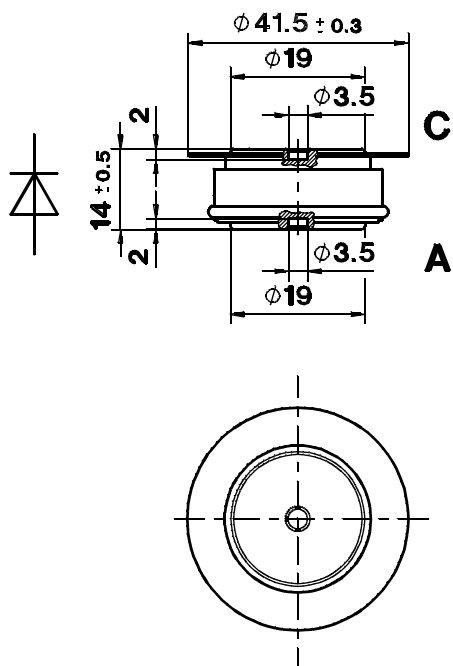
IEC: A 22 B
DIN 41 888: 107 B 2



SKN 450
SKN 501

Case E 18

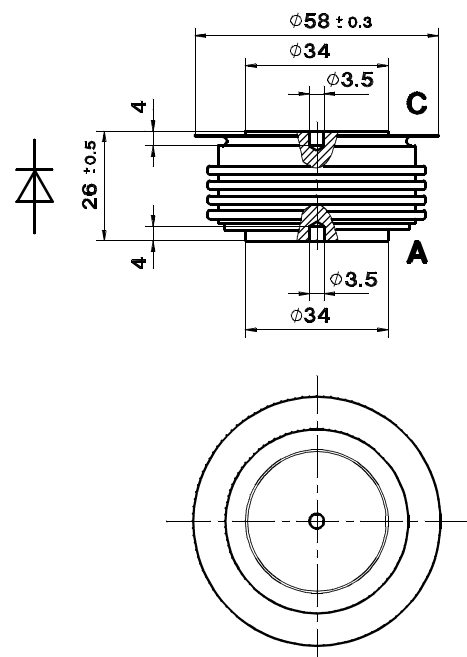
DIN 41 814: 151 A 2
JEDEC: DO-200 AA



SKN 870

Case E 19

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



Dimensions in mm