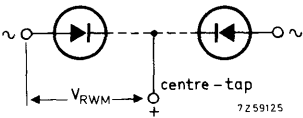


HIGH VOLTAGE RECTIFIER STACKS

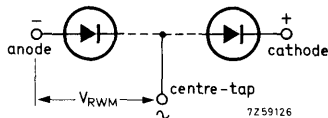
The OSB9310, OSM9310 and OSS9310 series are ranges of high voltage rectifier assemblies, incorporating controlled avalanche diodes mounted on fire proof triangular formers. The OSB9310 series is intended for application in two phase half wave rectifier circuits. The OSM9310 series is intended for application in single phase or three phase bridges or in voltage doubler circuits. The OSS9310 series is intended for all kinds of high voltage rectification. The assemblies are supplied with M6 studs or with standard valve bases. The OSB9310 series and OSM9310 series are supplied with a centre tap (8-32UNC). The maximum crest working voltages of the OSB9310 and OSM9310 series cover the range from 2 kV to 15 kV, and of the OSS9310 series the range from 3 kV to 30 kV, in 1 kV steps.

The OSB9310 series is intended for application in two phase half wave rectifier circuits. The OSM9310 series is intended for application in single phase or three phase bridges or in voltage doubler circuits. The OSS9310 series is intended for all kinds of high voltage rectification. The assemblies are supplied with M6 studs or with standard valve bases. The OSB9310 series and OSM9310 series are supplied with a centre tap (8-32UNC). The maximum crest working voltages of the OSB9310 and OSM9310 series cover the range from 2 kV to 15 kV, and of the OSS9310 series the range from 3 kV to 30 kV, in 1 kV steps.

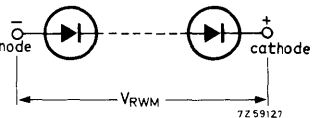
circuit OSB 9310



circuit OSM 9310



circuit OSS 9310



QUICK REFERENCE DATA

		OSB9310	-4	-6	...	-28	-30	
		OSM9310	-4	-6	...	-28	-30	
Crest working reverse voltage from centre tap to end	V_{RWM}	max.	2	3	...	14	15 kV	
Crest working reverse voltage	V_{RWM}		OSS9310	-3	-4	...	-29	-30
		max.		3	4	...	29	30 kV
Average forward current with R and L load (averaged over any 20 ms period)								
			in free air up to $T_{amb} = 35^{\circ}\text{C}$			$I_{F(AV)}$ max.	4 A	
			in oil up to $T_{oil} = 65^{\circ}\text{C}$			$I_{F(AV)}$ max.	12 A	
Non-repetitive peak forward current $t = 10\text{ ms}$:half sine wave: $T_j = 175^{\circ}\text{C}$ prior to surge								
					I_{FSM} max.	180 A		

MECHANICAL DATA see page 4 and 5

All information applies to frequencies up to 400 Hz

RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

<u>Voltages</u>		OSB9310	-4	-6	...	-28	-30
		OSM9310	-4	-6	...	-28	-30
Crest working reverse voltage	V_{RWM}	max.	2	3	...	14	15 kV
		OSS9310	-3	-4	...	-29	-30
Crest working reverse voltage	V_{RWM}	max.	3	4	...	29	30 kV

Currents

Average forward current (averaged over any 20 ms period)

in free air up to $T_{amb} = 35\text{ }^{\circ}\text{C}$

in oil up to $T_{oil} = 65\text{ }^{\circ}\text{C}$

$I_{F(AV)}$ max. 4 A

$I_{F(AV)}$ max. 12 A

Repetitive peak forward current

I_{FRM} max. 250 A

Non-repetitive peak forward current

$t = 10\text{ ms}$; half sine wave; $T_j = 175\text{ }^{\circ}\text{C}$ prior to surge

I_{FSM} max. 180 A

Reverse power dissipation

Repetitive peak reverse power dissipation

$t = 10\text{ }\mu\text{s}$ (square wave; $f = 50\text{ Hz}$)

$T_j = 175\text{ }^{\circ}\text{C}$

P_{RRM}

max. 2 3 ... 14 15 kW

Non-repetitive peak reverse power dissipation

$t = 10\text{ }\mu\text{s}$ (square wave)

$T_j = 25\text{ }^{\circ}\text{C}$ prior to surge

$T_j = 175\text{ }^{\circ}\text{C}$ prior to surge

P_{RSM}

P_{RSM}

max. 12 18 ... 84 90 kW

max. 2 3 ... 14 15 kW

Repetitive peak reverse

power dissipation

$t = 10\text{ }\mu\text{s}$ (square wave; $f = 50\text{ Hz}$)

$T_j = 175\text{ }^{\circ}\text{C}$

P_{RRM}

OSS9310 -3 -4 ... -29 -30

max. 3 4 ... 29 30 kW

Non-repetitive peak reverse

power dissipation

$t = 10\text{ }\mu\text{s}$ (square wave)

$T_j = 25\text{ }^{\circ}\text{C}$ prior to surge

$T_j = 175\text{ }^{\circ}\text{C}$ prior to surge

P_{RSM}

P_{RSM}

max. 18 24 ... 174 180 kW

max. 3 4 ... 29 30 kW

Temperatures

Storage temperature

T_{stg}

-55 to +175 $^{\circ}\text{C}$

Junction temperature

T_j

max. 175 $^{\circ}\text{C}$

CHARACTERISTICS (See note 1)

	OSB9310	-4	-6	...	-28	-30
<u>Forward voltage</u>	OSM9310	-4	-6	...	-28	-30
$I_F = 50 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$	V_F	< 5	7.5	...	35	37.5 V
<u>Reverse breakdown voltage</u> ¹⁾						
$I_R = 5 \text{ mA}; T_j = 25 \text{ }^\circ\text{C}$	$V_{(BR)R}$	> 2.5	3.75	...	17.5	18.75 kV
		< 4	6	...	28	30 kV
	OSS9310	-3	-4	...	-29	-30
<u>Forward voltage</u>						
$I_F = 50 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$	V_F	< 7.5	10	...	72.5	75 V
<u>Reverse breakdown voltage</u> ¹⁾						
$I_R = 5 \text{ mA}; T_j = 25 \text{ }^\circ\text{C}$	$V_{(BR)R}$	> 3.75	5	...	36.25	37.5 kV
		< 6	8	...	58	60 kV
<u>Reverse current</u>						
$V_{RM} = V_{RWMmax}; T_j = 125 \text{ }^\circ\text{C}$	I_{RM}	<			0.3	mA

NOTES

- The Ratings and Characteristics given apply from centre tap to end. (Not for OSS9310series).
- Type number suffix
 The suffix consists of a figure indicating the total number of diodes, followed by a letter indicating the base.
 A = M6 studs at the ends
 B = 4 pin Super Jumbo (B4D)
 C = Goliath
 E = 4 pin Jumbo (B4F)
 F = A3-20
- Operating position
 The rectifier units can be operated at their maximum ratings when mounted in any position.

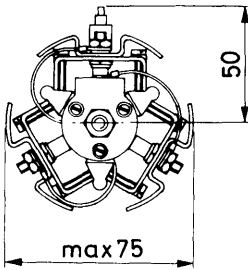
¹⁾ The breakdown voltage increases by approximately 0.1% per $^\circ\text{C}$ with increasing junction temperature.

MECHANICAL DATA

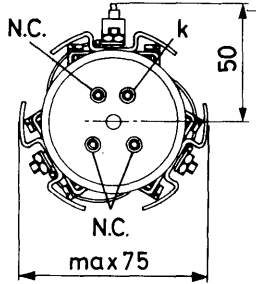
Dimensions in mm

n = total number of diodes

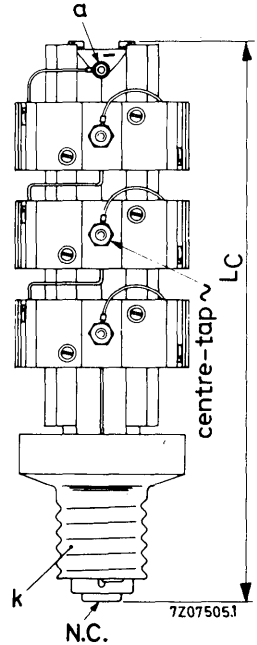
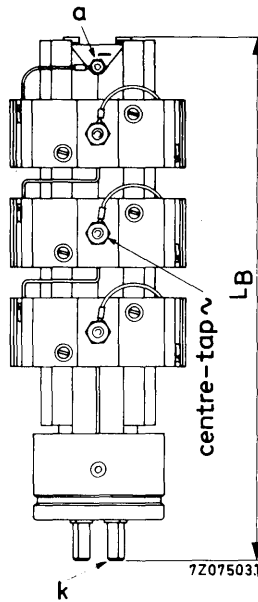
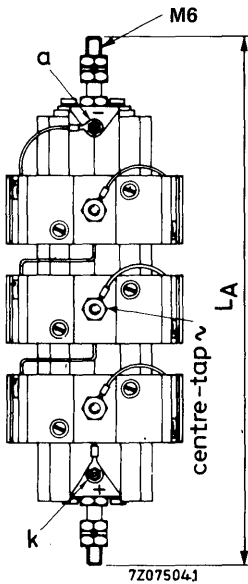
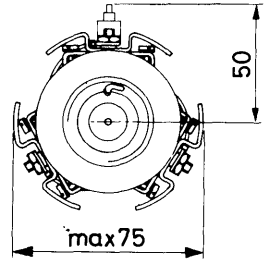
OSM9310-nA



OSM9310-nB



OSM9310-nC



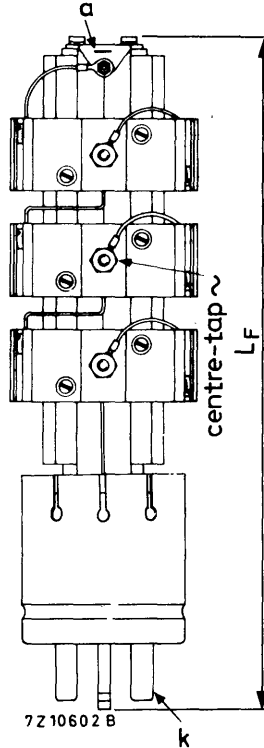
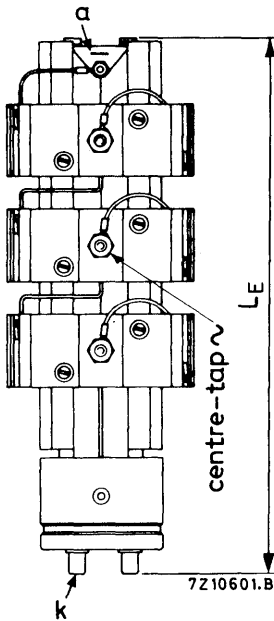
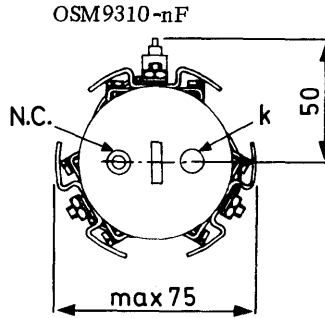
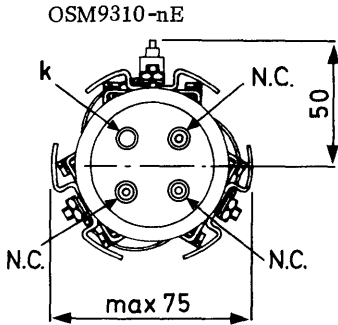
The drawings show the OSM9310series; the OSB9310 and OSS9310series differ in the following respects:

OSB9310series - terminals marked a(-) and k(+) in the drawings are both marked ~; the centre-tap is marked + (instead of ~ as in the drawings).

OSS9310series - has no centre-tap.

MECHANICAL DATA

n = total number of diodes

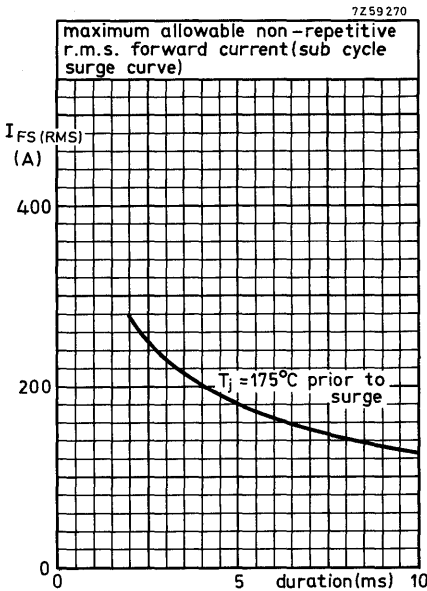
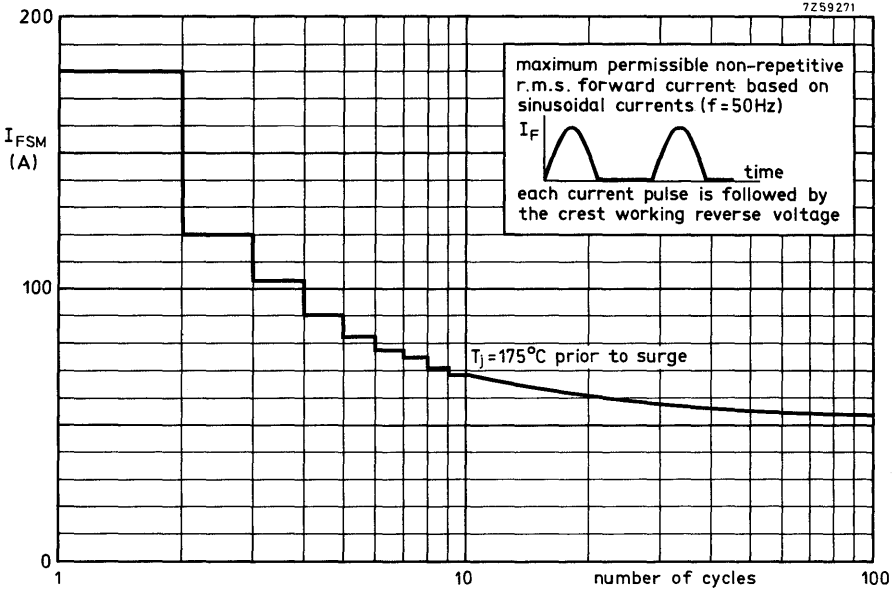


For lengths and weights see table on page 6.

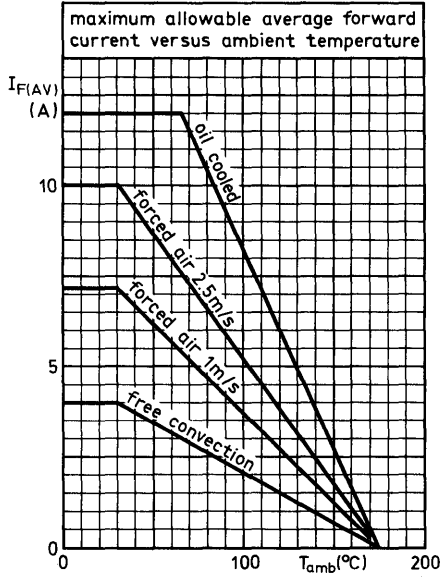
Table of lengths and weights (mm and g)

number of diodes	n	3	4 to 6	7 to 9	10 to 12	13 to 15
maximum lengths	L _A	143	184	224	264	305
	L _B	147	188	228	268	309
	L _C	159	199	239	279	320
	L _E	132	173	213	253	294
	L _F	184	225	265	305	346
	weight	W _A	153	286	419	552
W _B = W _C = W _E		218	351	484	617	750
W _F		379	512	645	778	911

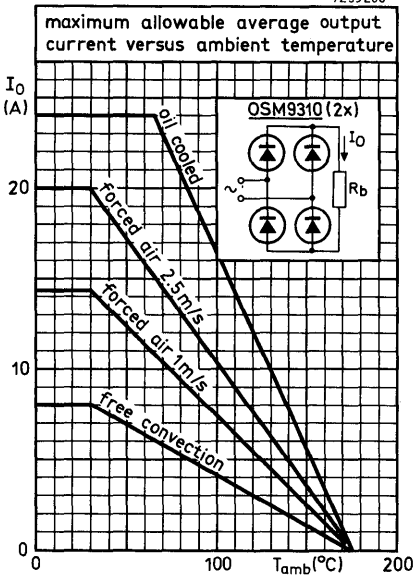
number of diodes	n	16 to 18	19 to 21	22 to 24	25 to 27	28 to 30
maximum lengths	L _A	345	385	426	466	506
	L _B	349	389	430	470	510
	L _C	360	400	441	481	521
	L _E	334	374	415	455	495
	L _F	386	426	467	507	547
	weights	W _A	818	951	1084	1217
W _B = W _C = W _E		883	1016	1149	1282	1415
W _F		1044	1177	1310	1443	1576



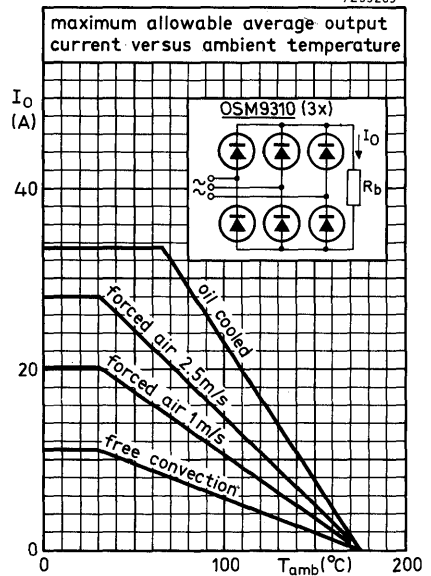
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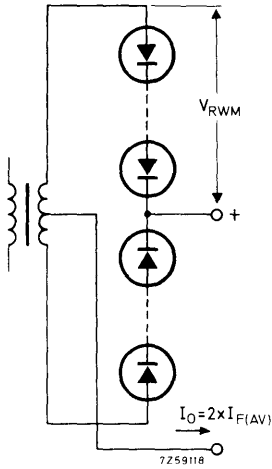


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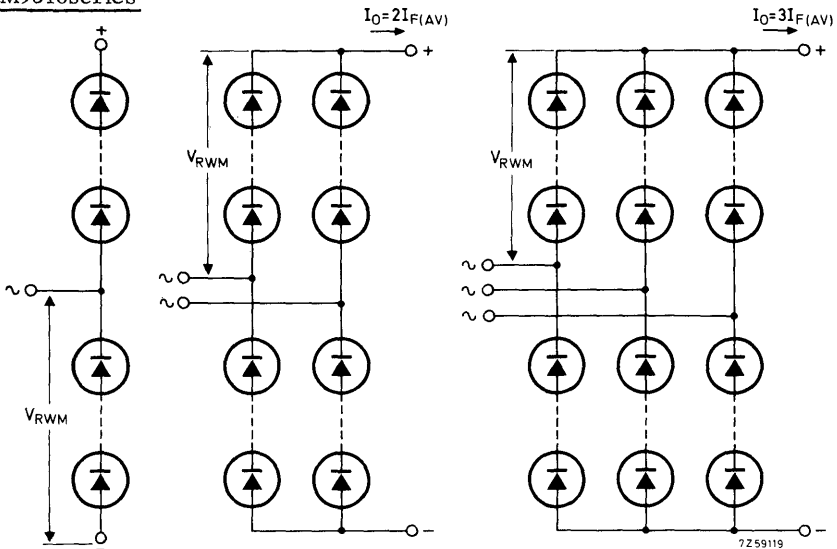


APPLICATION INFORMATION

OSB9310series



OSM9310series



voltage doubler
1x OSM9310

rectifier circuits with respectively
2x OSM9310 and 3x OSM9310