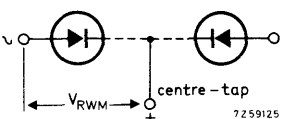


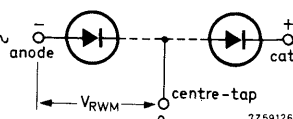
HIGH VOLTAGE RECTIFIER STACKS

The OSB9210, OSM9210 and OSS9210series are ranges of high voltage rectifier assemblies, incorporating controlled avalanche diodes mounted on fire proof triangular formers. The OSB9210series is intended for application in two phase half wave rectifier circuits. The OSM9210series is intended for application in single phase or three phase bridges or in voltage doubler circuits. The OSS9210series is intended for all kinds of high voltage rectification. The assemblies are supplied with M6 studs or with standard valve bases. The OSB9210-series and OSM9210series are supplied with a centre tap (8-32UNC). The maximum crest working voltages of the OSB9210 and OSM9210series cover the range from 2 kV to 15 kV, and of the OSS9210series the range from 3 kV to 30 kV, in 1 kV steps.

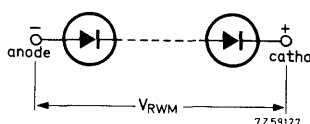
CIRCUIT OSB9210



CIRCUIT OSM9210



CIRCUIT OSS9210



QUICK REFERENCE DATA

				OSB9210 -4 -6	...	-28 -30
				OSM9210-4 -6	...	-28 -30
Crest working reverse voltage from centre tap to end	V_{RWM}	max.	2	3	...	14 15 kV
				OSS9210 -3 -4	...	-29 -30
Crest working reverse voltage	V_{RWM}	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 $T_{amb} = 35\text{ }^{\circ}\text{C}$		$I_F(AV)$	max.	5	A	
in oil up to $T_{oil} = 30\text{ }^{\circ}\text{C}$		$I_F(AV)$	max.	20	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.	360	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>	OSB9210	-4	-6	...	-28	-30
	OSM9210	-4	-6	...	-28	-30
Crest working reverse voltage	V_{RWM}	max.	2	3	14	15 kV
	OSS9210	-3	-4	...	-29	-30
		max.	3	4	29	30 kV

Currents

Average forward current (averaged over any 20 ms period)						
in free air up to $T_{amb} = 35\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.			5	A
in oil up to $T_{oil} = 30\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.			20	A
Repetitive peak forward current	I_{FRM}	max.			440	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.			360	A

Reverse power dissipation

Repetitive peak reverse power	OSB9210	-4	-6	...	-28	-30
	OSM9210	-4	-6	...	-28	-30
$t = 10\text{ }\mu\text{s}$ (square wave; $f = 50\text{ Hz}$)						
$T_j = 175\text{ }^{\circ}\text{C}$	P_{RRM}	max.	4	6	28	30 kW
Non-repetitive peak reverse power						
$t = 10\text{ }\mu\text{s}$ (square wave)						
$T_j = 25\text{ }^{\circ}\text{C}$ prior to surge	P_{RSM}	max.	26	39	182	195 kW
$T_j = 175\text{ }^{\circ}\text{C}$ prior to surge	P_{RSM}	max.	4	6	28	30 kW
Repetitive peak reverse power dissipation	OSS9210	-3	-4	...	-29	-30 kW
$t = 10\text{ }\mu\text{s}$ (square wave; $f = 50\text{ Hz}$)						
$T_j = 175\text{ }^{\circ}\text{C}$	P_{RRM}	max.	6	8	58	60 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	P_{RSM}	max.	39	52	377	390 kW
$T_j = 175\text{ }^{\circ}\text{C}$ prior to surge	P_{RSM}	max.	6	8	58	60 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)

	OSB9210 -4 -6	...	-28 -30
	OSM9210-4 -6	...	-28 -30
<u>Forward voltage</u>			
$I_F = 50 \text{ mA}; T_j = 25^\circ\text{C}$	$V_F < 3.6 \text{ V}$	...	25.2 27 V
<u>Reverse breakdown voltage</u> ¹⁾			
$I_R = 5 \text{ mA}; T_j = 25^\circ\text{C}$	$V_{(BR)R} > 2.5 \text{ V}$	...	17.5 18.75 kV
	$< 3.76 \text{ V}$	...	26.32 28.2 kV

	OSS9210 -3 -4	...	-29 -30
<u>Forward voltage</u>			
$I_F = 50 \text{ mA}; T_j = 25^\circ\text{C}$	$V_F < 5.4 \text{ V}$	...	52.2 54 V
<u>Reverse breakdown voltage</u> ¹⁾			
$I_R = 5 \text{ mA}; T_j = 25^\circ\text{C}$	$V_{(BR)R} > 3.75 \text{ V}$	...	36.25 37.5 kV
	$< 5.64 \text{ V}$	...	54.52 56.4 kV

Reverse current

$$I_{RM} = V_{RWM\max}; T_j = 125^\circ\text{C} \quad I_{RM} < 0.6 \text{ mA}$$

NOTES

1. The Ratings and Characteristics given apply from centre tap to end. (Not for OSS9210series).

2. 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 base
- B = 4 pin Super Jumbo (B4D)
- C = Goliath
- E = 4 pin Jumbo (B4F)
- F = A3-20

3. Operating position

The rectifier units can be operated at their maximum ratings when mounted in any position.

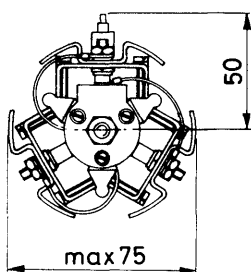
¹⁾ The breakdown voltage increases by approximately 0.1% per $^\circ\text{C}$ with increasing junction temperature.

MECHANICAL DATA

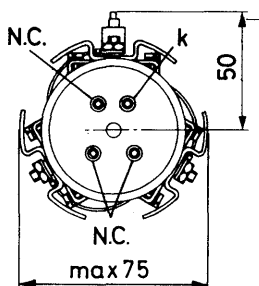
n = total number of diodes

Dimensions in mm

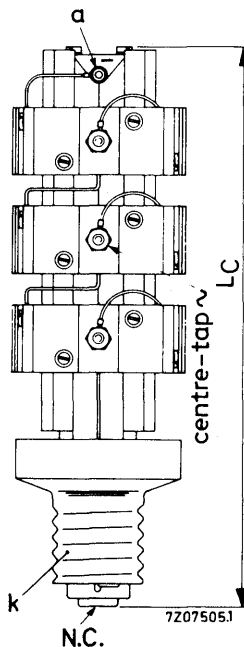
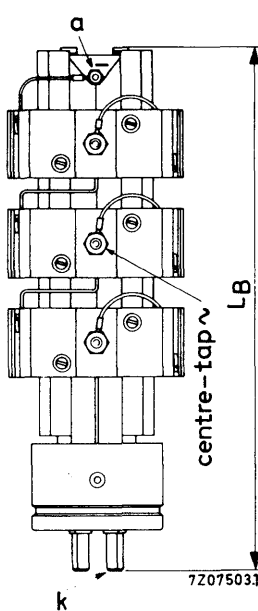
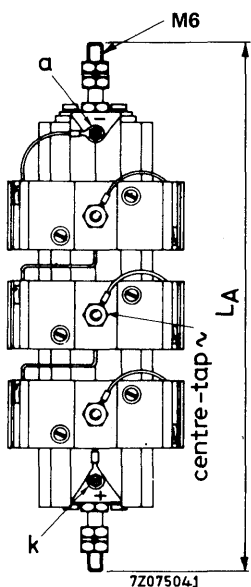
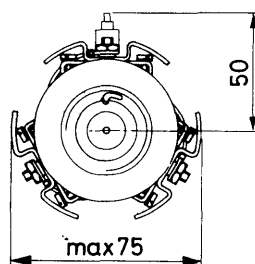
OSM9210-nA



OSM9210-nB



OSM9210-nC



The drawings show the OSM9210series; the OSB9210 and OSS9210series differ in the following respects:

OSB9210series - terminals marked a(-) and k(+) in the drawings are both marked ~;
the centre-tap is marked + (instead of ~ as in the drawings).

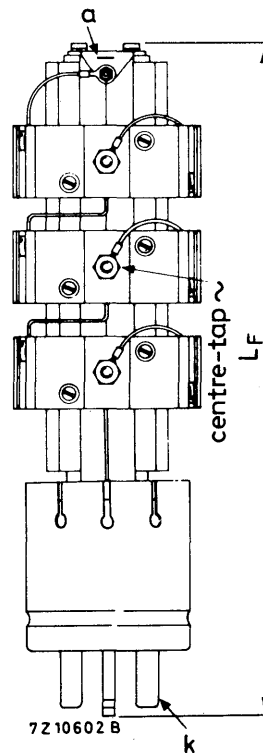
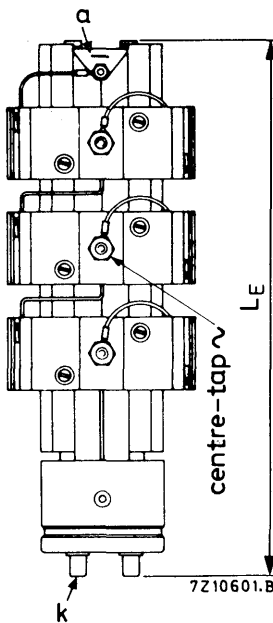
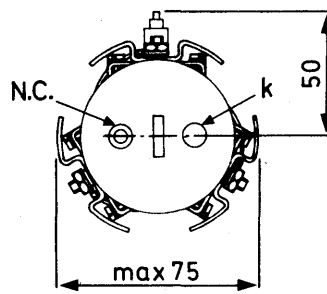
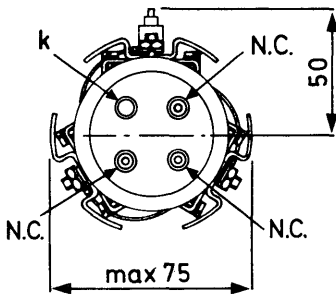
OSS9210series - has no centre-tap.

MECHANICAL DATA

n = total number of diodes.

OSM9210-nE

OSM9210-nF

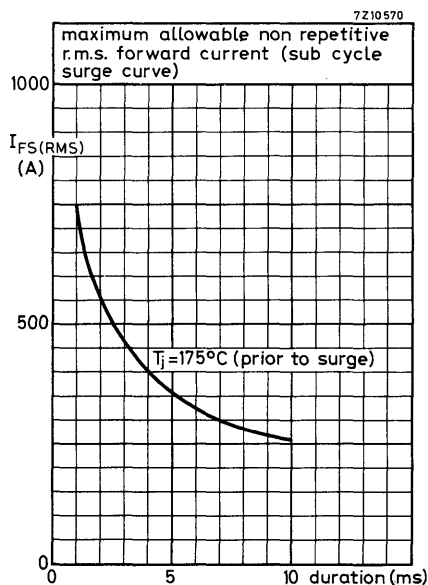
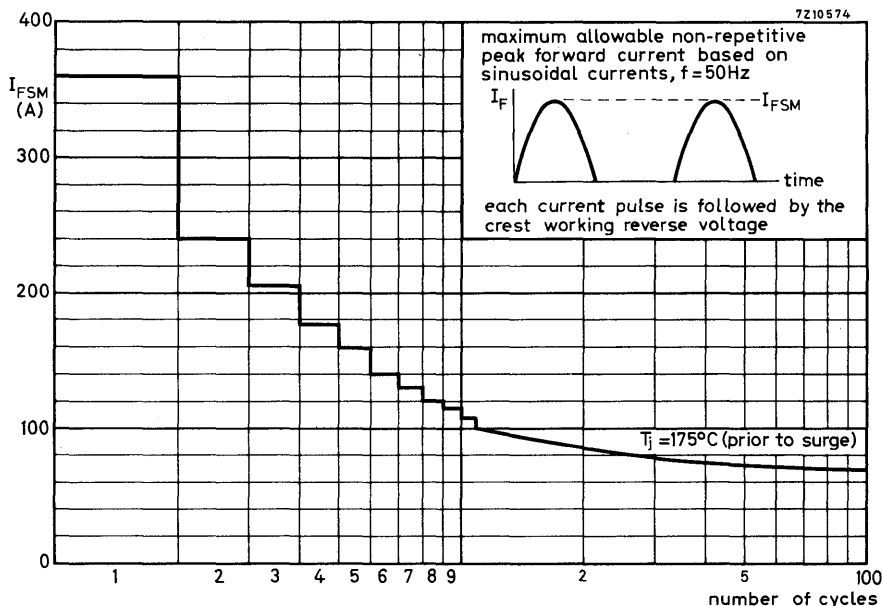


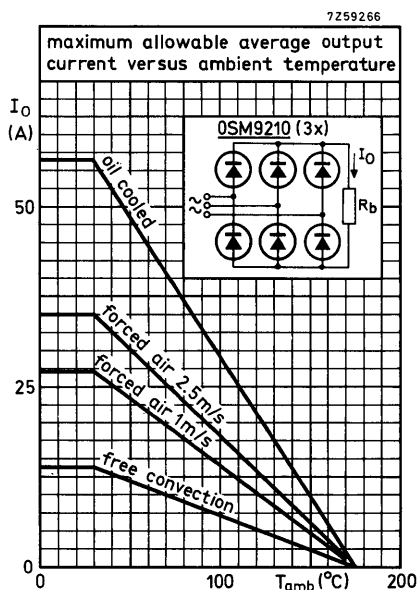
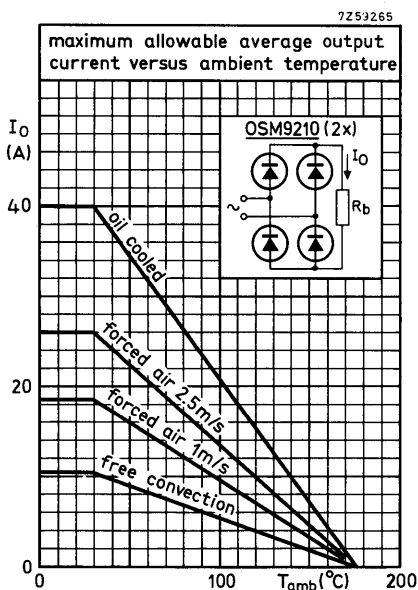
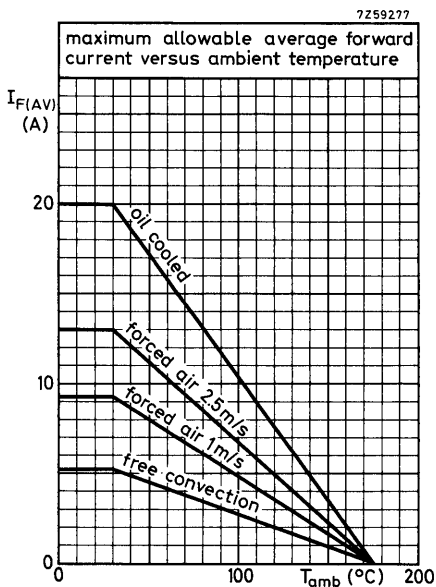
For lengths and weights see table on page 6.

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 $W_B = W_C =$	W _A	153	286	419	552	685
	W _E	218	351	484	617	750
	W _F	379	512	645	778	911

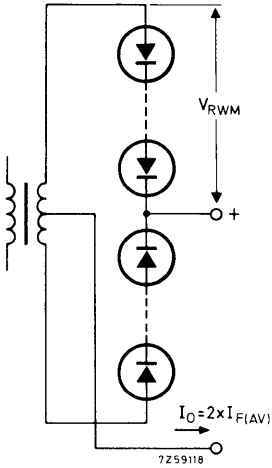
number of diodes	n	16 to 18	19 to 21	22 to 24	25 to 27	28 to 30
maximum lengths	L _A	345	385	426	466	506
	L _B	349	389	430	470	510
	L _C	360	400	441	481	521
	L _E	334	374	415	455	495
	L _F	386	426	467	507	547
weights $W_B = W_C =$	W _A	818	951	1084	1217	1350
	W _E	883	1016	1149	1282	1415
	W _F	1044	1177	1310	1443	1576





APPLICATION INFORMATION

OSB9210-4



OSM9210series

