

HIGH-VOLTAGE RECTIFIER STACKS

The OSB9215, OSM9215 and OSS9215 series are ranges of high-voltage rectifier assemblies, incorporating controlled avalanche diodes mounted on fire-proof triangular formers.

They are supplied with M6 studs.

The OSB9215 series is intended for application in two-phase half-wave rectifier circuits.

The OSM9215 series is intended for application in single-phase or three-phase bridges or in voltage doubler circuits.

The OSS9215 series is intended for all kinds of high-voltage rectification.

The OSB9215 series and OSM9215 series are supplied with a centre tap (8-32UNC).

The maximum crest working voltages of the OSB9215 and OSM9215 series cover the range from 3 kV to 27 kV, and of the OSS9215 series the range from 4.5 kV to 54 kV in 1.5 kV steps.

Configuration:

Fig. 1 OSB9215 A

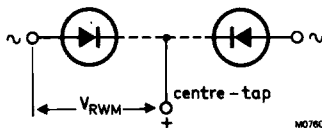


Fig. 2 OSM9215 A

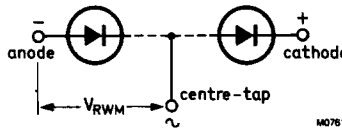
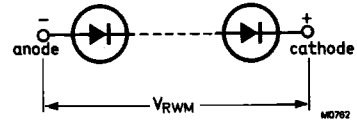


Fig. 3 OSS9215 A



QUICK REFERENCE DATA

		OSB9215	-4	-6	. . .	-34	-36A
		OSM9215	-4	-6	. . .	-34	-36A
Crest working reverse voltage from centre tap to end	V_{RWM}	max.	3	4.5	. . .	25.5	27 kV
Crest working reverse voltage	V_{RWM}	max.	4.5	6	. . .	52.5	54 kV
Average forward current with R and L load (averaged over any 20 ms period) in free air up to $T_{amb} = 35\text{ }^{\circ}\text{C}$ in oil up to $T_{oil} = 30\text{ }^{\circ}\text{C}$		$I_{F(AV)}$	max.	5			A
		$I_{F(AV)}$	max.	20			A
		I_{FSM}	max.	360			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

All information applies to frequencies up to 400 Hz

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC134)

Voltages

		OSB9215	-4	-6	...	-34	-36A
		OSM9215	-4	-6	...	-34	-36A
Crest working reverse voltage	V_{RWM}	max.	3.0	4.5	...	25.5	27 kV
Crest working reverse voltage	V_{RWM}	max.	4.5	6	...	52.5	54 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

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

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

	OSB9215	-4	-6	...	-34	-36A
	OSM9215	-4	-6	...	-34	-36A

P_{RRM} max. 4 6 ... 34 36 kW

Non-repetitive peak reverse power

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

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

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

P_{RSM} max. 26 39 ... 221 234 kW

P_{RSM} max. 4 6 ... 34 36 kW

Repetitive peak reverse power dissipation

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

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

	OSS9215	-3	-4	...	-35	-36A
--	---------	----	----	-----	-----	------

P_{RRM} max. 6 8 ... 70 72 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} max. 39 52 ... 455 468 kW

P_{RSM} max. 6 8 ... 70 72 kW

Temperatures

Storage temperature

T_{stg} -55 to +150 $^{\circ}\text{C}$

Junction temperature

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

CHARACTERISTICS (see note 1)

		OSB9215	-4	-6	...	-34	-36A	
		OSM9215	-4	-6	...	-34	-36A	
Forward voltage								
$I_F = 50 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$	V_F	<	3.6	5.4	...	30.6	32.4	V
Reverse breakdown voltage*								
$I_R = 5 \text{ mA}; T_j = 25 \text{ }^\circ\text{C}$	$V_{(BR)R}$	>	3.3	4.95	...	28	29.7	kV
		<	4.8	7.2	...	40.8	43.2	kV
		OSS9215	-3	-4	...	-35	-36A	
Forward voltage								
$I_F = 50 \text{ A}; T_j = 25 \text{ }^\circ\text{C}$	V_F	<	5.4	7.2	...	63	64.8	V
Reverse breakdown voltage*								
$I_R = 5 \text{ mA}; T_j = 25 \text{ }^\circ\text{C}$	$V_{(BR)R}$	>	4.95	6.6	...	57.8	59.4	kV
		<	7.2	9.6	...	84	86.4	kV
Reverse current								
$V_{RM} = V_{RWMmax}; T_j = 125 \text{ }^\circ\text{C}$								
					I_{RM}	<	0.6	mA

Notes

1. The Ratings and Characteristics given apply **from centre tap to end**. (Not for OSS9215 series).

2. **Type number suffix**

The suffix consists of a figure indicating the total number of diodes, and the letter 'A' denoting M6 studs at the ends.

3. **Operating position**

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

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

MECHANICAL DATA

n = total number of diodes

Fig. 4 OSM9215-nA

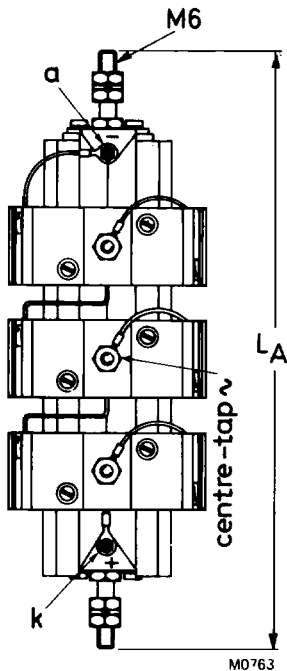
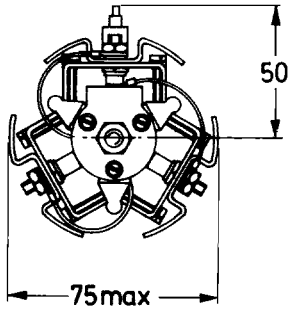


Table of lengths and weights (mm and g)

number of diodes n	maximum lengths L_A	weights W_A
3	143	153
4 to 6	184	286
7 to 9	224	419
10 to 12	264	552
13 to 15	305	685
16 to 18	345	818
19 to 21	385	951
22 to 24	426	1048
25 to 27	466	1217
28 to 30	506	1350
31 to 33	546	1483
34 to 36	586	1616

The drawings show the OSM9215 series; the OSB9215 and OSS9215 series differ in the following respects:

- OSB9215 series — terminals marked a(-) and k(+) in the drawings are both marked ~; the centre-tap is marked + (instead of ~ as in the drawings).
- OSS9215 series — has no centre-tap.

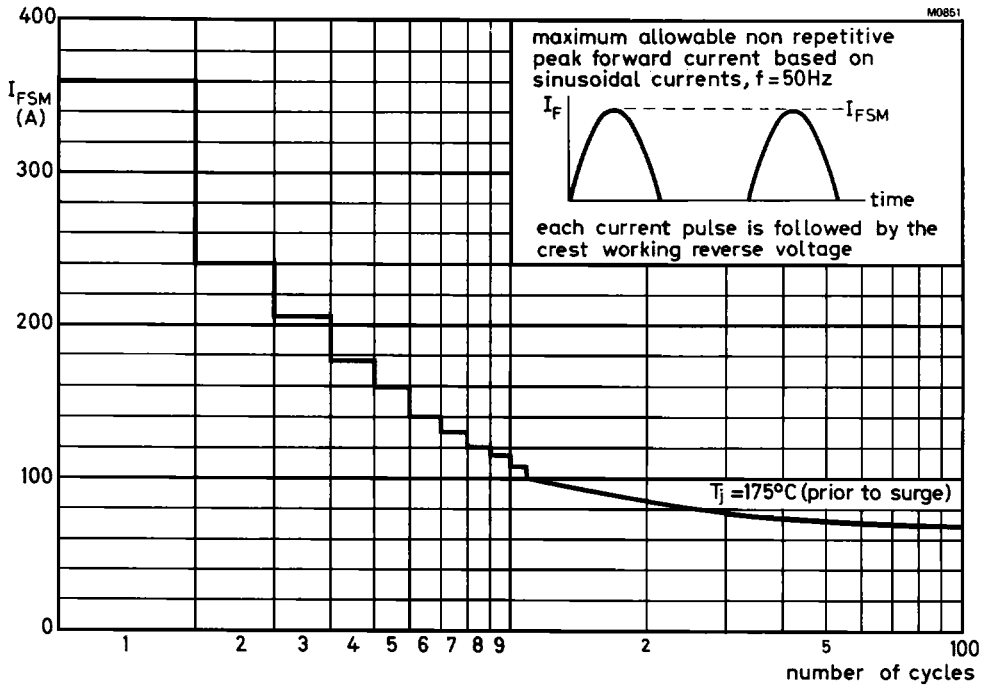


Fig. 5

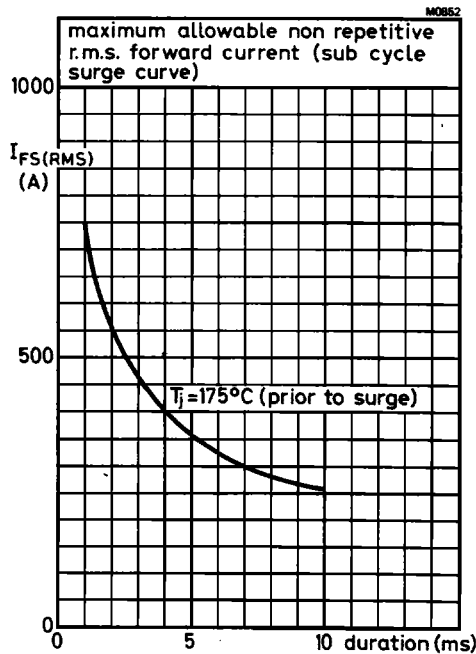


Fig. 6

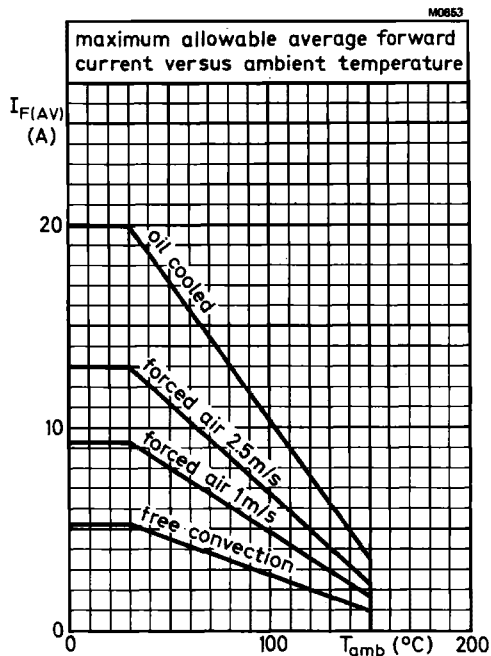


Fig. 7

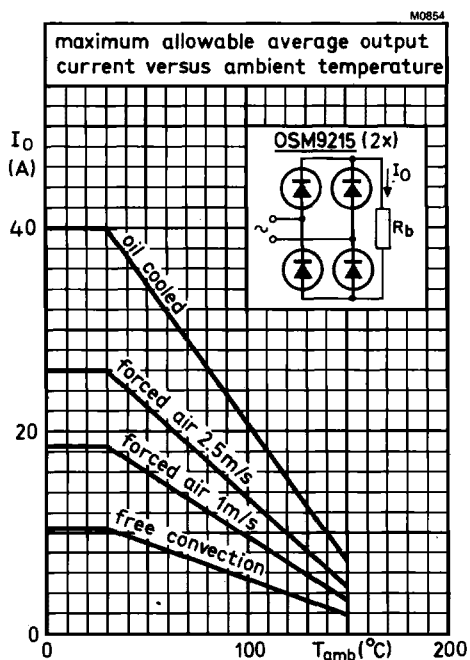


Fig. 8

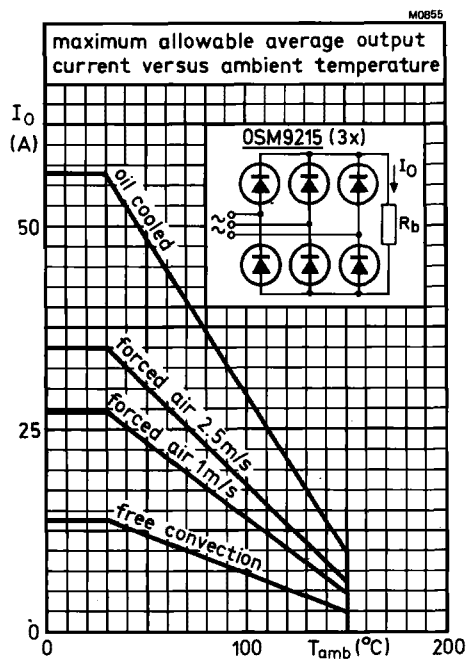


Fig. 9

APPLICATION INFORMATION

Fig. 10 OSB9215-4

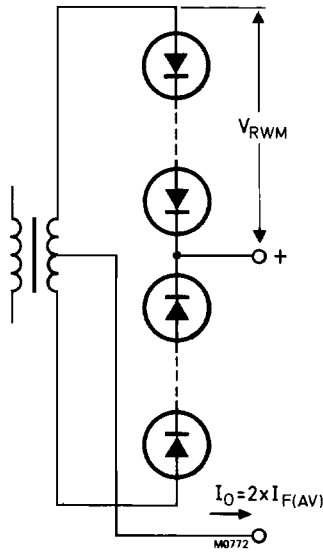
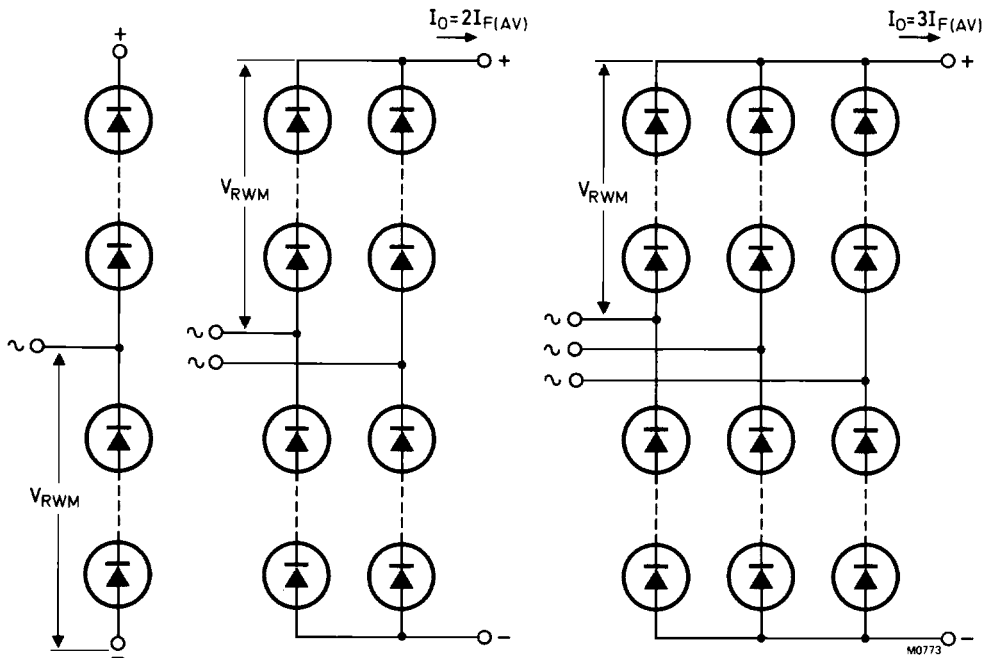


Fig. 11 OSM9215 series



voltage doubler
1x OSM9215

rectifier circuits with respectively
2x OSM9215 and 3x OSM9215