

HIGH-VOLTAGE RECTIFIER STACKS

Ranges of high-voltage rectifier assemblies, incorporating controlled avalanche diodes mounted on fire-proof triangular formers. They are supplied with M6 studs.

The OSB9415 series is intended for application in two-phase half-wave rectifier circuits.

The OSM9415 series is intended for application in single-phase or three-phase bridges or in voltage doubler circuits.

The OSS9415 series is intended for all kinds of high-voltage rectification.

The OSB9415 series and OSM9415 series are supplied with a centre tap (8–32UNC).

The maximum crest working voltages of the OSB9415 and OSM9415 series cover the range from 3 kV to 27 kV, and of the OSS9415 series the range from 4.5 kV to 54 kV, in 1.5 kV steps.

Configuration:

Fig. 1 OSB9415 A

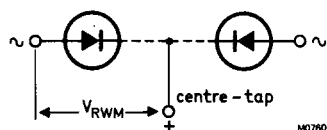


Fig. 2 OSM9415 A

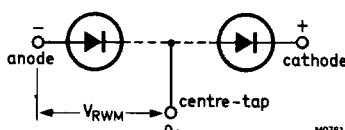
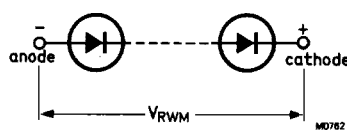


Fig. 3 OSS9415 A



QUICK REFERENCE DATA

Crest working reverse voltage from centre tap to end	V_{RWM}	OSB9415	-4	-6	. . .	-34	-36A
		OSM9415	-4	-6	. . .	-34	-36A
Crest working reverse voltage	V_{RWM}	max.	3	4.5		25.5	27 kV
		OSS9415	-3	-4	. . .	-35	-36A
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.	4.5	6	. . .	52.5	54 kV
in oil up to $T_{oil} = 35\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	max.					
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.					

MECHANICAL DATA see page 4

All information applies to frequencies up to 400 Hz

RATINGS

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

Voltages		OSB9415	−4	−6	...	−34	−36A	
		OSM9415	−4	−6	...	−34	−36A	
Crest working reverse voltage	V_{RWM}	max.	3	4.5	...	25.5	27	kV
		OSS9415	−3	−4	...	−35	−36A	
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 $T_{amb} = 35^{\circ}\text{C}$

$I_{F(AV)}$ max. 10 A

in oil up to $T_{oil} = 35^{\circ}\text{C}$

$I_{F(AV)}$ max. 30 A

Repetitive peak forward current

I_{FRM} max. 450 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. 800 A

Reverse power dissipation

		OSB9415	−4	−6	...	−34	−36A	
		OSM9415	−4	−6	...	−34	−36A	
Repetitive peak reverse power dissipation								
$t = 10\text{ }\mu\text{s}$ (square-wave; $f = 50\text{ Hz}$)								
$T_j = 175^{\circ}\text{C}$	P_{RRM}	max.	9	13.5	...	76.5	81	kW

Non-repetitive peak reverse power dissipation

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

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

P_{RSM} max. 55 82 ... 467 495 kW

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

P_{RSM} max. 8.5 13 ... 72 77 kW

Repetitive peak reverse power dissipation

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

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

P_{RRM} max. 13.5 18 ... 157 162 kW

Non-repetitive peak reverse
power dissipation

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

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

P_{RSM} max. 80 105 ... 919 945 kW

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

P_{RSM} max. 13 17 ... 149 153 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)

		OSB9415	-4	-6	. . .	-34	-36A	
		OSM9415	-4	-6	. . .	-34	-36A	
Forward voltage								
$I_F = 150 \text{ A}; T_j = 25^\circ\text{C}$	V_F	<	3.6	5.4	. . .	30.6	32.4	V
Reverse avalanche breakdown voltage*								
$I_R = 5 \text{ mA}; T_j = 25^\circ\text{C}$	$V_{(BR)R}$	>	3.3	4.95	. . .	28	29.7	kV
		<	4.8	7.2	. . .	40.8	43.2	kV
		OSS9415	-3	-4	. . .	-35	-36A	
Forward voltage								
$I_F = 150 \text{ A}; T_j = 25^\circ\text{C}$	V_F	<	5.4	7.2	. . .	63	64.8	V
Reverse avalanche breakdown voltage*								
$I_R = 5 \text{ mA}; T_j = 25^\circ\text{C}$	$V_{(BR)R}$	>	4.95	6.6	. . .	57.8	59.4	kV
		<	7.2	9.6	. . .	84	86.4	kV
Reverse current								
$V_{RM} = V_{RWMmax}; T_j = 125^\circ\text{C}$	I_{RM}	<				1.6		mA

NOTES

- The Ratings and Characteristics given apply **from centre tap to end.** (Not for OSS9415 series).
- 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.
- Operating position**
The rectifier units can be operated at their maximum ratings when mounted in any position.

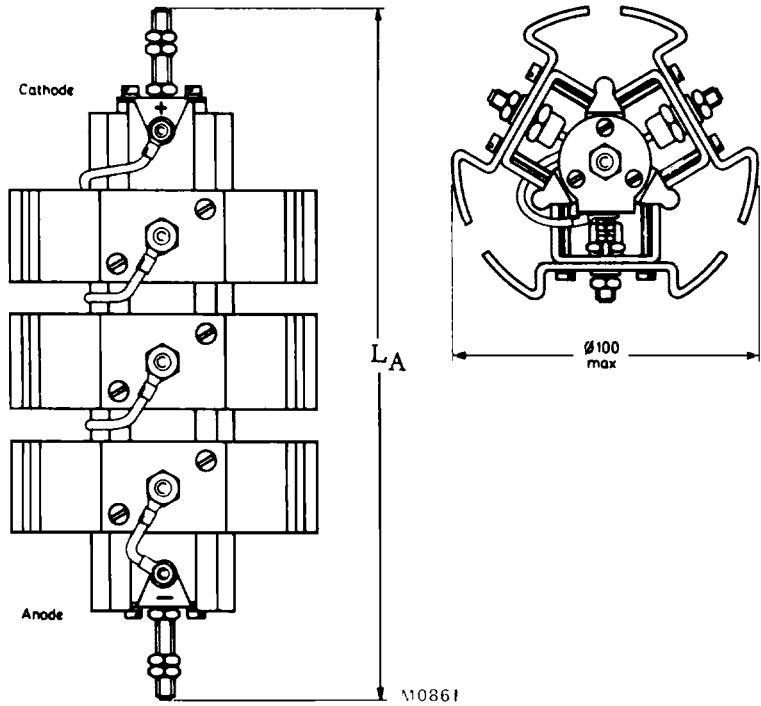
* The breakdown voltage increases, by approximately 0.1% per $^\circ\text{C}$ with increasing junction temperature.

MECHANICAL DATA

Dimensions in mm

n = total number of diodes.

Fig.4 OSS9415-nA



The drawing shows the OSS9415 series.
The OSB9415 and OSM9415 series differ in the following respects:
OSB9415 series — has a centre tap marked +; anode and cathode terminals are both marked ~.
OSM9415 series — has a centre tap marked ~.

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
weights	W _A	215	413	611	809	1007

number of diodes	n	16 to 18	19 to 21	22 to 24	25 to 27	28 to 30	31 to 33	34 to 36
maximum lengths	L _A	345	385	426	466	506	546	586
weights	W _A	1208	1406	1604	1802	2000	2198	2396

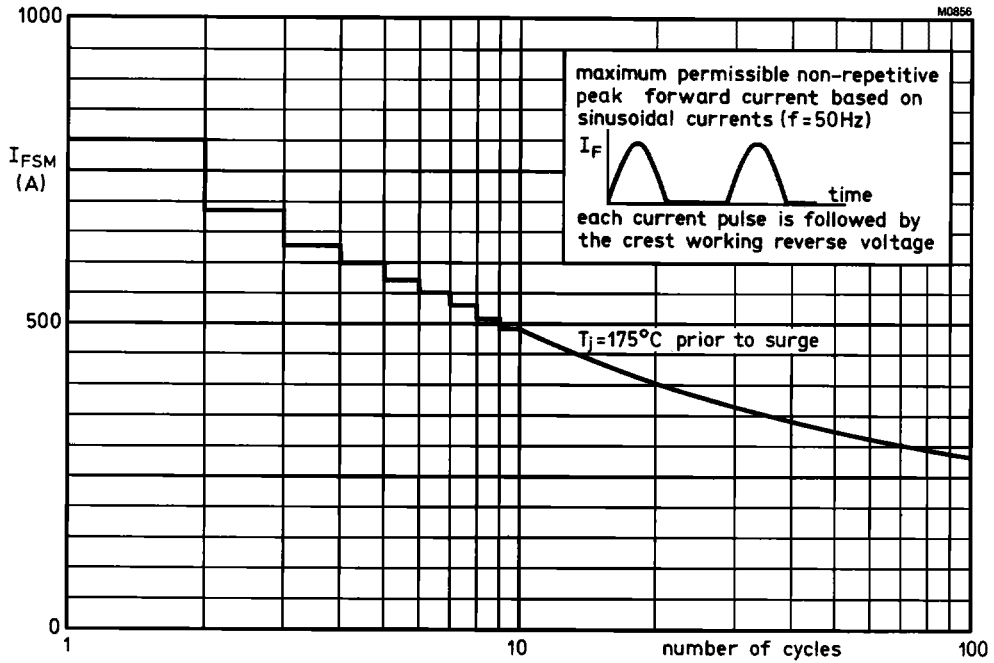


Fig.5

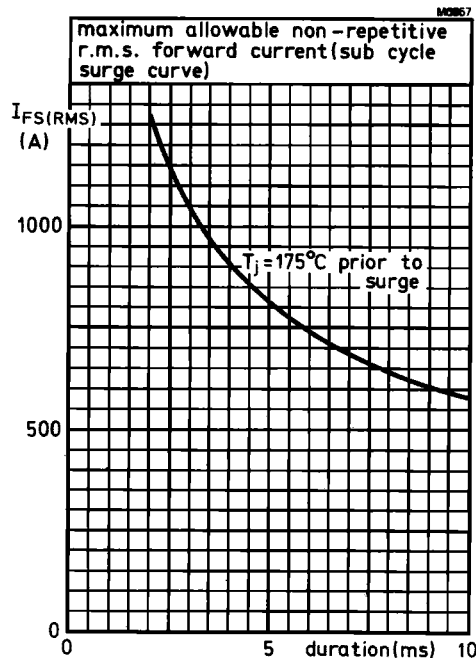


Fig.6

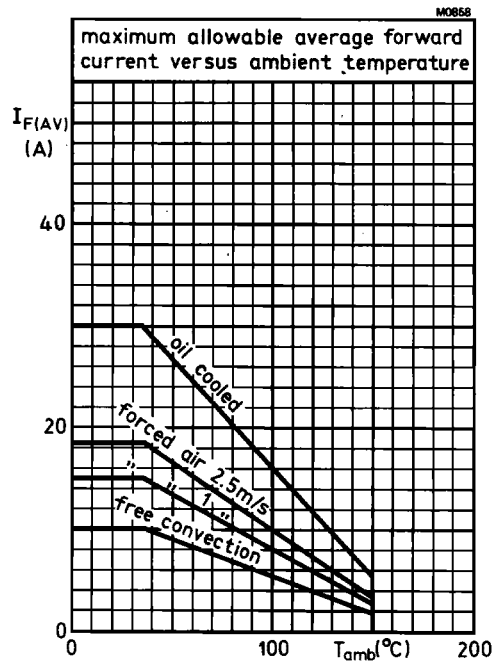


Fig.7

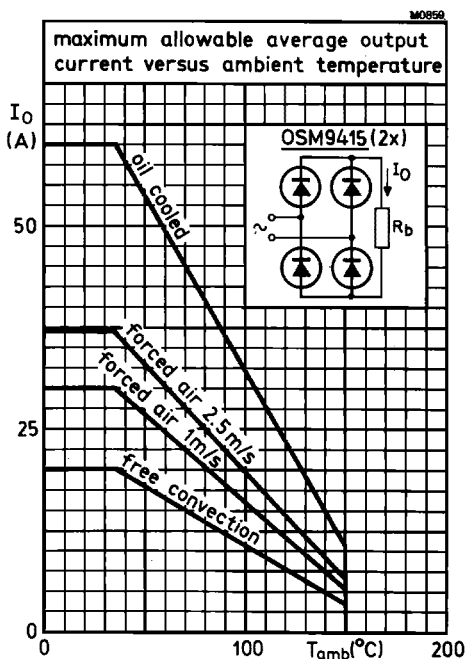


Fig.8

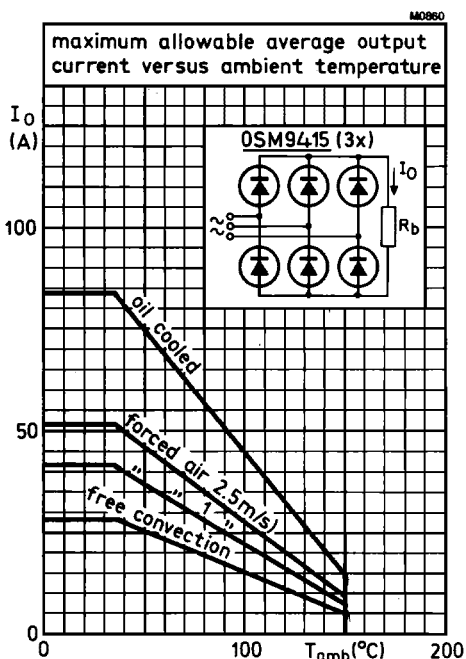


Fig.9

APPLICATION INFORMATION

Fig.10 OSB9415 series

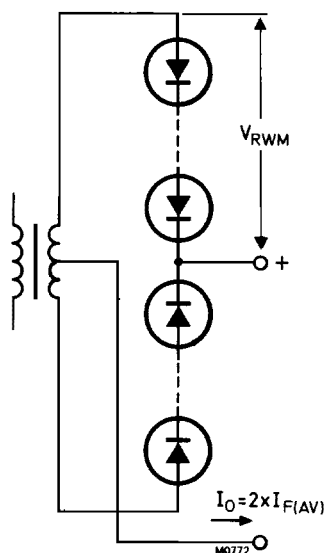


Fig.11 OSM9415 series

