

HIGH-VOLTAGE RECTIFIER STACK

The OSM9510-12 is a silicon rectifier stack for high voltage applications, up to 12kV in half-wave circuits, or up to 6kV as one of the arms of a bridge configuration, where the centre-tap is utilised. Because of its controlled avalanche characteristics it is capable of withstanding reverse transients generated in the circuit.

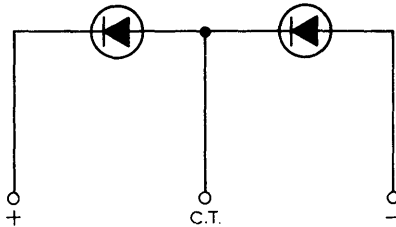
QUICK REFERENCE DATA

V_{RWM} max.	12	kV
$V_{(BR)R}$ min.	15	kV
$I_{F(AV)}$ max., in free air, $T_{amb} = 50^{\circ}C$	1.5	A
P_{RSM} max., $t = 10\mu s$, $T_{amb} = 25^{\circ}C$	20	kW

OUTLINE AND DIMENSIONS

For details see page 3

CIRCUIT DIAGRAM



Also available: 8 kV type with $V_{(BR)R \min} = 12.5$ kV

RATINGS

Limiting values of operation according to the absolute maximum system.
 These ratings apply for the frequency range 50 to 400Hz.
 Simultaneous application of all ratings is inferred unless otherwise stated.

Electrical

V_{RWM} max.	Crest working reverse voltage	12	kV
$I_{F(AV)}$ max.	Mean forward current in free air, $T_{amb} \leq 50^{\circ}C$, 180° conduction	1.5	A
	See derating curves on page 4		
I_{FRM} max.	Repetitive peak forward current, 30° conduction	15	A
I_{FSM} max.	Surge forward current, 1 cycle (10ms peak of half sinewave)	35	A
P_{RSM} max.	Non-repetitive peak reverse power ($10\mu s$ square wave, $T_j = 25^{\circ}C$)	20	kW
P_{RRM} max.	50Hz repetitive peak reverse transient power ($10\mu s$ square wave, $T_j = 150^{\circ}C$)	5.0	kW

Temperature

T_{stg}	Storage temperature	-55 to 150	$^{\circ}C$
T_j	Junction temperature	-55 to 150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS ($T_j = 25^{\circ}C$ unless otherwise stated)

		Min.	Max.	
$*V_F$	Forward voltage at $I_F = 5A$	-	17.5	V
I_R	Reverse current at V_{RWM} , $T_j = 125^{\circ}C$	-	100	μA
$V_{(BR)R}$	**Avalanche breakdown voltage, $I_{(BR)R} = 1mA$	15	25	kV

*Measured under pulsed conditions so that T_j is at, or near, the stated value.

**The avalanche voltage increases by approximately 0.1%/degC with increasing T_j .

MECHANICAL DATA

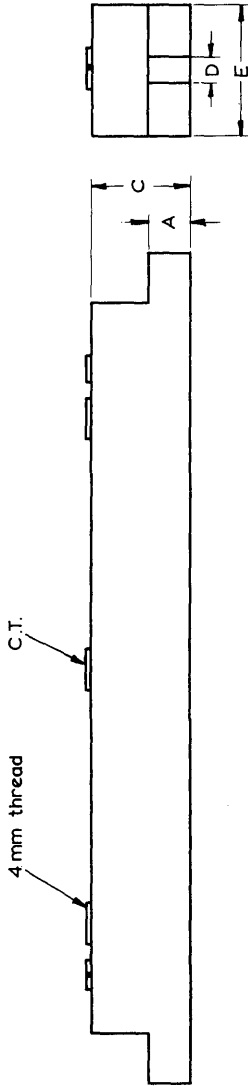
Weight	130	g
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MOUNTING POSITION

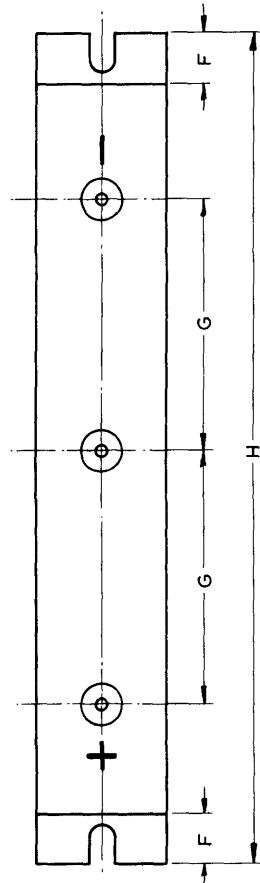
The rectifier units can be operated at their maximum ratings when mounted in any position.

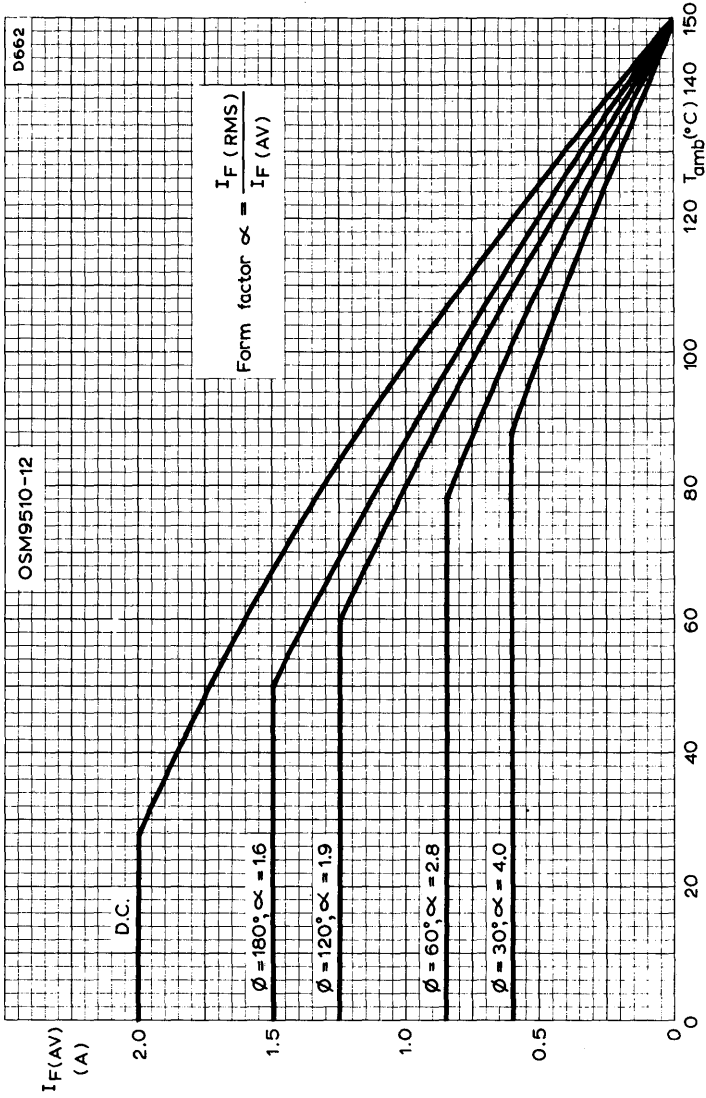
OUTLINE AND DIMENSIONS

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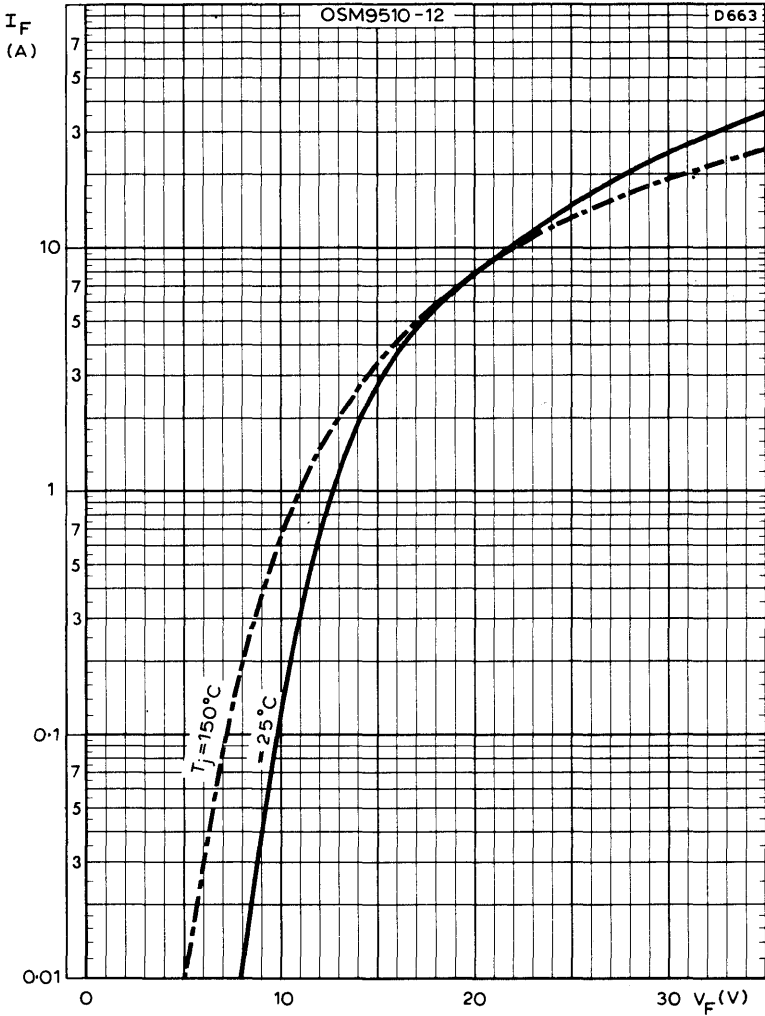


Millimetres	
A	8.0
C	18.5
D	5.3
E	26
F	10
G	50
H	165

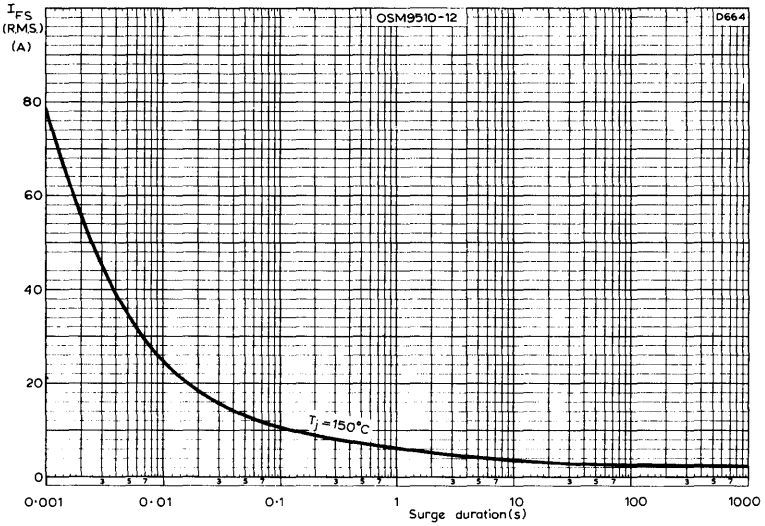




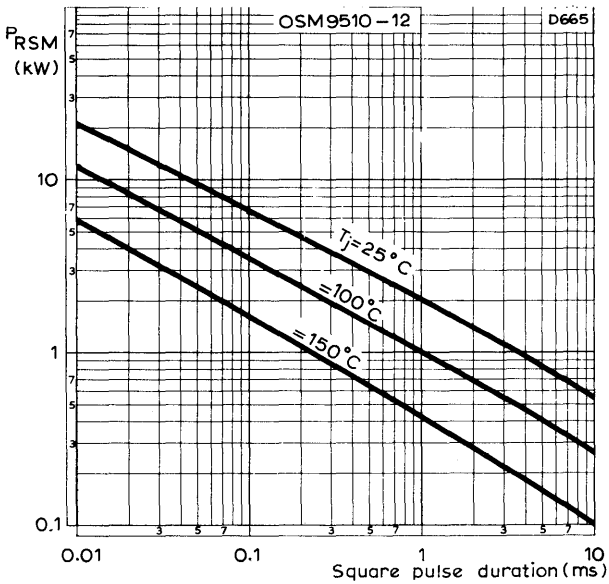
MAXIMUM MEAN FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE AND CONDUCTION ANGLE



MAXIMUM FORWARD CONDUCTION CHARACTERISTICS



MAXIMUM R. M. S. SURGE CURRENT PLOTTED AGAINST SURGE DURATION



NON-REPETITIVE PEAK REVERSE POWER PLOTTED AGAINST SQUARE PULSE DURATION