

### FEATURES

- Low losses for high efficiency
- Hermetically sealed for long operational life
- Easily mounted down with 4 M8 bolts on 46mm centres
- Available with flying lead, full and half bar connections on request
- Available anode to base and cathode to base
- Selections available for parallel operation

### KEY PARAMETERS

$V_{RRM}$	<b>5000V</b>
$I_{F(AV)}$	<b>470A</b>
$I_{FSM}$	<b>9200A</b>

### VOLTAGE RATINGS

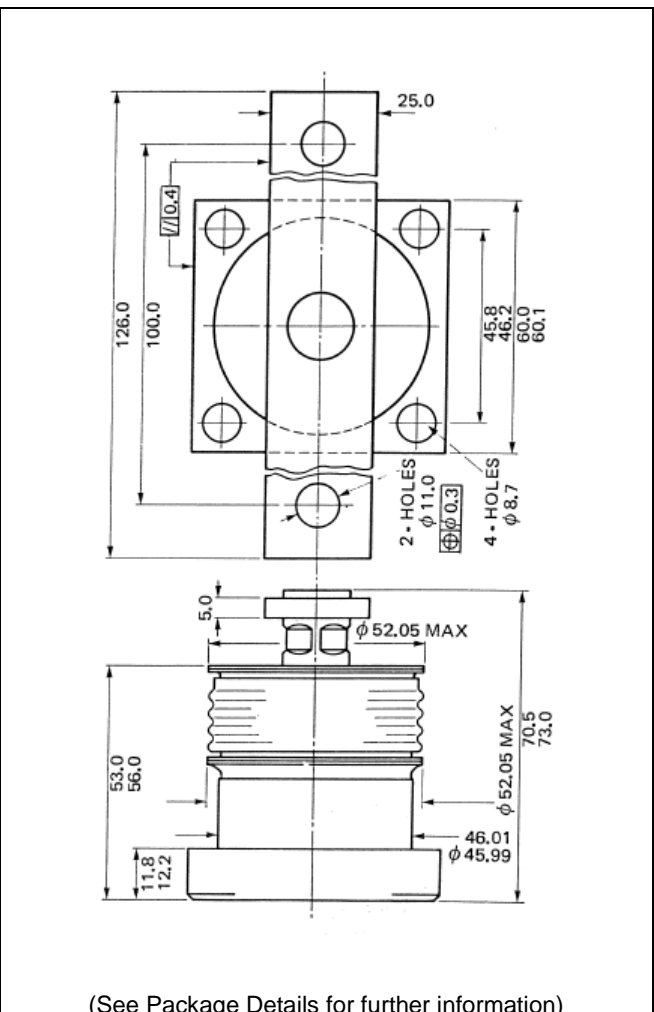
Part and Ordering Number	Repetitive Peak Voltages $V_{RRM}$ V	Conditions
S1109SXU50 to S1109SXU30	5000 to 3000	$V_{RSM} = V_{RRM} + 100V$

### ORDERING INFORMATION

When ordering, select the required part number shown in the Voltage Ratings selection table.

For example:

**S1109SXU50** for a 5000V anode to base device  
**S1109SXD50** for a 5000V cathode to base device



**Fig. 1 Package outline**

## CURRENT RATINGS

$T_{case} = 100^{\circ}\text{C}$  unless stated otherwise

Symbol	Parameter	Test Conditions	Max.	Units
<b>Single Side Cooled (Anode side)</b>				
$I_{F(AV)}$	Mean forward current	Half wave resistive load	470	A
$I_{F(RMS)}$	RMS value	-	736	A
$I_F$	Continuous (direct) on-state current	-	580	A

## SURGE RATINGS

Symbol	Parameter	Test Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 150^{\circ}\text{C}$	9.2	kA
$I^2t$	$I^2t$ for fusing	$V_R = 50\% V_{RRM} - 1/4$ sine	0.441	$\text{MA}^2\text{s}$

## THERMAL AND MECHANICAL RATINGS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$R_{th(j-c)}$	Thermal resistance – junction to heatsink	dc	-	0.065	$^{\circ}\text{C/W}$
		Half wave		0.065	$^{\circ}\text{C/W}$
		3 phase		0.078	$^{\circ}\text{C/W}$
$T_{vj}$	Virtual junction temperature	On-state (conducting)	-	150	$^{\circ}\text{C}$
		Reverse (blocking)	-	150	$^{\circ}\text{C}$
$T_{stg}$	Storage temperature range		-55	165	$^{\circ}\text{C}$
Torque	Clamping torque		0	22	Nm

## CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$V_{FM}$	Forward voltage	At 1800A peak, $T_{case} = 150^{\circ}C$	-	2.1	V
$I_{RM}$	Peak reverse current	At $V_{DRM}$ , $T_{case} = 150^{\circ}C$	-	50	mA
$Q_S$	Total stored charge	$I_F = 1000A$ , $dI_{RR}/dt = 3A/\mu s$ $T_{case} = 150^{\circ}C$ , $V_R = 100V$	-	2800	$\mu C$
$I_{rr}$	Peak reverse recovery current		-	80	A
$V_{TO}$	Threshold voltage	At $T_{vj} = 150^{\circ}C$	-	0.88	V
$r_T$	Slope resistance	At $T_{vj} = 150^{\circ}C$	-	0.687	m $\Omega$

## CURVES

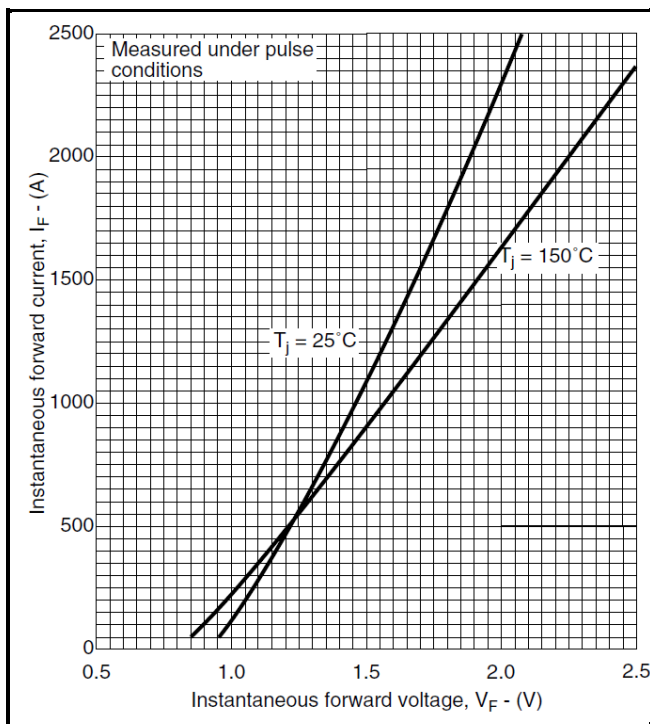


Fig.2 Maximum & minimum on-state characteristics

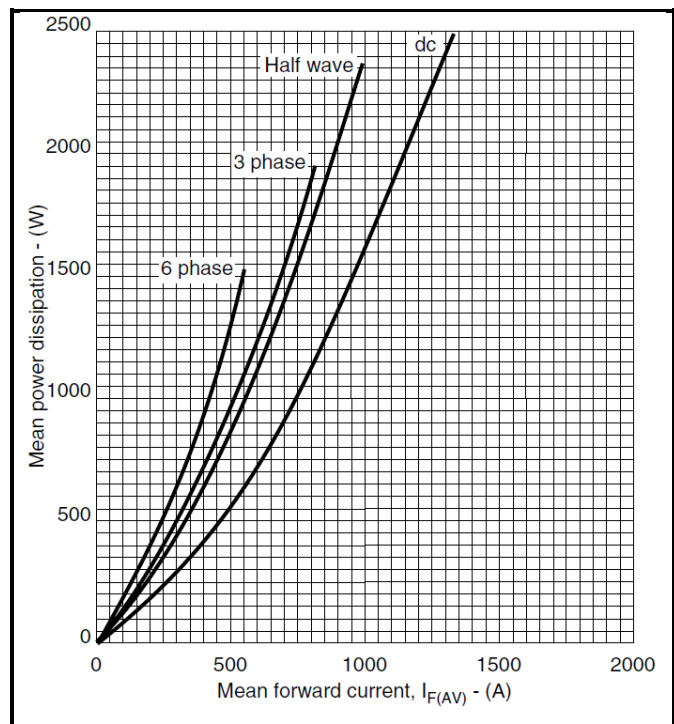
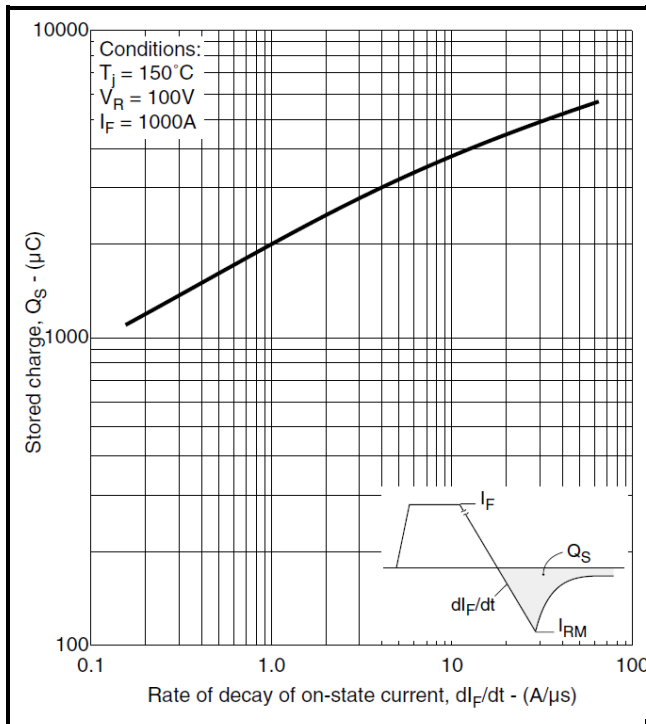
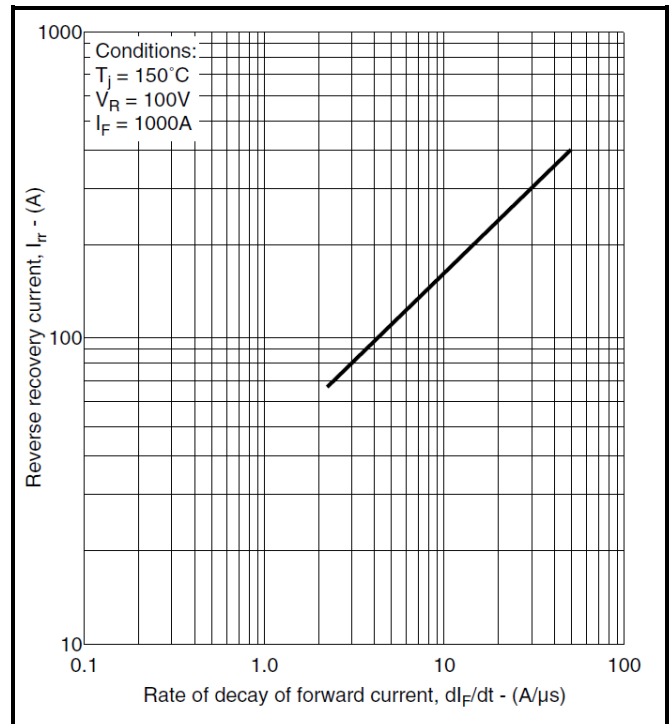


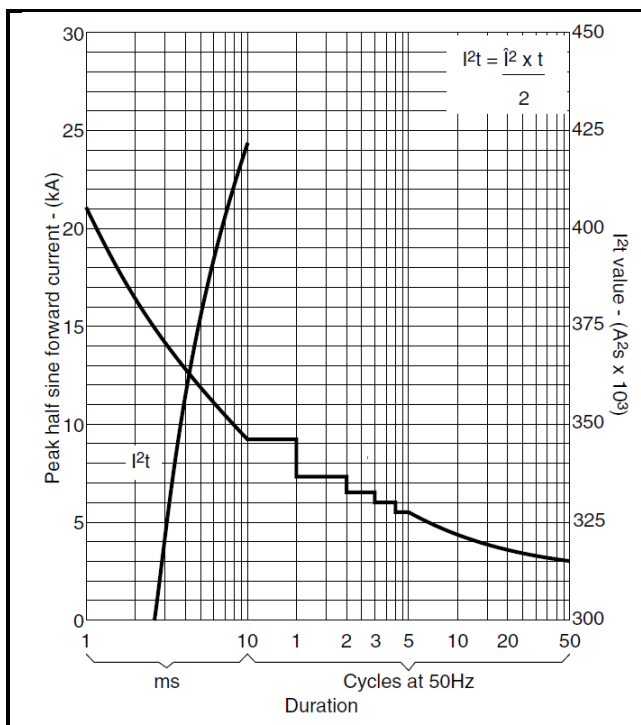
Fig.3 Dissipation curves



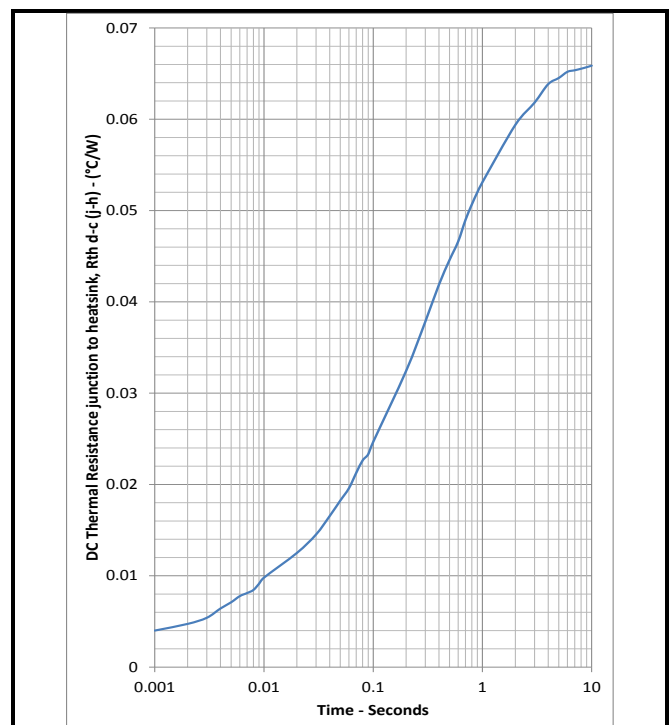
**Fig.4 Total stored charge**



**Fig.5 Maximum reverse recovery current**



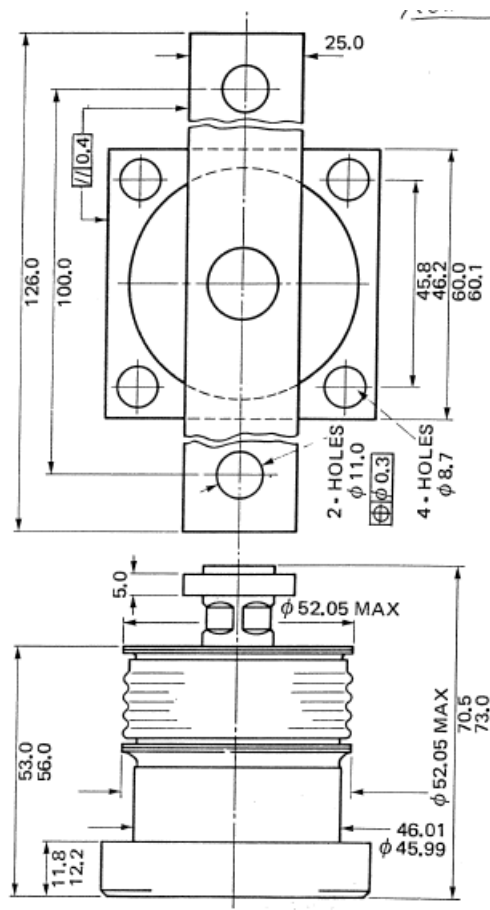
**Fig.5 Surge (Non-Repetitive) Forward current vs time**



**Fig.7 Maximum (limit) transient thermal impedance-junction to heatsink**

## PACKAGE DETAILS

For further package information, please contact Customer Services. All dimensions in mm, unless stated otherwise.  
DO NOT SCALE.



Normal weight: 810g  
Torque: 22Nm

Package outline type code: X

### Note:

Some packages may be supplied with gate and or tags.

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