

**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>3000V</b>
$I_{F(AV)}$	<b>860A</b>
$I_{FSM}$	<b>16000A</b>

**VOLTAGE RATINGS**

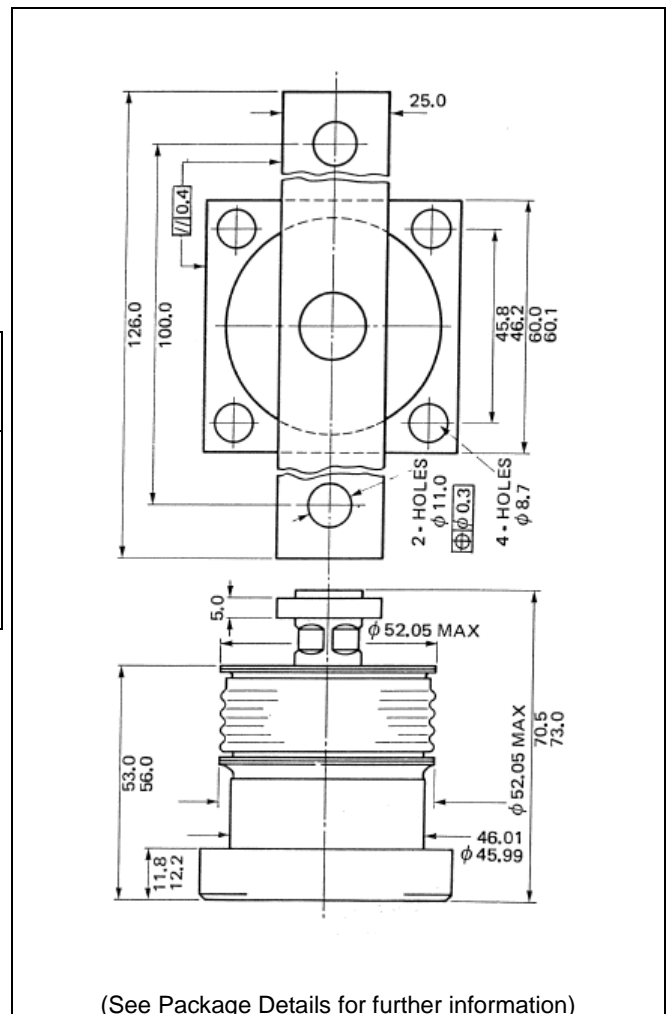
Part and Ordering Number	Repetitive Peak Voltages $V_{RRM}$ V	Conditions
S1104SXU30 to S1104SXU10	3000 to 1000	$V_{RSM} = V_{RRM} + 100V$

**ORDERING INFORMATION**

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

For example:

- S1104SXU28** for a 2800V anode to base device
- S1104SXD28** for a 2800V cathode to base device



(See Package Details for further information)

**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	860	A
$I_{F(RMS)}$	RMS value	-	1350	A
$I_F$	Continuous (direct) on-state current	-	1150	A

## SURGE RATINGS

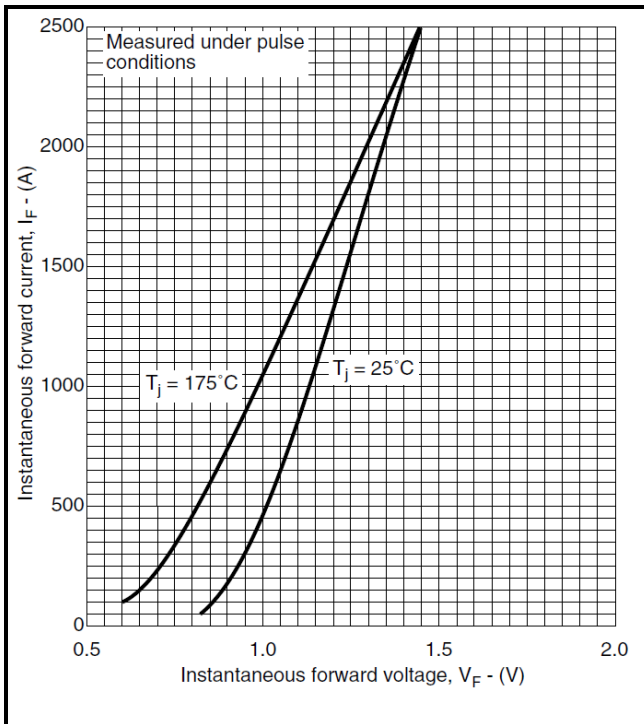
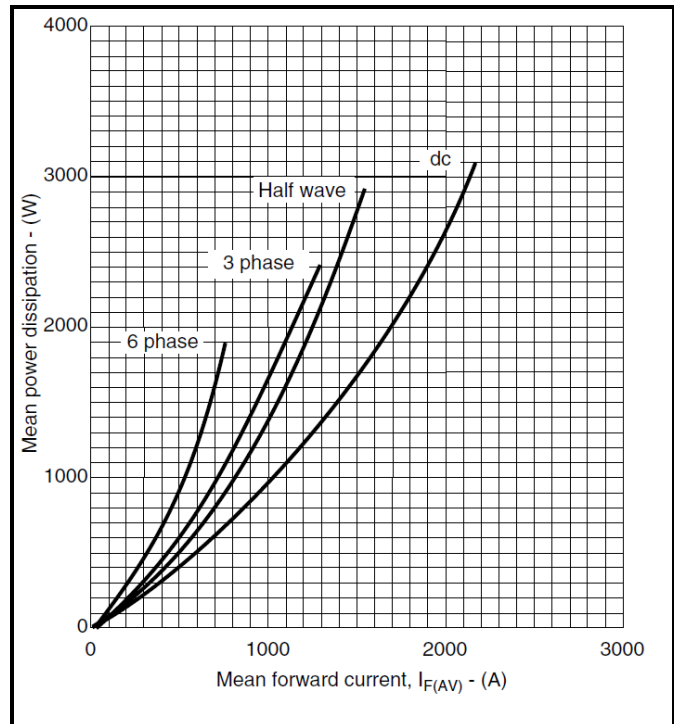
Symbol	Parameter	Test Conditions	Max.	Units
$I_{FSM}$	Surge (non-repetitive) on-state current	10ms half sine, $T_{case} = 175^{\circ}\text{C}$	16	kA
$I^2t$	$I^2t$ for fusing	$V_R = 50\% V_{RRM} - \frac{1}{4}$ sine	1.28	$\text{MA}^2\text{s}$

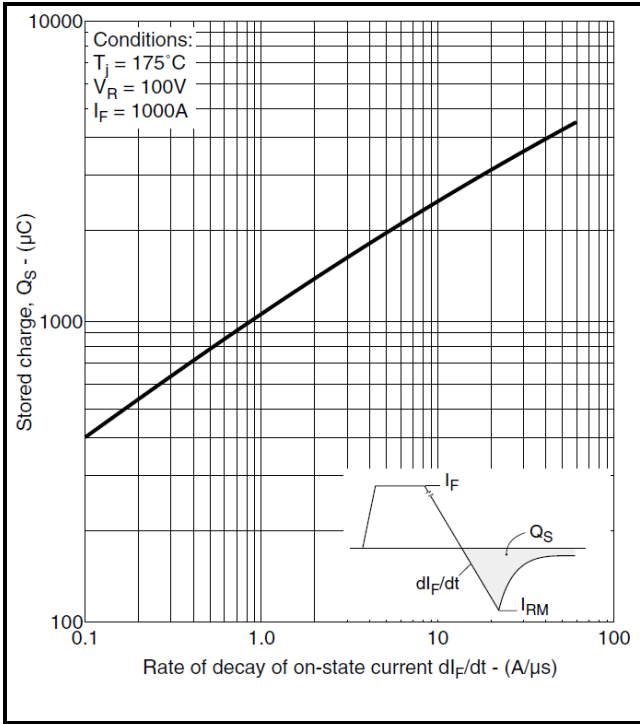
## THERMAL AND MECHANICAL RATINGS

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)	-	175	$^{\circ}\text{C}$
		Reverse (blocking)	-	175	$^{\circ}\text{C}$
$T_{stg}$	Storage temperature range		-55	175	$^{\circ}\text{C}$
Torque	Clamping torque		0	22	Nm

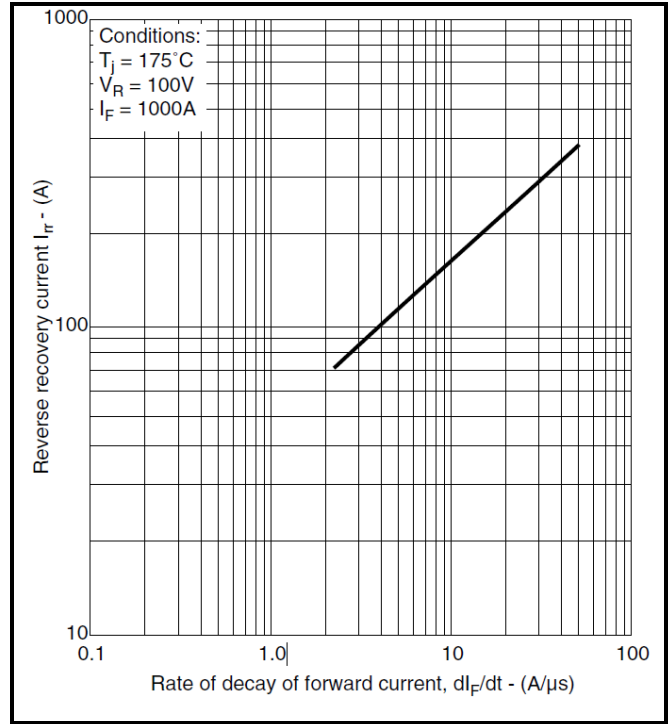
**CHARACTERISTICS**

Symbol	Parameter	Test Conditions	Min.	Max.	Units
$V_{FM}$	Forward voltage	At 1800A peak, $T_{case} = 175^{\circ}C$	-	1.225	V
$I_{RM}$	Peak reverse current	At $V_{DRM}$ , $T_{case} = 1X0^{\circ}C$	-	50	mA
$Q_S$	Total stored charge	$I_F = 1000A$ , $dI_{RR}/dt = 3A/\mu s$ $T_{case} = 175^{\circ}C$ , $V_R = 100V$	-	1600	$\mu C$
$I_{rr}$	Peak reverse recovery current		-	85	A
$V_{TO}$	Threshold voltage	At $T_{vj} = 175^{\circ}C$	-	0.67	V
$r_T$	Slope resistance	At $T_{vj} = 175^{\circ}C$	-	0.31	$m\Omega$

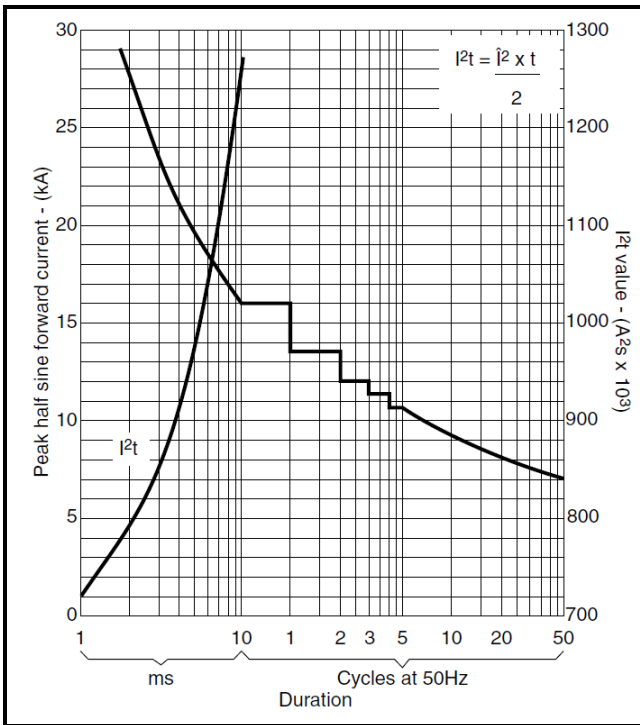
**CURVES**

**Fig.2 Maximum & minimum on-state characteristics**

**Fig.3 Dissipation curves**



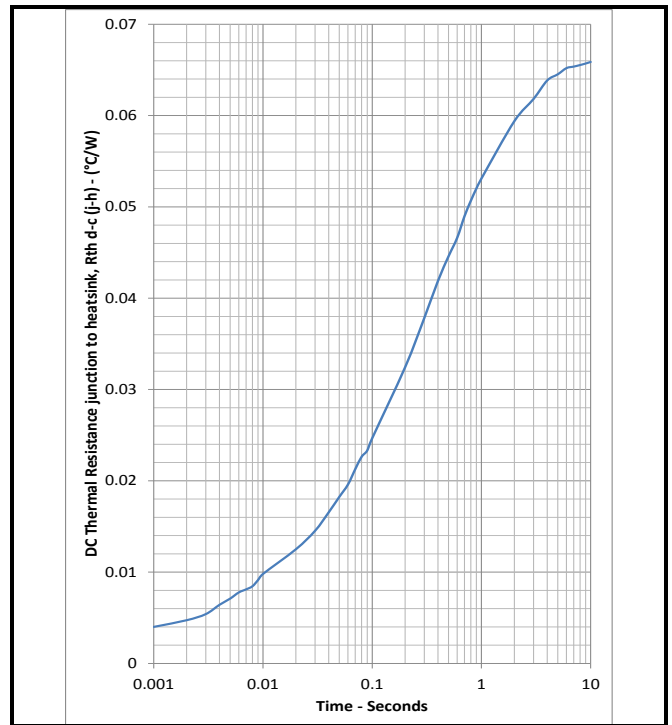
**Fig.4 Total stored charge**



**Fig.5 Maximum reverse recovery current**



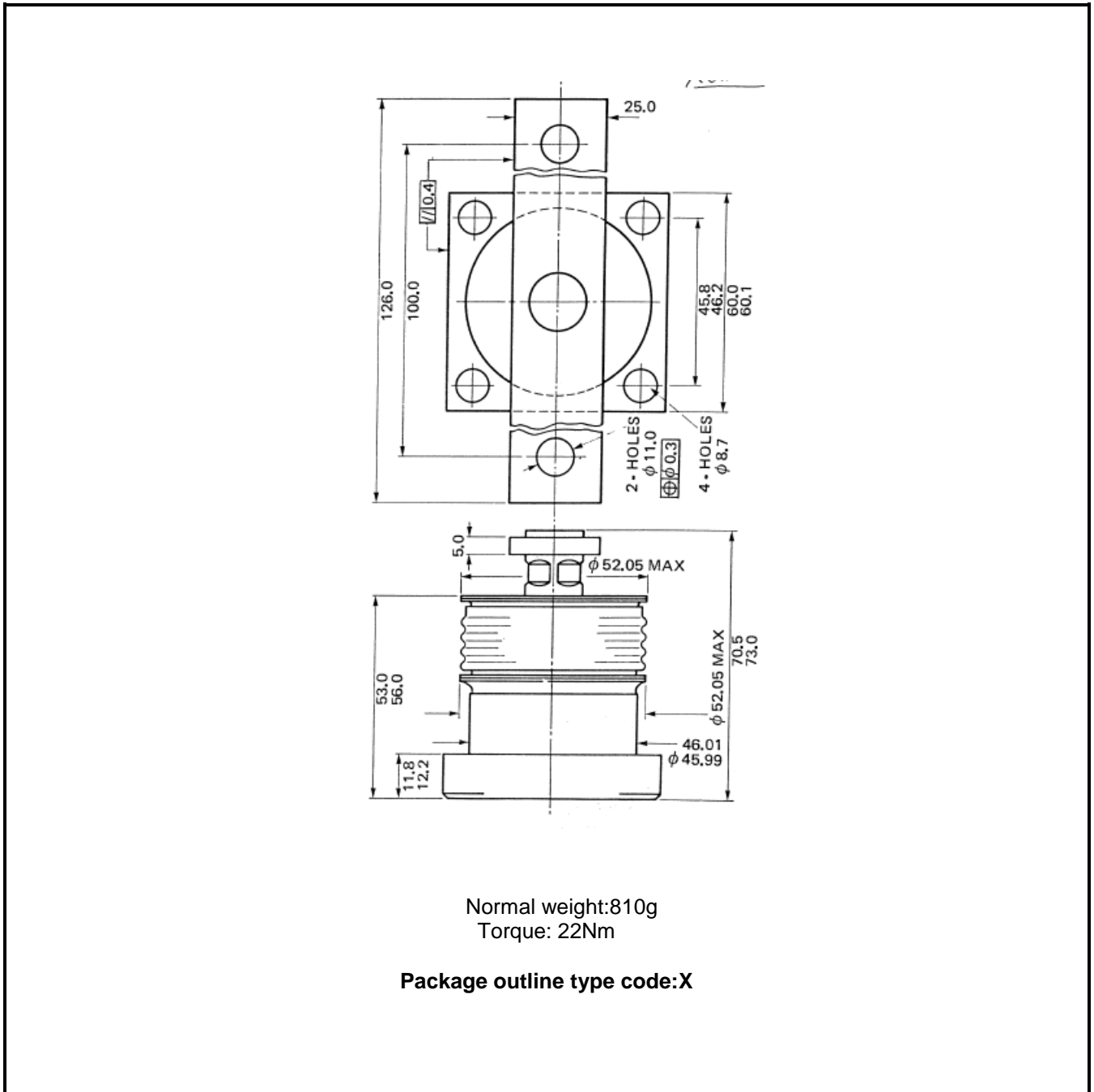
**Fig.5 Surge (Non-Repetitive) Forward current vs time**



**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.



**Note:**  
Some packages may be supplied with gate and or tags.

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Extended exposure to conditions outside the product ratings may affect reliability leading to premature product failure. Use outside the product ratings is likely to cause permanent damage to the product. In extreme conditions, as with all semiconductors, this may include potentially hazardous rupture, a large current to flow or high voltage arcing, resulting in fire or explosion. Appropriate application design and safety precautions should always be followed to protect persons and property.

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<b>Target Information:</b>	This is the most tentative form of information and represents a very preliminary specification. No actual design work on the product has been started.
<b>Preliminary Information:</b>	The product design is complete and final characterisation for volume production is in progress. The datasheet represents the product as it is now understood but details may change.
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