

## High Voltage Rectifiers

$$V_{RRM} = 8000 \text{ V}$$

$$I_{F(AV)M} = 4.2 \text{ A}$$

$V_{RRM}$ V	Standard Types	Power Designation
8000	UGE 1112 AY4	Si-E 3000 / 1300-2.5



Symbol	Conditions	Ratings
$I_{F(RMS)}$ $I_{F(AV)M}$	air self cooling, $T_{amb} = 45^{\circ}\text{C}$ - without cooling plate - with cooling plate	7 A 2.0 A 2.5 A
	forced air cooling: $v = 3 \text{ m/s}$ , $T_{amb} = 35^{\circ}\text{C}$ - without cooling plate - with cooling plate	3.2 A 4.1 A
	oil cooling, $T_{amb} = 35^{\circ}\text{C}$ - without cooling plate - with cooling plate	4.2 A 4.2 A
$P_{RSM}$	$T_{(vj)} = 150^{\circ}\text{C}$ ; $t_p = 10 \mu\text{s}$	2.5 kW
$I_{FSM}$	non repetitive, 50 c/s (for 60 c/s add 10%) $T_{(vj)} = 45^{\circ}\text{C}$ ; $t_p = 10 \text{ ms}$	120 A
	$T_{(vj)} = 150^{\circ}\text{C}$ ; $t_p = 10 \text{ ms}$	100 A
$T_{amb}$		-40...+150 $^{\circ}\text{C}$
$T_{stg}$		-40...+150 $^{\circ}\text{C}$
$T_{(vj)}$		150 $^{\circ}\text{C}$
Weight		122 g

### Features

- Hermetically sealed Epoxy
- Use in oil
- Avalanche characteristics

### Applications

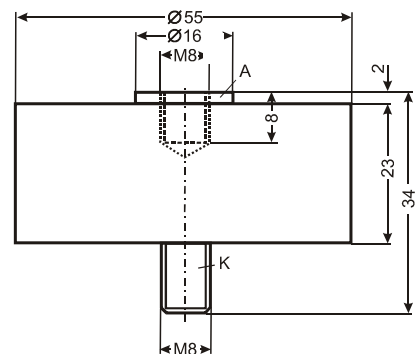
- X-Ray equipment
- Electrostatic dust precipitators
- Electronic beam welding
- Lasers
- Cable test equipment

### Advantages

- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits
- Series and parallel operation

Symbol	Conditions	Characteristic Values
$I_R$	$T_{(vj)} = 150^{\circ}\text{C}$ ; $V_R = V_{RRM}$	$\leq 1 \text{ mA}$
$V_F$	$I_F = 7 \text{ A}$ $T_{(vj)} = 25^{\circ}\text{C}$	6.25 V
$V_{TO}$	$T_{(vj)} = 150^{\circ}\text{C}$	4.25 V
$r_T$	$T_{(vj)} = 150^{\circ}\text{C}$	0.215 $\text{m}\Omega$
$a$	$f = 50\text{Hz}$	5 x 9,81 $\text{m/s}^2$
$M_d$		8 Nm

### Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747-2  
IXYS reserve the right to change limits, test conditions and dimensions.

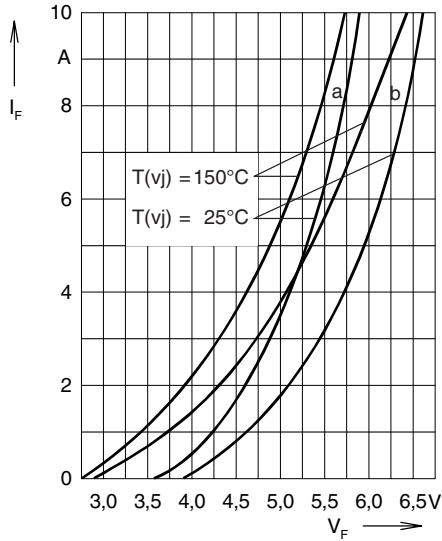


Fig. 1: **Forward characteristics**

Instantaneous forward current  $I_F$  as a function of instantaneous forward voltage drop  $V_F$  for junction temperature  $T_{(vj)} = 25^\circ\text{C}$  and  $T_{(vj)} = 150^\circ\text{C}$   
 a = Mean value characteristic  
 b = Limit value characteristic

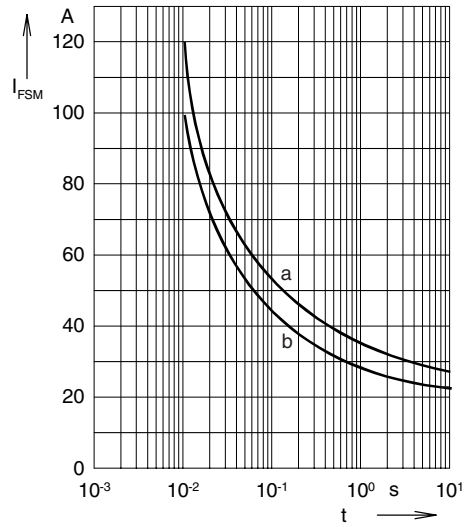


Fig. 2: **Characteristics of maximum permissible current**

The curves show the non repetitive peak one cycle surge forward current  $I_{FSM}$  as a function of time  $t$  and serve for rating protective devices.

a = Initial state  $T_{(vj)} = 45^\circ\text{C}$   
 b = Initial state  $T_{(vj)} = 150^\circ\text{C}$

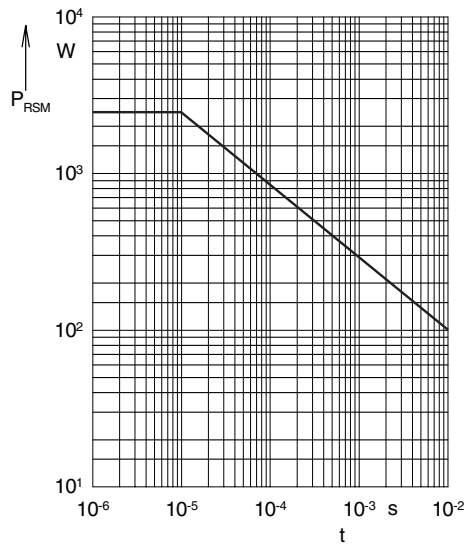


Fig. 3: **Power loss**

Non repetitive peak reverse power loss  $P_{RSM}$  as a function of time  $t$ ,  $T_{(vj)} = 150^\circ\text{C}$

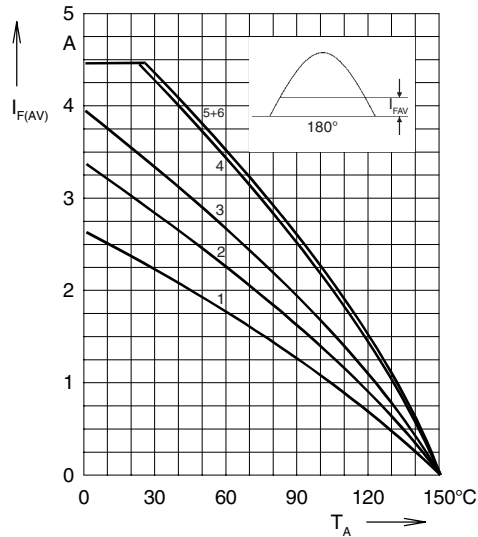


Fig. 4: **Load diagram**

Mean forward current  $I_{F(AV)}$  of one module for a sine half wave for various cooling modes as a function of the cooling medium temperature  $T_{amb}$  for a resistive load (horizontal mounting).

**Cooling modes**

- |                        |         |               |
|------------------------|---------|---------------|
| 1 = air self cooling   | without | cooling plate |
| 2 = air self cooling   | with    | cooling plate |
| 3 = forced air cooling | without | cooling plate |
| 4 = forced air cooling | with    | cooling plate |
| 5 = oil cooling        | without | cooling plate |
| 6 = oil cooling        | with    | cooling plate |