

# 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 colling plate	7 2.0 2.5	A A A
	forced air cooling: $v = 3 \text{ m/s}$ , $T_{amb} = 35^\circ\text{C}$ - without cooling plate - with cooling plate	3.2 4.1	A A
	oil cooling, $T_{amb} = 35^\circ\text{C}$ - without cooling plate - with cooling plate	4.2 4.2	A 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

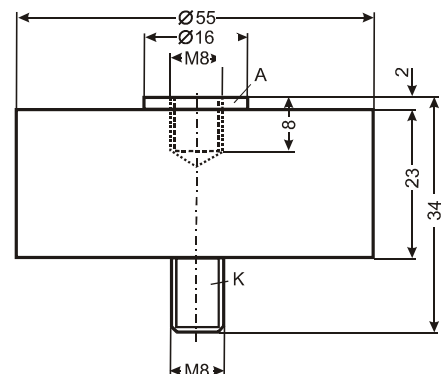
- X-Ray equipment
- Electrostatic dust precipitators
- Electronic beam welding
- Lasers
- Cable test equipment

### Advantages

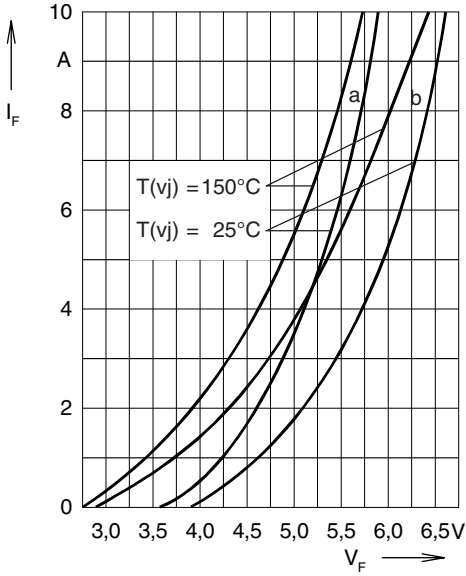
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits
- Series and parallel operation

Symbol	Conditions	Characteristic Values	
$I_R$	$T_{(vj)} = 150^\circ\text{C}$ ; $V_R = V_{RRM}$	$\leq 1$	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	m $\Omega$
$a$	$f = 50\text{Hz}$	5 x 9,81	m/s <sup>2</sup>
$M_d$		8	Nm

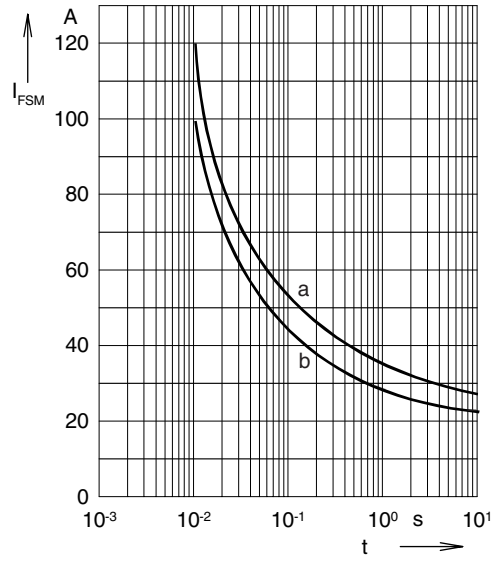
### Dimensions in mm (1 mm = 0.0394")



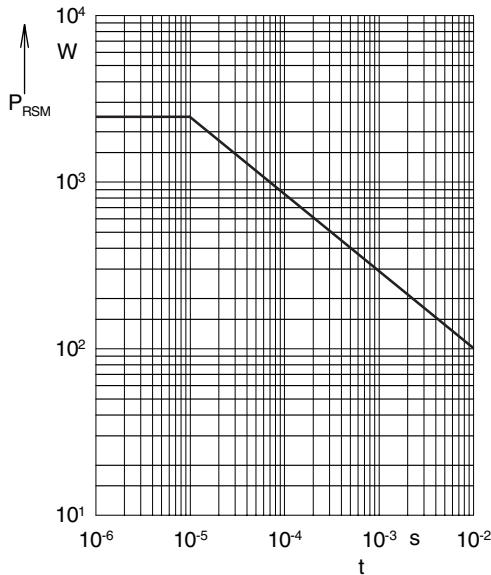
Data according to IEC 60747-2  
IXYS reserve the right to change limits, test conditions and dimensions.



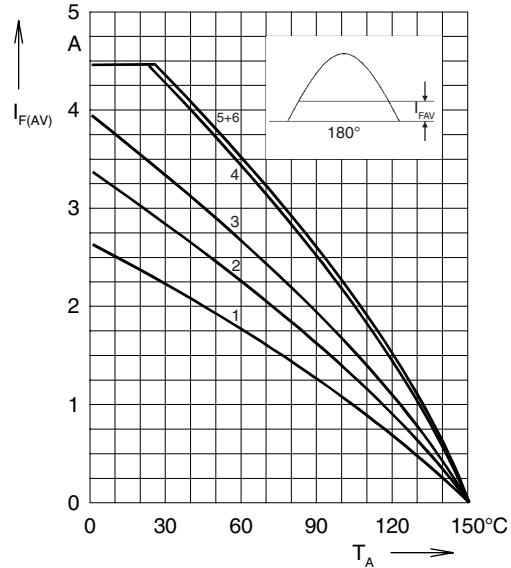
**Fig. 1: Forward characteristics**  
 Instantaneous forward current  $I_F$  as a function of instantaneous forward voltage drop  $V_F$  for junction temperature  $T_{(vj)} = 25^\circ\text{C}$  and  $T_{(vj)} = 150^\circ\text{C}$   
 a = Mean value characteristic  
 b = Limit value characteristic



**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 diagramm**  
 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 |