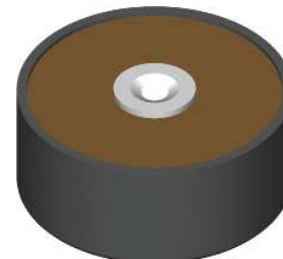


# High Voltage Rectifiers

$$V_{RRM} = 3200 \text{ V}$$

$$I_{F(AV)M} = 22.9 \text{ A}$$

| $V_{RRM}$<br>V | Standard<br>Types | Power Designation |
|----------------|-------------------|-------------------|
| 3200           | UGE 0421 AY4      | Si-E 1125 / 500-6 |



| Symbol                             | Conditions                                                                                                                     | Maximum Ratings                                                                                |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| $I_{F(RMS)}$<br>$I_{F(AV)M}$       | air self cooling, $T_{amb} = 45^{\circ}\text{C}$<br>- without cooling plate<br>- with colling plate                            | 40 A<br>7.4 A<br>10.9 A                                                                        |
|                                    | forced air cooling;<br>$v = 3 \text{ m/s}$ ; $T_{amb} = 35^{\circ}\text{C}$<br>- without cooling plate<br>- with colling plate | 14.2 A<br>18.8 A                                                                               |
|                                    | oil cooling;<br>$T_{amb} = 35^{\circ}\text{C}$<br>- without cooling plate<br>- with colling plate                              | 19.7 A<br>22.9 A                                                                               |
| $P_{RSM}$                          | $T_{VJ} = 150^{\circ}\text{C}$ ; $t_p = 10 \mu\text{s}$                                                                        | 7 kW                                                                                           |
| $I_{FSM}$                          | non repetitive, 50 c/s (for 60 c/s add 10%)<br>$T_{VJ} = 45^{\circ}\text{C}$ ; $t_p = 10 \text{ ms}$                           | 300 A                                                                                          |
|                                    | $T_{VJ} = 150^{\circ}\text{C}$ ; $t_p = 10 \text{ ms}$                                                                         | 250 A                                                                                          |
| $T_{VJ}$<br>$T_{stg}$<br>$T_{VJM}$ |                                                                                                                                | $-40 \dots +150^{\circ}\text{C}$<br>$-40 \dots +150^{\circ}\text{C}$<br>150 $^{\circ}\text{C}$ |
| Weight                             |                                                                                                                                | 115 g                                                                                          |

| Symbol   | Conditions                                         | Characteristic Values         |
|----------|----------------------------------------------------|-------------------------------|
| $I_R$    | $V_R = V_{RRM}$ $T_{VJ} = 150^{\circ}\text{C}$     | $\leq 2 \text{ mA}$           |
| $V_F$    | $I_F = 55 \text{ A}$ $T_{VJ} = 25^{\circ}\text{C}$ | 2.72 V                        |
| $V_{T0}$ | $T_{VJ} = 150^{\circ}\text{C}$                     | 1,7 V                         |
| $r_T$    | $T_{VJ} = 150^{\circ}\text{C}$                     | 16 $\text{m}\Omega$           |
| $a$      | $f = 50\text{Hz}$                                  | $5 \times 9.81 \text{ m/s}^2$ |
| $M_d$    |                                                    | 8 Nm                          |

Data according to IEC 60747-2

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IXYS reserves the right to change limits, test conditions and dimensions.

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## Features

- Hermetically sealed Epoxy
- Use in oil
- Avalanche characteristics

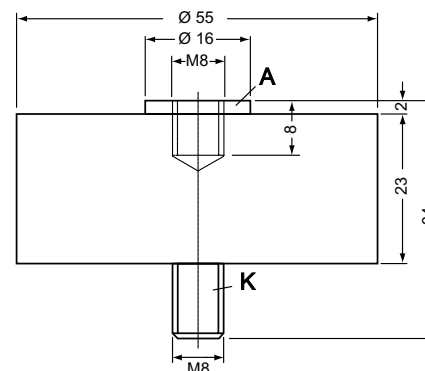
## Applications

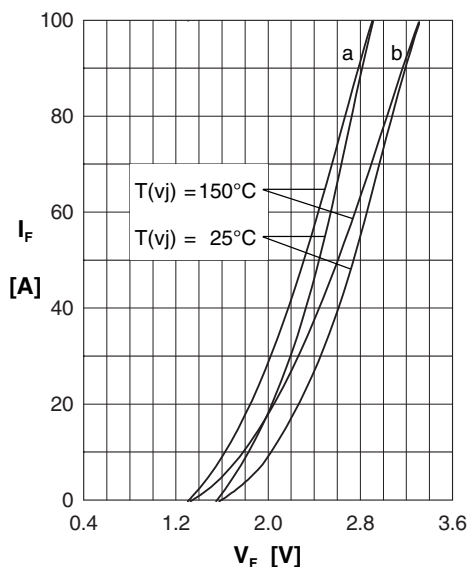
- X-Ray equipment
- Electrostatic dust precipitators
- Electronic beam welding
- Lasers
- Cable test equipment

## Advantages

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

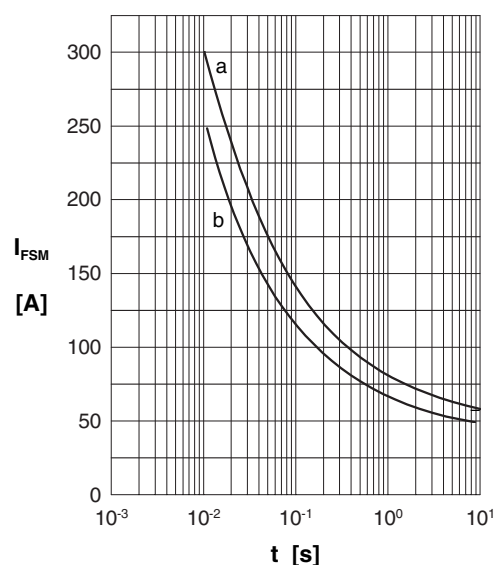
## Dimensions in mm (1 mm = 0.0394")





**Fig. 1: Forward characteristics**

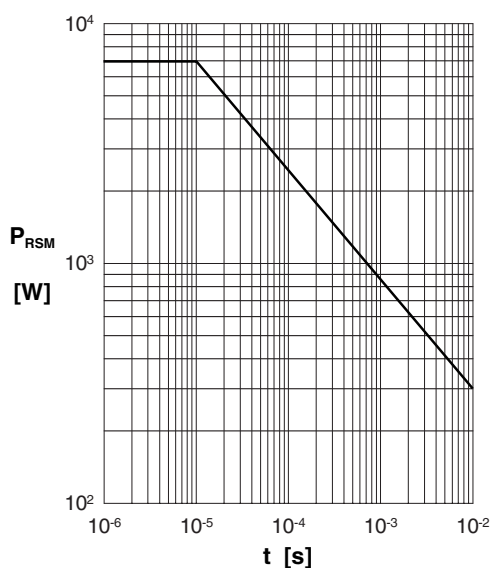
Instantaneous forward current  $I_F$  as a function of instantaneous forward voltage drop  $V_F$  for junction temperature  $T_{(vj)} = 25^\circ\text{C}$  and  $T_{(vj)} = 150^\circ\text{C}$   
 a = Mean value characteristic  
 b = Limit value characteristic



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

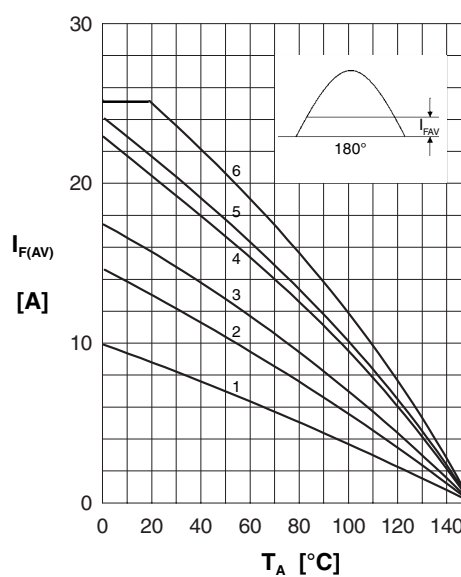
The curves show the non repetitive peak one cycle surge forward current  $I_{FSM}$  as a function of time  $t$  and serve for rating protective devices.

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 |