High Voltage Rectifiers

| $\mathrm{V}_{\text {RRM }}$ <br> V | Standard <br> Types | Power Designation |
| :--- | :--- | :--- |
| 24000 | UGE 3126 AY4 | Si-E 9000 / 4000-0.7 |



## Ratings

| Symbol | Conditions |  | Ratings |  |
| :---: | :---: | :---: | :---: | :---: |
| $\mathrm{I}_{\text {F(RMS) }}$ $\mathrm{I}_{\mathrm{F}(\mathrm{AV}) \mathrm{M}}$ | air self cooling, |  | 5 | A |
|  |  | $\mathrm{T}_{\mathrm{amb}}=45^{\circ} \mathrm{C}$ | 0.8 | A |
|  |  | - with colling plate | 1.0 | A |
|  | forced air cooling: |  |  |  |
|  | $\mathrm{v}=3 \mathrm{~m} / \mathrm{s}$, | $\mathrm{T}_{\text {amb }}=35^{\circ} \mathrm{C}$ |  |  |
|  |  | - without cooling plate | 1.4 | A |
|  |  | - with cooling plate | 1.7 | A |
|  | oil cooling, | $\mathrm{T}_{\mathrm{amb}}=35^{\circ} \mathrm{C}$ | 2.0 | A |
|  |  | - with cooling plate | 2.0 | A |
| $\mathrm{P}_{\text {RSM }}$ | $\mathrm{T}_{\text {(vi) }}=150^{\circ} \mathrm{C}$; | $\mathrm{t}_{\mathrm{p}}=10 \mu \mathrm{~s}$ | 1.6 | kW |
| $\mathrm{I}_{\text {FSM }}$ | non repetitive, $50 \mathrm{c} / \mathrm{s}$ (for $60 \mathrm{c} / \mathrm{s}$ add 10\%) |  |  |  |
|  | $\mathrm{T}_{(\mathrm{vj})}=45^{\circ} \mathrm{C}$; | $\mathrm{t}_{\mathrm{p}}=10 \mathrm{~ms}$ | 70 | A |
|  | $\mathrm{T}_{\text {(vi) }}=150^{\circ} \mathrm{C}$; | $\mathrm{t}_{\mathrm{p}}=10 \mathrm{~ms}$ | 60 | A |
| $\mathrm{T}_{\text {amb }}$ |  |  | -40...+150 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{T}_{\text {stg }}$ |  |  | -40...+150 | ${ }^{\circ} \mathrm{C}$ |
| $\mathrm{T}_{\text {(vi) }}$ |  |  | 150 | ${ }^{\circ} \mathrm{C}$ |
| Weight |  |  | 127 | g |


| Symbol | Conditions |  | Characteristic Values |  |
| :--- | :--- | ---: | ---: | ---: |
| $\mathbf{I}_{\mathrm{R}}$ | $\mathrm{T}_{(\mathrm{vj)}}=150^{\circ} \mathrm{C} ;$ | $\mathrm{V}_{\mathrm{R}}=\mathrm{V}_{\text {RRM }}$ | $\leq 1$ | mA |
| $\mathbf{V}_{\mathrm{F}}$ | $\mathrm{I}_{\mathrm{F}}=3 \mathrm{~A}$ |  | 18 | V |
|  | $\mathrm{~T}_{(\mathrm{vi)}}=25^{\circ} \mathrm{C}$ |  |  |  |
| $\mathbf{V}_{\mathrm{TO}}$ | $\mathrm{T}_{(\mathrm{vi)}}=150^{\circ} \mathrm{C}$ | 12 | V |  |
| $\mathbf{r}_{\mathrm{T}}$ | $\mathrm{T}_{(\mathrm{vj)}}=150^{\circ} \mathrm{C}$ |  | 1.8 | $\Omega$ |
| $\mathbf{a}$ | $\mathrm{f}=50 \mathrm{~Hz}$ |  | $5 \times 9,81$ | $\mathrm{~m} / \mathrm{s}^{2}$ |
| $\mathbf{M}_{\mathrm{d}}$ |  |  | 8 | Nm |


$I_{F(A V) M}=2.0 \mathrm{~A}$


## 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 ( $1 \mathrm{~mm}=0.0394^{\prime \prime}$ )



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 $\mathrm{V}_{\mathrm{F}}$ for junction temperature $\mathrm{T}_{(\mathrm{vj})}=25^{\circ} \mathrm{C}$ and $\mathrm{T}_{(\mathrm{vj)}}=150^{\circ} \mathrm{C}$ $\mathrm{a}=$ 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 $I_{\text {FSM }}$ as a function of time $t$ and serve for rating protective devices.
$\begin{array}{ll}a=\text { Initial state } & T_{\text {(vi) }}=45^{\circ} \mathrm{C} \\ b=\text { Initial state } & T_{(v i}=150^{\circ} \mathrm{C}\end{array}$
$b=$ Initial state $\quad T_{(v j)}^{(v i)}=150^{\circ} \mathrm{C}$


Fig. 4: Load diagramm
Mean forward current $\mathrm{I}_{\mathrm{FAV})}$ of one module for a sine half wave for various cooling modes as a function of the cooling medium temperature $T_{\text {amb }}$ 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 |

1 = air self cooling
2 = air self cooling
4 forced aircooling
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6 = oil cooling
with cooling plat

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