

Standard Rectifier Module

| | |
|-------------------------|-------|
| 3~ Rectifier | |
| $V_{RRM} =$ | 800 V |
| $I_{DAV} =$ | 60 A |
| $I_{FSM} =$ | 550 A |

3~ Rectifier Bridge

Part number

VUO62-08NO7



 E72873



Features / Advantages:

- Package with DCB ceramic
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
- Very low leakage current

Applications:

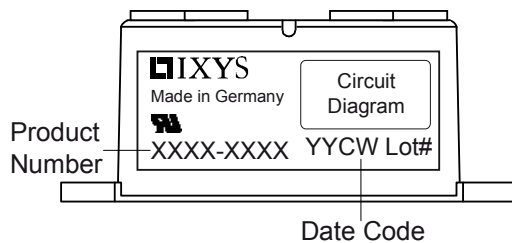
- Diode for main rectification
- For three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: PWS-D

- Industry standard outline
- RoHS compliant
- Easy to mount with two screws
- Base plate: Copper internally DCB isolated
- Advanced power cycling

| Rectifier | | | | Ratings | | |
|------------|--|---|-------------------------|---------|------|-------------------|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit |
| V_{RSM} | max. non-repetitive reverse blocking voltage | $T_{VJ} = 25^{\circ}C$ | | | 900 | V |
| V_{RRM} | max. repetitive reverse blocking voltage | $T_{VJ} = 25^{\circ}C$ | | | 800 | V |
| I_R | reverse current | $V_R = 800 V$ | $T_{VJ} = 25^{\circ}C$ | | 40 | μA |
| | | $V_R = 800 V$ | $T_{VJ} = 150^{\circ}C$ | | 1.5 | mA |
| V_F | forward voltage drop | $I_F = 20 A$ | $T_{VJ} = 25^{\circ}C$ | | 1.07 | V |
| | | $I_F = 60 A$ | | | 1.30 | V |
| | | $I_F = 20 A$ | $T_{VJ} = 125^{\circ}C$ | | 0.96 | V |
| | | $I_F = 60 A$ | | | 1.27 | V |
| I_{DAV} | bridge output current | $T_C = 120^{\circ}C$ rectangular $d = \frac{1}{3}$ | $T_{VJ} = 150^{\circ}C$ | | 60 | A |
| V_{FO} | threshold voltage | } for power loss calculation only | $T_{VJ} = 150^{\circ}C$ | | 0.78 | V |
| r_F | slope resistance | | | | 8.1 | m Ω |
| R_{thJC} | thermal resistance junction to case | | | | 1.1 | K/W |
| R_{thCH} | thermal resistance case to heatsink | | | 0.4 | | K/W |
| P_{tot} | total power dissipation | | $T_C = 25^{\circ}C$ | | 110 | W |
| I_{FSM} | max. forward surge current | $t = 10 \text{ ms; (50 Hz), sine}$ | $T_{VJ} = 45^{\circ}C$ | | 550 | A |
| | | $t = 8,3 \text{ ms; (60 Hz), sine}$ | $V_R = 0 V$ | | 595 | A |
| | | $t = 10 \text{ ms; (50 Hz), sine}$ | $T_{VJ} = 150^{\circ}C$ | | 470 | A |
| | | $t = 8,3 \text{ ms; (60 Hz), sine}$ | $V_R = 0 V$ | | 505 | A |
| I^2t | value for fusing | $t = 10 \text{ ms; (50 Hz), sine}$ | $T_{VJ} = 45^{\circ}C$ | | 1.52 | kA ² s |
| | | $t = 8,3 \text{ ms; (60 Hz), sine}$ | $V_R = 0 V$ | | 1.48 | kA ² s |
| | | $t = 10 \text{ ms; (50 Hz), sine}$ | $T_{VJ} = 150^{\circ}C$ | | 1.11 | kA ² s |
| | | $t = 8,3 \text{ ms; (60 Hz), sine}$ | $V_R = 0 V$ | | 1.06 | kA ² s |
| C_J | junction capacitance | $V_R = 400 V; f = 1 \text{ MHz}$ | $T_{VJ} = 25^{\circ}C$ | | 19 | pF |

| Package PWS-D | | | Ratings | | | |
|----------------|--|----------------------|---------|------|------|------|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit |
| I_{RMS} | RMS current | per terminal | | | 150 | A |
| T_{stg} | storage temperature | | -40 | | 125 | °C |
| T_{VJ} | virtual junction temperature | | -40 | | 150 | °C |
| Weight | | | | 159 | | g |
| M_D | mounting torque | | 4.25 | | 5.75 | Nm |
| M_T | terminal torque | | 4.25 | | 5.75 | Nm |
| $d_{Spp/App}$ | creepage distance on surface striking distance through air | terminal to terminal | 9.5 | | | mm |
| $d_{Spb/Appb}$ | | terminal to backside | 26.0 | | | mm |
| V_{ISOL} | isolation voltage | t = 1 second | 3000 | | | V |
| | | t = 1 minute | 2500 | | | V |



| Ordering | Part Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-------------|--------------------|---------------|----------|----------|
| Standard | VUO62-08NO7 | VUO62-08NO7 | Box | 10 | 460443 |

Equivalent Circuits for Simulation

* on die level

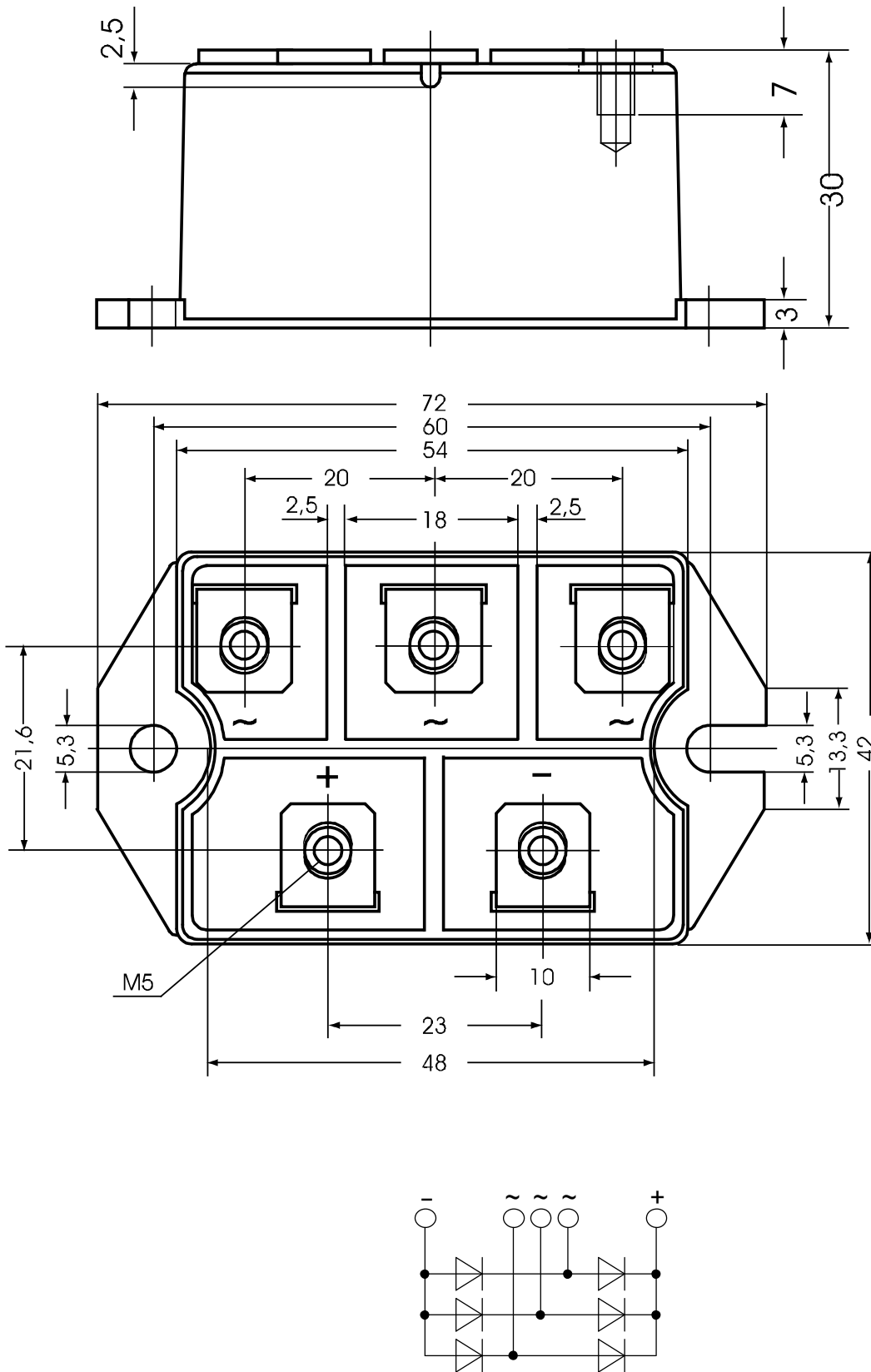
$T_{VJ} = 150\text{ °C}$



Rectifier

| | | | |
|--------------|--------------------|------|----|
| $V_{0\ max}$ | threshold voltage | 0.78 | V |
| $R_{0\ max}$ | slope resistance * | 6.9 | mΩ |

Outlines PWS-D



Rectifier

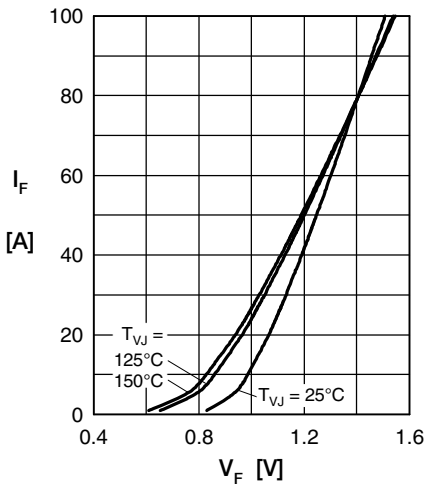


Fig. 1 Forward current vs. voltage drop per diode

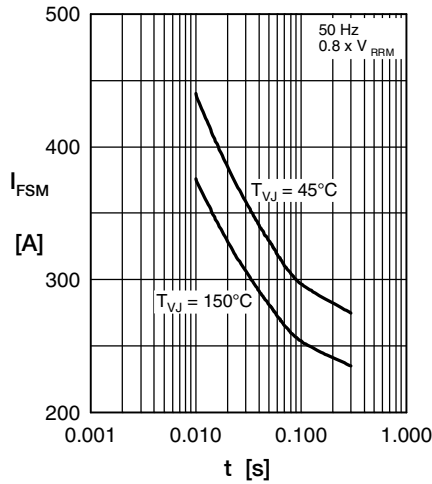


Fig. 2 Surge overload current vs. time per diode

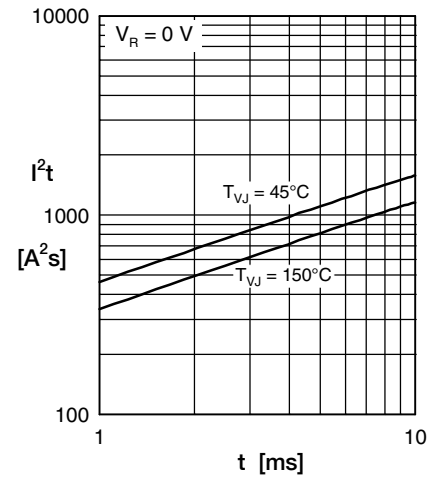


Fig. 3 I^2t vs. time per diode

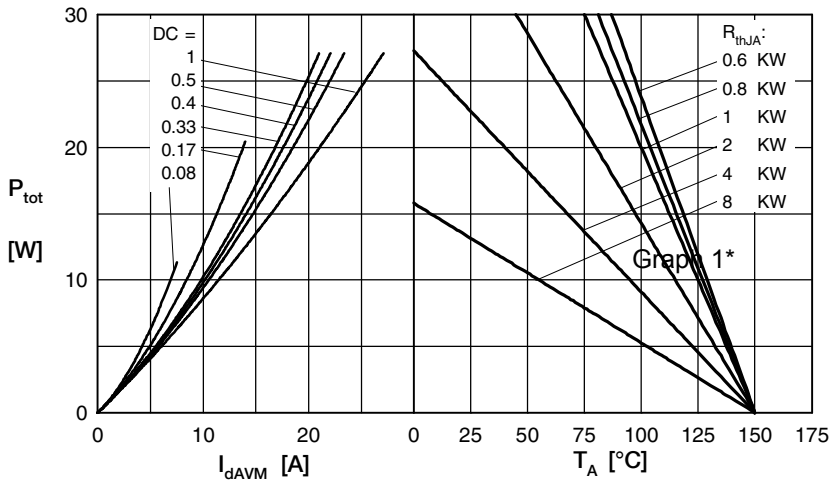


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

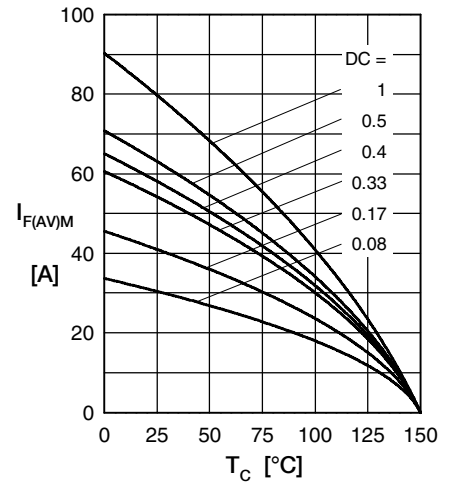


Fig. 5 Max. forward current vs. case temperature per diode

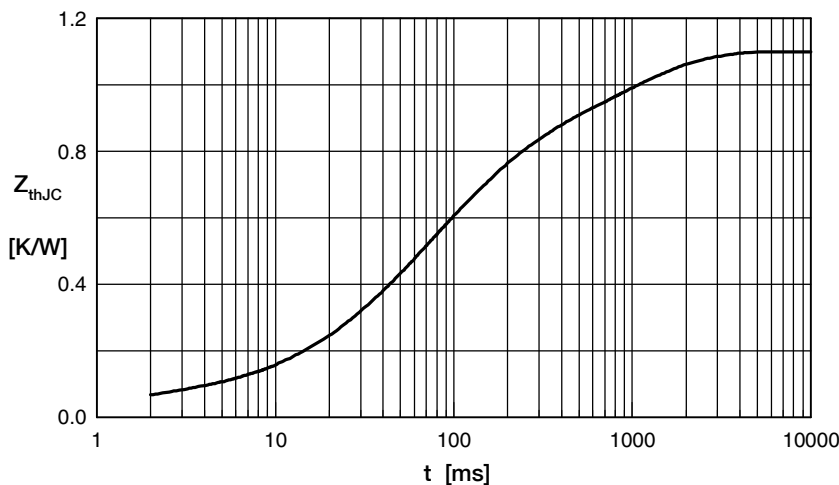


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

| i | R_{th} (K/W) | t_i (s) |
|---|----------------|-----------|
| 1 | 0.05 | 0.001 |
| 2 | 0.14 | 0.030 |
| 3 | 0.25 | 0.060 |
| 4 | 0.35 | 0.130 |
| 5 | 0.31 | 0.920 |