

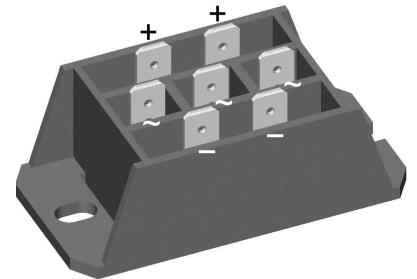
Standard Rectifier Module

| | |
|-------------------------|----------|
| 3~ Rectifier | |
| V_{RRM} | = 1200 V |
| I_{DAV} | = 60 A |
| I_{FSM} | = 500 A |

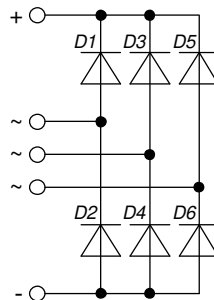
3~ Rectifier Bridge

Part number

VUO50-12NO3



 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: FO-F

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- 1/4" fast-on terminals
- Easy to mount with two screws
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Disclaimer Notice

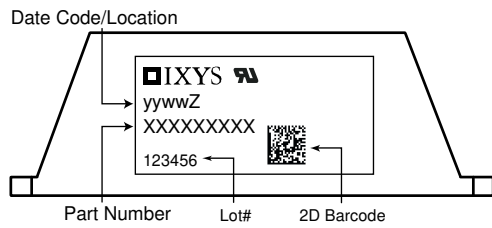
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| Rectifier | | | | Ratings | | | |
|------------|--|-----------------------------------|-------------------|------------------------------|------|------|-------------------|
| Symbol | Definition | Conditions | | min. | typ. | max. | Unit |
| V_{RSM} | max. non-repetitive reverse blocking voltage | | | | | 1300 | V |
| V_{RRM} | max. repetitive reverse blocking voltage | | | | | 1200 | V |
| I_R | reverse current | $V_R = 1200$ V | | $T_{VJ} = 25^\circ\text{C}$ | | 40 | μA |
| | | $V_R = 1200$ V | | $T_{VJ} = 150^\circ\text{C}$ | | 1.5 | mA |
| V_F | forward voltage drop | $I_F = 20$ A | | $T_{VJ} = 25^\circ\text{C}$ | | 1.07 | V |
| | | $I_F = 60$ A | | | | 1.32 | V |
| | | $I_F = 20$ A | | $T_{VJ} = 125^\circ\text{C}$ | | 0.98 | V |
| | | $I_F = 60$ A | | | | 1.30 | V |
| I_{DAV} | bridge output current | $T_C = 110^\circ\text{C}$ | | $T_{VJ} = 150^\circ\text{C}$ | | 60 | A |
| | | rectangular | $d = \frac{1}{3}$ | | | | |
| V_{F0} | threshold voltage | | | $T_{VJ} = 150^\circ\text{C}$ | | 0.78 | V |
| r_F | slope resistance | } for power loss calculation only | | | | 8.5 | m Ω |
| R_{thJC} | thermal resistance junction to case | | | | | 1.5 | K/W |
| R_{thCH} | thermal resistance case to heatsink | | | | 0.4 | | K/W |
| P_{tot} | total power dissipation | | | $T_C = 25^\circ\text{C}$ | | 80 | W |
| I_{FSM} | max. forward surge current | $t = 10$ ms; (50 Hz), sine | | $T_{VJ} = 45^\circ\text{C}$ | | 500 | A |
| | | $t = 8,3$ ms; (60 Hz), sine | | $V_R = 0$ V | | 540 | A |
| | | $t = 10$ ms; (50 Hz), sine | | $T_{VJ} = 150^\circ\text{C}$ | | 425 | A |
| | | $t = 8,3$ ms; (60 Hz), sine | | $V_R = 0$ V | | 460 | A |
| I^2t | value for fusing | $t = 10$ ms; (50 Hz), sine | | $T_{VJ} = 45^\circ\text{C}$ | | 1.25 | kA ² s |
| | | $t = 8,3$ ms; (60 Hz), sine | | $V_R = 0$ V | | 1.22 | kA ² s |
| | | $t = 10$ ms; (50 Hz), sine | | $T_{VJ} = 150^\circ\text{C}$ | | 905 | A ² s |
| | | $t = 8,3$ ms; (60 Hz), sine | | $V_R = 0$ V | | 880 | A ² s |
| C_J | junction capacitance | $V_R = 400$ V; $f = 1$ MHz | | $T_{VJ} = 25^\circ\text{C}$ | | 25 | pF |



| Package FO-F | | Ratings | | | | |
|---------------|--|----------------------|------|------|------|------|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit |
| I_{RMS} | RMS current | per terminal | | | 100 | A |
| T_{VJ} | virtual junction temperature | | -40 | | 150 | °C |
| T_{op} | operation temperature | | -40 | | 125 | °C |
| T_{stg} | storage temperature | | -40 | | 125 | °C |
| Weight | | | | 45 | | g |
| M_D | mounting torque | | 2 | | 2.5 | Nm |
| $d_{Spp/App}$ | creepage distance on surface / striking distance through air | terminal to terminal | 18.0 | 6.0 | | mm |
| $d_{Spb/Apb}$ | | terminal to backside | 26.0 | 20.0 | | mm |
| V_{ISOL} | isolation voltage | t = 1 second | 3600 | | | V |
| | | t = 1 minute | 3000 | | | V |



| Ordering | Ordering Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-----------------|--------------------|---------------|----------|----------|
| Standard | VUO50-12NO3 | VUO50-12NO3 | Box | 10 | 417246 |

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^{\circ}C$

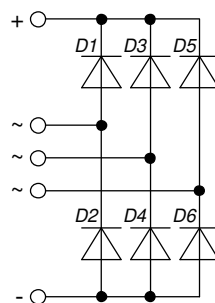
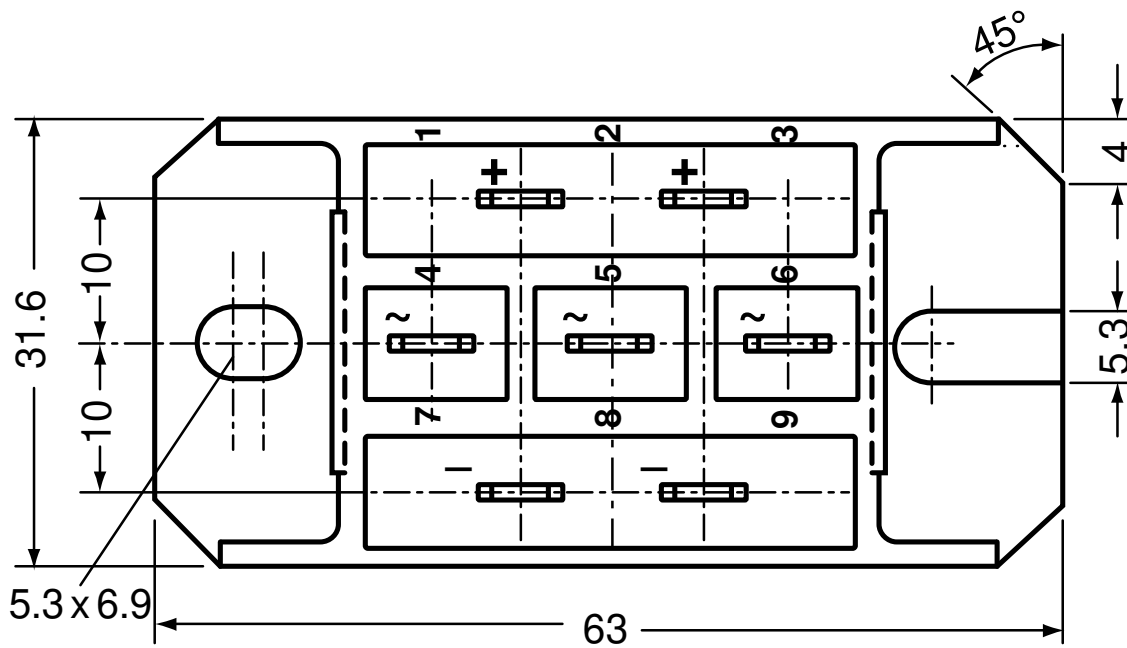
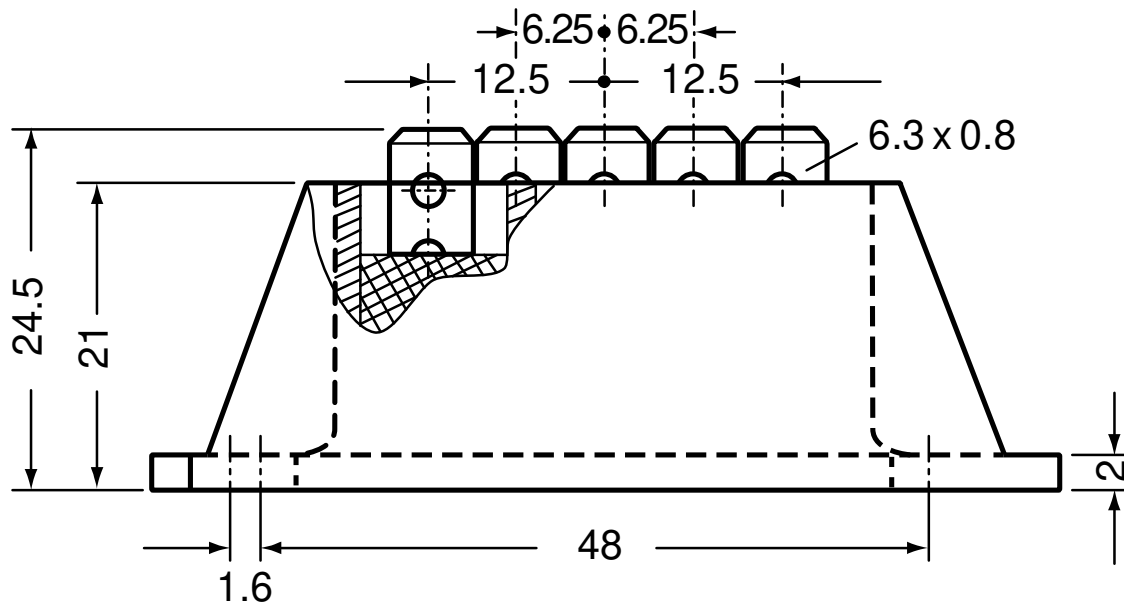


Rectifier

| | | | |
|--------------|--------------------|------|----|
| $V_{0\ max}$ | threshold voltage | 0.78 | V |
| $R_{0\ max}$ | slope resistance * | 7.3 | mΩ |



Outlines FO-F





Rectifier

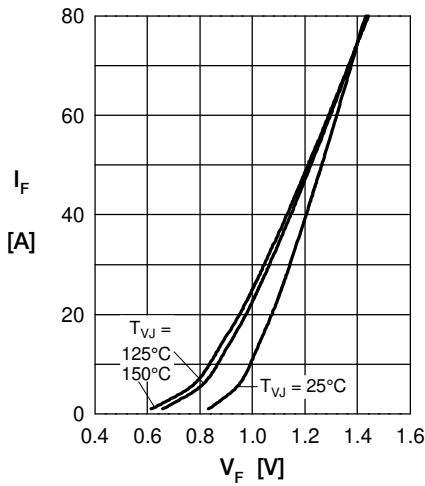


Fig. 1 Forward current vs. voltage drop per diode

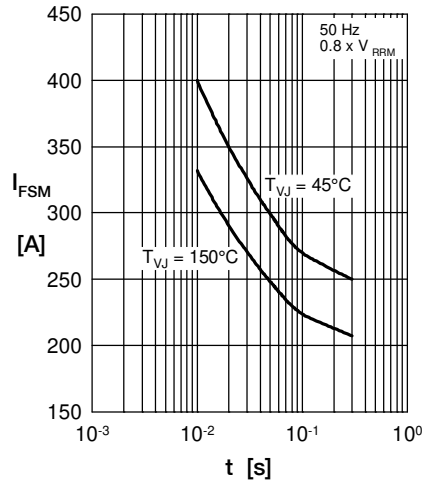


Fig. 2 Surge overload current vs. time per diode

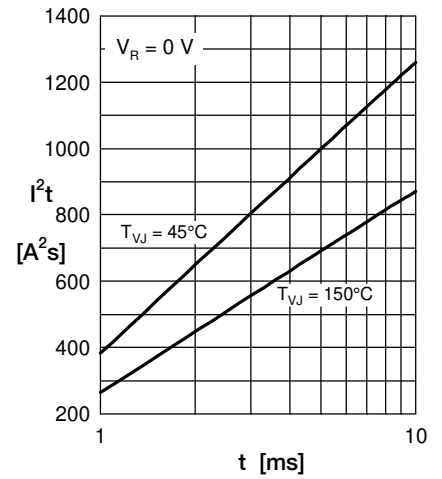


Fig. 3 I^2t vs. time per diode

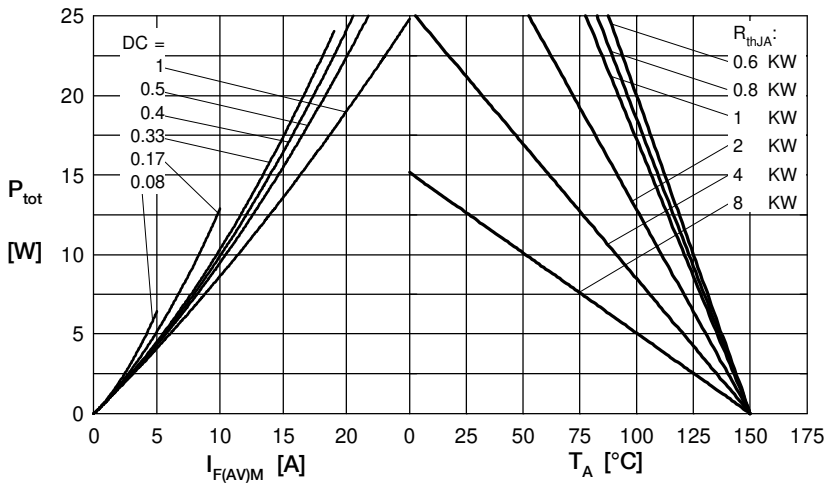


Fig. 4 Power dissipation vs. forward current and ambient temperature per diode

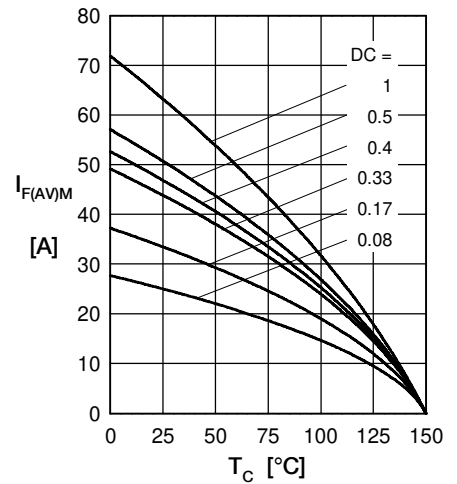


Fig. 5 Max. forward current vs. case temperature per diode

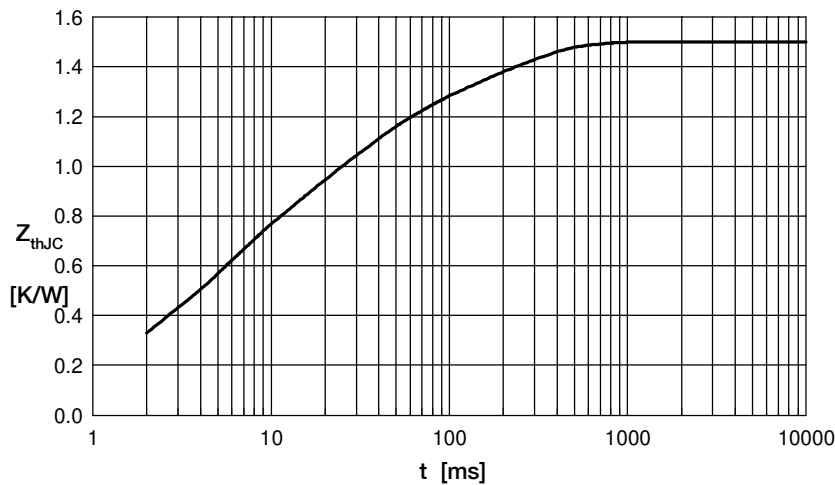


Fig. 6 Transient thermal impedance junction to case vs. time per diode

Constants for Z_{thJC} calculation:

| i | R_{th} (K/W) | t_i (s) |
|---|----------------|-----------|
| 1 | 0.0607 | 0.00040 |
| 2 | 0.1330 | 0.00256 |
| 3 | 0.4305 | 0.00450 |
| 4 | 0.5130 | 0.02420 |
| 5 | 0.3628 | 0.18000 |



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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