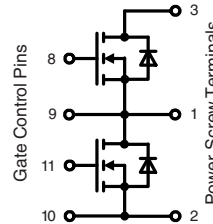


Dual Power MOSFET Module

$V_{DSS} = 75 \text{ V}$
 $I_{D25} = 1500 \text{ A}$
 $R_{DS(on)} = 0.5 \text{ m}\Omega$

Phaseleg Configuration

Tentative



| MOSFET T1 + T2 | | | | |
|----------------|---|---|-----------------|---|
| Symbol | Conditions | | Maximum Ratings | |
| V_{DSS} | $T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$ | | 75 | V |
| V_{GS} | | | ± 20 | V |
| I_{D25} | $T_C = 25^\circ\text{C}$ | ① | 1500 | A |
| I_{D80} | $T_C = 80^\circ\text{C}$ | ① | 1200 | A |
| I_{F25} | (diode) $T_C = 25^\circ\text{C}$ | ① | 1500 | A |
| I_{F80} | (diode) $T_C = 80^\circ\text{C}$ | ① | 1100 | A |

Features

- Trench MOSFETs
 - low $R_{DS(on)}$
 - optimized intrinsic reverse diode
- package
 - low inductive current path
 - screw connection to high current main terminals
 - use of non interchangeable connectors for auxiliary terminals possible
 - Kelvin source terminals for easy drive
 - isolated DCB ceramic base plate

| Symbol | Conditions | Characteristic Values ($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified) | | |
|--------------|---|--|------|-------------------|
| | | min. | typ. | max. |
| $R_{DS(on)}$ | $V_{GS} = 10 \text{ V}; I_D = I_{D80}$ | | 0.5 | 0.7 m Ω |
| $V_{GS(th)}$ | $V_{DS} = 20 \text{ V}; I_D = 2.5 \text{ mA}$ | 2 | | 4 V |
| I_{DSS} | $V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$ | | 1.5 | 0.15 mA mA |
| I_{GSS} | $V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$ | | | 3.0 μA |
| C_{iss} | $V_{GS} = 0 \text{ V}; V_{DS} = 25 \text{ V}; f = 1 \text{ MHz}$ | | 115 | nF |
| C_{oss} | | | 12.8 | nF |
| C_{rss} | | | 1.38 | nF |
| Q_g | $V_{GS} = 10 \text{ V}; V_{DS} = 37 \text{ V}; I_D = 1200 \text{ A}$ | | 1950 | nC |
| Q_{gs} | | | 580 | nC |
| Q_{gd} | | | 450 | nC |
| $t_{d(on)}$ | Resistive Switching Times $V_{GS} = 10 \text{ V}; V_{DS} = 37 \text{ V};$ $I_D = 1200 \text{ A}; R_G = 0.5 \Omega$ | | 50 | ns |
| t_r | | | 70 | ns |
| $t_{d(off)}$ | | | 40 | ns |
| t_f | | | 60 | ns |
| V_F | (diode) $I_F = 750 \text{ A}; V_{GS} = 0 \text{ V}$ | | 1.0 | 1.2 V |
| t_{rr} | (diode) $I_F = 200 \text{ A}; -di/dt = 1000 \text{ A}/\mu\text{s}; V_{DS} = 30 \text{ V}$ | | 80 | ns |
| R_{thJC} | with heat transfer paste | | | 0.08 K/W |
| R_{thJS} | | | 0.12 | K/W |

① additional current limitation by external leads

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

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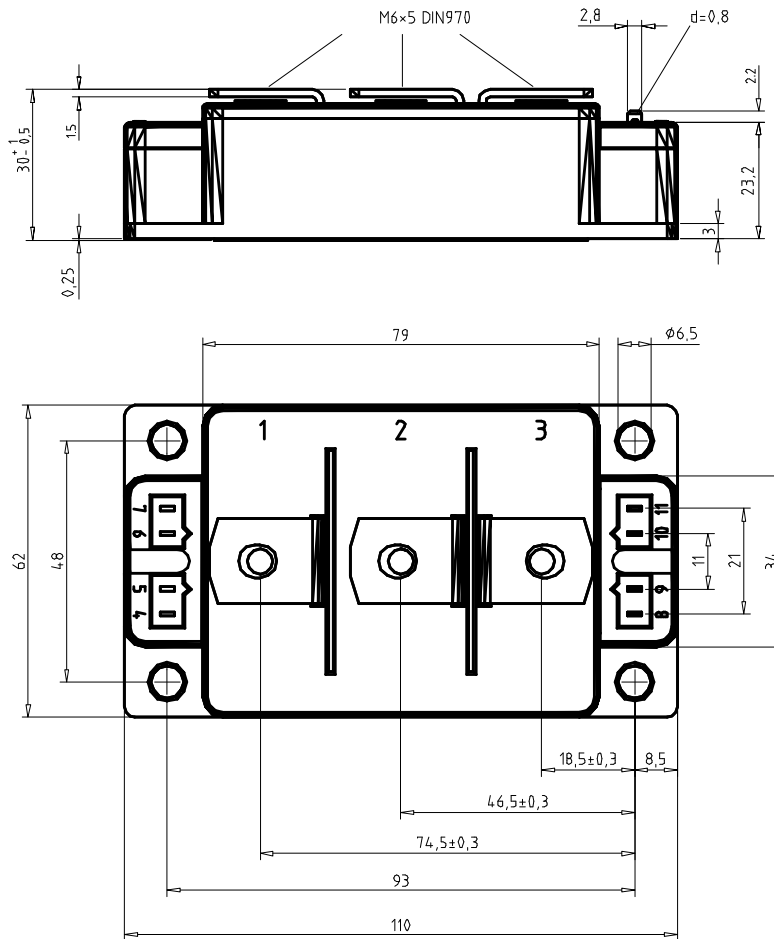
Applications

- converters with high power density for
 - main and auxiliary AC drives of electric vehicles
 - 4 quadrant DC drives
- power supplies with low input voltage, e.g. from fuel cells or solar cells

| Module | | | |
|------------|--|-----------------|----|
| Symbol | Conditions | Maximum Ratings | |
| I_{RMS} | per main terminal | 500 | A |
| T_{VJ} | | -40...+175 | °C |
| T_{stg} | | -40...+125 | °C |
| V_{ISOL} | $I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$ | 3600 | V~ |
| M_d | Mounting torque (M6) | 2.25 - 2.75 | Nm |
| | Terminal connection torque (M6) | 4.5 - 5.5 | Nm |

| Symbol | Conditions | Characteristic Values | | |
|--------|------------|-----------------------|------|------|
| | | min. | typ. | max. |
| Weight | | 250 | | g |

Dimensions in mm (1 mm = 0.0394")



Optional accessories for modules

keyed twin plugs
(UL758, style 1385, CSA class 5851, guide 460-1-1)

- Type ZY180L with wire length 350mm
 - for pins 4 (yellow wire) and 5 (red wire)
 - for pins 11 (yellow wire) and 10 (red wire)
- Type ZY180R with wire length 350mm
 - for pins 7 (yellow wire) and 6 (red wire)
 - for pins 8 (yellow wire) and 9 (red wire)

Product Status Definitions and Disclaimers

| Datasheet Identification | Product Status | Definition |
|--------------------------------|-------------------------------|---|
| Tentative | Tentative | Datasheet represents a tentative draft based on experience and related products. |
| Advanced Technical Information | Under development/engineering | Datasheet contains the design specifications for product development. |
| Preliminary | Pilot Production | Datasheet contains preliminary data and supplementary data will be published at a later date. |
| Without Identification | Serial Production | Datasheet contains final specifications. |

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