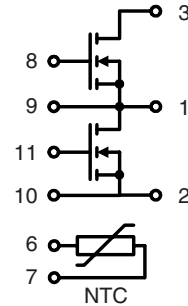


Dual Power HiPerFET™ Module

Phaseleg Configuration

$V_{DSS} = 900\text{ V}$
 $I_{D25} = 85\text{ A}$
 $R_{DS(on)} = 76\text{ m}\Omega$



| MOSFET T1 + T2 | | | |
|----------------|---|-----------------|---|
| Symbol | Conditions | Maximum Ratings | |
| V_{DSS} | $T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$ | 900 | V |
| V_{GS} | | ± 20 | V |
| I_{D25} | $T_C = 25^{\circ}\text{C}$ | 85 | A |
| I_{D80} | $T_C = 80^{\circ}\text{C}$ | 65 | A |
| I_{F25} | (diode) $T_C = 25^{\circ}\text{C}$ | 85 | A |
| I_{F80} | (diode) $T_C = 80^{\circ}\text{C}$ | 65 | A |

Features

- HiPerFET™ technology
 - low $R_{DS(on)}$
 - unclamped inductive switching (UIS) capability
 - dv/dt ruggedness
 - fast intrinsic reverse diode
 - low gate charge
- thermistor for internal temperature measurement
- 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. |
| $R_{DS(on)}$ | $V_{GS} = 10\text{ V}; I_D = I_{D80}$ | | | 76 mΩ |
| $V_{GS(th)}$ | $V_{DS} = 20\text{ V}; I_D = 30\text{ mA}$ | 3 | | 5 V |
| I_{DSS} | $V_{DS} = 0.8 \cdot V_{DSS}; V_{GS} = 0\text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$ | | 1.5 | 0.4 mA mA |
| I_{GSS} | $V_{GS} = \pm 20\text{ V}; V_{DS} = 0\text{ V}$ | | | 1 μA |
| Q_g Q_{gs} Q_{gd} | $V_{GS} = 10\text{ V}; V_{DS} = 450\text{ V}; I_D = 50\text{ A}$ | | 960 | nC |
| | | | 225 | nC |
| | | | 430 | nC |
| $t_{d(on)}$ t_r $t_{d(off)}$ t_f | $V_{GS} = 10\text{ V}; V_{DS} = 0.5 \cdot V_{DSS};$ $I_D = I_{D80}; R_G = 0.47\ \Omega$ | | 150 | ns |
| | | | 180 | ns |
| | | | 330 | ns |
| | | | 140 | ns |
| V_F | (diode) $I_F = 90\text{ A}; V_{GS} = 0\text{ V}$ | | 1.1 | 1.6 V |
| t_{rr} | (diode) $I_F = 90\text{ A}; -di/dt = 400\text{ A}/\mu\text{s}; V_{DS} = 100\text{ V}$ | | 250 | ns |
| R_{thJC} R_{thJS} | with heat transfer paste | | 0.12 | 0.08 K/W K/W |

Applications

- converters with high power density and high switching speed for
 - power supplies
 - induction heating

Electrical Characteristics

| Symbol | Conditions | Characteristic Values | | |
|--------------|--------------------------|-----------------------|------|----------|
| | | min. | typ. | max. |
| R_{25} | $T = 25^{\circ}\text{C}$ | | 2200 | Ω |
| $B_{25/100}$ | | | 3560 | K |

Module

| Symbol | Conditions | Maximum Ratings | |
|------------|--|-----------------|--------------------|
| T_{VJ} | | -40...+150 | $^{\circ}\text{C}$ |
| T_{stg} | | -40...+125 | $^{\circ}\text{C}$ |
| 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 |

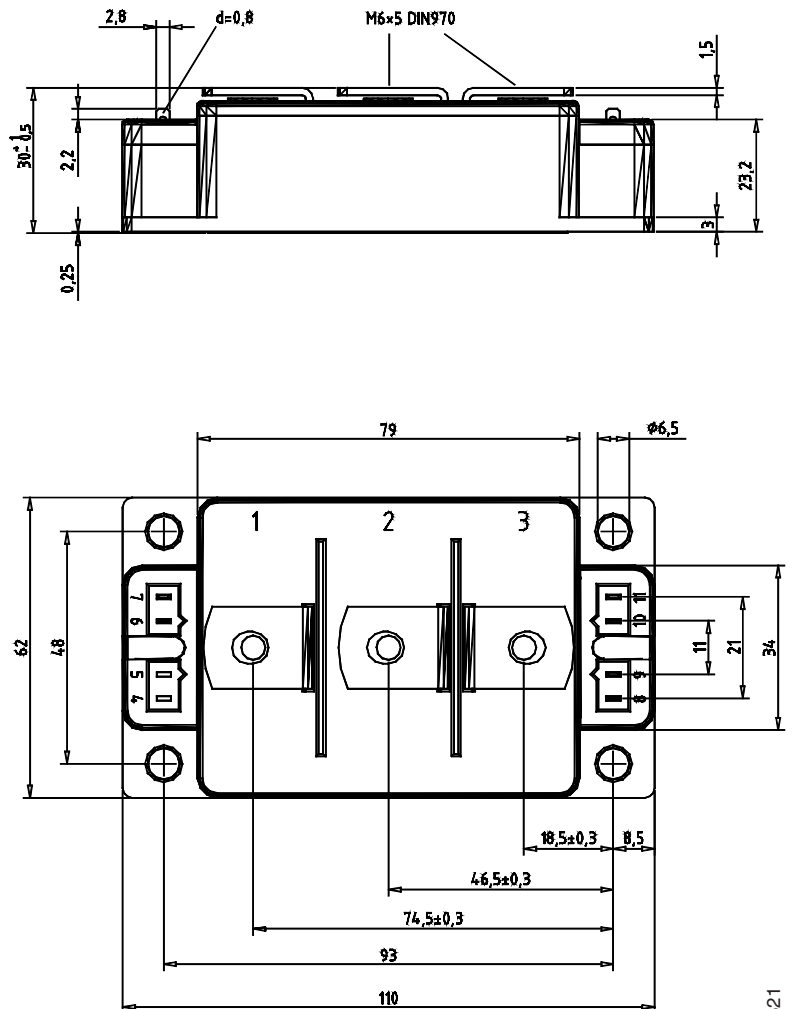
| Symbol | Conditions | Characteristic Values | | |
|--------|------------|-----------------------|------|------|
| | | min. | typ. | max. |
| Weight | | | 250 | g |

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)



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

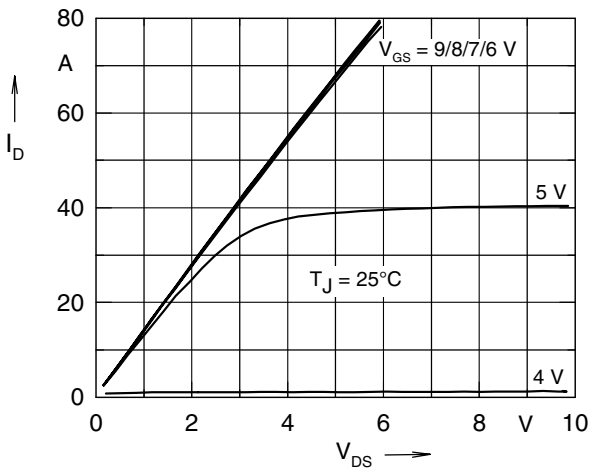


Fig. 1 Typical output characteristics

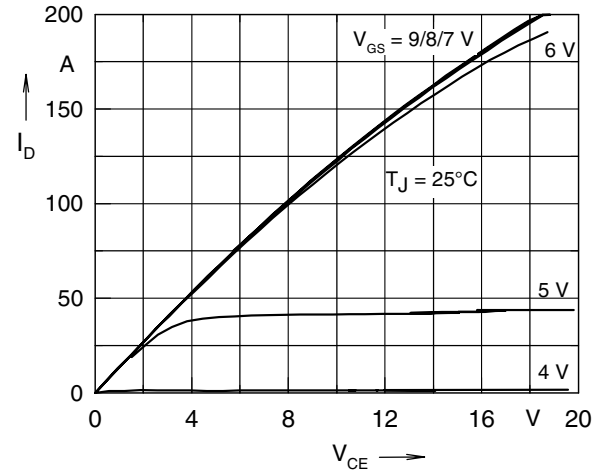


Fig. 2 Typical transfer characteristics

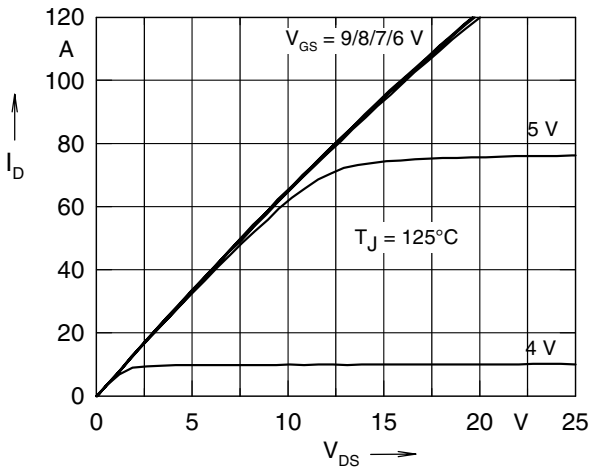


Fig. 3 Typical output characteristics

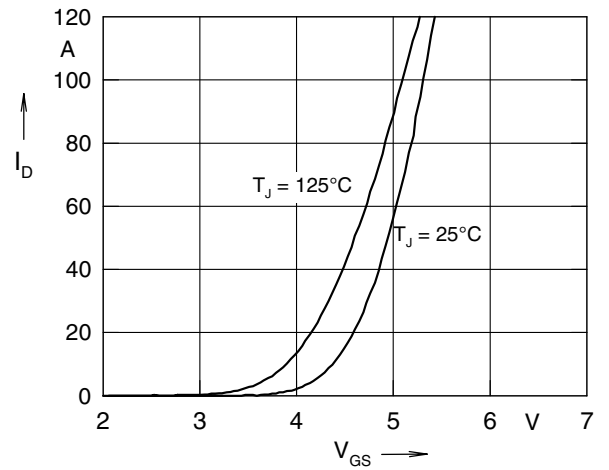


Fig. 4 Typical transfer characteristics

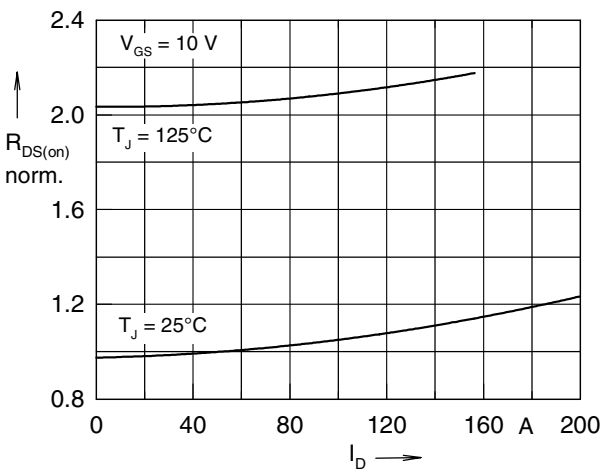


Fig. 5 Typical normalized $R_{DS(on)}$ versus I_D

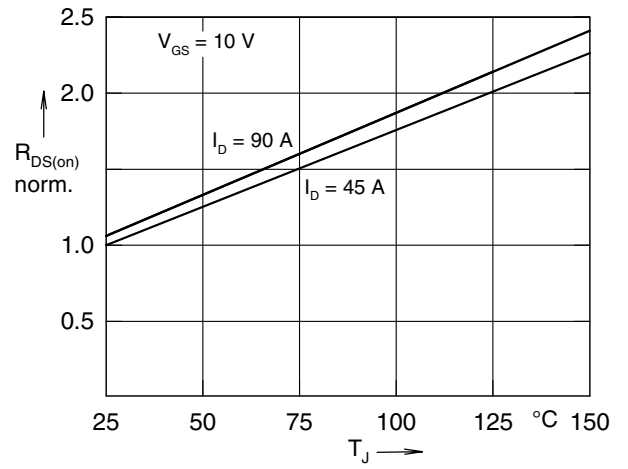


Fig. 6 Typical normalized $R_{DS(on)}$ versus T_J

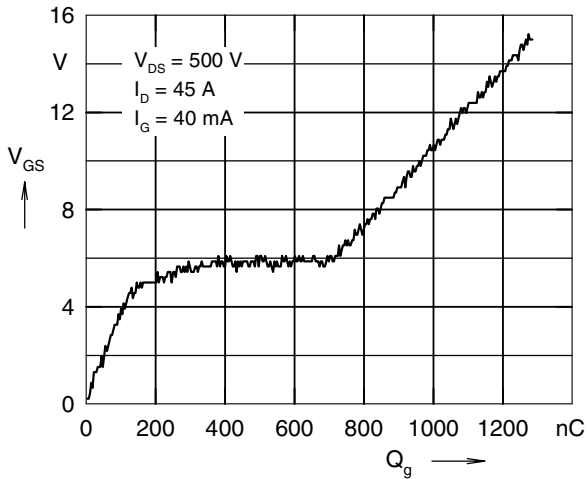


Fig. 7 Typical turn-on gate charge characteristics

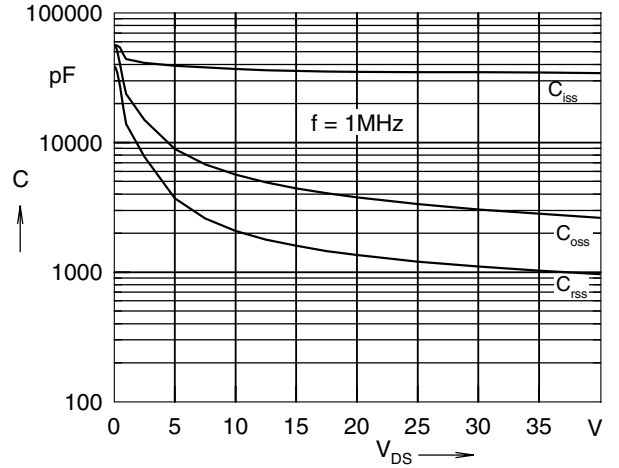


Fig. 8 Typical capacitances

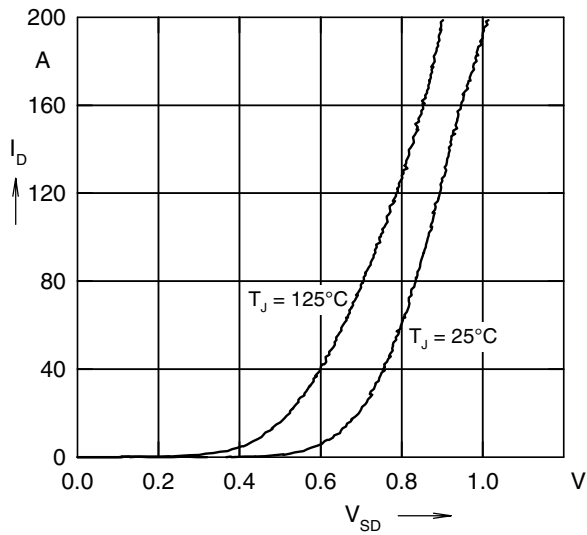


Fig. 9 Typical forward characteristics of diode

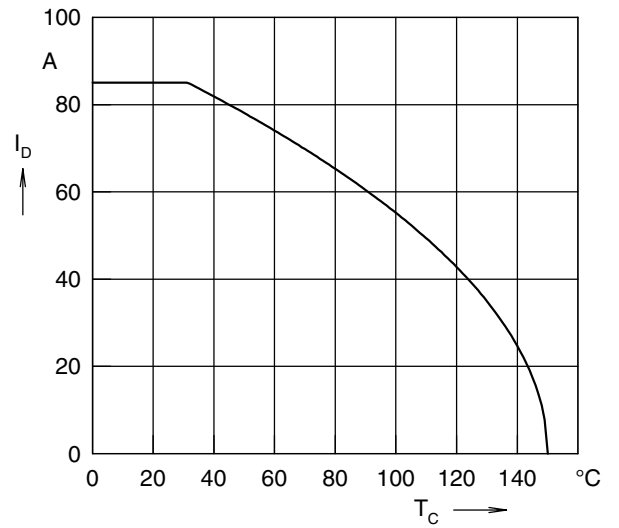


Fig. 10 Continuous drain current

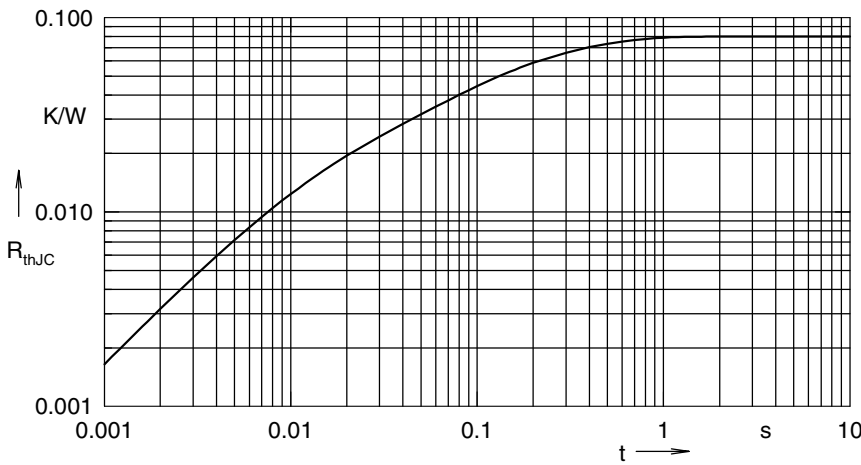


Fig. 11 Transient thermal resistance

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