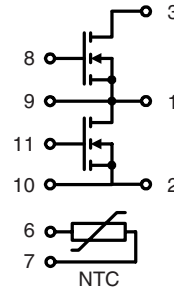


# Dual Power HiPerFET™ Module

Phaseleg Configuration

Preliminary Data



$$V_{DSS} = 100 \text{ V}$$

$$I_{D25} = 680 \text{ A}$$

$$R_{DS(on)} = 1.8 \text{ m}\Omega$$



## MOSFET T1 + T2

Symbol	Conditions	Maximum Ratings
$V_{DSS}$	$T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$	100 V
$V_{GS}$		$\pm 20$ V
$I_{D25}$	$T_C = 25^\circ\text{C}$ ①	680 A
$I_{D80}$	$T_C = 80^\circ\text{C}$ ①	500 A
$I_{F25}$	(diode) $T_C = 25^\circ\text{C}$ ①	680 A
$I_{F80}$	(diode) $T_C = 80^\circ\text{C}$ ①	500 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.
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}; I_D = I_{D80}$		1.8	2.2 m $\Omega$
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 30 \text{ mA}$	2		4 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	1 mA mA
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			1 $\mu\text{A}$
$Q_g$ $Q_{gs}$ $Q_{gd}$	$V_{GS} = 10 \text{ V}; V_{DS} = 75 \text{ V}; I_D = I_{D80}$		1440	nC
			200	nC
			680	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
			250	ns
			400	ns
			200	ns
$V_F$	(diode) $I_F = 650 \text{ A}; V_{GS} = 0 \text{ V}$		1.2	1.5 V
$t_{rr}$	(diode) $I_F = 650 \text{ A}; -di/dt = 500 \text{ A}/\mu\text{s}; V_{DS} = \frac{1}{2} V_{DSS}$		300	ns
$R_{th(jc)}$ $R_{th(js)}$	with heat transfer paste		0.12	0.08 K/W K/W

① additional current limitation by external leads

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

© 2004 IXYS All rights reserved

## Applications

- converters with high power density for
  - main and auxiliary AC drives of electric vehicles
  - 4 quadrant DC drives
  - power supplies

### Temperature Sensor NTC

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

### Module

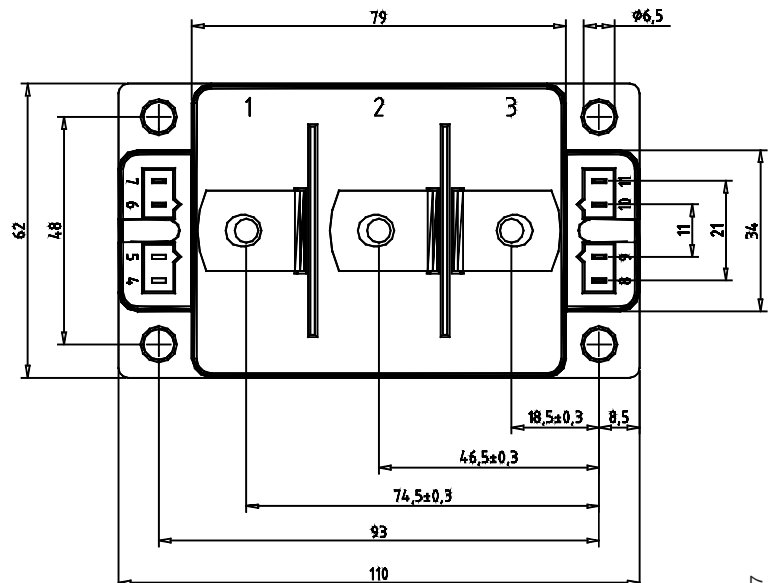
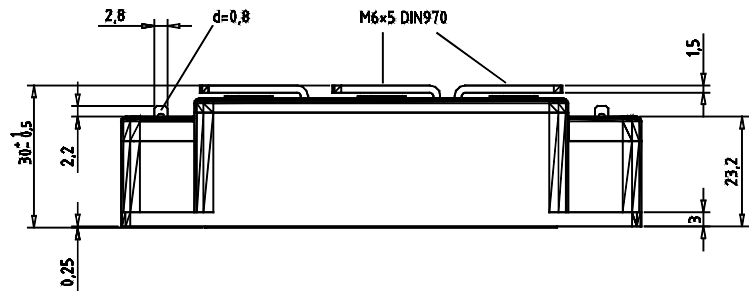
Symbol	Conditions	Maximum Ratings		
		min.	typ.	max.
$T_{VJ}$		-40...+150		$^{\circ}\text{C}$
$T_{stg}$		-40...+125		$^{\circ}\text{C}$
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}$		3600	V~
$M_d$	Mounting torque (M6)	2.25 - 2.75		Nm
	Terminal connection torque (M6)	4.5 - 5.5		Nm

Symbol	Conditions	Characteristic Values			Dimensions in mm (1 mm = 0.0394")
		min.	typ.	max.	
Weight			250	g	

### 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.

© 2004 IXYS All rights reserved

407

2 - 2