

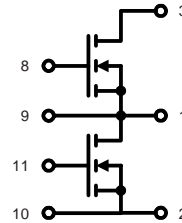
# Dual Power MOSFET Module

## VMM 1500-0075P

$V_{DSS} = 75\text{ V}$   
 $I_{D25} = 1500\text{ A}$   
 $R_{DS(on)} = 0.55\text{ m}\Omega$

Phaseleg Configuration

Preliminary data



MOSFET T1 + T2			
Symbol	Conditions		Maximum Ratings
$V_{DSS}$	$T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$		75 V
$V_{GS}$			$\pm 20$ 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.
$R_{DS(on)}$	$V_{GS} = 10\text{ V}; I_D = I_{D80}$		0.55	0.8 m $\Omega$
$V_{GS(th)}$	$V_{DS} = 20\text{ V}; I_D = 10\text{ mA}$	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
$I_{GSS}$	$V_{GS} = \pm 20\text{ V}; V_{DS} = 0\text{ V}$			1.5 $\mu\text{A}$
$Q_g$ $Q_{gs}$ $Q_{gd}$	$V_{GS} = 10\text{ V}; V_{DS} = 60\text{ V}; I_D = 500\text{ A}$		2480	nC
			330	nC
			940	nC
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	$V_{GS} = 10\text{ V}; V_{DS} = 30\text{ V};$ $I_D = 250\text{ A}; R_G = 1\ \Omega$		60	ns
			170	ns
			320	ns
			200	ns
$V_F$	(diode) $I_F = 750\text{ A}; V_{GS} = 0\text{ V}$		1.2	1.6 V
$t_{rr}$	(diode) $I_F = 200\text{ A}; -di/dt = 1000\text{ A}/\mu\text{s}; V_{DS} = 30\text{ V}$		90	ns
$R_{thJC}$ $R_{thJS}$	with heat transfer paste		0.12	0.06 K/W K/W

① additional current limitation by external leads

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

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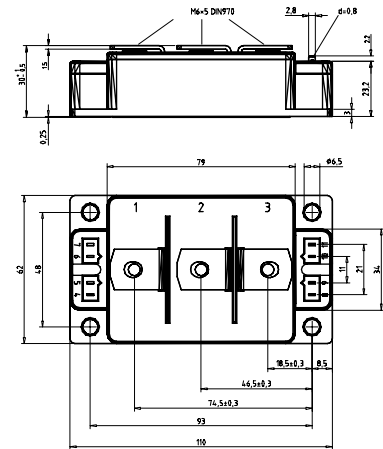
### Applications

- 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.
<b>Weight</b>			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)