

FEATURES

- Dual Device Module
- Electrically Isolated Package
- Pressure Contact Construction
- International Standard Footprint
- Alumina (Non-toxic) Isolation Medium

APPLICATIONS

- Power Supplies
- Large IGBT Circuit 'Front Ends'
- Rectifiers
- Battery Chargers

VOLTAGE RATINGS

Type Number	Repetitive Peak Voltages V_{DRM} V_{RRM} V	Conditions
MP04DD810-30	3000	$T_{vj} = -40^{\circ}$ to $150^{\circ}C$, $V_{RSM} = V_{RRM} + 100V$
MP04DD810-28	2800	
MP04DD810-26	2600	
MP04DD810-24	2400	

Lower voltage grades available

ORDERING INFORMATION

Order As:

- MP04DD810-XX-W2** 1/4 - 18 NPT connection
- MP04DD810-XX-W3** 1/4 - 18 NPT connection
- MP04DD810-XX-W3A** 1/4 - 18 NPT water connection thread

XX shown in the part number about represents $V_{DRM}/100$ selection required, eg. MP04DD810-28-W2

Note: When ordering, please use the complete part number. Please quote full part number in all correspondence.

KEY PARAMETERS

V_{RRM}	3000V
$I_{F(AV)}$	812A
I_{FSM} (per arm)	20000A
$I_{F(RMS)}$	1276A
V_{isol}	3000V

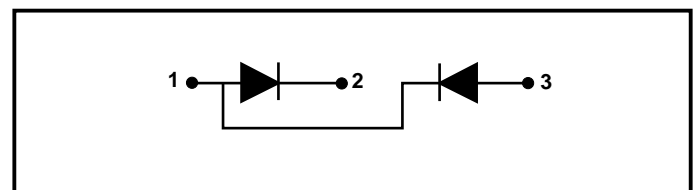


Fig.1 DD circuit configuration

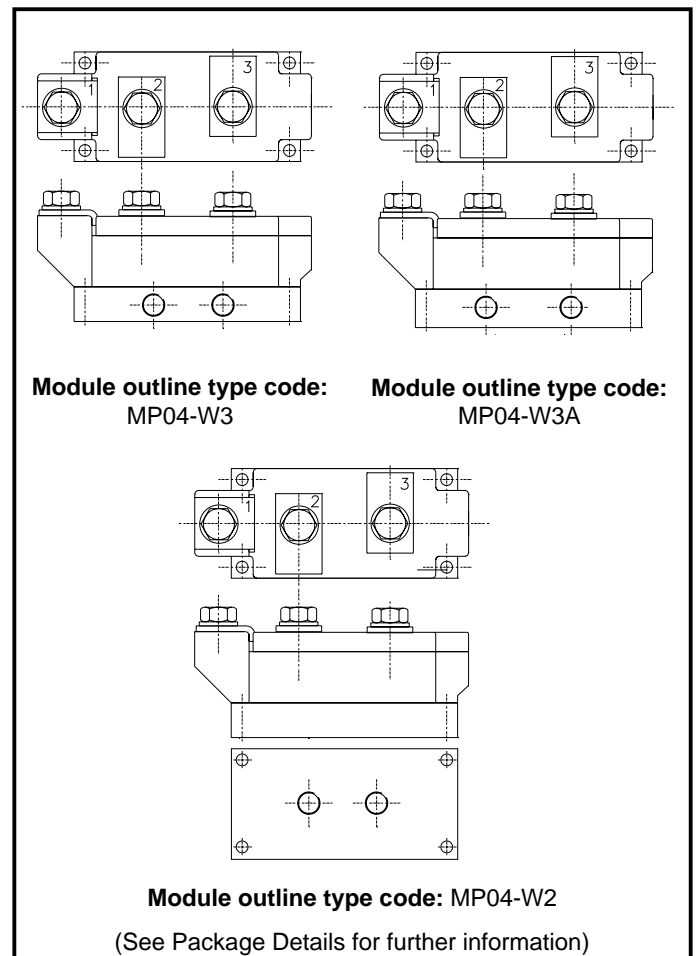


Fig. 2 Module package variants - (not to scale)

ABSOLUTE MAXIMUM RATINGS - PER ARM

Stresses above those listed under 'Absolute Maximum Ratings' may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to Absolute Maximum Ratings for extended periods may affect device reliability.

Symbol	Parameter	Conditions	Max.	Units	
$I_{F(AV)}$	Mean forward current	Half wave resistive load	$T_{water (in)} = 25^{\circ}C$	885	A
		4.5 Ltr/min	$T_{water (in)} = 40^{\circ}C$	812	A
$I_{F(RMS)}$	RMS value	$T_{water (in)} = 25^{\circ}C, 4.5 \text{ Ltr/min}$		1392	A
		$T_{water (in)} = 40^{\circ}C, 4.5 \text{ Ltr/min}$		1276	A
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_j = 150^{\circ}C$		20	kA
I^2t	I^2t for fusing	$V_R = 0$		2.0×10^6	A^2s
I_{FSM}	Surge (non-repetitive) forward current	10ms half sine; $T_j = 150^{\circ}C$		16	kA
I^2t	I^2t for fusing	$V_R = 50\% V_{RRM}$		1.28×10^6	A^2s
V_{isol}	Isolation voltage	Commoned terminals to base plate AC RMS, 1 min, 50Hz		3000	V

THERMAL AND MECHANICAL DATA

Symbol	Parameter	Conditions	Min.	Max.	Units
$R_{th(j-w)}$	Thermal resistance - junction to water (per diode)	dc, 4.5 Ltr/min	-	0.102	$^{\circ}C/W$
		Halfwave, 4.5 Ltr/min	-	0.106	$^{\circ}C/W$
		3 Phase, 4.5 Ltr/min	-	0.112	$^{\circ}C/W$
T_{vj}	Virtual junction temperature	Reverse (blocking)	-	150	$^{\circ}C$
T_{stg}	Storage temperature range	-	-40	150	$^{\circ}C$
-	Screw torque	Mounting - M6	6 (53)	-	Nm (lb.ins)
		Electrical connections - M10	-	12 (106)	Nm (lb.ins)
-	Weight (nominal)	-	-	Refer to Drawing	g

CHARACTERISTICS

Symbol	Parameter	Conditions	Min.	Max.	Units
I_{RRM}	Peak reverse current	At V_{RRM} , $T_{case} = 150^{\circ}C$	-	50	mA
Q_S	Total stored charge	$I_F = 1000A$, $dI_{RR}/dt = 3A/\mu s$	-	1600	μC
I_{RR}	Peak recovery current	$T_{case} = 150^{\circ}C$, $V_R = 100V$	-	85	A
V_{TO}	Threshold voltage. See Note 1.	At $T_{vj} = 150^{\circ}C$	-	0.7	V
r_T	Slope resistance. See Note 1.	At $T_{vj} = 150^{\circ}C$	-	0.29	$m\Omega$

Note 1: The data given in this datasheet with regard to forward voltage drop is the for the calculation of the power dissipation in the semiconductor elements only. Forward voltage drops measured at the power terminals will be in excess of these figures due to the impedance of the busbars from the terminals to the semiconductor.

CURVES

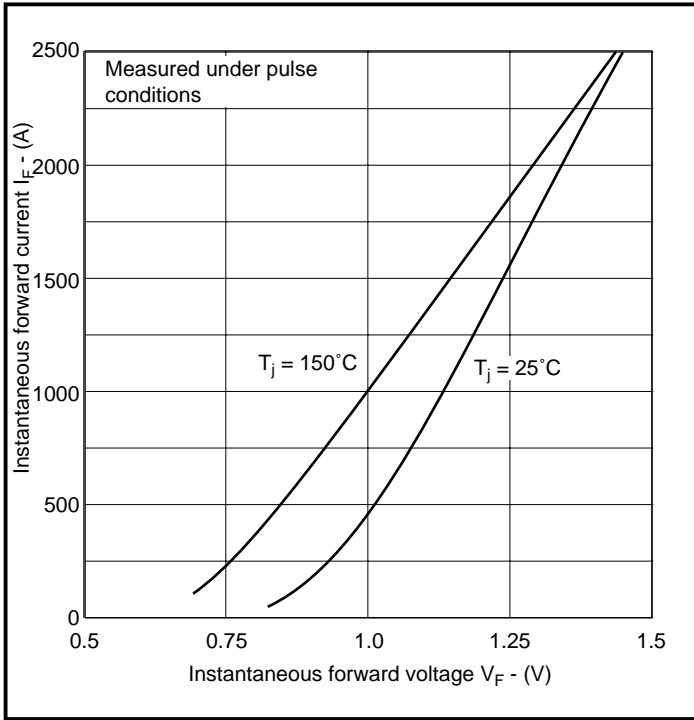


Fig.3 Maximum (limit) forward characteristics

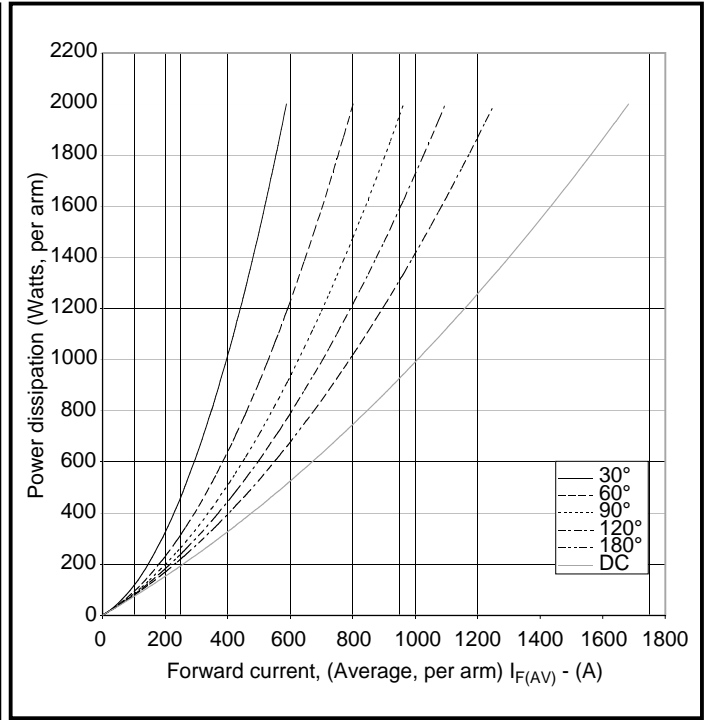


Fig.4 Power dissipation curves

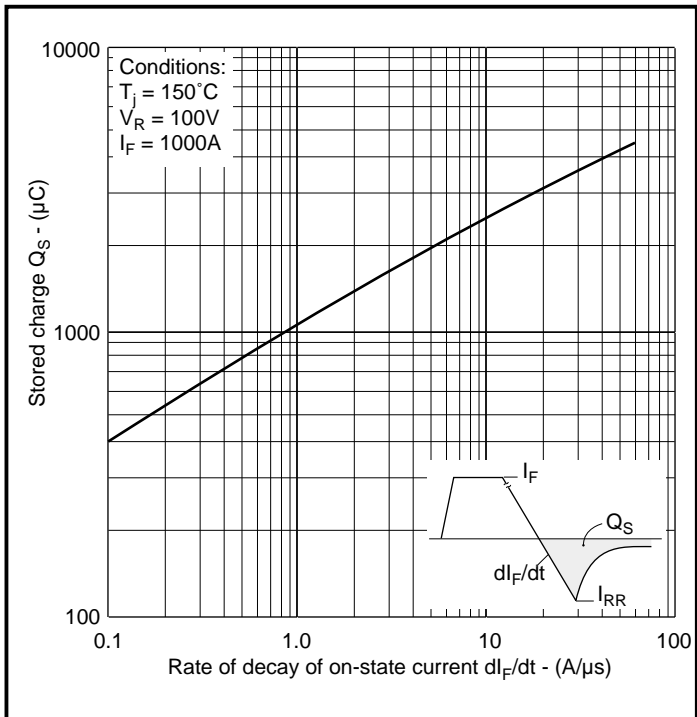


Fig.5 Maximum stored charge

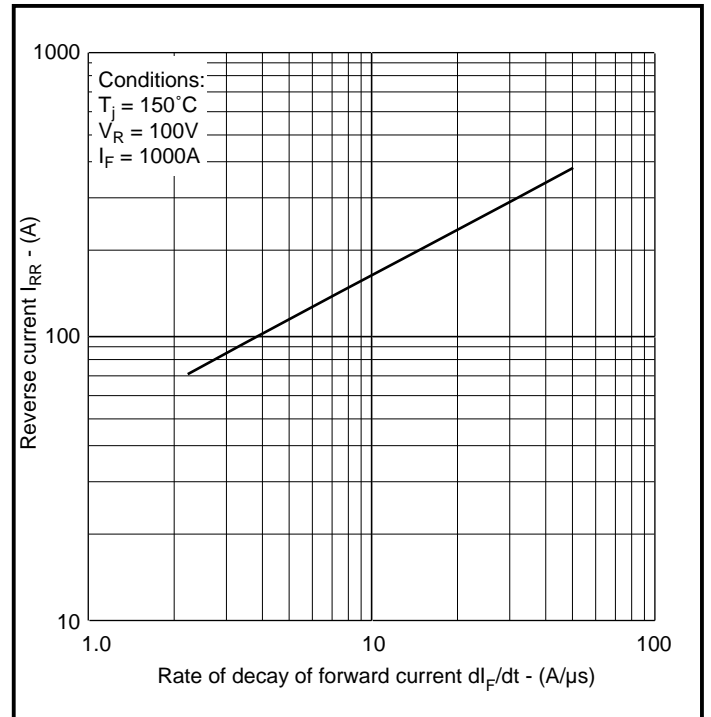


Fig.6 Maximum reverse recovery current

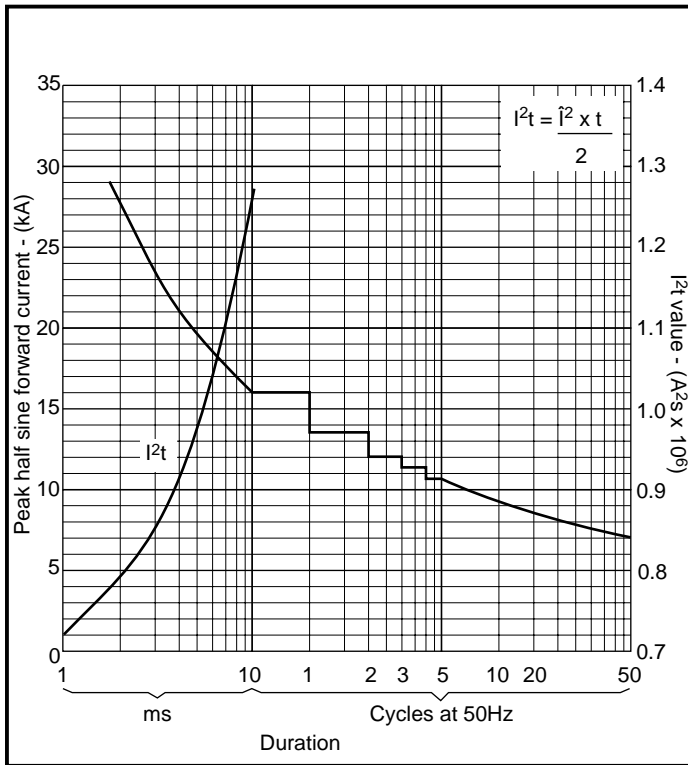


Fig.7 Surge (non-repetitive) forward current vs time (with 50% V_{RRM} @ $T_c - 150^\circ\text{C}$)

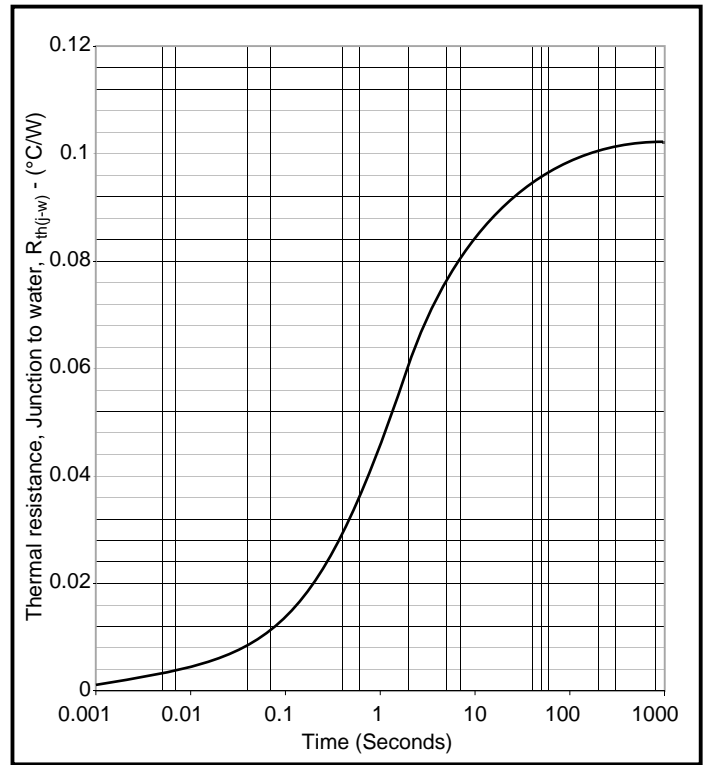


Fig.8 Transient thermal impedance - dc

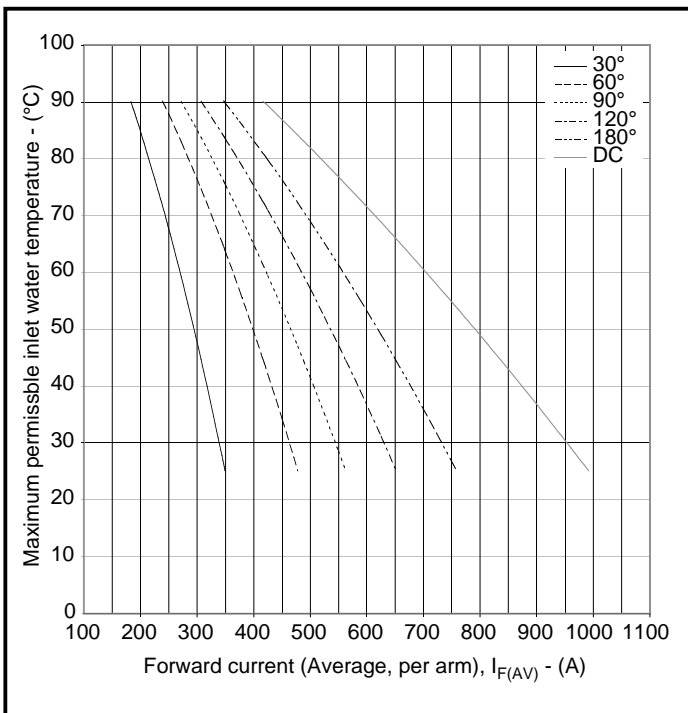
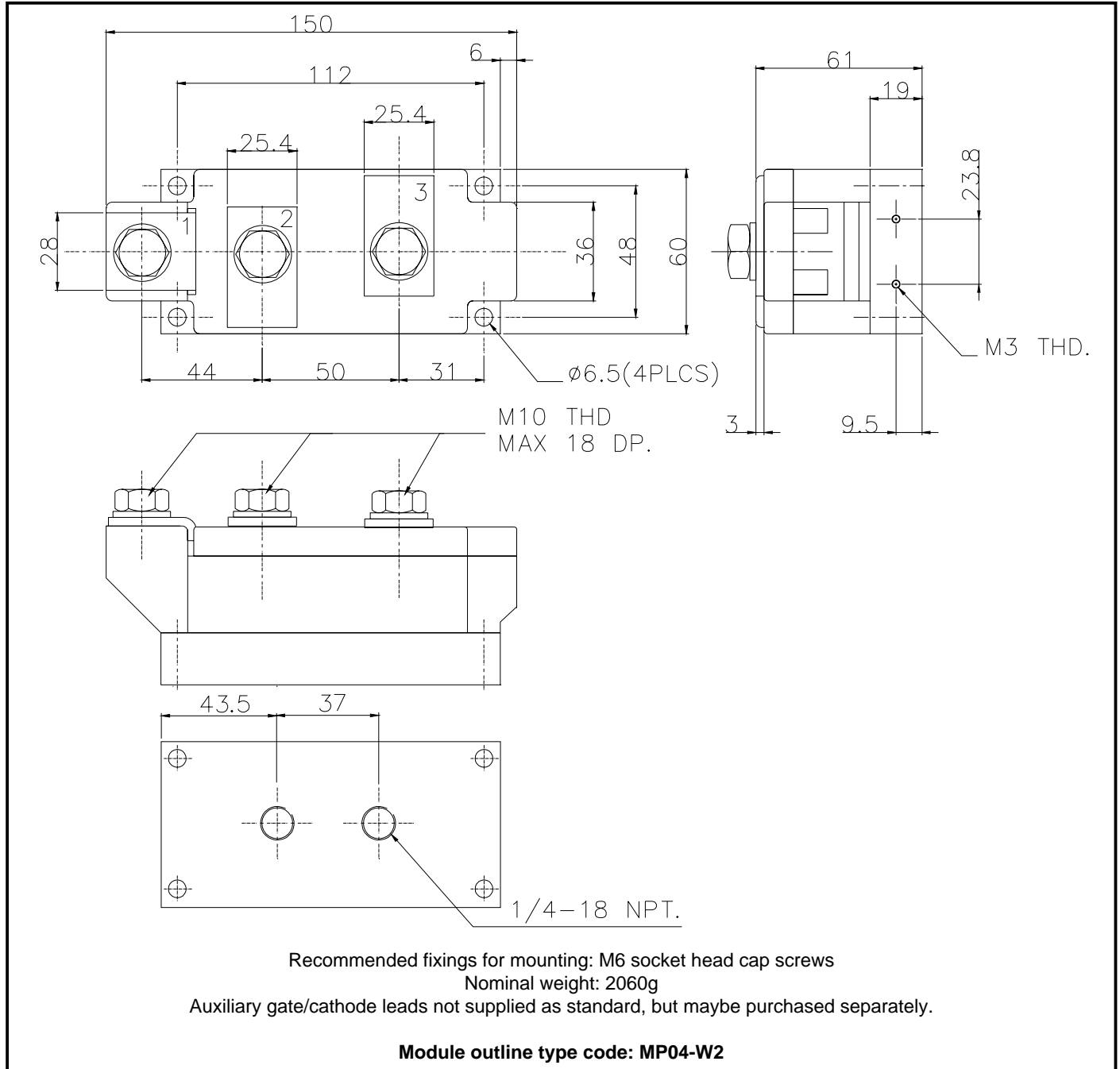


Fig. 9 Maximum permissible water inlet temperature vs on-state current at specified conduction angles, sine wave 50/60Hz

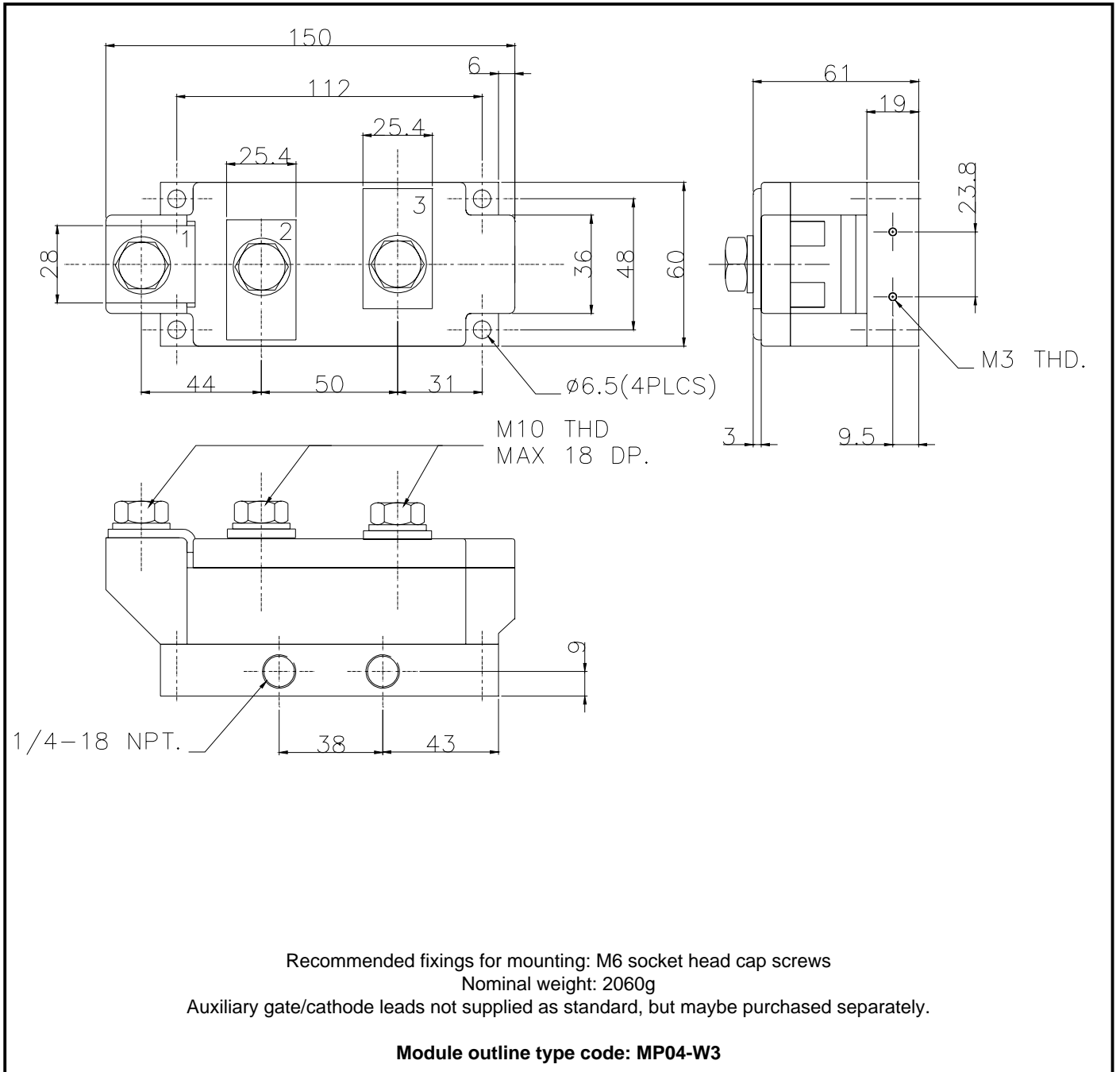
PACKAGE DETAILS

For further package information, please contact your local Customer Service Centre. All dimensions in mm, unless stated otherwise. DO NOT SCALE.



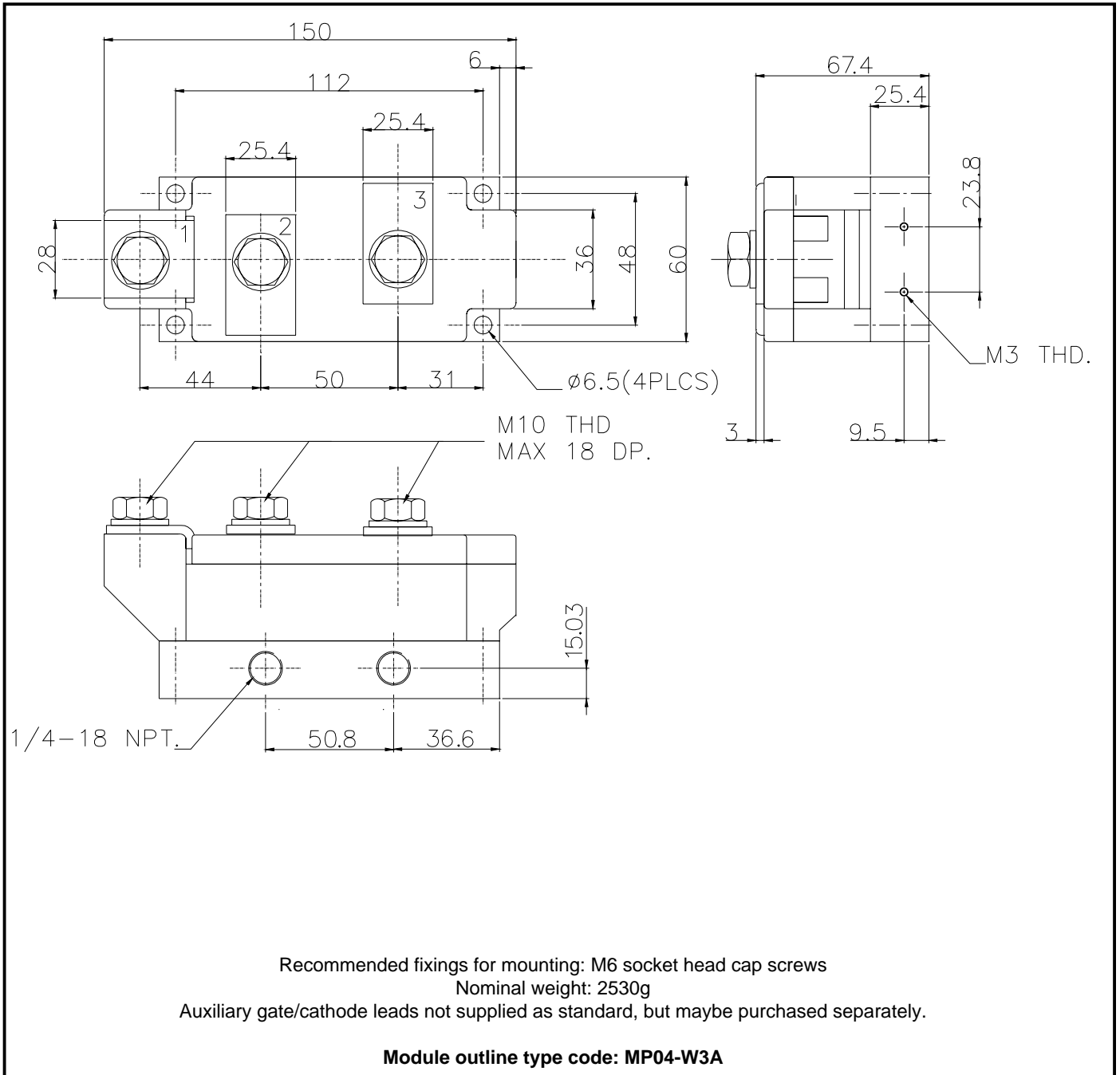
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We offer an extensive range of air and liquid cooled assemblies covering the full range of circuit designs in general use today. The Assembly group continues to offer high quality engineering support dedicated to designing new units to satisfy the growing needs of our customers.

Using the latest CAD methods our team of design and applications engineers aim to provide the Power Assembly Complete Solution (PACs).

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The Power Assembly group has its own proprietary range of extruded aluminium heatsinks. They have been designed to optimise the performance of Dynex semiconductors. Data with respect to air natural, forced air and liquid cooling (with flow rates) is available on request.

For further information on device clamps, heatsinks and assemblies, please contact your nearest sales representative or customer service office.



<http://www.dynexsemi.com>

e-mail: power_solutions@dynexsemi.com

HEADQUARTERS OPERATIONS
DYNEX SEMICONDUCTOR LTD
Doddington Road, Lincoln.
Lincolnshire. LN6 3LF. United Kingdom.
Tel: 00-44-(0)1522-500500
Fax: 00-44-(0)1522-500550

DYNEX POWER INC.
99 Bank Street, Suite 410,
Ottawa, Ontario, Canada, K1P 6B9
Tel: 613.723.7035
Fax: 613.723.1518
Toll Free: 1.888.33.DYNEX (39639)

CUSTOMER SERVICE CENTRES
Central Europe Tel: +33 (0)1 58 04 91 00. Fax: +33 (0)1 46 38 51 33
North America Tel: 011-800-5554-5554. Fax: 011-800-5444-5444
UK, Scandinavia & Rest Of World Tel: +44 (0)1522 500500. Fax: +44 (0)1522 500020

SALES OFFICES
Central Europe Tel: +33 (0)1 58 04 91 00. Fax: +33 (0)1 46 38 51 33
North America Tel: (613) 723-7035. Fax: (613) 723-1518. Toll Free: 1.888.33.DYNEX (39639) /
Tel: (949) 733-3005. Fax: (949) 733-2986.
UK, Scandinavia & Rest Of World Tel: +44 (0)1522 500500. Fax: +44 (0)1522 500020

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