

Replaces December 1998 version, DS5102-3.0

MP02 XX 260 Series

Dual Diode Modules

DS5102-4.0 January 2000

FEATURES

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

APPLICATIONS

- Rectifier Bridges
- DC Power Bridges
- Plating Rectifiers
- Traction Systems

VOLTAGE RATINGS

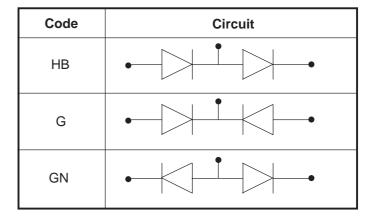
Type Number	Repetitive Peak Voltages V _{RRM}	Conditions
MP02/260-16	1600	
MP02/260-14	1400	T _{vj} = 150°C I _{RM} = 30mA
MP02/260-12	1200	
MP02/260-10	1000	$V_{RSM} = V_{RRM} + 100V$

Lower voltage grades available. For full description of part numbers see "Ordering instructions" on page 3.

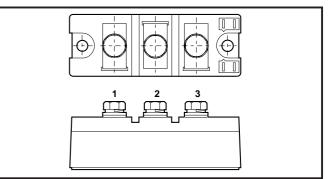
CURRENT RATINGS - PER ARM

KEY	PARAMETERS
V _{RRM}	1600V
I _{FSM}	8100A
I _{F(AV)} (per arm)	267A
V _{isol}	2500V

CIRCUIT OPTIONS



PACKAGE OUTLINE



Module outline type code: MP02. See Package Details for further information.

Symbol	Parameter	Conditions		Max.	Units
	I _{F(AV)} Mean forward current	Halfwave, resistive load	$T_{case} = 75^{\circ}C$	267	А
			T _{case} = 85°C	240	А
I _{F(AV)}			T _{heatsink} = 75°C	216	А
			T _{heatsink} = 85°C	192	А
I _{F(RMS)}	RMS value	$T_{case} = 75^{\circ}C$		420	А

SURGE RATINGS - PER ARM

Symbol	Parameter	Conditions		Max.	Units
I _{FSM} Surge (non-repe		10ms half sine; $T_j = 150^{\circ}C$	V _R = 0	8100	А
	Surge (non-repetitive) forward current		V _R = 50% V _{RRM}	6500	А
		10ms half sine; $T_j = 150^{\circ}C$	V _R = 0	328000	A ² s
l²t			$V_{R} = 50\% V_{RRM}$	211000	A ² s

THERMAL & MECHANICAL RATINGS

Symbol	Parameter	Conditions	Max.	Units
	dc	0.21	°C/W	
R _{th(j-c)}	R _{th(j-c)} Thermal resistance - junction to case per Diode	halfwave	0.22	°C/W
	3 phase	0.23	°C/W	
R _{th(c-hs)}	Thermal resistance - case to heatsink per Diode	Mounting torque = 6Nm with mounting compound	0.07	°C/W
T _{vj}	Virtual junction temperature		150	°C
T _{sto}	Storage temperature range		-40 to 150	°C
V _{isol}	Isolation voltage	Commoned terminals to base plate AC RMS, 1min, 50Hz	2.5	kV

CHARACTERISTICS

Symbol	Parameter	Conditions	Max.	Units
V _{FM}	Forward voltage	At 600A, T _{case} = 25°C	1.3	V
I _{RM}	Peak reverse current	At V_{RRM} , $T_j = 150^{\circ}C$	30	mA
V _{TO}	Threshold voltage	At $T_{vj} = 150^{\circ}C$	0.84	V
r _T	On-state slope resistance	At $T_{vj} = 150^{\circ}C$	0.667	mΩ

ORDERING INSTRUCTIONS

Part number is made up as follows:

MP02 HB 260 - 12

- MP = Pressure contact module
- 02 = Outline type
- HB = Circuit configuration code (see "circuit options" front page)
- 260 = Nominal average current rating at $T_{case} = 75^{\circ}C$
- $12 = V_{RRM} / 100$

Examples:

MP02 HB260-12 MP02 G260-16 MP02 GN260-10

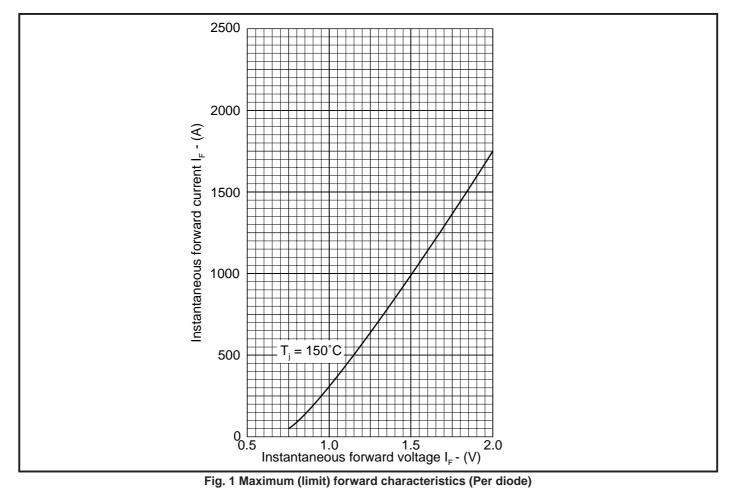
Note: Prefered type is HB configuration. G & GN types are available for specific applications, only when requested.

MOUNTING RECOMMENDATIONS

- Adequate heatsinking is required to maintain the base temperature at 75°C if full rated current is to be achieved. Power dissipation may be calculated by use of V_{TO} and r_T information in accordance with standard formulae. We can provide assistance with calculations or choice of heatsink if required.
- The heatsink surface must be smooth and flat; a surface finish of N6 (32µin) and a flatness within 0.05mm (0.002") are recommended.
- Immediately prior to mounting, the heatsink surface should be lightly scrubbed with fine emery, Scotch Brite or a mild chemical etchant and then cleaned with a solvent to remove oxide build up and foreign material. Care should be taken to ensure no foreign particles remain.

- An even coating of thermal compound (eg. Unial) should be applied to both the heatsink and module mounting surfaces. This should ideally be 0.05mm (0.002") per surface to ensure optimum thermal performance.
- After application of thermal compound, place the module squarely over the mounting holes, (or 'T' slots) in the heatsink. Using a torque wrench, slowly tighten the recommended fixing bolts at each end, rotating each in turn no more than 1/4 of a revolution at a time. Continue until the required torque of 6Nm (55lb.ins) is reached at both ends.
- It is not acceptable to fully tighten one fixing bolt before starting to tighten the others. Such action may DAMAGE the module.

CURVES



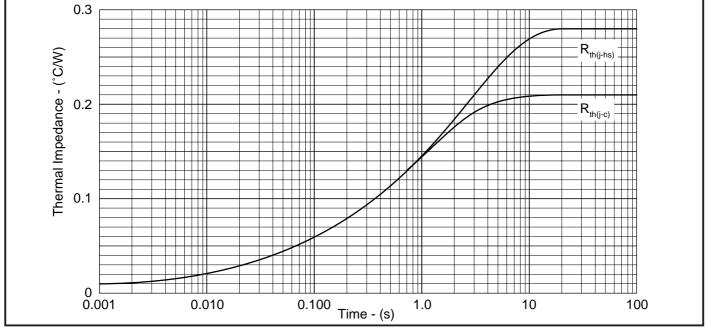


Fig. 2 Transient thermal impedance (DC) - (Per diode)

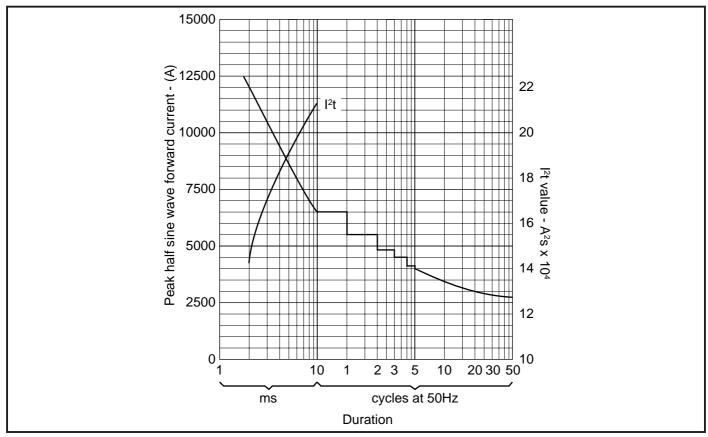


Fig. 3 Surge (non-repetitive) forward current vs time (with 0% $V_{_{RRM}}$, $T_{_{case}}$ = 150°C)

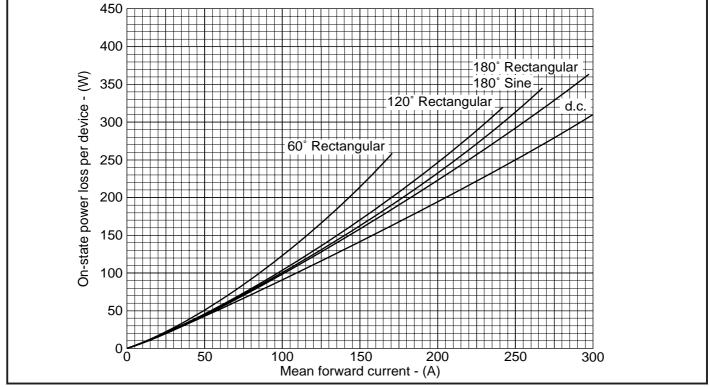


Fig. 4 On-state power loss per arm vs forward current at various conduction angles, 50/60Hz

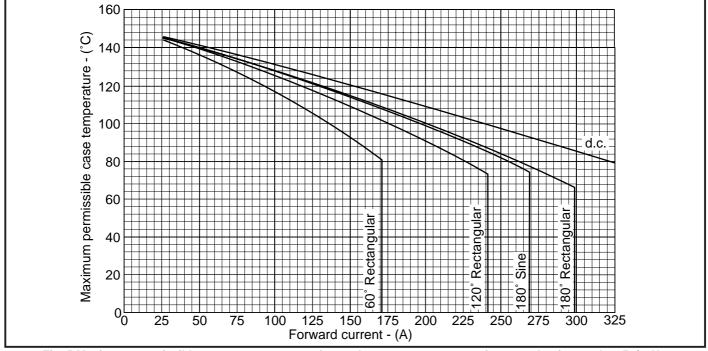


Fig. 5 Maximum permissible case temperature vs forward current per arm at various conduction angles, 50/60Hz

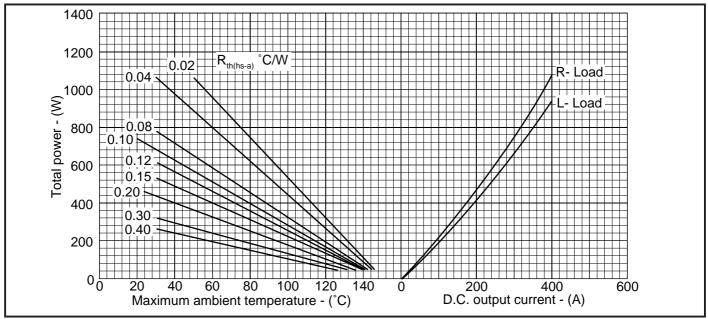


Fig. 6 50/60Hz single phase bridge dc output current vs power loss and maximum permissible ambient temperature for various values of heatsink thermal resistance.

(Note: R_{th(hs-a)} values given above are true heatsink thermal resistances to ambient and already account for R_{th(c-hs)} module contact thermal).

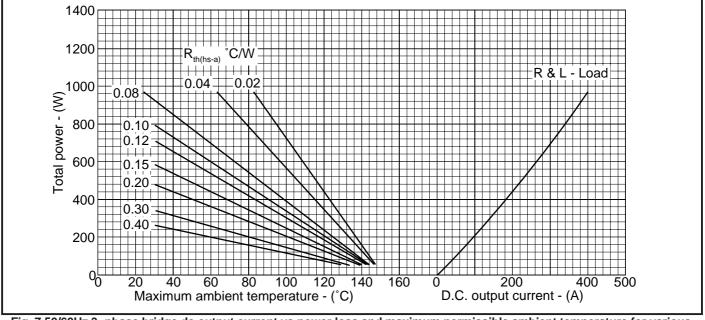
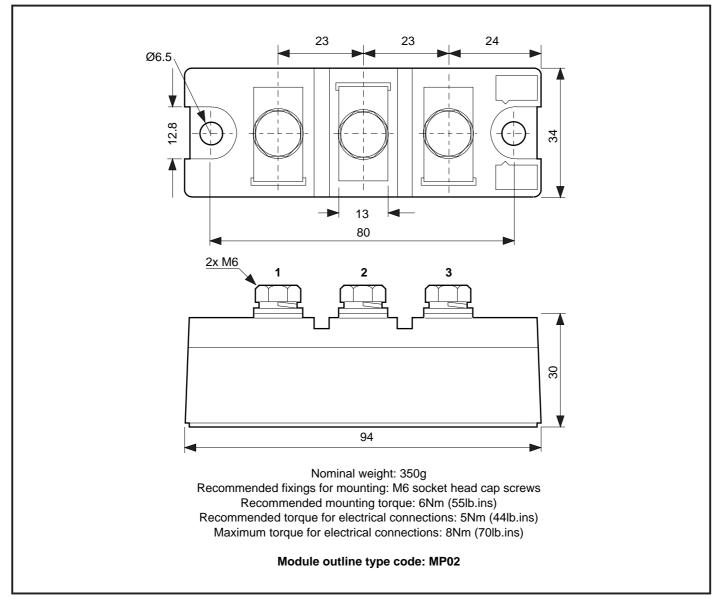


Fig. 7 50/60Hz 3- phase bridge dc output current vs power loss and maximum permissible ambient temperature for various values of heatsink thermal resistance.

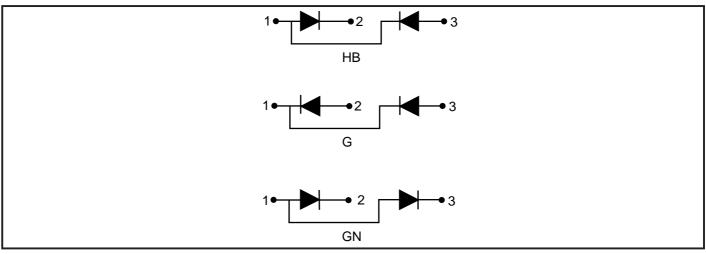
(Note: R_{th(hs-a)} values given above are true heatsink thermal resistances to ambient and already account for R_{th(c-hs)} module contact thermal).

PACKAGE DETAILS

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



CIRCUIT CONFIGURATIONS





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.

Unit 7 - 58 Antares Drive, Nepean, Ontario, Canada K2E 7W6. Tel: 613.723.7035 Fax: 613.723.1518 Toll Free: 1.888.33.DYNEX (39639) http://www.dynexsemi.com

e-mail: power_solutions@dynexsemi.com

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