

GB3D_029,_037 HEXA DIODE BRIDGE MODULE

Green Power Easy Module

- ▶ Output bridge current up to 1075 A
- ▶ Line voltage range up to 930 V_{RMS}
- ▶ 3000 V_{RMS} insulation voltage
- ▶ Electrically insulated metal frame
- ▶ Extremely high power density
- ▶ High reliability
- ▶ Modularity
- ▶ Fully customizable
- ▶ Broad range of accessories
- ▶ Cost effective solution
- ▶ Suitable for heavy duty applications

This new family of high power modules brings to the high power applications the same compactness, ease of use and scalability of the lower power semiconductor modules. In addition to these typical features (i.e. standard dimensions, electrical insulation, various circuit types, etc.) the new Green Power Easy Module (GEM) family includes many features aimed to simplify their adoption allowing the end users to focus on their core business. These features include:

- embedded air cooling system (heatsink and fan)
- optimised snubber circuits
- ducted heat flow.

Maximum ratings of single diode

Part number Parameters	GB3D_037	GB3D_029			Conditions	Units
I _{F(AV)}	370	296			180° cond, half sine Ta = 40 °C Air velocity = 5 m/s	A
I _{F(RMS)}	581	465				A
I _{FSM}	16	10			50 Hz, T _j = T _{jmax} , V _R = 0 V	kA
I _{FSM}	16.9	10.7			60 Hz, T _j = T _{jmax} , V _R = 0 V	kA
I ² t	1280	510			50 Hz, T _j = T _{jmax} , V _R = 0 V	kA ² s
I ² t	1165	464			60 Hz, T _j = T _{jmax} , V _R = 0 V	kA ² s
V _{RRM}	800	2900			T _j = T _{jmax}	V
T _{jmax}	190	175				°C

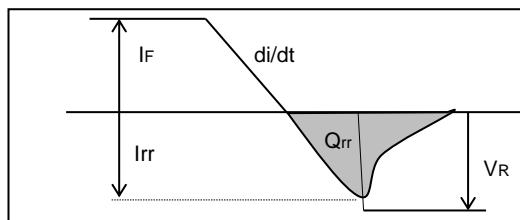
Part Number	V code	VRRM max repetitive reverse blocking voltage [V]	IRRM @ Tjmax [mA]	VL(RMS) maximum suggested RMS line voltage [V]
GB3D_037	04	400	50	115
	08	800	50	190
GB3D_029	22	2200	50	700
	29	2900	50	930

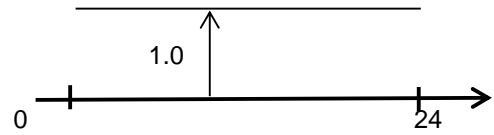
Forward Characteristics

Parameters	GB3D_037	GB3D_029			Conditions	Units
V _{F(T0)} Threshold voltage	0.75	0.87			T _j = T _{jmax}	V
r _F Forward slope resistance	0.25	0.33			T _j = T _{jmax}	mΩ
V _F Max forward voltage drop at I = 3 · I _{FAV}	0.98	1.11			T _j = T _{jmax}	V
P _{MAX} Max power losses (bridge)	2200	1980			T _A = 40°C	W

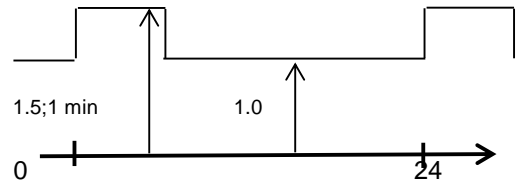
Reverse Recovery Characteristics

	GB3D_037	GB3D_029			Conditions	Units
Q _{rr} Reverse recovery charge, typ	1000	1200			T _j =T _{jmax} , I _F =500 A di/dt=- 2 A/μs V _R =100 V	μC




Maximum IEC class 1 currents for typical circuit type

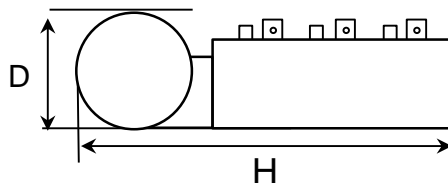
Circuit Type	GB3D_037	GB3D_029			Conditions	Units
Six pulse bridge	1075	855			T _A = 40 °C	A


Maximum IEC class 2 currents for typical circuit type

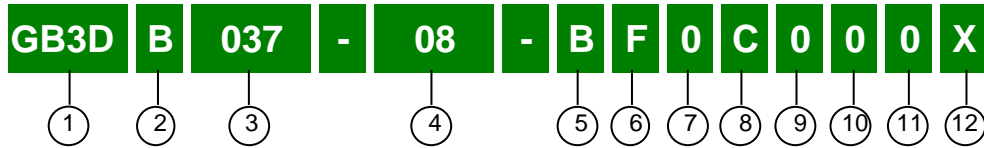
Circuit Type	GB3D_037	GB3D_029			Conditions	Units
Six pulse bridge	795	630			T _A = 40 °C	A

Thermal and mechanical characteristics

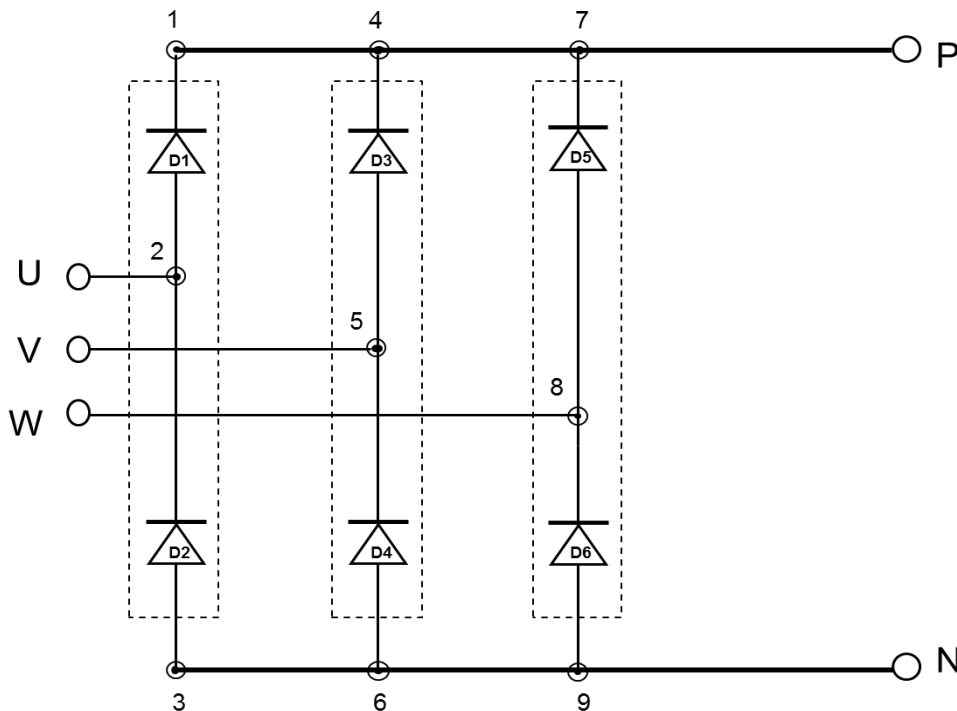
Parameters	GB3D_037	GB3D_029			Conditions	Units
T _{jmax} Max operating junction temperature	190	175				°C
T _{stg} Storage temperature	-40 +70	-40 +70				°C
R _{thJA} Thermal resistance (junction to ambient)	0.41	0.41			Air velocity = 5 m/s	°C/W
F Mounting torque - GEM to panel (+/- 10%)	7	7			M6 mounting screw	N·m
	14	14			M8 mounting screw	N·m
MTTR Mean Time To Repair	12	12				minutes
Overall dimensions						
D Depth	263					mm
H Height	599					mm
W Width	215					mm
m Mass, typ	11					kg
Blower electrical characteristics (50/60Hz)						
V _L Line voltage-single phase	230					V _{RMS}
P Input power	174					W
A Current	0.78					A



PART-NUMBERING SYSTEM



- ① Six pulse rectifier bridge
- ② 0 = No standard busbar B = bridge configuration
- ③ Diode average current / 10
- ④ Diode blocking voltage / 100
- ⑤ 0 = No fan B = 220 V blower (other fans available on request)
- ⑥ 0 = No fuse - F = Individual fuse - L = line fuse
- ⑦ 0 = No pulse transformer
- ⑧ 0 = No fan loss detection module - C = With fan loss detection module
- ⑨ 0 = No SCR fault detection module
- ⑩ 0 = No snubber - 3 = three snubber - 6 = six snubbers
- ⑪ 0 = No fan-on-demand thermo-switch - D = Fan-on-demand thermo-switch (trip point 50 °C)
- ⑫ 0 = Standard aluzinc frame - X = Stainless steel frame

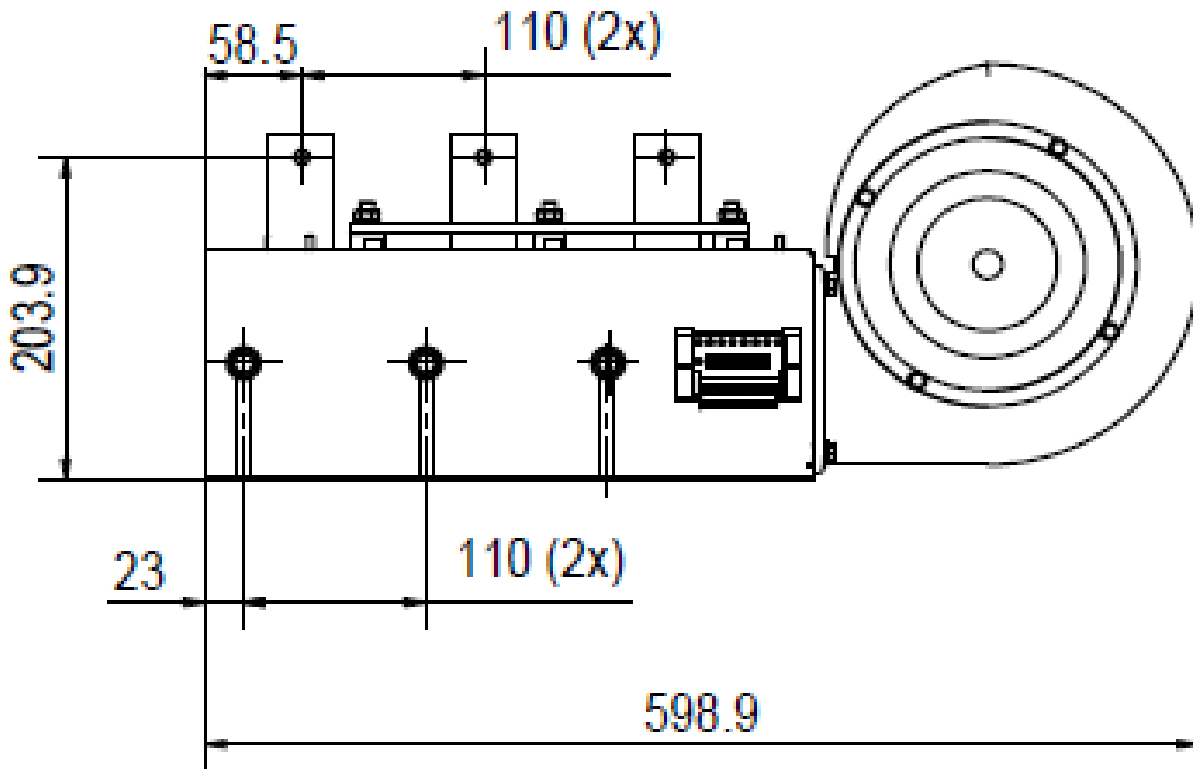
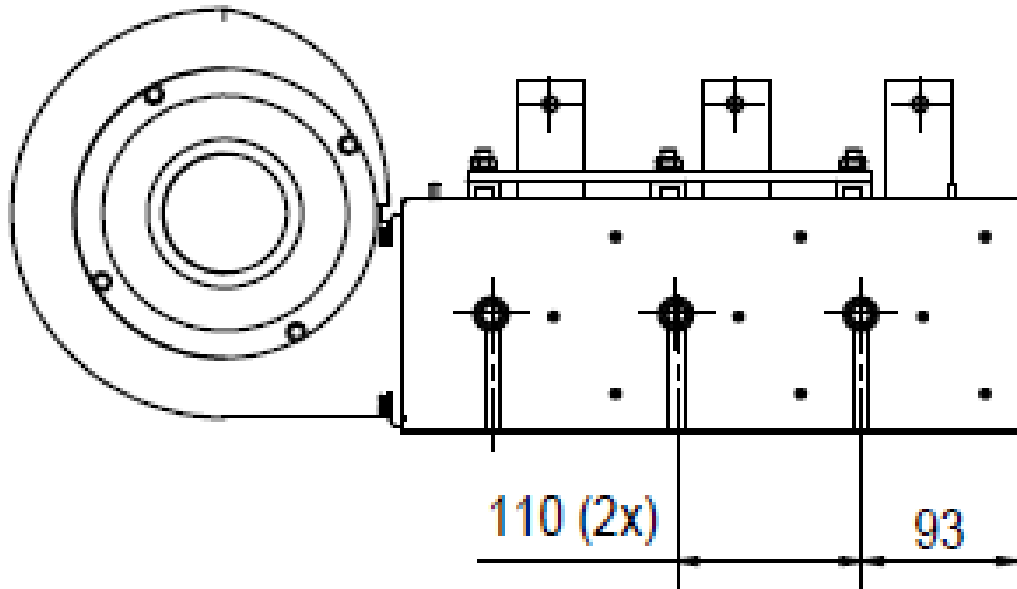


GEM modules are not covered by the Low Voltage Directive (LVD) 2014/35/EU because, according to LVD Guidelines, they are components "the safety of which can only, to a very large extent, be assessed taking into account how they are incorporated and for which a risk assessment cannot be undertaken".

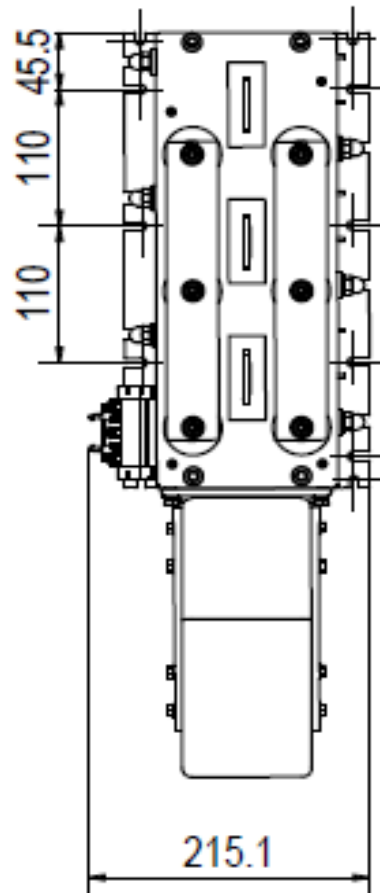
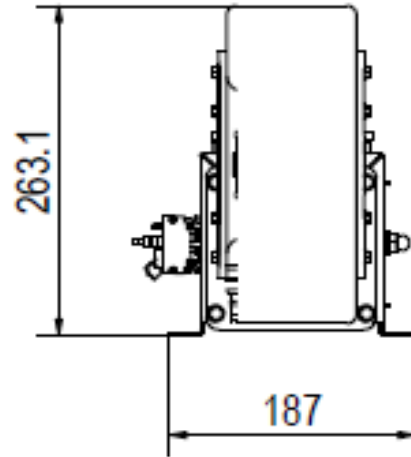
In the interest of product improvement Green Power Solutions reserves the right to change any specification given in this data sheet without notice.

GB3DB_ Six pulse rectifier bridge

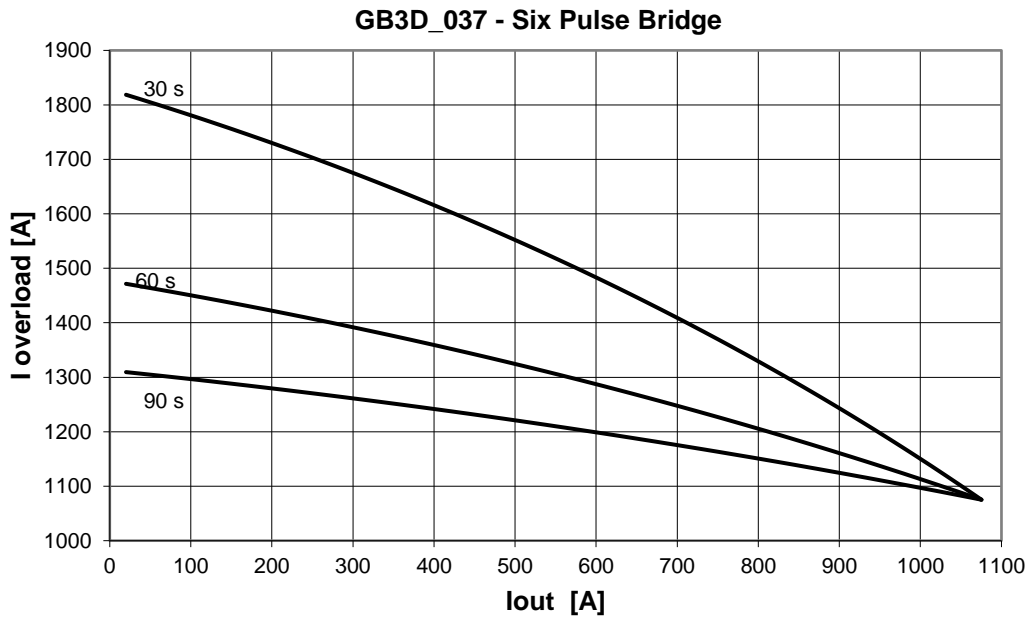
Side views



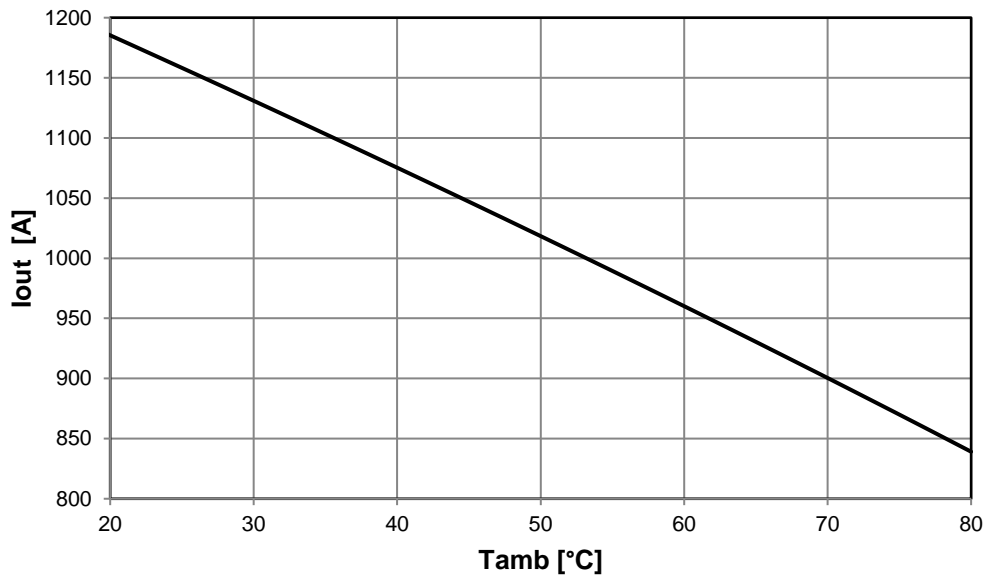
GB3DB_ Six pulse rectifier bridge Front and top views



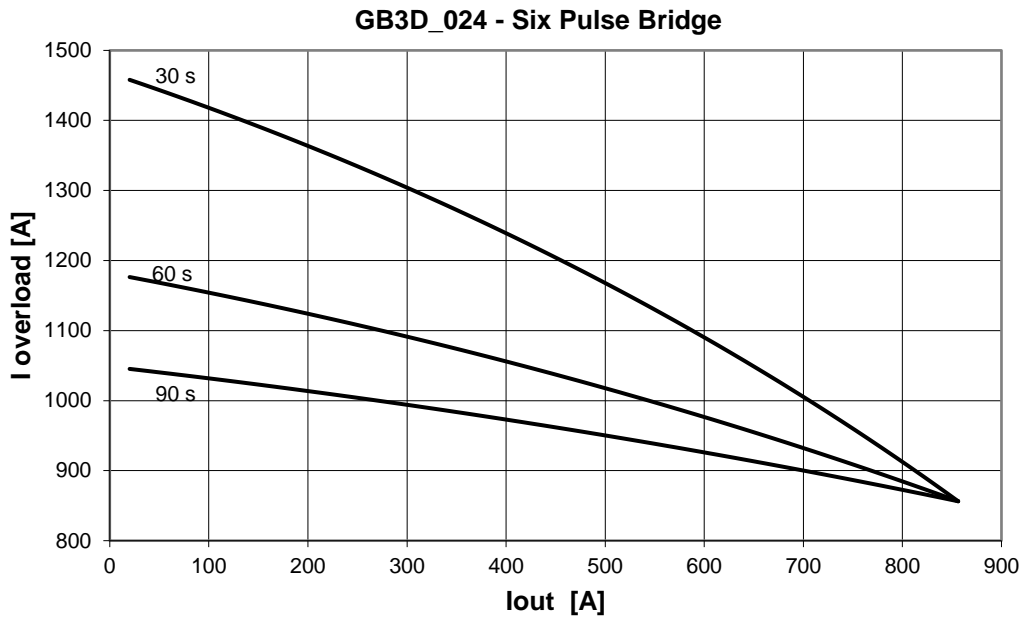
Overload capability at different overload time - Tamb = 40 °C



Max output vs Tamb



Overload capability at different overload time - $T_{amb} = 40\text{ }^{\circ}\text{C}$



Max output vs T_{amb}

