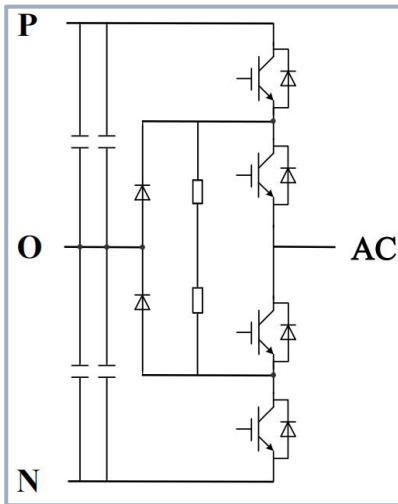
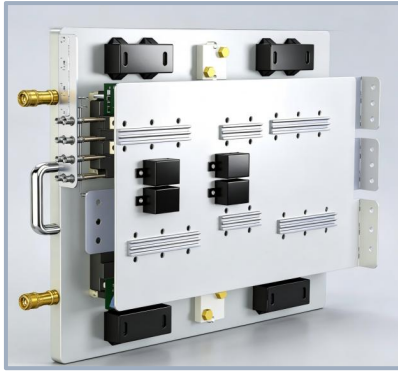


FPS080HB451XW001



Ordering No.

- FPS080HB451XW001

Features

- 3-level NPC
- Liquid cooling

Typical Applications

- On-shore power supply
- Wind power converter
- Motor drive

Symbol	Description	min	typ	max	Unit
Electrical Characteristics					
V _{DC}	Rated Full DC bus voltage		5000		V
V _{AC}	Rated AC voltage		3300		V _{RMS}
I _{AC}	Rated AC current		800		A _{RMS}
f _{sw}	Switching frequency		0.9		kHz
PF	Power factor	-1.0		1.0	
P _{LOSS}	Stack power loss		11.5		kW
V _{ISOL}	Insulation voltage		10.2		kV _{RMS}
IGBT module	Package	¹ 4500V/1200A IHM-B			

Note1: Taking Infineon modules as an example, modules with compatible packages are available for use.

Symbol	min	typ	max	Unit
Environmental Data				
Liquid volume ΔV/ Δt	25			L ³ /min
Liquid pressure Δp		0.8		bar
Inlet temperature T _{INLET}			45	°C
Installation altitude	0		2000	m
Protection degree, According to EN 50178	IP00			
Pollution degree, According to IEC 60529	2			
Storage temperature	-40		65	°C
Operational ambient temperature	-25		55	°C
Relative humidity	0		95	%

Mechanical Data				
Dimensions, Length × width × height	745*540*135			mm
Weight	35			kg
DC terminal mounting torque M _{DC}	24			Nm
AC terminal mounting torque M _{AC}	24			Nm

Controller Interface

Symbol	Conditions	min	typ	max	Unit
Auxiliary power supply voltage		13	15/24	27	V
Auxiliary power requirement			32		W
PWM interface			HFBR-2521Z		
Fault output interface			HFBR-1521Z		

Optical port notification signal

In the process of using optical fiber, there are some phenomena, such as the buckle of optical fiber port is not firm/falling off, and the turning radius of optical fiber line is not enough. In order to ensure the normal optical fiber communication, the Firststack intelligent gate driver is configured with the fiber port response function, as follows:

1. When the gate driver board operates normally, every time a PWM command is received, the light of the returning fibre optic head will turn off for a short time of 700ns at the rising edge and falling edge of the PWM command as a response to receiving the command.

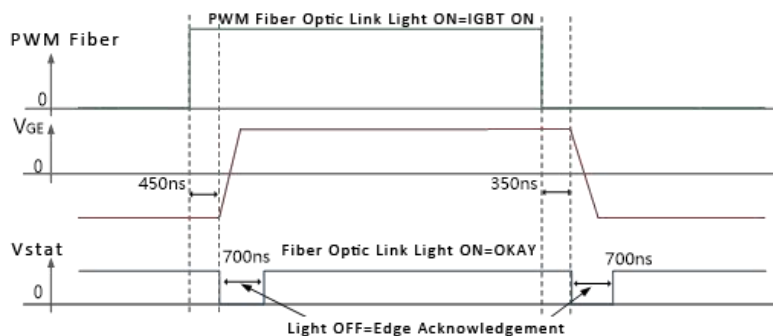


Fig.a Normal condition

2. When the fault is detected by the gate driver board, the light of the returning fibre optic head will go out for more than 30us, which will be used as a fault signal to inform the master controller.

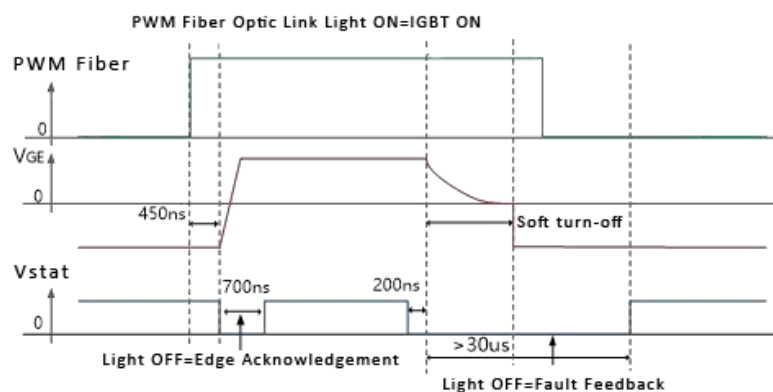


Fig.b Fault condition

The master computer can accurately distinguish the response information from the fault information by the length of time for the light of the returning optical fiber head going out.

Safety instructions

1. The data contained in this product datasheet is intended for technically trained engineers only. The suitability of this product for your specific application scenario and the completeness of the information provided must be fully evaluated before implementation.
2. This product must not be operated beyond the absolute maximum ratings listed in this specification under any circumstances. Operating the device at multiple maximum rating thresholds simultaneously is strictly prohibited.
3. External cooling and dissipation requirements indicated in this specification must be strictly enforced to prevent performance derating or catastrophic thermal failure.
4. For applications in safety-critical systems (such as aviation, medical, or life-support systems), please contact Firstack to establish dedicated quality agreements and risk assessments before ordering.

Legal disclaimer

This manual gives a detailed introduction about the product, but cannot promise to provide specific parameters. No warranty or guarantee, express or implied, is given herein as to the delivery, performance or applicability of the product.

Firstack reserves the right to modify technical data and product specifications at any time without prior notice. Firstack's general payment terms and conditions apply.

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