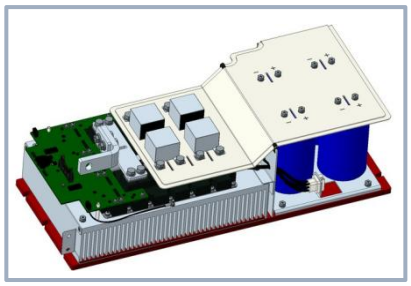
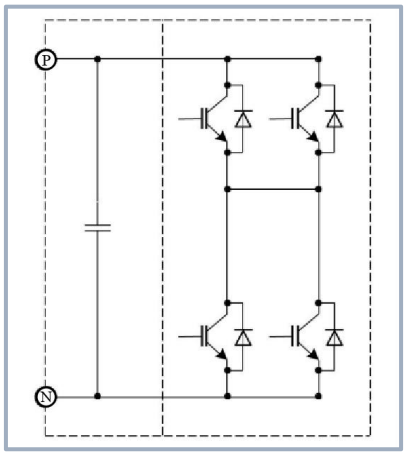
FPS090H172XA001





Ordering No.

- **FPS090H172XA001**

Features

- **Half bridge**
- **2 IGBTs in parallel**
- **Forced air cooling**

  (fans not included)

Typical Applications

- **ESS converter**
- **Wind power converter**
- **PV inverter**

Symbol	Description	min	typ	max	Unit
Electrical Characteristics					
V_{DC}	Rated Full DC bus voltage		1050		V
V_{AC}	Rated AC voltage		690		V_{RMS}
I_{AC}	Rated AC current		900		A_{RMS}
I_{AC1}	Short-time overload		1350		A_{RMS}
f_{SW}	Switching frequency			3.5	kHz
PF	Power factor	-1.0		1.0	
P_{LOSS}	Stack power loss		5.26		kW
V_{ISOL}	Insulation voltage		2.5		kV_{RMS}
IGBT module	Package	[1]1700V/1000A PrimePACK™3			

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

Symbol	min	typ	max	Unit
Environmental Data				
Air volume **ΔV/ Δt**	2500			m^3/h
Air pressure **Δp**		1000		Pa
Inlet temperature T_{inlet}	-25		55	°C
Installation altitude	0		1000	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		85	%

Mechanical Data				
Dimensions, Length × width × height	611.5*266*177			mm
Weight		33.8		kg
DC terminal mounting torque M_{DC}		24		Nm
AC terminal mounting torque M_{AC}		55		Nm

Controller Interface

Symbol	Conditions	min	typ	max	Unit
Auxiliary power supply voltage		13	15	16	V
Auxiliary power requirement			50		W
Auxiliary power supply interface type		Box header connector			
Auxiliary power supply undervoltage threshold			12		V
PWM signal high level threshold			8.3		V
PWM signal low level threshold			4.8		V
Fault output current capability	Fault condition			500	mA
Fault hold time			40		ms

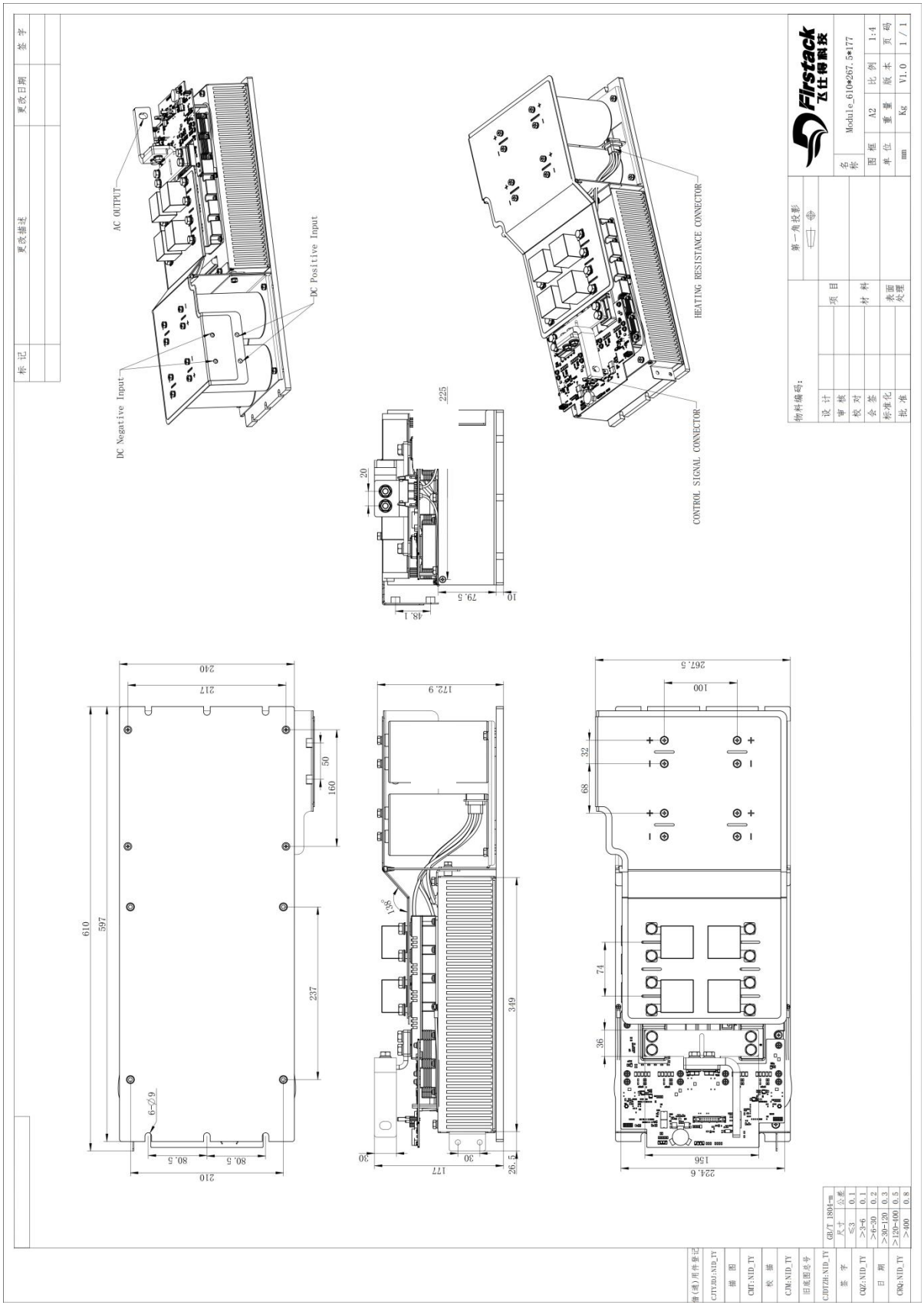
Controller Signal Connector Pin Definitions

Pin	Name	Function	Pin	Name	Function
1	NC	Undefined, shorted to Pin20	2	VDC	+15V supply voltage
3	VDC	+15V supply voltage	4	VDC	+15V supply voltage
5	GND	GROUND	6	FAULT	Fault return (low fault)
7	GND	GROUND	8	GND	GROUND
9	GND	GROUND	10	BOT-IN	Bottom IGBT signal input
11	GND	GROUND	12	NTC1	1#NTC signal return
13	NTC1	1#NTC signal return	14	FAULT	Fault return (low fault)
15	GND	GROUND	16	TOP-IN	Top IGBT signal input
17	GND	GROUND	18	NTC2	2#NTC signal return
19	NTC2	2#NTC signal return	20	NC	Undefined, shorted to Pin1

Heating Resistor Connector

Pin	Name	Description	Pin	Name	Description
1	R11	R1 heating resistor pin1	2	R12	R1 heating resistor pin2
3	R21	R2 heating resistor pin1	4	R22	R2 heating resistor pin2
5	R31	R3 heating resistor pin1	6	R32	R3 heating resistor pin2

Dimensions


AC OUTPUT
DC Positive Input
DC Negative Input
HEATING RESISTANCE CONNECTOR
CONTROL SIGNAL CONNECTOR
Module_610*267.5*177
610
597
240
217
210
237
160
50
6-∅9
80.5
80.5
172.9
349
177
30
30
26.5
267.5
100
224.6
156
74
68
32
36
225
20
79.5
10
48.1

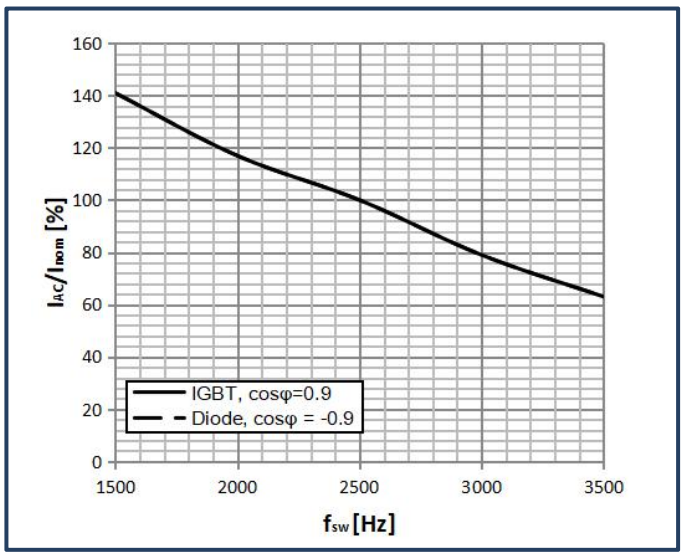


Fig.1 Output current VS switching frequency curve V_{DC}=800 V, V_{AC} = 380 V_{RMS}, f_{AC} sine = 50 Hz, T_{inlet} = 55°C

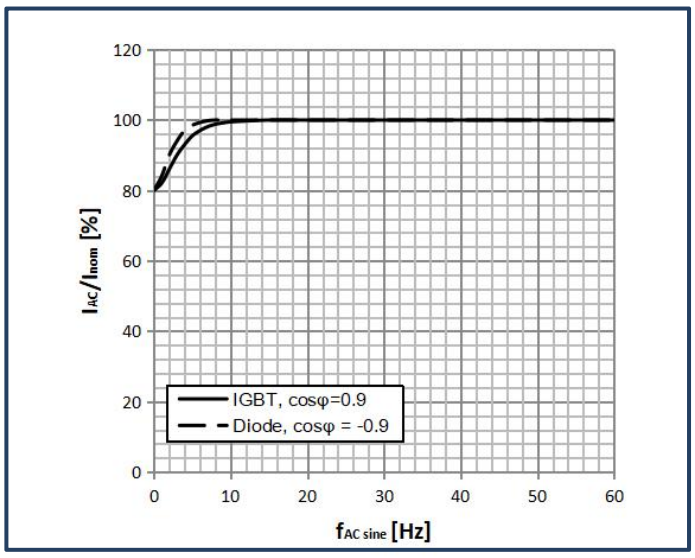


Fig.2 Output current VS output frequency curve V_{DC}=800 V, V_{AC} = 380 V_{RMS}, f_{SW} = 2.5kHz, T_{inlet}= 55°C

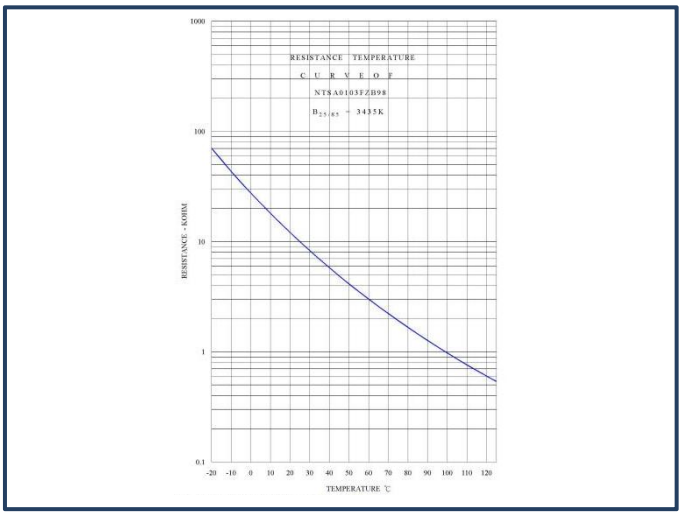


Fig.3 Table of Typical Temperature vs. Frequency for NTC Resistor

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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