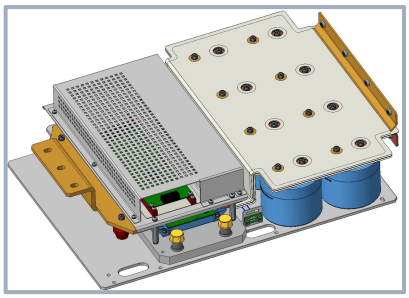
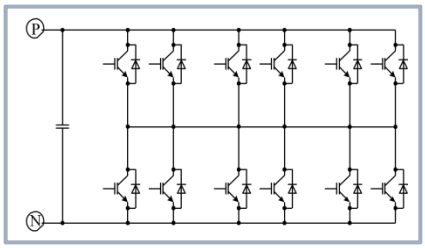
FPS175H176TW001





Ordering No.

- **FPS175H176TW001**

Features

- **2 level**
- **Half-bridge**
- **6 IGBTs in parallel**
- **Liquid cooling**

Typical Applications

- **High power converters**
- **Wind power generation**
- **Motor drive**

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		1750		A_{RMS}
I_{AC1}	Short-time overload		2625		A_{RMS}
f_{SW}	Switching frequency		3.5		kHz
PF	Power factor	-1.0		1.0	
P_{LOSS}	Stack power loss		8		kW
V_{ISOL}	Insulation voltage		2.5		kV_{RMS}
IGBT module	Package	[1]1700V/450A EconoDUAL™3			

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**	30			L^3/min
Inlet temperature T_{INLET}	-40		50	°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	525.2*512.3*198.2			mm
Weight		35		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			Snap-in Terminal		
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(P2)

Pin	Name	Function	Pin	Name	Function
1	NC	Vacant	2	VCC	Power supply+15V
3	VCC	Power supply +15V	4	VCC	Power supply+15V
5	GND	Power supply ground	6	SO	Fault return
7	GND	Power supply ground	8	GND	Power supply ground
9	NC	Vacant	10	TOP-IN	Top IGBT PWM signal
11	NC	Vacant	12	NTC1-1	Temperature analogue voltage/Connected to P3, J17, J18 network
13	NTC1-2	Signal ground/Connected to P3, J17, J18 network	14	SO	Fault return
15	NC	Vacant	16	BOT-IN	Bottom IGBT PWM signal
17	NC	Vacant	18	NTC2-1	Temperature Frequency Output /Connected to P3, J19, J20 network
19	NTC2-2	Signal ground/Connected to P3, J19, J20 network	20	NC	Vacant

Controller Signal Connector Pin Definitions(P3)

Pin	Name	Function description	Pin	Name	Function description
1	GND	Power supply ground	2	NTC1-1	Same as P2 homonymous network definition
3	VCC	Power supply +15V	4	NTC1-2	Same as P2 homonymous network definition
5	VCC	Power supply +15V	6	NTC2-1	Same as P2 homonymous network definition
7	GND	Power supply ground	8	NTC2-2	Same as P2 homonymous network definition

Controller Signal Connector Pin Definitions(J1, J4, J7, J10, J12, J14)

Pin	Name	Function description	Pin	Name	Function description
1	TOP_G	Top IGBT_Gate	2	TOP_G	Top IGBT_Gate
3	TOP_E	Top IGBT_Emitter	4	TOP_E	Top IGBT_Emitter
5	TOP_15V	Top IGBT 15V	6	TOP_C	Top IGBT detection C
7	NC	Vacant	8	NC	Vacant
9	NC	Vacant	10	NC	Vacant
11	BOT_C	Bottom IGBT detection C	12	BOT_15V	Bottom IGBT 15V
13	BOT_G	Bottom IGBT_Gate	14	BOT_G	Bottom IGBT_Gate
15	BOT_E	Bottom IGBT_Emitter	16	BOT_E	Bottom IGBT_Emitter

Controller Signal Connector Pin Definitions(J1, J4, J7, J10, J12, J14)

Pin	Name	Function description	Pin	Name	Function description
1	IGBT_xNTC1	Channel x NTC_Pin1	2	IGBT_xNTC2	Channel x NTC_Pin2

Controller Signal Connector Pin Definitions(J17/J18)

Pin	Name	Function description	Pin	Name	Function description
1	NTC1-2	NTC1_Pin2	2	NTC1-1	NTC1_Pin1

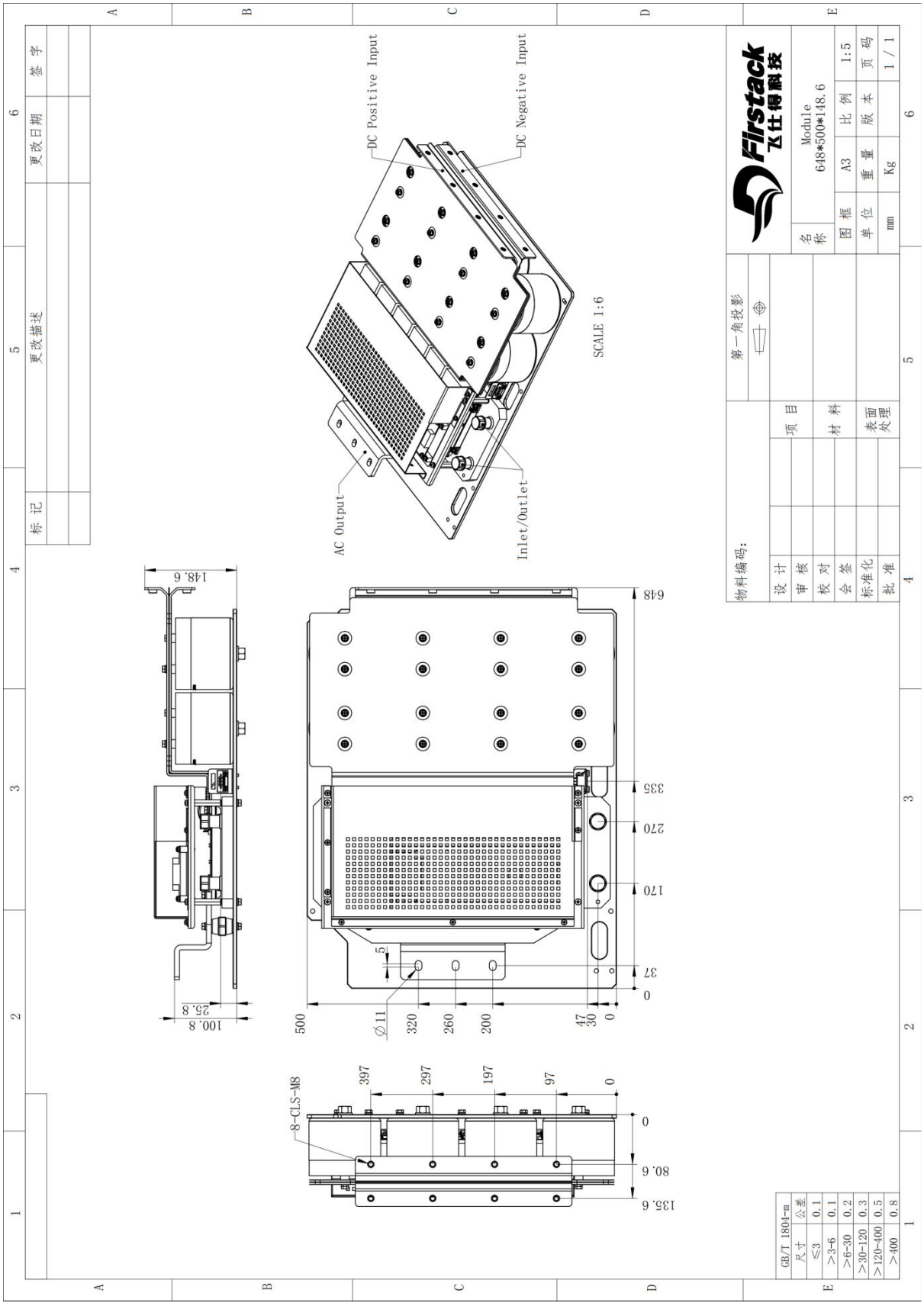
*Note: When temperature isolated transmission outputs analogue, NTC1-1 and NTC1-2 are defined as the analogue temperature output network, and NTC1-2 is GND.

Controller Signal Connector Pin Definitions(J19/J20)

Pin	Name	Function description	Pin	Name	Function description
1	NTC2-2	NTC2_Pin2	2	NTC2-1	NTC2_Pin1

Note: For more driver related information please refer to 6FSC08110 data sheet.

Dimensions


DC Positive Input
DC Negative Input
AC Output
Inlet/Outlet
SCALE 1:6
Module
648*500*148.6
148.6
100.8
25.8
648
335
270
170
37
0
500
320
260
200
47
30
8-CLS-M8
397
297
197
97
80.6
135.6

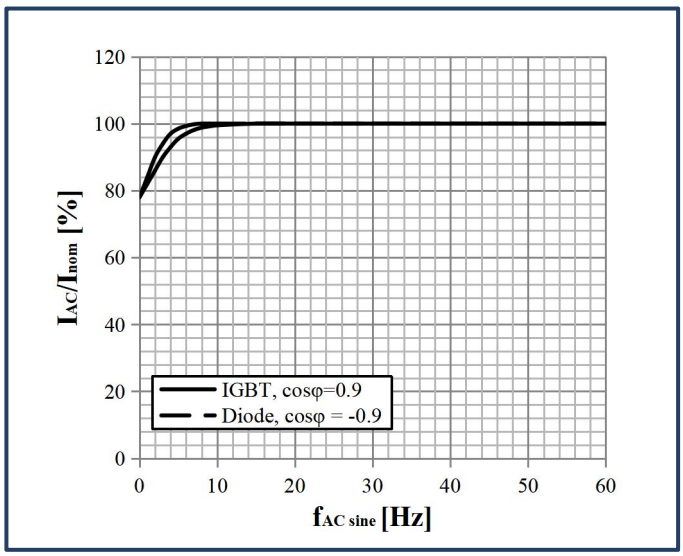


Fig.1 f_{AC} sine – derating curve IGBT (electric powered), Diode (electricity generation) V_{DC} = 1050 V, V_{AC} = 690 V, f_{sw} = 2.5 kHz, cosφ = +/- 0.9， T_{inlet} =

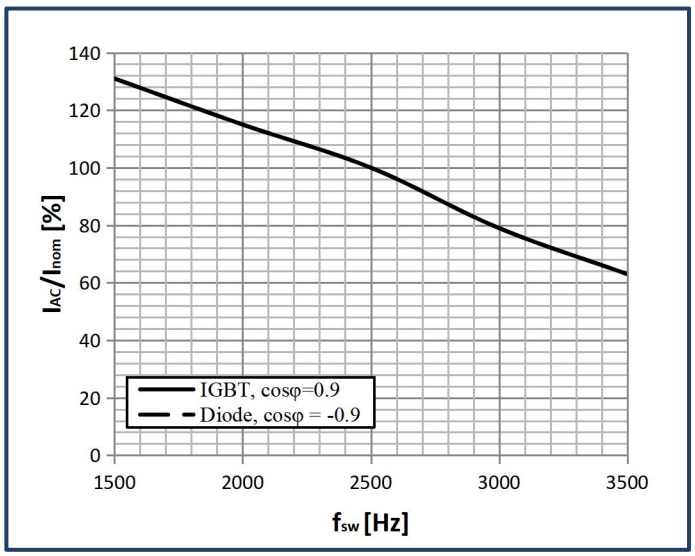


Fig.2 fsw –derating curve IGBT (electric powered), Diode (electricity generation), V_{DC} = 1050 V, V_{AC} = 690 V, $f_{AC\ sine}$ = 50 Hz, cosφ = +/- 0.9, T_{inlet} = 50 °C normal heat dissipation conditions

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

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