A1ED65T1234A1V-Y0001 Data Sheet

Description

A1ED65T1234A1V-Y0001 is an adapter board specially developed by Firstack for the 4FHS0660CA1xxxx series GDU to drive IGBTs at the T1T2T3T4 position of the AB-leg NPC topology. It integrates passive components such as IGBT gate resistors network, high voltage detection diodes, GE connectors and so on. The product connects via cable to the 4FHS0660CA1xxxx driver core.

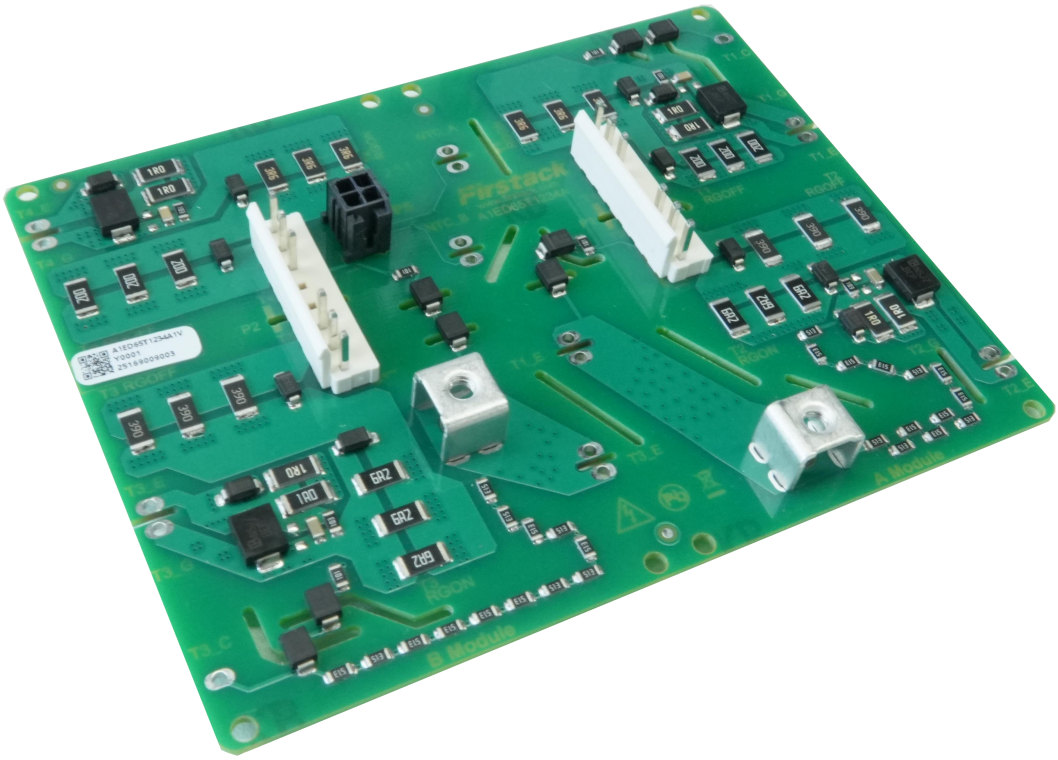

Fig. 1 A1ED65T1234A1V-Y0001

Contents

Use Steps and Precaution

Simple use steps of the gate driver are as follows:

1. Choose suitable GDU

Pay attention to the IGBT module model during usage process. It is invalid for non-designated IGBT modules, at the same time, improper use may cause the gate driver and the module failure.

2. Install the gate driver on the IGBT module

Any treatment of IGBT modules or gate drivers should follow the general specifications for electrostatic-sensitive devices protections required by the International Standard IEC 60747-1 Chapter IX or European Standard EN 100015 (i.e., workplaces, tools, etc. must meet these standards).

If these specifications were ignored, both the IGBT and the gate driver might be damaged.

3. Connect the GDU to the control unit

Connect the GDU connector to the control unit and provide a suitable power supply voltage for the GDU.

4. Check the function of the GDU

Check the gate voltage: for the turn-off state, the rated gate voltage is specified in the corresponding data sheet, for the turn-on state, the voltage is 15V. Please also check the input current of the gate driver with and without a control signals respectively. These tests should be performed prior to installation, as the gate terminals may not be accessible after installation.

5. Set up and test the power unit

Before starting the system, it is recommended to check each IGBT module with single pulse and double pulse test method separately. In particular, Firstack recommends that users ensure that the IGBT module does not exceed the operating range specified by SOA even under the worst conditions, as this is strongly dependent on the specific converter architecture.

Package Drawing

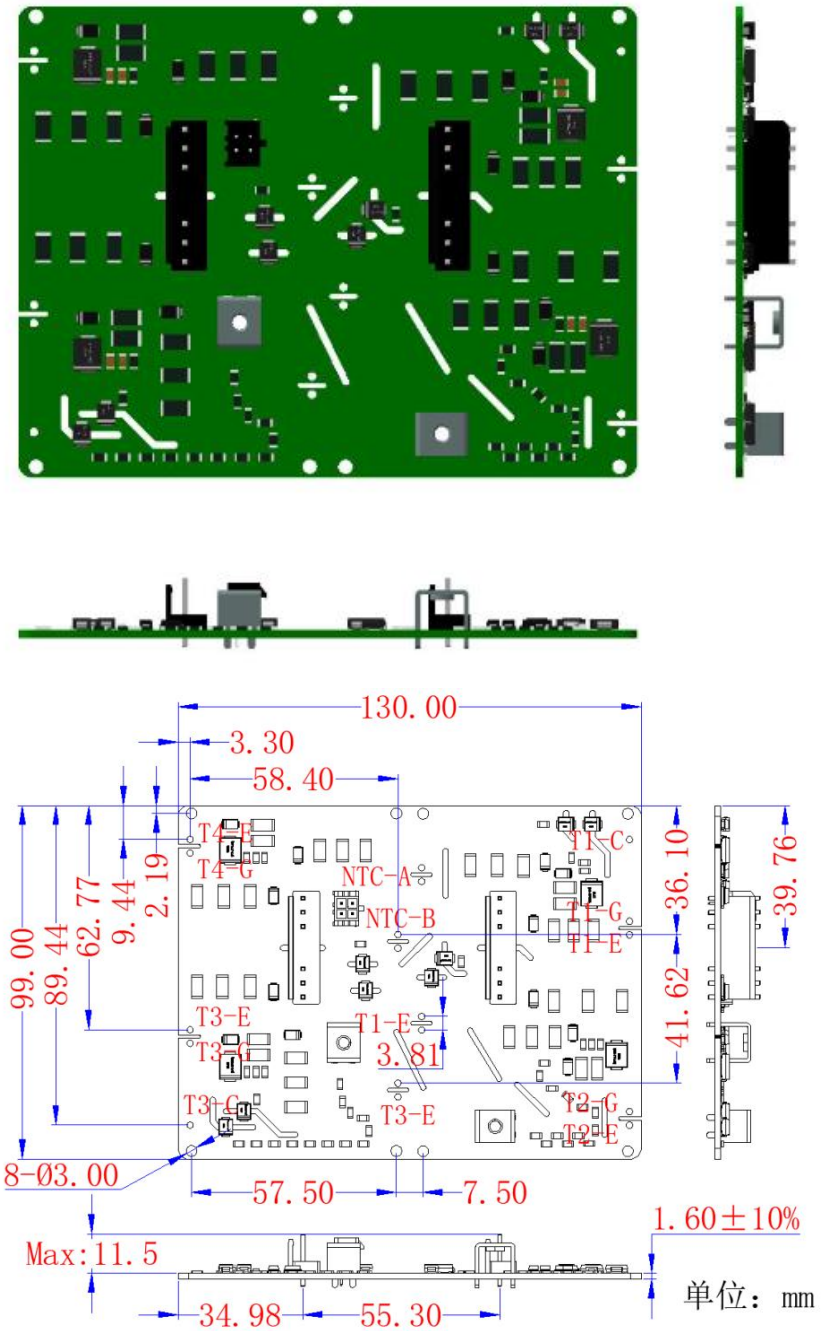

Fig. 2 Mechanical dimensions(unit: mm)

Note: 1. The thickness tolerance of the board is ±10%;

2. Other dimensional tolerances refer to GB/T1804-m.

3. All mounting holes in the picture above must be used as fixing, otherwise, excessive connector insertion and extraction stresses would cause driver damage.

Connector Manufacturer and Part Number

Number	Label	Manufacturer	Part Number	Recommended Matching Terminals
1	P7, P8	DEGSON	K31-00A(H)	/
2	P5	CJT	C3030WV-2x2P-LCP	WF3001-2H02B01
3	P1,P2	WCON	WF3963-WSH08B02	WF3963-H08B01

Pin Definition

P1 Pin Definition:

Pin	Name	Description	Pin	Name	Description
1	Vcesat-T2	T2 detection signal	5	NC	Free
2	ACOM-T2	T2 reference ground	6	Vcesat-T1	T1 detection signal
3	GATE-T2	T2 gate signal	7	ACOM-T1	T1 reference ground
4	NC	Free	8	GATE-T1	T1 gate signal

P2 Pin Definition:

Pin	Name	Description	Pin	Name	Description
1	Vcesat-T3	T3 detection signal	5	NC	Free
2	ACOM-T3	T3 reference ground	6	Vcesat-T4	T4 detection signal
3	GATE-T3	T3 gate signal	7	ACOM-T4	T4 reference ground
4	NC	Free	8	GATE-T4	T4 gate signal

P5 Pin Definition:

Pin	Name	Description	Pin	Name	Description
1	NTC1	Module 1 temperature signal	3	NTC2	Module 2 temperature signal
2	GND-T4	T4 ground	4	GND-T4	T4 ground

Driving parameters

Absolute Maximum Ratings

Parameter	Note	Min	Max	Unit
Operating temperature		-40	100	℃
Gate resistor derating	40%@118℃		2	W
Storage temperature		-40	85	℃

Electrical Characteristics

Output Characteristics			
Gate static impedance		10	kΩ

Gate Resistance Calculation Formula

	R_{GON}	R_{GOFF}	R_E	C_{GE}
T1	R25//R27//R22	R30//R32//R40	R35//R36	C7//C2
T2	R41//R44//R63	R65//R48//R50	R52//R53	C14//C3
T3	R24//R26//R21	R39//R31//R33	R37//R38	C6//C1
T4	R42//R45//R64	R66/R49//R51	R54//R55	C15//C4

Note: "//" indicates that the devices are connected in parallel.

Recommended Gate Parameters

GDU Model		R_{GON}（Ω）	R_{GOFF}（Ω）	R_E（Ω）	C_{GE}（nF）
A2ED65T1456B1V-Y0007	T1	1.2	6.67	0.5	47
	T2	2.07	9	0.5	68
	T3	2.07	9	0.5	68
	T4	1.2	6.67	0.5	47

Note:

1. There’s no T5T6 IGBT when AB module is used for NPC topology.

Ordering Information

A1ED65T1234A1V can support EconoDUAL™ modules of different models from multiple manufacturers. If you have a purchase request, please contact us, and we can provide the GDU that satisfied your needs.

Technical Support

Firstack's professional team will provide you with business consultation, technical support, product selection, price, lead time and other related information, and guarantee to answer your questions within 48 hours.

Legal Disclaimer

This manual supplies a detailed introduction to the product, but can not promise to provide specific parameters for the delivery, performance or applicability of the product. This article does not provide any express or implied warranties or guarantees.

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