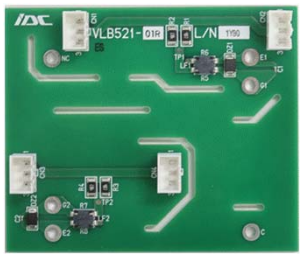
ISAHAYA ELECTRONICS

PRELIMINARY

VLB521-01R

ADAPTOR FOR GATE PARALLEL CONNECTION

VLB521-01R



FEATURES

>Directly mountable on the power module (HV100 type)
>Easy and flexible to use for gate parallel connection
>Built in Total Line length Adjustment Circuit (TLAC) for gate parallel connection
>Wire connection to gate driver unit

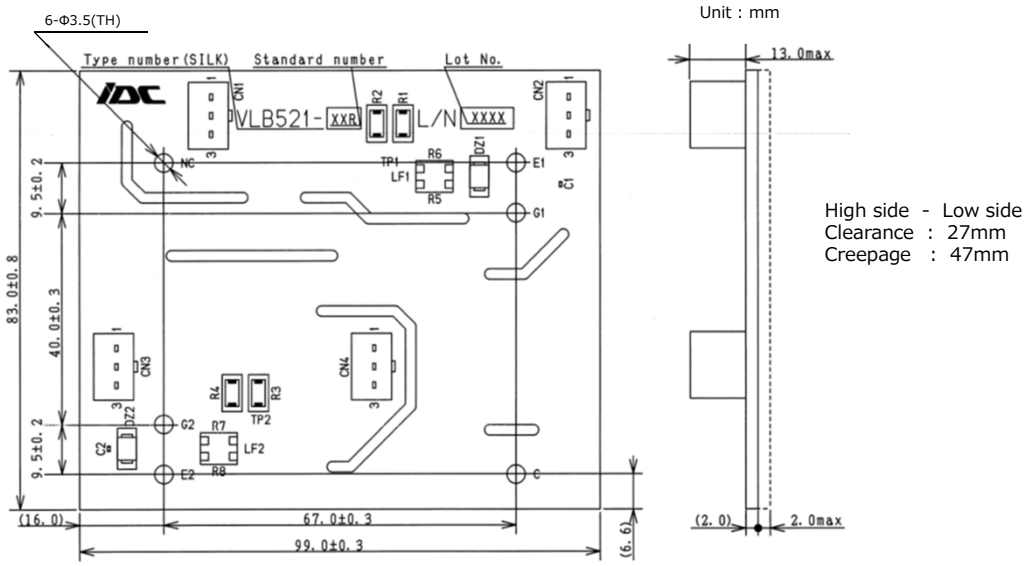
TARGETED IGBT MODULES

VCES=4500V series up to 450A class HV100 type
VCES=3300V series up to 600A class HV100 type

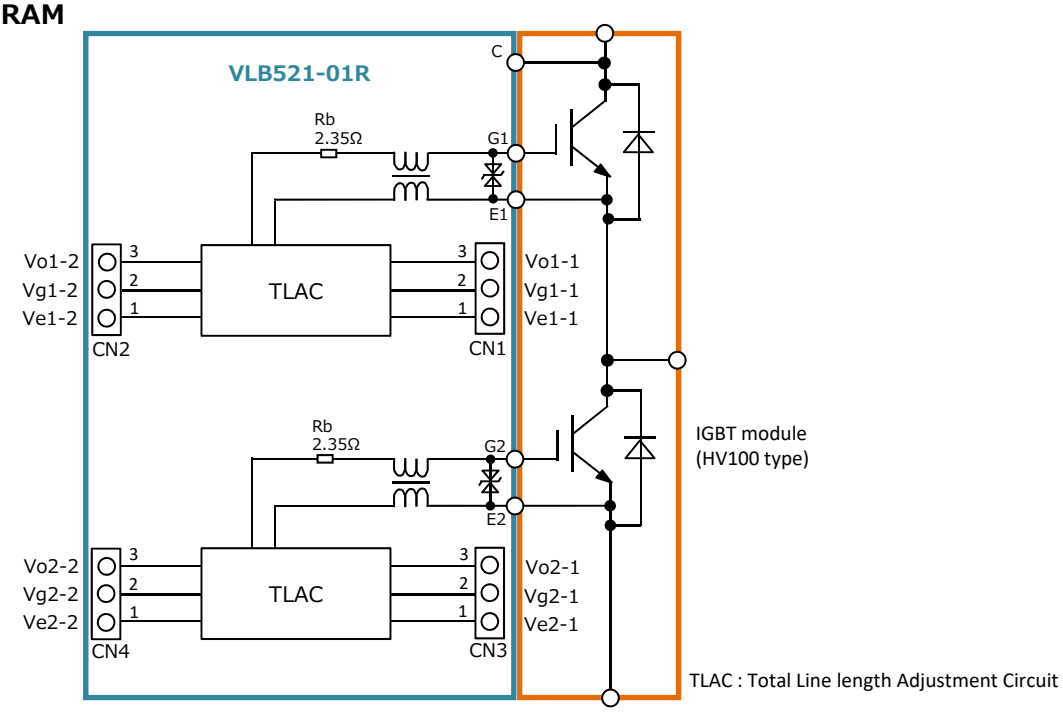
APPLICATIONS

Medium voltage inverter , HVDC infrastructure , Traction etc.

OUTLINE



BLOCK DIAGRAM



MAXIMUM RATINGS (unless otherwise noted, Ta=25 ℃)

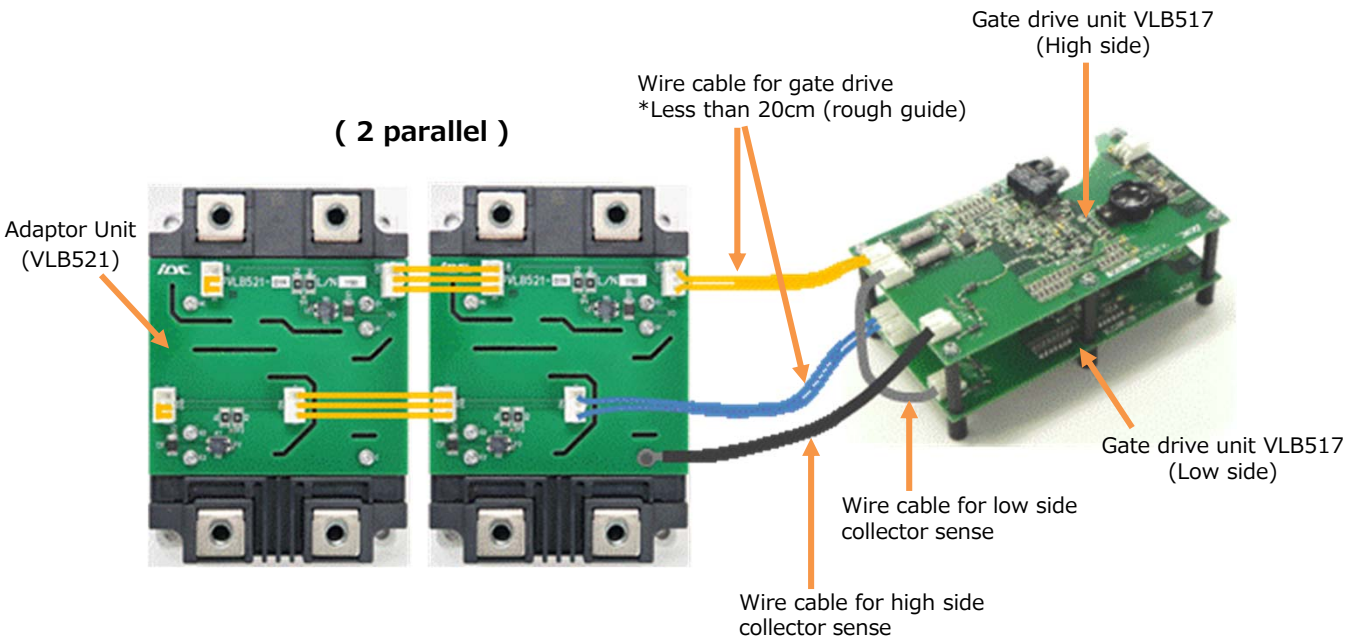
Symbol	Parameter	Conditions	Ratings	Unit
Topr	Operating temperature	No condensation allowable	-40 ~ 85	deg C
Tstg	Storage temperature	No condensation allowable	-40 ~ 85	deg C
Pd_rb	Maximum power dissipation of balance resistor	Total value of 2 chip resistors per 1circuit	1.2	W
VDC_Link	Main circuit voltage	The supply voltage of main circuit	3200	V
VCp	Collector peak voltage	Peak voltage on C terminal	4500	V

ELECTRICAL CHARACTERISTICS (unless otherwise noted, Ta=25℃)

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
Rb	Balance resistance	Compound value of 2 chip resistors per 1circuit	-	2.35	-	Ω

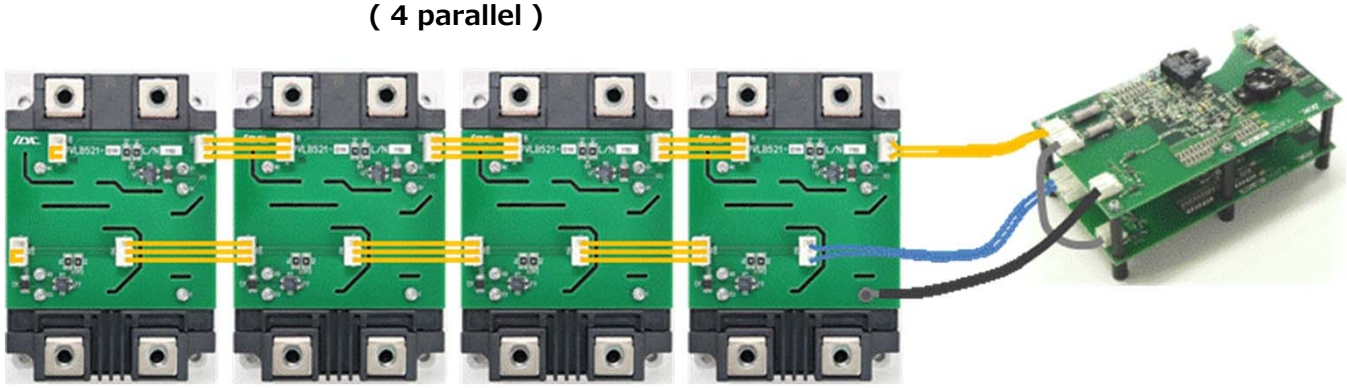
CONNECTION EXAMPLE

(2 parallel)



Note) When gate drive cable exceeds 20cm, please make it a twisted pair.

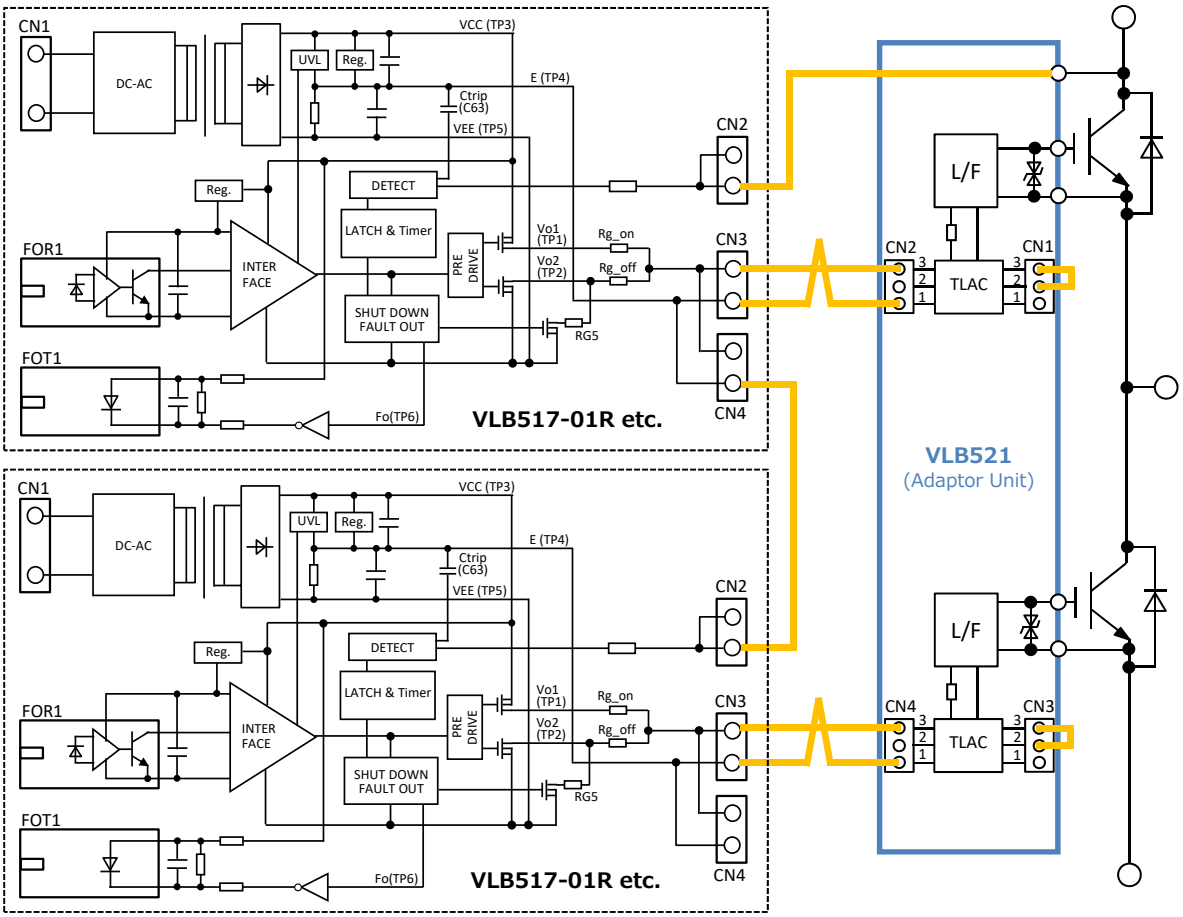
(4 parallel)



Note) The harness for connections doesn't attach at the time of shipment.

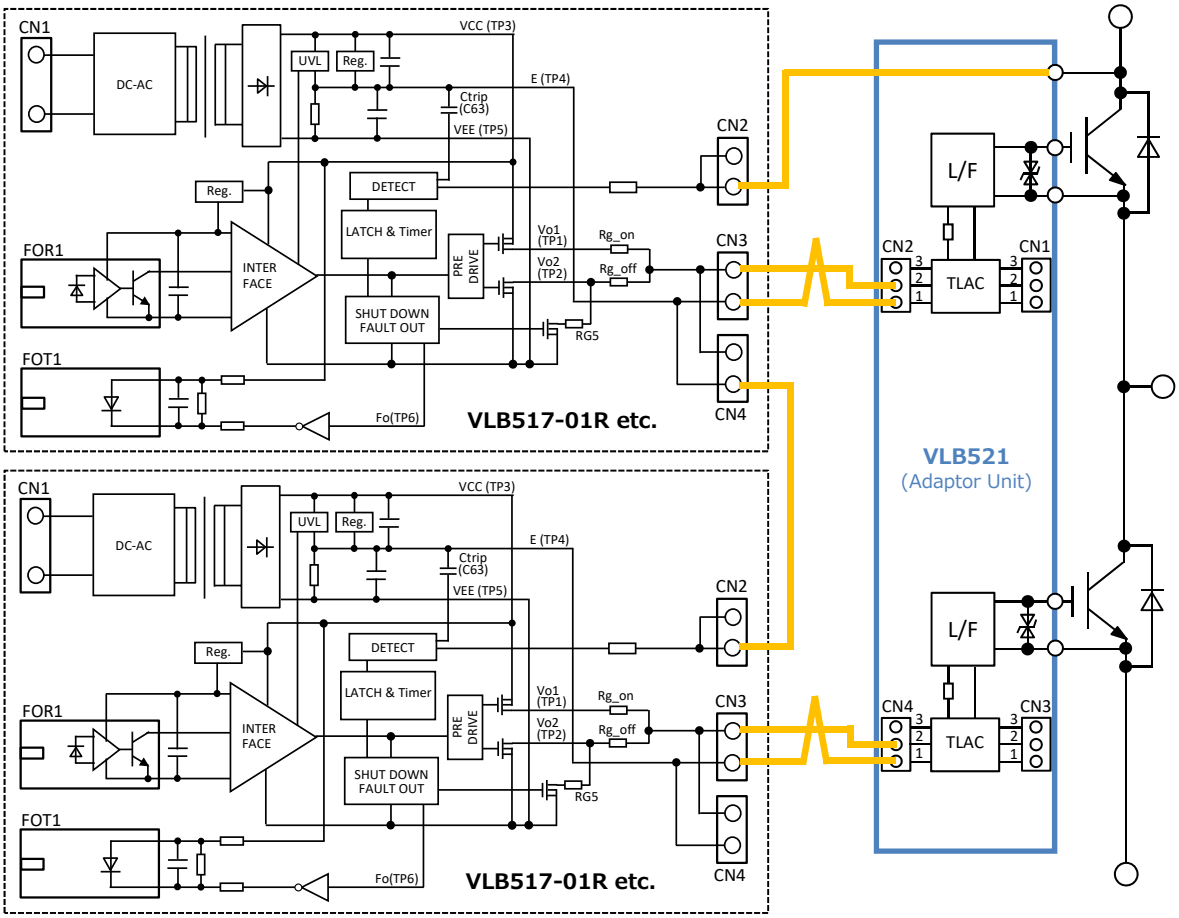
APPLICATION EXAMPLE1

(single connection1 of HV100)



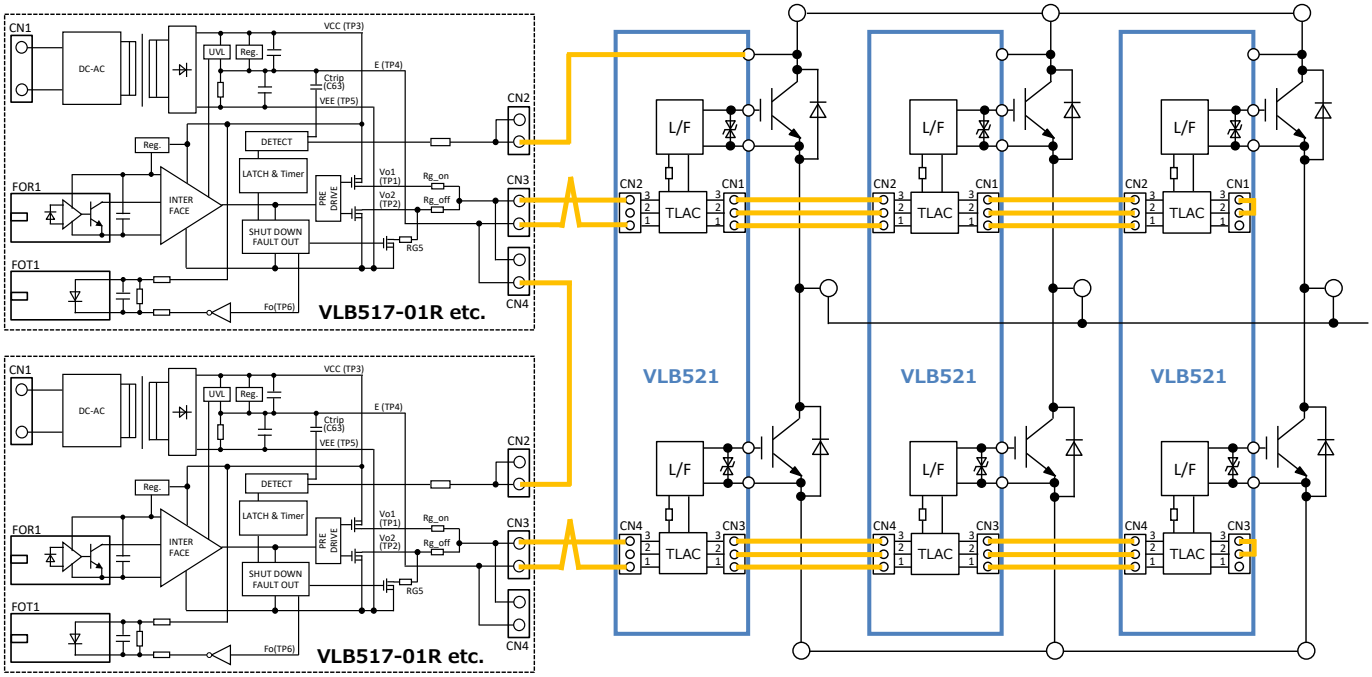
APPLICATION EXAMPLE2

(single connection2 of HV100)



APPLICATION EXAMPLE3

(3 parallel connection)

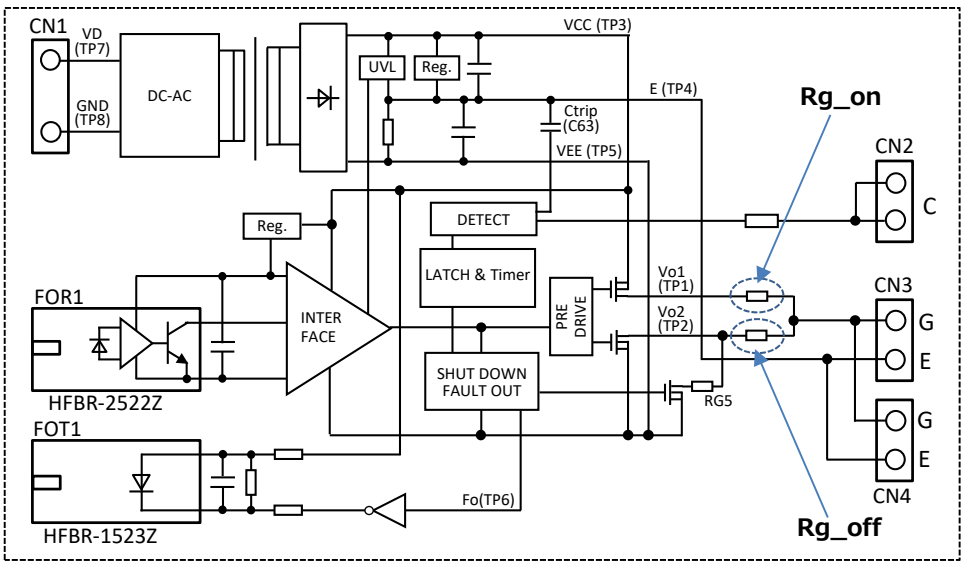


THE WAY TO CALCULATE GATE RESISTANCE VALUE OF PARALLEL CONNECTION

RG_ON/1elem. = Gate ON resistance value per one element = Rb + (N x Rg_on)
RG_OFF/1elem. = Gate OFF resistance value per one element = Rb + (N x Rg_off)

Note) Rb : 2.35Ω (Compound value of 4 chip resistors on VLB521-01R)
N : Parallel number of modules
Rg_on : Gate ON resistance value on gate drive unit
Rg_off : Gate OFF resistance value on gate drive unit

Gate drive unit



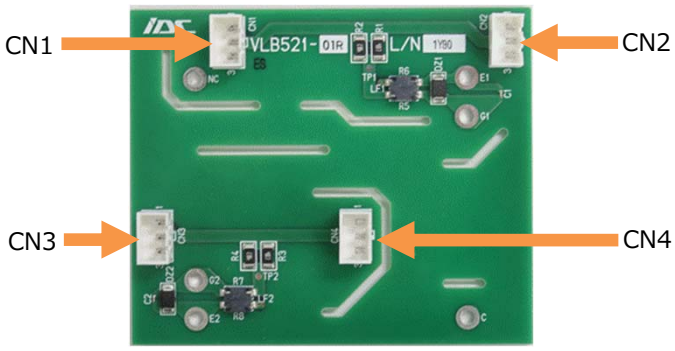
DETAILS OF CONNECTOR

CN1: 53258-0329 (Molex)	
Pin No.	Signal
1	Ve1-1
2	Vg1-1
3	Vo1-1

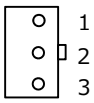
CN2: 53258-0329 (Molex)	
Pin No.	Signal
1	Ve1-2
2	Vg1-2
3	Vo1-2

CN3: 53258-0329 (Molex)	
Pin No.	Signal
1	Ve2-1
2	Vg2-1
3	Vo2-1

CN4: 53258-0329 (Molex)	
Pin No.	Signal
1	Ve2-2
2	Vg2-2
3	Vo2-2



Pin No. assignment of connector



CN1~4

We recommend following parts or equivalent product for wire cable

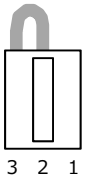
HOUSING	TERMINAL	Maker	Note
51067-0300	50217-8100	Molex	to 53258-0329

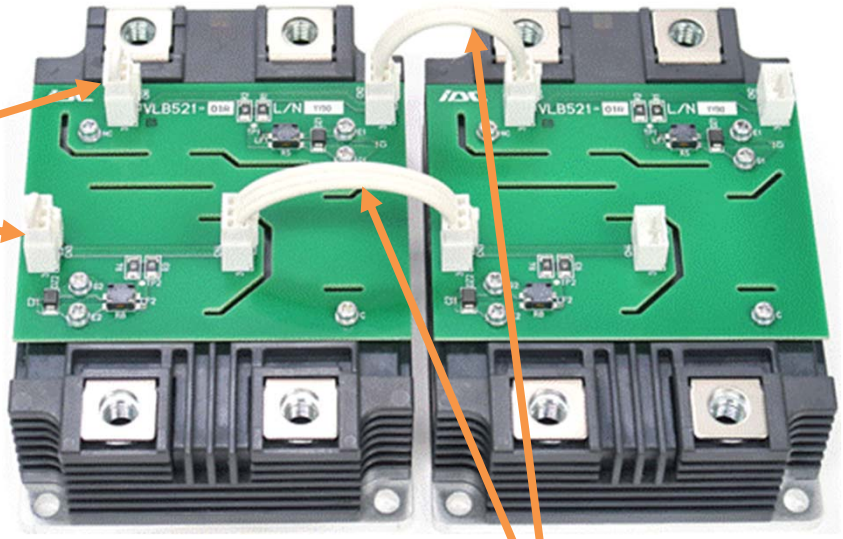
HARNESS FOR PARALLEL CONNECTION

The harness for connections doesn't attach at the time of shipment,
please prepare the harness like following figure.

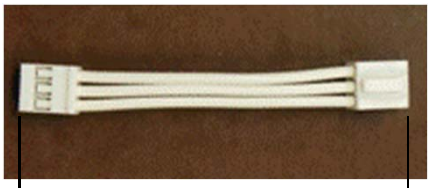
Gate wiring turn point
Pin 2-3 : short

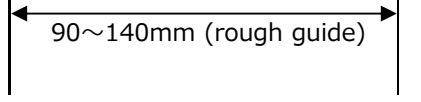
(Housing : 51067-0300)
(Terminal : 50217-8100)





Unit connection harness
(Housing : 51067-0300)
(Terminal : 50217-8100)

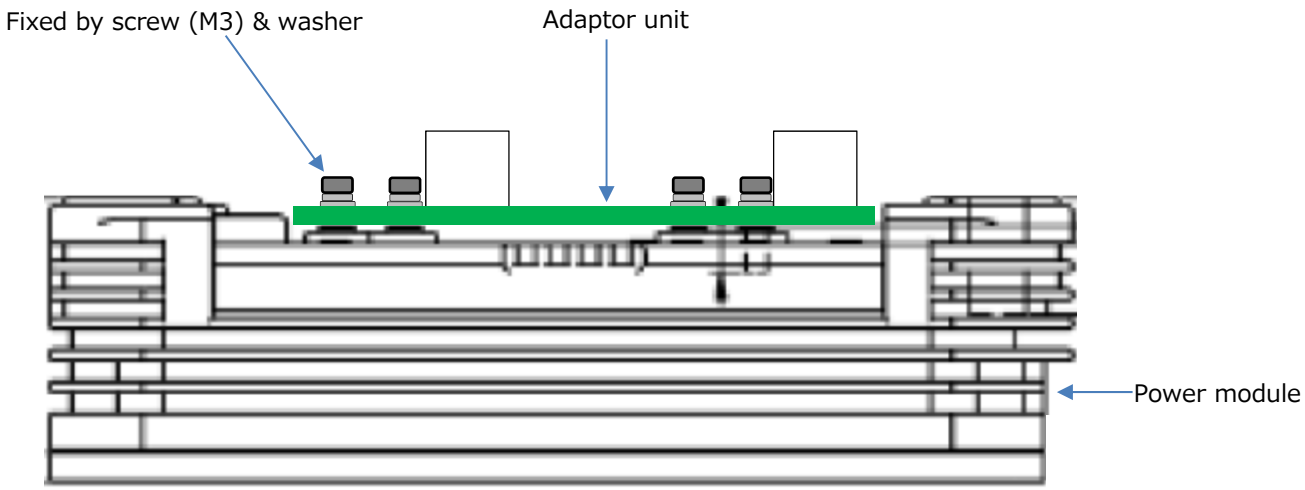




Note **1) Please make the length of 3 lines the same length about the unit connection harness.**
2) When 3 lines of harness become dispersive, please take a measure by an spiral tube or insulok etc.

THE INSTALLATION OF THE ADAPTOR UNIT ON POWER MODULE

When fixing this adaptor unit on Power module , please use the screws with spring washers.



FOR SAFETY USING

Great detail and careful attention are given to the production activity of Hics, such as the development, the quality of production, and in it's reliability. However the reliability of Hics depends not only on their own factors but also in their condition of usage. When handling Hics, please note the following cautions.

CAUTIONS	
Packing	The materials used in packing Hics can only withstand normal external conditions. When exposed to outside shocks, rain and certain environmental contaminators, the packing materials will deteriorates. Please take care in handling.
Carrying	1) Don't stack boxes too high. Avoid placing heavy materials on boxes. 2) Boxes must be positioned correctly during transportation to avoid breakage. 3) Don't throw or drop boxes. 4) Keep boxes dry. Avoid rain or snow. 5) Minimal vibration and shock during transportation is desirable.
Storage	When storing Hics, please observe the following notices or possible deterioration of their electrical characteristics, risk of solder ability, and external damage may occur. 1) Devices must be stored where fluctuation of temperature and humidity is minimal, and must not be exposed to direct sunlight. Store at the normal temperature of 5 to 30 degrees Celsius with humidity at 40 to 60%. 2) Avoid locations where corrosive gasses are generated or where much dust accumulates. 3) Storage cases must be static proof. 4) Avoid putting weight on boxes.
Extended storage	When extended storage is necessary, Hics must be kept non-processed. When using Hics which have been stored for more than one year or under severe conditions, be sure to check that the exterior is free from flaw and other damages.
Maximum ratings	To prevent any electrical damages, use Hics within the maximum ratings. The temperature, current, voltage, etc. must not exceed these conditions.
Polarity	To protect Hics from destruction and deterioration due to wrong insertion, make sure of polarity in inserting leads into the board holes, conforming to the external view for the terminal arrangement.

Keep safety first in your circuit designs!

·ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary circuits, (2) use of non-flammable material or (3) prevention against any malfunction or mishap.

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