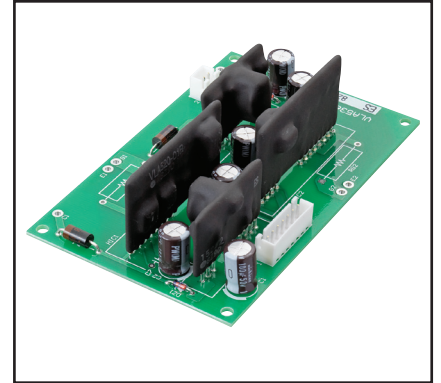
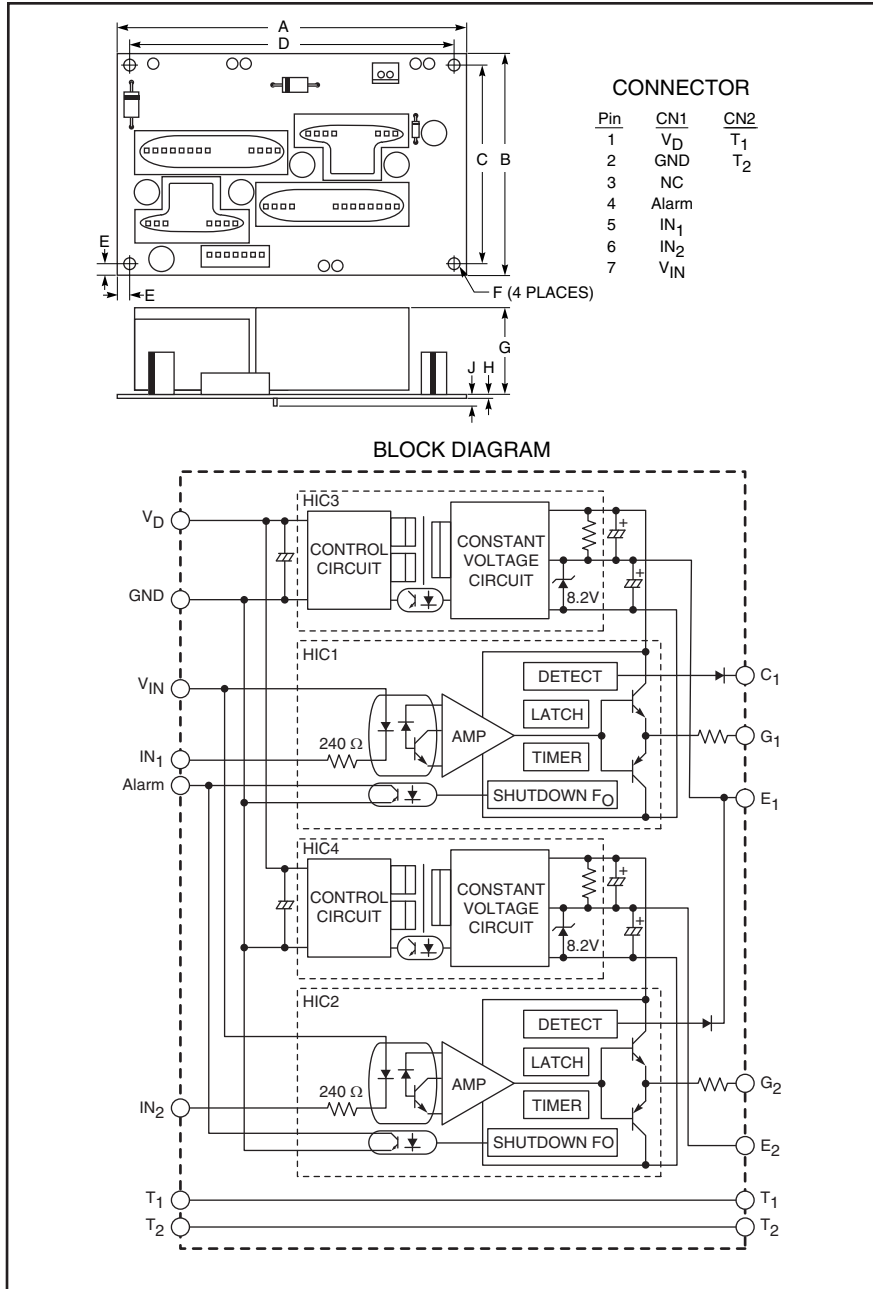


NX-Series Dual IGBT Gate Driver Interface Board



Description:

VLA536-01R is a completely populated gate driver board designed specifically for driving NX package style Powerex IGBT modules rated up to 450A at 1200V.

Features:

- ☐ Mounts Directly to Dual NX IGBT Modules
- ☐ Built-in Isolated DC-DC Converter for Gate Drive
- ☐ Built-in Short Circuit Protection
- ☐ Electrical Isolation Voltage is 2500 V_{rms} (for 1 minute)
- ☐ Provides Isolated Control Power and Gate Drive
- ☐ CMOS Compatible Input Interface

Recommended IGBT Modules:

NX-Series Dual IGBT Modules
600V – Up to 400A
(Example: CM400DX-12A)

1200V – Up to 450A
(Example: CM450DX-24A)

Application:

To drive IGBT modules for inverter or AC servo systems applications

Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	3.97±0.04	101.0±1.0
B	2.52±0.02	64.0±0.5
C	2.26	57.5
D	3.75	94.5
E	0.13	3.25

Dimensions	Inches	Millimeters
F	0.12 Dia.	3.0 Dia.
G	1.14 Max.	29.0 Max.
H	0.06	1.6
J	0.12 Max.	3.0 Max.

VLA536-01R
NX-Series Dual IGBT
Gate Driver Interface Board

Absolute Maximum Ratings, $T_a = 25^\circ\text{C}$ unless otherwise specified

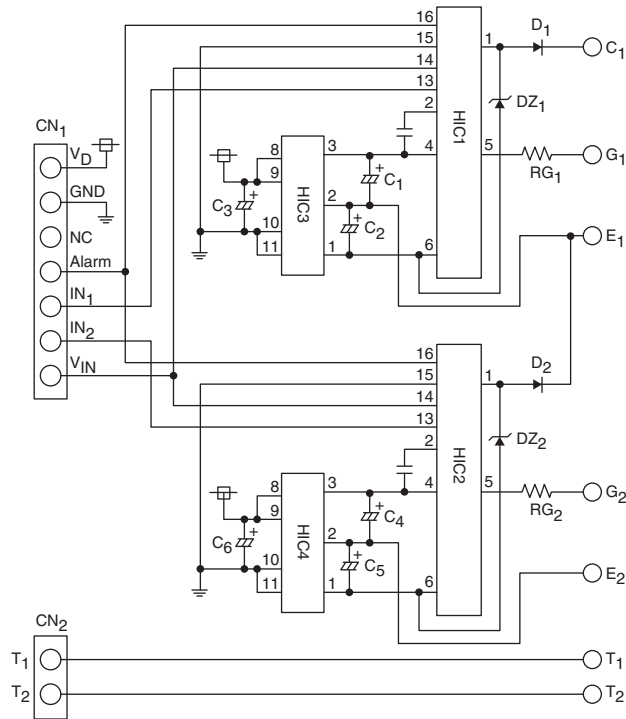
Characteristics	Symbol	VLA536-01R	Units
Supply Voltage (DC)	V_D	18	Volts
Input Signal Voltage (Applied between V_{IN} - IN_1 , IN_2 , 50% Duty Cycle, Pulse Width 1ms)	V_I	-1 ~ +7	Volts
Gate Peak Current	I_{OHP}	-5	A
(Pulse Width 2 μ s)	I_{OLP}	5	A
Operating Temperature (No Condensation)	T_{opr}	-20 ~ +70	$^\circ\text{C}$
Storage Temperature (No Condensation)	T_{stg}	-25 ~ +85	$^\circ\text{C}$
Alarm Pin Voltage	I_{alm}	10	mA
Gate Drive Current	V_{alm}	50	Volts
Gate Drive Current (Gate Average Current Per One Circuit)	I_{drive}	—	mA
Isolation Voltage (Sine Wave Voltage, 60Hz, 1 Minute)	V_{ISO}	2500	V_{rms}

Electrical and Mechanical Characteristics, $T_a = 25^\circ\text{C}$, $V_D = 15\text{V}$ unless otherwise noted

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Supply Voltage	V_D	Recommended Range	12	15	18	Volts
Input Voltage (Pull-up Voltage on Input Side)	V_{IN}	Recommended Range	4.75	5.0	5.25	Volts
Input Signal Current	I_{IH}	Recommended Range	10	13	16	mA
Switching Frequency	f	Recommended Range	—	—	20	kHz
Gate Resistance	R_G	Recommended Range	2	—	—	Ω
Alarm Output Current	I_{alm}	Recommended Range	—	—	5	mA
Plus Bias Voltage	V_{OH}		—	—	—	Volts
Minus Bias Voltage	V_{OL}		—	—	—	Volts
"L-H" Propagation Time	t_{PLH}	$I_{IH} = 13\text{mA}$	0.2	0.45	0.8	μs
"H-L" Propagation time	t_{PHL}	$I_{IH} = 13\text{mA}$	0.2	0.4	0.7	μs
Timer	t_{timer}	Between Start and Clear (Under Input Signal "OFF")	1.0	1.4	2.0	ms
Alarm Delay Time	t_{dalm}	$I_{alm} = 2.5\text{mA}$	—	6.5	10.0	μs
SC Detect Threshold Voltage	V_{SC}	IGBT Collector Voltage	—	—	—	Volts

VLA536-01R
NX-Series Dual IGBT
Gate Driver Interface Board

Inner Circuit



Parts List (Reference)

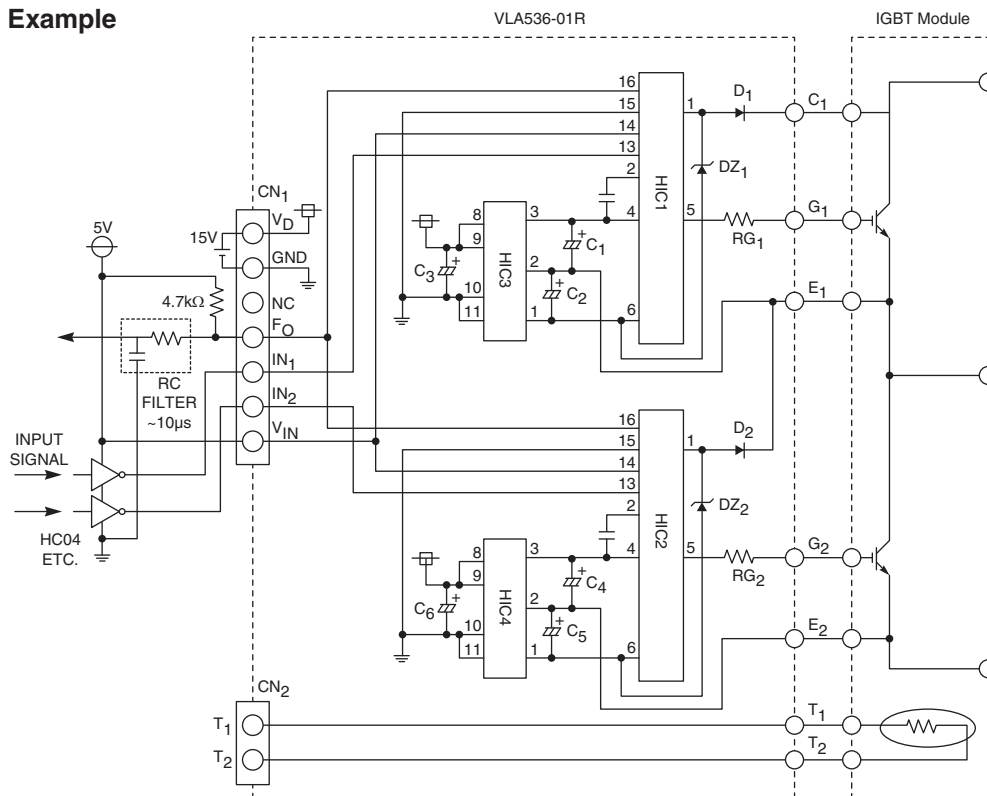
HIC ₁ , HIC ₂	VLA520-01R	ISAHAYA
HIC ₃ , HIC ₄	VLA106-15252	ISAHAYA
DZ ₁ , DZ ₂	30V, 500mW	
D ₁ , D ₂	RP1H	SanKen
C ₁ ~ C ₆	100μF, 50V	Low Impedance
C ₇ , C ₈	10pF ~ 50pF, 50V	TDK FK28 Type
RG ₁ , RG ₂	3W Class	
CN ₁	B7B-XH-A	JST
CN ₂	B2B-XH-A	JST

NOTE:

Gate Resistor is not included. Please install selected resistor.

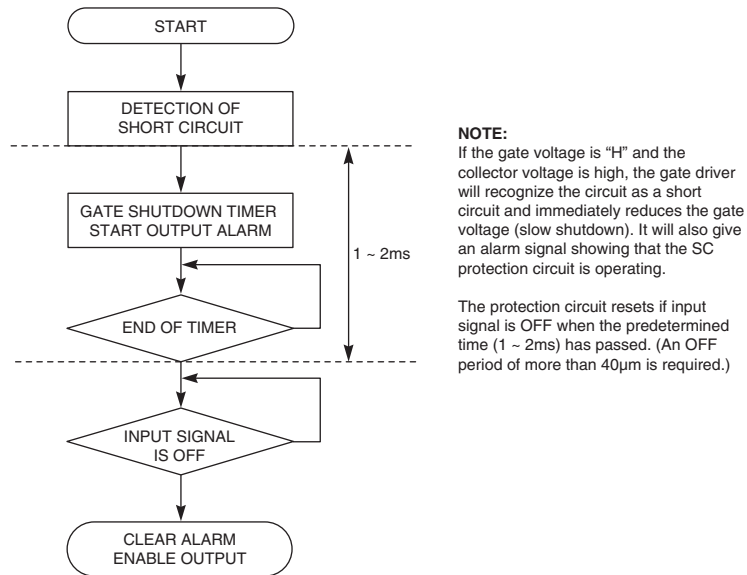
C₇, C₈ is not installed at the time of shipment. Please solder in selected capacitor if needed. (Rough Guide 10 ~ 50pF, 50V, Ceramic)

Application Example



VLA536-01R
NX-Series Dual IGBT
Gate Driver Interface Board

Short Circuit Detection Flow Diagram



PCB Installation

