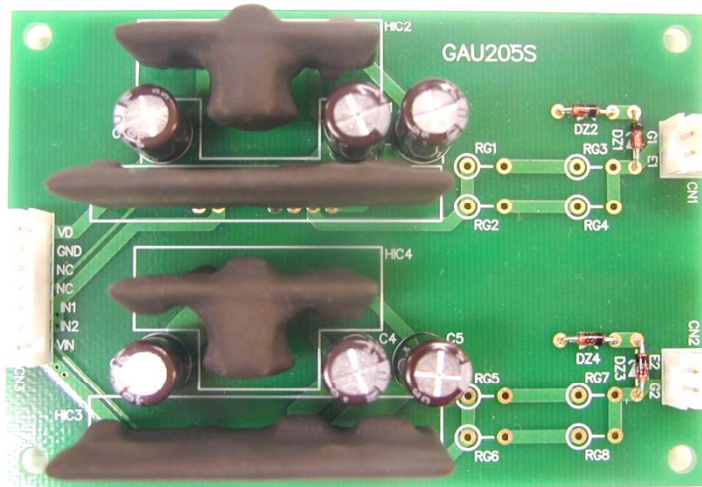


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## GAU205S-15252 Universal Gate Drive Prototype Board



Size : 65 x 95 x 34t

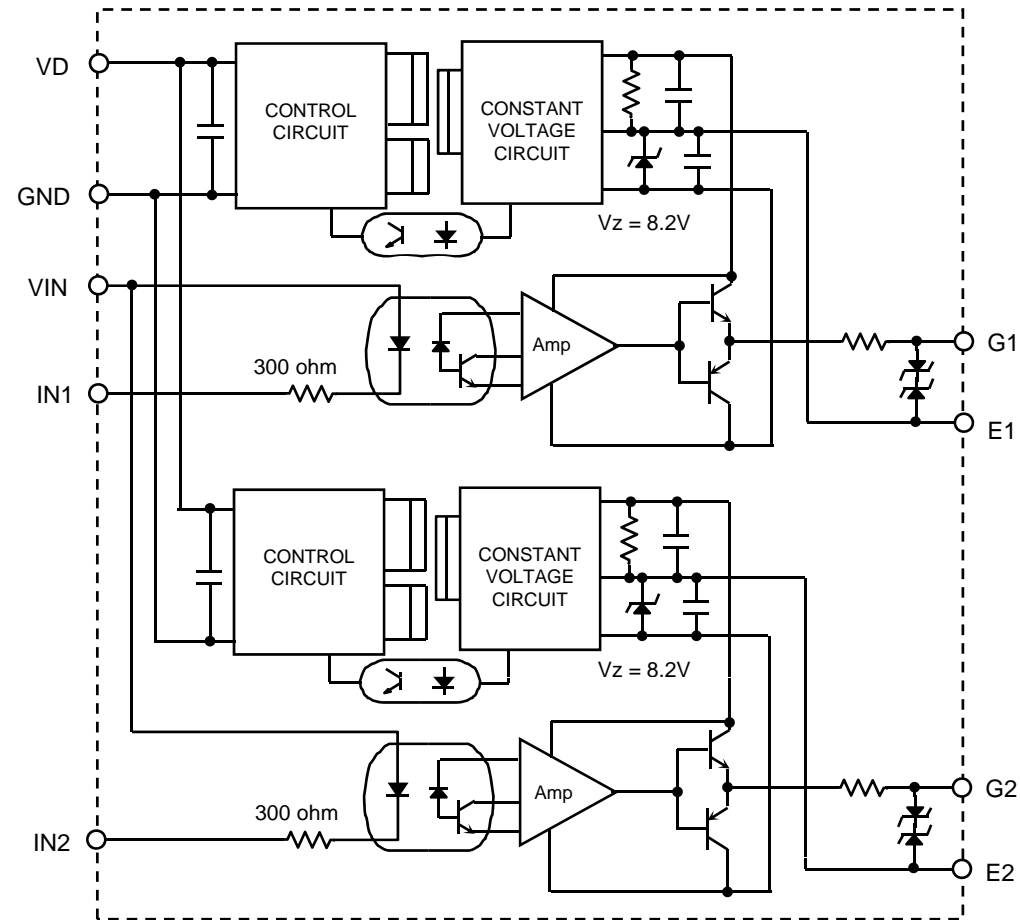
Gate Driver : VLA513-01R

DC-DC Converter : VLA106-15242

### FEATURE

- >Built in the isolated DC-DC converter for gate drive
- >Output peak current is +/-5A(max)
- >Electrical isolation voltage is 2500Vrms (for 1 minute)
- >Two way power supply system for drivers and input signal (VD=15V , VIN=5V)
- >CMOS compatible input interface

## BLOCK DIAGRAM



**MAXIMUM RATINGS**

(unless otherwise noted, Ta=25C)

Symbol	Parameter	Conditions	Ratings	Unit
VD	Supply voltage	DC	18	V
VI	Input signal voltage	Applied between VIN – IN1,2 50% Duty cycle , pulse width 1ms	-1 ~+7	V
IOHP	Output peak current	Pulse width 2us	-5	A
IOLP			5	A
Viso	Isolation voltage	Sine wave voltage 60Hz, for 1min	2500	Vrms
Topr	Operating temperature	No condensation allowable	-10 ~ 70	deg C
Tstg	Storage temperature	No condensation allowable	-25 ~ 85	deg C
Idrive	Gate drive current	Gate average current (Per one circuit)	90	mA

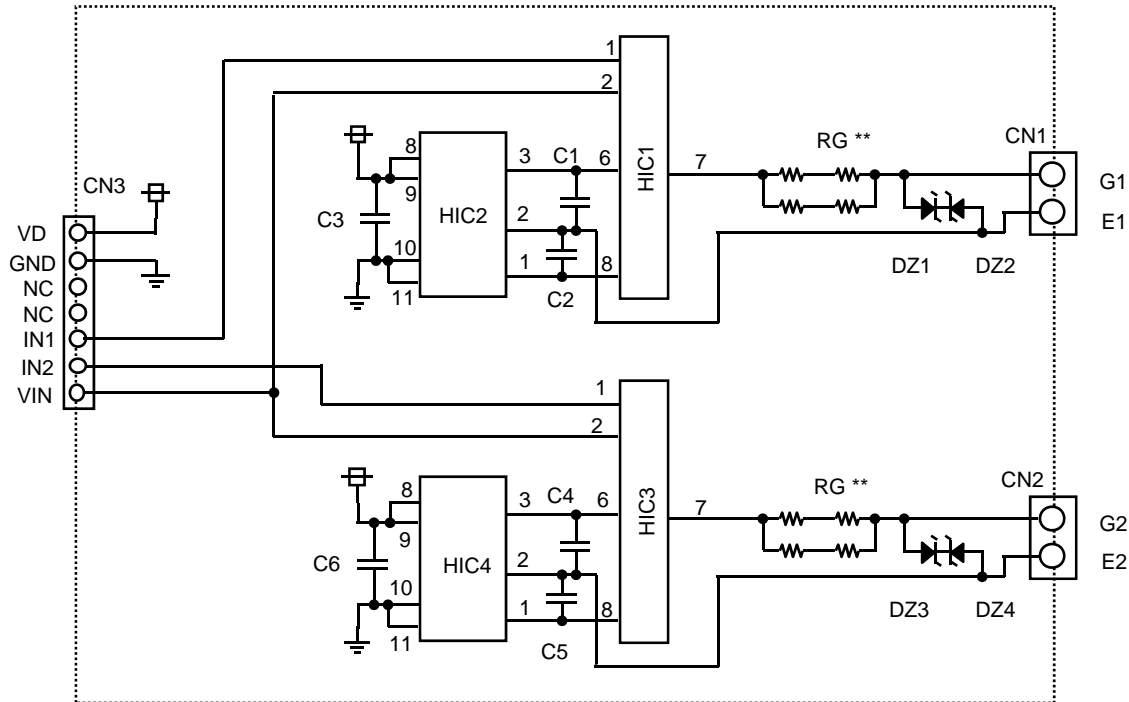
**ELECTRICAL CHARACTERISTICS**

( unless otherwise noted, Ta=25C, VD=15V)

Symbol	Parameter	Conditions	Limits			Unit
			Min	Typ	Max	
VD	Supply voltage	Recommended range	12	15	18	V
VIN	Pull-up voltage on input side	Recommended range	4.75	5	5.25	V
IIH	"H" input signal current	Recommended range	9.5	10	14	mA
f	Switching frequency	Recommended range	-	-	60	kHz
RG	Gate resistance	Recommended range	2	-	-	ohm
VOH	Plus bias voltage	-	13.5	15	16.5	V
VOL	Minus bias voltage	-	-9.6	-8.0	-6.5	V
tPLH	"L-H" propagation time	IIH = 10mA	-	0.2	0.5	us
tPHL	"H-L" propagation time	IIH = 10mA	-	0.2	0.5	us



## INNER CIRCUIT



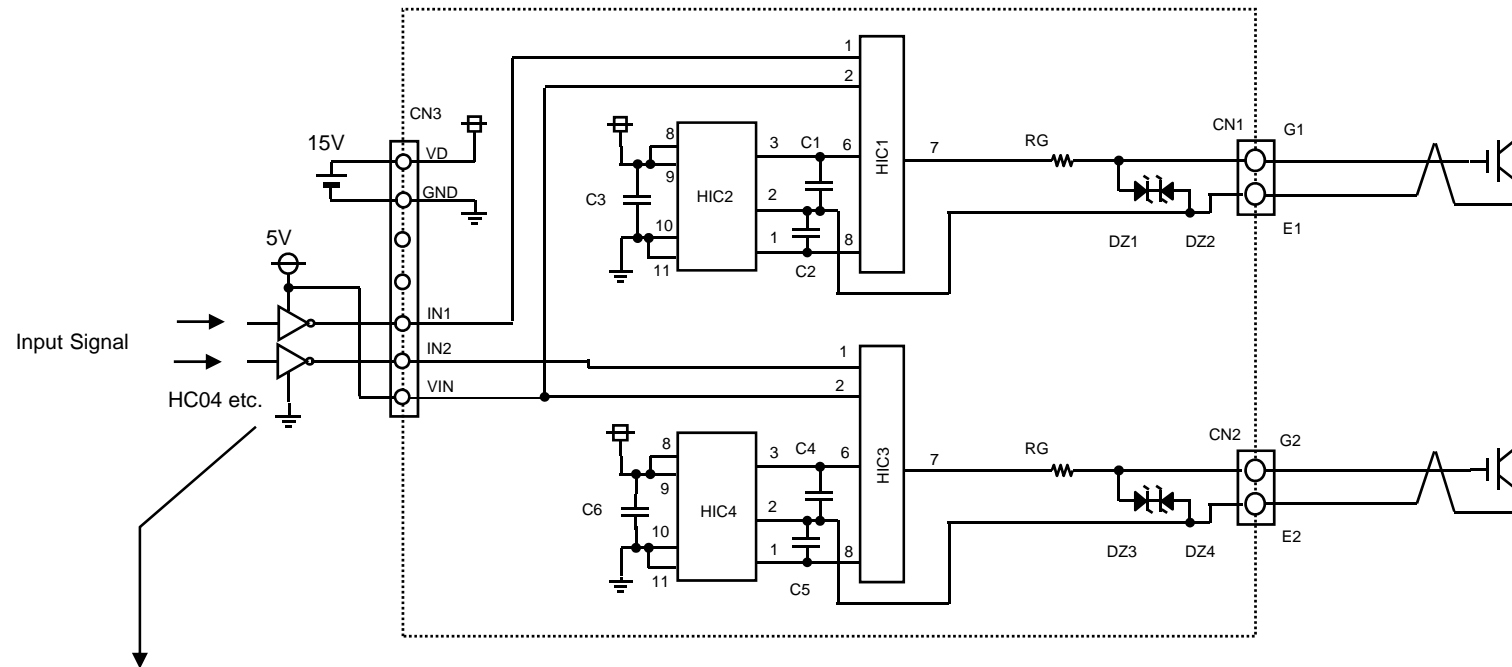
HIC1,3  
HIC2,4  
DZ1,2,3,4  
RG  
CN1,2  
CN3  
C1,2,4,5  
C3,6

VLA513-01R  
VLA106-15242  
Vz=18V, 500mW  
Gate Resistor  
B2B-XH-A  
B7B-XH-A  
220uF, 35V  
100uF, 50V

ISAHAYA  
ISAHAYA  
JST  
JST  
Low impedance  
Low impedance

**\*\* ) Gate Resistor is not installed at the time of shipment.  
Please solder the chosen resistor.**

## APPLICATION EXAMPLE



\*\*Open-collector(drain) type is not recommended.

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## PRECATION

### (1) Confirmation of gate average current

The maximum rating of output current capacity per one circuit of the gate power supply built-in this product is 100mA.  
And the steady-state consumption current of the gate driver is about 10mA. Therefore the gate average current must be less than 90mA.

Please calculate the gate average current by the following expression.

$$I_{drive} = (Q1 + IQ2) \times f$$

$I_{drive}$  : Gate average current

$Q1$  : Gate charge on plus bias (Please read it from data sheet of IGBT)

$Q2$  : Gate charge on minus bias (Please read it from data sheet of IGBT)

$f$  : Switching frequency

### (2) Electric power setting of gate resistance

At the time of the choice of gate resistance, please choose the resistance which can permit the electric power by the following calculation.

$$P_d = I_{drive} \times 24$$

$P_d$  : Total allowable power loss of gate resistance

$I_{drive}$  : Gate average current

24 : Total output voltage of gate power supply

## Part arrangement & Size

