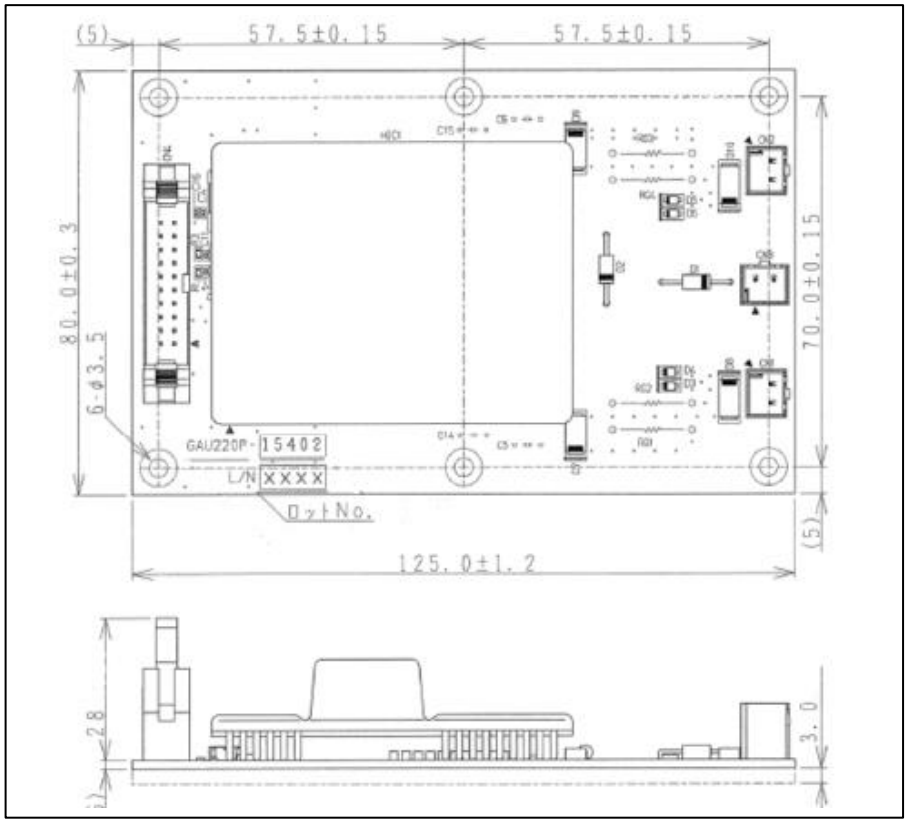
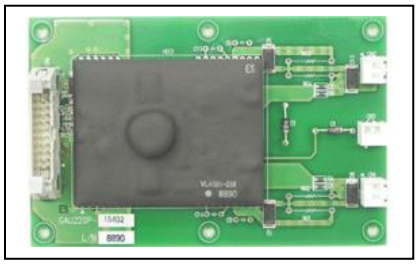
Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwrx.com

IGBT *Gate Drive Unit*



GAU220P-15402 (Outline)



GAU220P-15402 Gate drive unit
IGBT Gate Driver

Description:
GAU220P-15402 is a fully populated gate driver ready for immediate use. Designed for dual IGBT modules, GAU220P-15402 can supply two fully isolated channels. GAU220P-15402 provides protection against unexpected short circuit conditions using desaturation detection. GAU220P-15402 provides an isolated fault feedback signal if the short circuit condition is detected.

Features:

- ☐ Built in dual channel core gate driver including built-in DC/DC converter (VLA591-01R)
- ☐ Output peak current is +/- 20A
- ☐ Electrical isolation voltage is 4,000Vrms
- ☐ Built in short circuit protection
- ☐ One-way power supply system for drivers and input signal (Vd=15V)
- ☐ Adjustable fall time on activity of short circuit protection

Targeted Modules:

Vces:600/650V series, ~600A

Vces:1200V series, ~1800A

Vces:1700V series, ~1800A

Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwrx.com

IGBT *Gate Drive Unit*

Absolute Maximum Ratings, T_j = 25°C unless otherwise specified

Characteristics	Symbol		Units
Supply Voltage	V_D	-1 to 16.5	V
Input signal voltage (Applied between GND-INH, INL)	V_I	19	V
F_O output current (sink and source current of F_O terminal)	I_F_O	+/- 10	mA
Isolation voltage between primary and secondary (sine wave 60 Hz, for 1 min)	V_{iso}	4000	V_{rms}
Operating Temperature (No condensation allowable)	T_{opr}	-40 to 85	°C
Storage temperature (No condensation allowable)	T_{stg}	-40 to 90	°C
Average current (per one circuit)*	I_{drive}	100	mA
Terminal voltage of CN3	VCN3	1700	V
Main circuit voltage (voltage between P and N)	Vdc_Link	1200	V
Output peak current (pulse width 3µs)	IOHP	-20	A
	IOLP	20	A

*When you decide the switching frequency, please check the gate average current by the following formula: Idrive = (Q1+|Q2|) x f x N

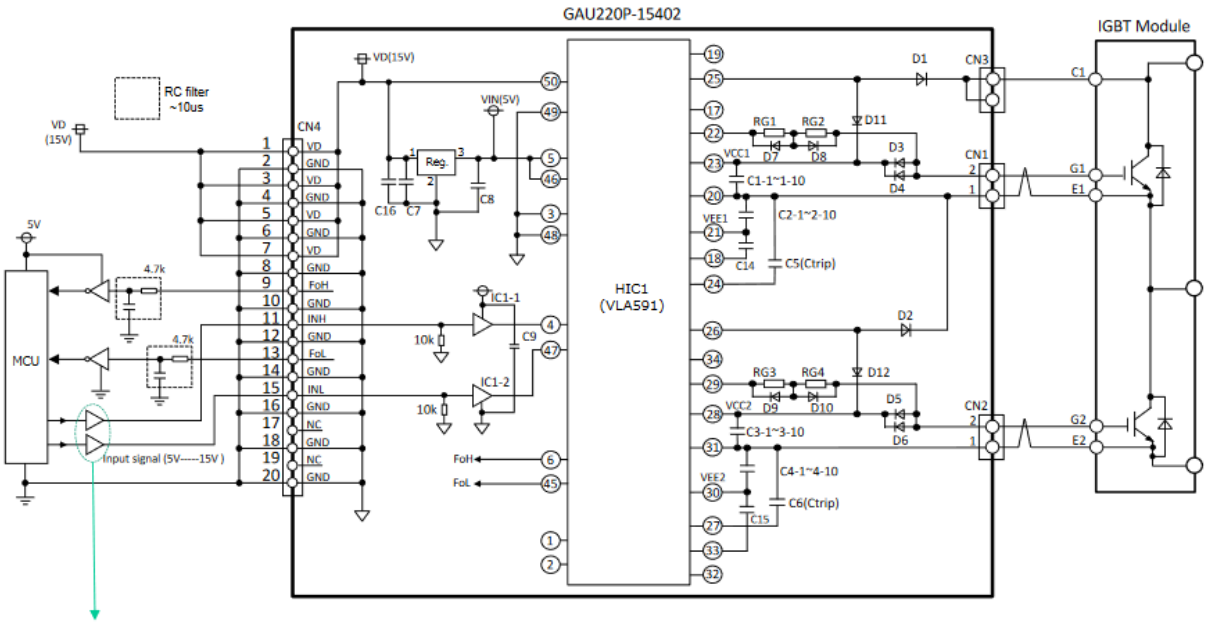
Recommended Operating Conditions, T_a=25°C, V_d=15V, f=3kHz

Characteristics	Symbol	Location	Min.	Typ.	Max.	Units
Power Supply	V_D		14.5	15	15.5	V
Switching frequency	f	Limited by gate average current			20	kHz
Gate resistance	R_g		0.5			ohm
Input signal voltage	VI		4.5		15.5	V
F_O output current	I_F_O		-4		4	mA
Input signal high threshold	VI_H		1.8	2.1	2.4	V
Input signal low threshold	VI_L		0.9	1.2	1.5	V
Positive bias output voltage	VOH	Input “H” (High Active)	13.5	15.2	16.5	V
Negative bias output	VOL	Input “L”	-6	-8	-11	V
“L-H” propagation time	tPLH	Rg=1.5Ω, f=3kHz, C_load:0.33µF		0.29		µs
“H-L” propagation time	tPHL	Rg=1.5Ω, f=3kHz, C_load:0.33µF		0.15		µs
Timer	T_{timer}	Between start and cancel of protection (Under input signal is off state)	1		2	ms
Under voltage lock out	UVLO+_VCC	Vcc voltage (Operation start)		12.6		V
Under voltage lock out	UVLO-_VCC	Vcc voltage (Operation stop)		11.7		V
SC detect voltage	VSC	Collector voltage of IGBT	15			V

Powerex, Inc., 173 Pavilion Lane, Youngwood, Pennsylvania 15697 (724) 925-7272
www.pwrx.com

IGBT *Gate Drive Unit*

Application Example:



Note 1: About the IC which drives gate signal on the input side, it is not recommended to use the one whose output is open collector or open drain type.
Note 2: When you confirm the gate output without connecting IGBT, please invalidate a short-circuit protection. If connect resistance of 4.7kΩ between the C1 (E1) and E1 (E2) without main power supply, the short circuit protection becomes invalid.
Note 3: Rg1~4 are not installed at the time of shipment. Please solder the chosen resistor.
Note 4: C5 and C6 are not installed at the time of shipment, if needed, please solder the chosen condenser 50V, ceramic ~47pF (rough guide)
Note 5: C14 and C15 are not installed at the time of shipment. These capacitors are only needed in special cases.