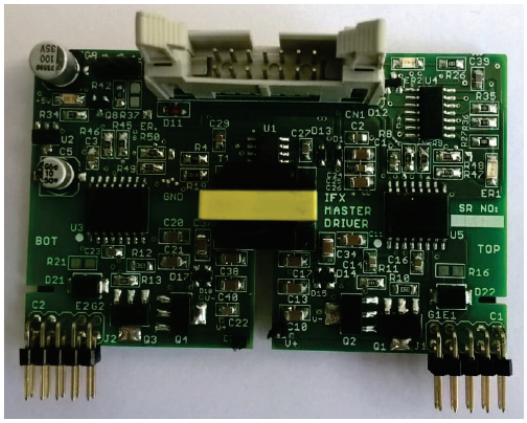
ARIHANT ELECTRICALS

IGBT DRIVER SOLUTION



IFX-MASTER

Ready to use!!!

Features

- Low Power dual channel driver
- 2X1 Watt Output Power
- ±8A gate current, +15V/-7V
- Drive up to 1200V IGBT Module
- Short circuit clmaping
- Standard Electrical interface
- Active shut down
- Active Miller clamp function
- Switching frequency up to 100 KHz
- Less than 100 ns delay time
- Primary/Sec. Supply under voltage lockout
- Photocouplers based driver solution
- Vce monitoring for short circuit protection

Benefits

- On board isolated DC-DC converter
- Interface for 5 V logic level
- Common/Individual fault feedback signal to interface with controller
- Field configurable blocking time
- 2500V Isolation
- User Selectable Rg-on & off.

Application

- Uninterrupted Power supply
- Solar converters
- Industrial drives
- Battery Charger for Electric Vehicle
- Dynamic Voltage Regulator

Technical Specification

Recommended Operating condition

Power Supply & Monitoring	MIN	TYP	MAX	
1. Supply Voltage Vcc to GND	14.5	15	15.5	V
2. Supply Current Icc (Without Load):	50 mA			
3. Under Voltage Monitor, Set Fault	10.5	11.6	13.5	V

Logical Inputs & Outputs

1. Input Bias Current : 400 µA (Max)
2. Interface Logic level : 5.0 V logic level
3. Turn-on threshold : 3.5V
4. Turn off threshold : 1.5 V
5. SOx output , failure Condition : 0.7 V Max., I (Sox) <20 mA total

Short-Circuit Protection

1. Vce-monitoring threshold : Adjustable
2. Available response time : 4.0 µSec (User selectable)
3. Minimum response time : 1.0 µSec
4. Minimum blocking time : 1.0 µSec

Timing Characteristic

1. Turn-on delay $t_{d(on)}$: 150 ns
2. Turn-off delay $t_{d(off)}$: 150 ns
3. Output rise time $t_{r(out)}$: 40 ns
4. Output fall time $t_{f(out)}$: 20 ns
5. Transmission delay of fault state : 500ns

Protection Available on driver board

1. Primary/Secondary Under voltage monitoring.
2. Power supply reverse polarity protection.
3. Soft Shut down, For Over Voltage protection.
4. Vce monitoring for short circuit protection.
5. Schmitt trigger at the Input stage, highly susceptible to noise.

Electrical Isolation

Test voltage (50 Hz/60 sec)

1. Primary to secondary side : 2.5 KV
2. Secondary to secondary side : 2.5 KV

Outputs

1. Blocking capacitance VISO to VEx : 22 uF
   VEx to COMx : 22uF

Output Voltage / Current / Power

1. Turn-on voltage, V_{GHx} : 14.5 V, any load condition
2. Turn-off voltage, V_{GLx} : -7.6 V, No load
3. Turn-off voltage, V_{GLx} : -7.2 V @ 1 W
4. Gate Peak Current I_{out} : ±8 Amp
5. Internal Gate resistance : 0.0 Ω
6. External Gate resistance : 2.5 Ω, Minimum
7. Switching frequency F : 100 Khz
8. Output Power : t.b.d, T_{amb} <85 °C
   : 1W, T_{amb} <70 °C

Interfacing with Control Circuit

1. Electrical

ERROR : High to Low

LED Indication

Power ON: Green (Normally ON, Off during fault)
ERROR : RED (ON during Fault)

Environmental

Working temperature : -40 to 105 °C
Storage temperature : -40 to 90 °C

Mechanical Dimension

PCB : t.b.d
Mounting Hole : t.b.d
Enclosure : Open Frame
Weight : 0.3 Kg

Driving Capability

The IFX-MASTER drives all usual IGBT modules up to 450 A /1200 V or 600A/600V. Driving power depends on switching frequency so in case of any doubt during selection process pl. contact our sales / technical representative.

INPUT - OUTPUT ELECTRICAL CONNECTION:

14-PIN FRC Pin detail (INPUT)

1,5,7,13,14	N.C.		
2	PWM B	4	PWM A
3	ERROR		
8,9	+15V	10,11,12	GND

J1 Pin detail (OUTPUT)

1,2	C1
3,4	NC
7,8	E1
9,10	G1

J2 Pin detail (OUTPUT)

1,2	C2
3,4	NC
7,8	E2
9,10	G2