

MEGA MASTER-FOS



Excellent Plug & Play solution!!

Features

- 2X4 Watt Compact Dual channel driver
- Switching frequency up to 10 KHz
- $\pm 35A$ gate current, +15V/-10V
- Drive up to 1700V IGBT Module
- Fiber Optical Interface - HFBR15xx/25xx
- Extremely reliable & rugged design
- Integrated short-circuit soft shutdown
- Direct & half bridge modes
- Less than 1 μs delay time
- Less aging effect due to ASIC
- Primary/Sec. under voltage lockout
- Vce monitoring for short circuit current
- Superior EMI-EMC
- IGBT mount Plug & Play solution
- Advance active clamping for over voltage protection.

Benefits

- On board isolated DC-DC converter - No need of separate SMPS.
- Interface for 5.0V logic level - Direct compatible with any Controller.
- Common fault feedback signal to interface with controller.
- Field configurable blocking time - Flexibility in your hand, use any make IGBT !!
- Safe isolation to IEC 61800-5-1, IEC-60664-1 & En50178, protection class II
- User selectable Rg(on) & Rg(off)

Application



WIND TURBINE

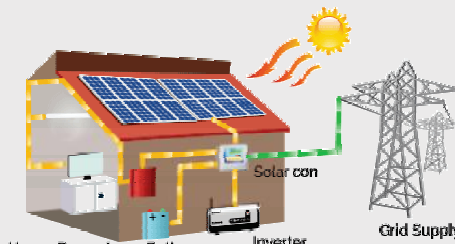


RAILWAY CONVERTER



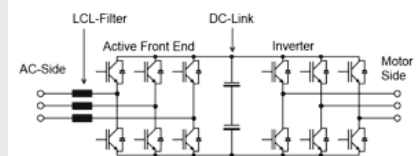
Industrial Drives
&
Control

DRIVES



Home Power/
Appliances Battery Inverter Grid Supply

SOLAR INVERTER



CONVERTER - INVERTER



INDUCTION HEATING & MELTING



Technical Specification

THE POWER SOLUTIONS

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	: 11.3	12.0	12.7 V

Logical Inputs & Outputs

1. Interface Logic level	: 5.0 V logic level
2. Turn-on threshold	: 2.9 V (TYP)
3. Turn off threshold	: 1.8 V (TYP)
4. SOx output, failure Condition	: FIBER OPTIC LIGHT ON - HEALTHY FIBER OPTIC LIGHT OFF - FAULT

Short-Circuit Protection

1. Vce monitoring threshold	: 9.3 V
2. Available response time	: 4 μSec (User selectable)
3. Minimum response time	: 1.2 μSec
4. Available blocking time	: 49 mSec (User Selectable)
5. Minimum blocking time	: 9 μSec

Timing Characteristic (Input to Output of Driver board)

1. Turn-on delay $t_{d(on)}$: <250 nSec, Max. under No-load
2. Turn-off delay $t_{d(off)}$: <300 nSec, Max. under No-load

For detail timing information of driver core, refer part specific datasheet.

Protection Available on driver board

1. Primary/Secondary Under voltage monitoring & error feedback.
2. Power supply reverse polarity.
3. Advance active clamping, For IGBT Over Voltage.
4. Vce monitoring for short circuit current.
5. Schmitt trigger at the Input stage, highly susceptible to noise.

Electrical Isolation

Test voltage (50 Hz/1 sec)

1. Primary to secondary side : 5.0 KV
2. Secondary to secondary side : 4.0 KV

This gate driver is suited for HiPot testing. Nevertheless, it is strongly recommended to limit the testing time to 1s slots as stipulated by EN 50178. Excessive HiPot testing at voltages much higher than 1200V_{AC(eff)} may lead to insulation degradation. No degradation has been observed over 1 min. testing at 5000V_{AC(eff)} Each driver core production sample shipped to customers has undergone 100% testing at the given value or higher for 1s.

Output Voltage / Current / Power

1. Turn-on voltage, V_{GHx} : 15.0 V, any load condition
2. Turn-off voltage, V_{GLx} : -10.1 V, No load
3. Turn-off voltage, V_{GLx} : -9.5 V @ 4 W
4. Turn-off voltage, V_{GLx} : -9.3 V @ 6 W
5. Gate Peak Current I_{out} : ±35 Amp
5. Internal Gate resistance : 0.5 Ω
6. External Gate resistance : Minimum 1 Ω
7. Switching frequency F : 10 Khz
8. Output Power : 4.0 W, T_{amb} <85 °C
: 6.0 W, T_{amb} <70 °C

Part used on Plug & play driver : 2SC0435T2H0-17 from Power Integration
(for more detail, kindly check part specific datasheet from PI)

Environmental

Working temperature	: -40 to 85°C
Storage temperature	: -40 to 90 °C

Driving Capability : INFINEON / SEMIKRON / FUJI

The PrimePACK drives all usual IGBT modules up to 1700 V. power depends on switching frequency so in case of any doubt during selection process please contact.
IGBT PART Nos: FF600R12KE4 / FF450R12KE4 / FF900R12IE4 / any equivalent

Interfacing with Control Circuit

1. FIBER OPTIC FAULT OUTPUT
ERROR/FAULT : +15V, HEALTHY : 0V

LED Indication

Power ON: GREEN (Normally ON, Off during Fault)
ERROR : RED (LED for Individual IGBT, ON during Fault)
ISO. Supply: YELLOW (Normally ON, Off during Fault/Absence of

ORDERING CODE - 220221021

MEGA MASTER - F0S

Description



220221021

6W, 35A, 10 KHz 1200 / 1700V CLASS IGBT
FIBER OPTICAL Interface Driver

Default Gate Resistor: 1E Rg(On), 3.3E Rg(Off)

Mechanical Dimension

PCB	: 110 mm X 90 mm
Mounting Hole	: 100 mm X 70 mm
Enclosure	: Open Frame
Accessory	: Electrical - FO converter, FO Cable etc.
Weight	: 0.5 Kg