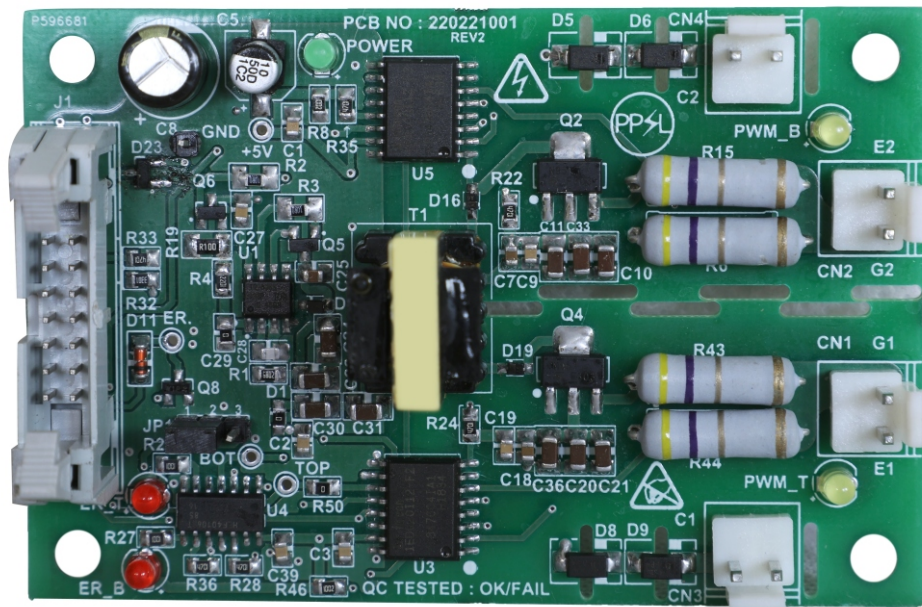


PPSL-MICRO-FRC



IGBT-SiC DRIVER (ELECTRICAL)

Excellent Plug & Play solution!!



PPSL MICRO FRC

IGBT SiC DRIVER (Electrical)

FEATURES

- 2X1 Watt Compact Dual channel driver
- Switching frequency up to 100 KHz
- 8A gate current, +15V/-10V
- Drive up to 1200V IGBT Module
- Short Circuit Clamping
- Extremely reliable & rugged design
- Integrated short-circuit soft shutdown
- Gate Clamping
- Active Miller Clamp function
- Photo Coupler based indigenous Solution
- Primary/Sec. under voltage lockout
- Vce monitoring for short circuit current
- Easy onsite tuning with various make IGBT module.
- Fault Latch for Debug
- 100ns delay time

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)	: 50mA
3. Under Voltage Primary, Set Fault	: 10.5 11.6 13.5 V

Logical Inputs & Outputs

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

Timing Characteristic

1. Turn-on delay td(on)	: 150 nS
2. Turn-off delay td(off)	: 150 nS
3. Output rise time tr	: 40 nS
4. Output fall time tf	: 20 nS
5. Transmission delay of fault state	: 500 nS

Short-Circuit Protection : Diode sense method

1. Vce-monitoring threshold	: Adjustable
2. Response (blanking) time	: 4.0 μ S
3. Minimum response time	: 1.0 μ S
4. Minimum blocking time	: 1.0 μ S

BENEFITS

- On board isolated DC-DC converter.
- Interface 3.3V...5.0V logic level.
- Common fault feedback signal to interface with controller.
- Field configurable blocking time
- 2.5KV Safe isolation
- User selectable Rg(on) & Rg(off)

APPLICATIONS



INDUSTRIAL UPS



Medical Power Supply



Drives

Timing Characteristic

(Input to Output of Driver board under No-Load)

1. Turn-on delay $t_{d(on)}$: 150 nS
2. Turn-off delay $t_{d(off)}$: 150 nS

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. Soft Shut down, to avoid IGBT Over Voltage.
4. Vce monitoring for short circuit current.
5. Highly immune to noise.
6. Interfacing with control circuit via EXTRESET pin so fault latching possible. (Optional)

Mechanical

Overall Dimensions : 90 x 60 mm

Mounting Dimensions : 80 X 50 mm



Corona Treater



Power Quality



Solar String Inverter

APPLICATIONS

Electrical Isolation

Test voltage (50 Hz/1 sec)

1. Primary to secondary side : 2.5 KV
2. Secondary to secondary side : 2.5 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 2500V_{AC(eff)}

Outputs

Blocking capacitance VISO to VEx : 22 uF

VEx to COMx : 22uF

Output Voltage / Current / Power

1. Turn-on voltage, V_{CHx} : 14.5 V, any load condition
2. Turn-off voltage, V_{CLx} : -7.6 V, No load
3. Turn-off voltage, V_{CLx} : -7.2V @ 1W
4. Gate Peak Current I_{Lx} : ± 8 Amp
5. Internal Gate resistance : 0 Ω
6. External Gate resistance_{out} : Min 2.5 Ω
7. Switching frequency F : 100 KHz
8. Output Power : 1.0 W, T < 85 °C
: 1.2 W, Tamb < 70 °C
: 0.35 W, Tamb < 105 °C

Environmental

Working temperature : -40 to 105°C

Storage temperature : -40 to 90 °C

Driving Capability : DYNEX / FUJI / INFINEON / SEMIKRON

The PPSL Micro-FRC drives all Discrete, 34mm & 62mm usual IGBT / SiC modules up to 450A 1200 V.

Power depends on switching frequency so in case of any doubt during selection process please contact.

Interfacing with Control Circuit

Electrical

ERROR : High to Low

EXTRST : 5 μ S high to low Pulse, Do ground if not used in circuit. (Optional for future use)

LED Indication

Power ON: Green (Normally ON, Off during Power supply fault)

ERROR : RED (ON during Under Voltage / DESAT/ IGBT Fault)

Interfacing with Control Circuit (INPUT) Detail:

14-PIN Input FRC Pin Detail:

- | | | |
|------------------|-------------|-----------------------|
| 1,5,7,13,14 N.C. | 2 PWM B | 4 PWM A |
| 3 ERROR | 6 EXT RESET | 8,9 +15V 10,11,12 GND |

Note: Ext Reset must GND, if not in use

ORDERING CODE - 220221001

PPSL MICRO - FRC

Version 1.0





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Prior to installation and operation, all safety notices and warnings and all warning signs attached to the equipment have to be carefully read. Make sure that all warning signs remain in a legible condition and that missing or damaged signs are replaced.

Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.