



MEGA PARALLEL ELECTRICAL IGBT-MOSFET DRIVER (Electrical)

Excellent Plug & Play solution!!

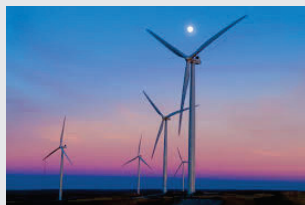
Features

- 2X4 Watt Compact Dual channel driver
- Switching frequency up to 25 KHz
- $\pm 35A$ gate current, +15V/-10V
- Drive up to 1700V IGBT Module
- 14-PIN Electrical Interface
- 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 12.0V...15 V logic level - Direct compatible with any Controller.
- Individual 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)

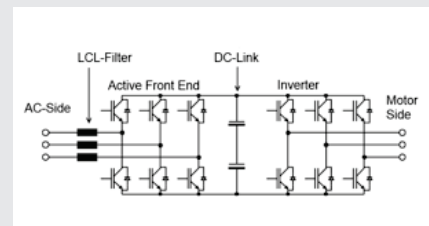
Application



WIND TURBINE



STATCOM



CONVERTER - INVERTER



RAILWAY CONVERTER



INDUCTION HEATING & MELTING

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 (@25KHz PWM I/P)		
3. Under Voltage Primary, Set Fault	: 11.3	12.0	12.7 V
Clear Fault	: 11.9	12.6	13.3 V
Secondary, Set Fault	: 11.5	12.0	12.5 V
Clear Fault	: 12.1	12.6	13.1 V

Logical Inputs & Outputs

1. Input Bias Current	: 190 μ A
2. Interface Logic level	: 12.0V 15.0 V logic level
3. Turn-on threshold	: 12 V (typ)
4. Turn off threshold	: 10.7V (typ)
5. SOx output, failure Condition	: 0.7 V Max., I (SOx) < 20mA total

Short-Circuit Protection

1. Vce-monitoring threshold	: Diode sense method
IsC Trip adjustment R30, R31	: 4.95 V (Internally Fix)
2. Response (blanking) time	: 33K
3. Minimum response time	: 4.5 μ Sec (C7,C12: 150pF) - Factory Set
4. Available blocking time (R7)	: 1.2 μ Sec
5. Minimum blocking time (R7)	: 49 mSec (User Selectable 100K)
	: 9 μ Sec (0E)

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

1. Turn-on delay $t_{d(on)}$: 980 nS, Max.
2. Turn-off delay $t_{d(off)}$: 890 nS, Max.

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.
6. Interfacing with user's control circuit via EXTRESET pin so fault latching possible. (Optional for future expansion)

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 _{Ghk}	: 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}	: \pm 35 Amp
5. Internal Gate resistance	: 0.5 Ω
6. External Gate resistance	: Minimum 1 Ω
7. Switching frequency F	: 25 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

Mechanical Dimension

PCB	: 150 mm X 120 mm
Mounting Hole	: 140 mm X 110 mm
Enclosure	: Open Frame
Weight	: 0.5 Kg

Driving Capability

: INFINEON / SEMIKRON / FUJI

The Mega Parallel Electrical driver drives all usual 62mm IGBT modules up to 1700 V, two nos. in parallel.

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

Interfacing with Control Circuit

Electrical

ERROR : High (Normal) to Low (Error) or Vice versa, Jumper Selection

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


LED Indication

LED1: Green (Normally ON, Off during Power supply fault)

LED2,LED3: RED (FAULT / ERROR on individual Output channel)

LED4, LED5: YELLOW (ON : PWM Pulse available, OFF : absent)

ORDERING CODE - 220221013

MEGA PRIME PACK	Description
	6W, 35A, 100KHz 1700V CLASS IGBT DRIVER ELECTRICAL Interface
	Default Gate Resistor: 4.7E Rg(On), 4.7E Rg(Off)

Interfacing with Control Circuit

INPUT Detail 20 Pin FRC:

1,5,7,13,14	NC
2	PWM B
4	PWM A
3	ERROR
6	EXTRST (IF NOT IN USE - GND)
8,9	+15V
10,11,12	GND