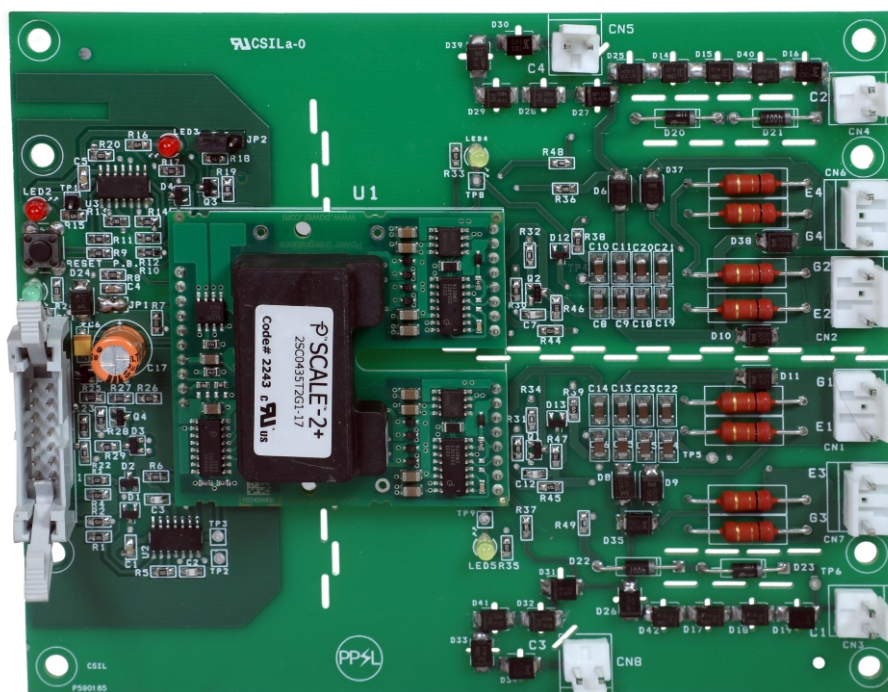


# MEGA PARALLEL



## IGBT DRIVER (ELECTRICAL)

Excellent Plug & Play solution!!



# MEGA PARALLEL

IGBT DRIVER (Electrical)

## FEATURES

- 2X4 Watt Compact Dual channel driver
- Switching frequency up to 100 KHz
- 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 uS 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
- Interface for 12.0V...15 V logic level
- Individual fault feedback signal to interface with controller.
- Field configurable blocking time
- Safe isolation to IEC 61800-5-1, IEC-60664-1 & En50178, protection class II
- User selectable Rg(on) & Rg(off)

## 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 (@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 $\mu$ A                     |
| 2. Interface Logic level          | : 12.0 V ..... 15.0 V logic level |
| 3. Turn-on threshold              | : 12 V (typ)                      |
| 4. Turn off threshold             | : 10.7 V (typ)                    |
| 5. SOx output , failure Condition | : 0.7 V Max., I (SOx)<20mA total  |

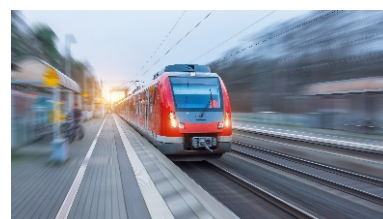
### Short-Circuit Protection

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

## APPLICATIONS



Green Energy



Railway Converter



Drives

"Drive the IGBT with experienced hand"

## 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. Highly immune to noise.
6. Interfacing with control circuit via EXTRESET pin so fault latching possible. (Optional)  
EXT REST PIN MUST GROUND IF NOT IN USE.

## Environmental

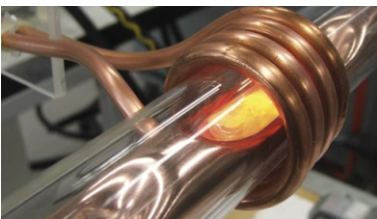
Working temperature : -40 to 85°C  
Storage temperature : -40 to 90 °C



Defence



Power Quality



Induction

## APPLICATIONS

## 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<sub>AC(eff)</sub> may lead to insulation degradation. No degradation has been observed over 1 min. testing at 5000V<sub>AC(eff)</sub>. 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,  $V_{CHx}$  : 15.0 V, any load condition
2. Turn-off voltage,  $V_{CLx}$  : -10.1 V, No load
3. Turn-off voltage,  $V_{CLx}$  : -9.5 V @ 4 W
4. Turn-off voltage,  $V_{CLx}$  : -9.3 V @ 6 W
5. Gate Peak Current  $I_{out}$  :  $\pm 35$  Amp
5. Internal Gate resistance : 0.5  $\Omega$
6. External Gate resistance : Minimum 1  $\Omega$
7. Switching frequency F : 100 KHz
8. Output Power : 4.0 W,  $T_{amb} < 85^\circ C$

## Driving Capability : FUJI / INFINEON / SEMIKRON/ DYNEX

The MEGA PARALLEL drives all 62mm IGBT modules up to 1700 V. For Paralleling operation this driver is useful with time matching characteristic. Power depends on switching frequency so in case of any doubt during selection process please contact.

## Interfacing with Control Circuit

Electrical

ERROR : High (Normal) to Low (Error)

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

## LED Indication

LED1: Green (Normally ON, Off during fault)

LED2, LED3: RED (ON : Vce Monitoring / UV Fault )

LED4, LED5: YELLOW (ON: healthy pulse, OFF: absent)

## Interfacing with Control Circuit 14 Pin-FRC:

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

## Mechanical Dimensions

Overall Dimensions : 150 X 120 mm  
Mounting Hole pitch : 140 X 110 mm  
Weight : 0.5 KG

ORDERING CODE - 220221013

MEGA PARALLEL  
Version 1.0







## **CONTACT US :**



### **PARAMVIR POWER SOLUTIONS LLP**

Plot No. B/128, GIDC Estate, Sector-25, Gandhinagar - 382024. Gujarat, INDIA.



**+91 98790 35433**



**sales@paramvirpower.com**



**www.paramvirpower.com**

“All Product names, logos, and brands are property of their respective owners. All company, product and service names used in this catalog are for identification purposes only. Use of these names, logos, and brands does not imply endorsement.”

### **Terms & Conditions of usage**

The data contained in this product data sheet is exclusively intended for technically trained staff. Technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application.

This product data sheet is describing the characteristics of this product for which a warranty is granted. Any such warranty is granted exclusively pursuant the terms and conditions of the supply agreement. There will be no guarantee of any kind for the product and its characteristics.

Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of our product, please contact the sales office, which is responsible for you (see [www.paramvirpower.com](http://www.paramvirpower.com)). For those that are specifically interested we may provide application notes.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

If and to the extent necessary, please forward equivalent notices to your customers.

Changes of this product data sheet are reserved.

### **Safety Instructions**

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.