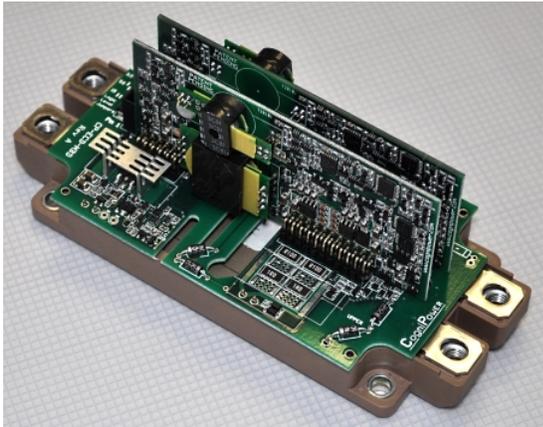


IGBT Switch Drivers



CogniPower IGBT switch drivers build on our patent-pending FET switch driver technology. These drivers fill the need for the faster, more powerful switch drivers required to take full advantage of the newest generation of IGBT switch modules. They can deliver 3 to 5 times the average power at up to 50 Amps peak drive current. CogniPower IGBT switch drivers are designed for higher voltage operation and work in single-, dual-, and multi-

level systems.

Tight timing control over the temperature range and generous power delivery capability allow faster operation and better control at higher switching speeds. Faster switching translates directly to lower switching losses. The higher average power available eliminates the need for multiple drivers in most applications. Each driver channel is fully isolated. No optocouplers are employed.



The initial product offering is suited for the Econo-Dual style package. The system is modular, so only a new carrier board will be needed for other IGBT switch packages. We will be expanding our product line to suit customer requirements. Please contact CogniPower with your IGBT switch driver needs.

Gate driver waveform from half bridge module running at 25kHz.

IGBT Switch Driver Model CP-ECD-7W-E(x)D(y)-(z)U

Features

- * Fully isolated dual channel driver
- * Interface for 3.3, 5V or 15V logic level
- * +15V/-15V gate drive
- * Peak gate drive current +50A/-50A
- * Separate gate current paths (on/off)
- * Suitable for IGBTs up to 1700V
- * Ask about drivers suitable for 3300V operation
- * Direct or half-bridge mode
- * Flexible fault management
- * 2-level and multi-level topologies
- * IGBT desaturation protection
- * Isolated DC/DC converter
- * 2 x 7.5W output power
- * Power supply under-voltage lockout
- * Power input overcurrent protection
- * Power input overvoltage protection
- * Superior EMI emissions and susceptibility
- * Reliable, long service life
- * Mounts directly onto Econo-Dual package



Gate driver edges can be as fast as desired

Specifications:

Parameter	Min	Typical	Max	Unit
Nominal supply voltage	14.75	15	18	V
Supply current @ fIN 0Hz		200		mA
Supply current, full load		1.25		A
Output power per channel (Note 1)		7.5		W
Gate voltage	+/-13.5	+/-15	+/-16	V
Peak output current (gate current)	-50		+50	A
Switching frequency fIN (Note 2)	0		250	kHz
Gate voltage slew time (per unit gate capacitance)		1.5		nS/nF
Minimum ON or OFF period (factory programmable)		600		nS
Turn-on and Turn-off delay		<300		nS
Fault reporting latency		<300		nS
Creepage distance primary-secondary		22		mm
Dielectric test voltage	4400		10000	VAC
Partial discharge extinction voltage		3000		Vpeak
dv/dt immunity, input to output		75		kV/μS
Operating temperature	-20		+85	°C

Note 1: Higher power version available on request

Note 2: Maximum operating frequency may be limited by output power, half bridge dead time, or power dissipation in gate resistors. Optional heatsinking is available for gate resistors.

Factory set options:

- Desaturation threshold 1 to 11 Volts, default 7.5 V
- Half Bridge Mode Dead time 200 nS to 10 μS, default 3 μS
- Input Logic Level: 3.3, 5 or 15V, default 5 Volts
- Enhance gate resistor 0.1 Ohms to 10 Ohms, default 1.1 ohm
- Deplete gate resistor 0.1 Ohms to 10 Ohms, default 1.1 ohm

Part Number Derivation:

Field: **1 - 2 - 3 - 4 - 5**

CP - ECD -7W -ExDy -zU

- 1 CogniPower
- 2 Econo-Dual style IGBT Module
- 3 Watts per gate, 7 Watts is now standard
- 4 Enhance and deplete resistor values in ohms x=Enhance y=Deplete
1 ohm is default for both
- 5 z=Dead time in micro seconds, default is 3 micro seconds

Options:

- **mtX** X= minimum on or off time in ns, default is 600ns
- **DTn** n= desaturation threshold in volts, default is 7.5 v
- **ML** for multi-level systems, error reporting and gate control are independent,
default is gentle OFF local action upon error
- **HS** with heat sink for enhance and deplete resistors
Note -HS option makes field changing of gate resistors more difficult.
- **HV** High isolation voltage option, standard is 4400 test voltage for 1700 volt operation
Contact factory with complete part number for price and availability.
Evaluation systems supplied with matching connector, Tyco® 5-103958-8, or equivalent.

Specifications Rev D January 2012
Specifications are subject to change without notice.