

# CL-614 Product Family Specification

PFS-CL614

7/9/2015



INTELLIGENT VEHICLE CONTROLS

**HED**<sup>®</sup>

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## USING THIS DOCUMENT

The specifications contained herein represent all possible configurations for this product family. The actual configurations available on each module may be a subset of this specification. Please refer to the module-specific datasheet for the connector pinout and configurations that are available.

## USER LIABILITY

The OEM of a machine or vehicle in which HED® electronic controls are installed is fully responsible for all consequences that might occur. HED®, and any authorized distributor, has no responsibility for any consequences, direct or indirect, caused by failures or malfunctions. Failure or improper selection or improper use of HED® products can cause death, personal injury and property damage.

The OEM must analyze all aspects of their application and review the information concerning product or system in the current product documentation. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by HED® at any time without notice.

## INPUT STB (PIN 5)

### Input Resistance

- 1.48K $\Omega$  (typical)

### Input Current

- 5.4mA at 8V (typical)
- 21.5mA at 32V (typical)

### Positive Going Threshold

- > 3.2V

### Negative Going Threshold

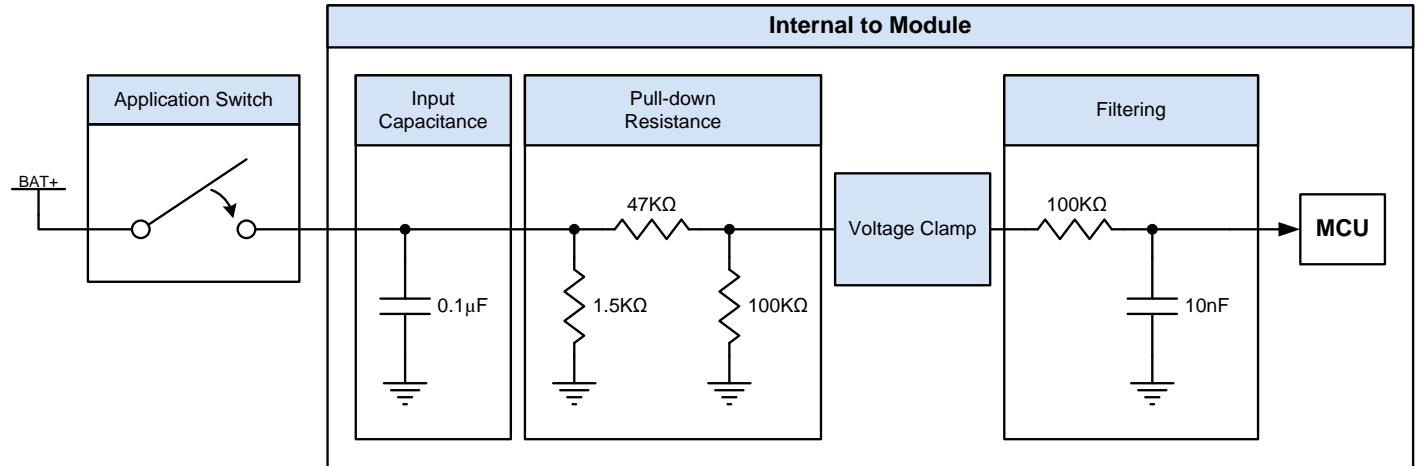
- < 1.7V

### Parallel Resistance

- 4K $\Omega$  at 8V (minimum)
- 22K $\Omega$  at 32V (minimum)

### Series Resistance

- 220 $\Omega$  (maximum)



## CAN COMMUNICATION (PINS 3/6)

### Baud Rate

- 40kbps to 500kbps

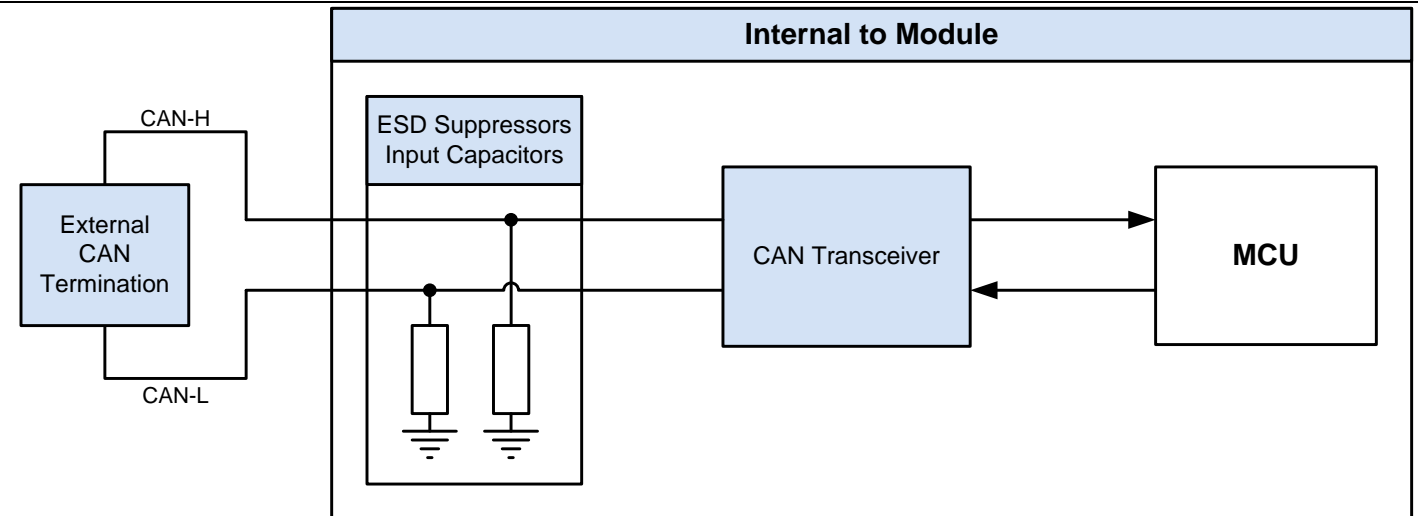
### Maximum Allowable DC Voltage<sup>1</sup>

- -40V to +40V

### Input Capacitance (maximum)

- 62pF (f = 1MHz)

### No Internal Termination



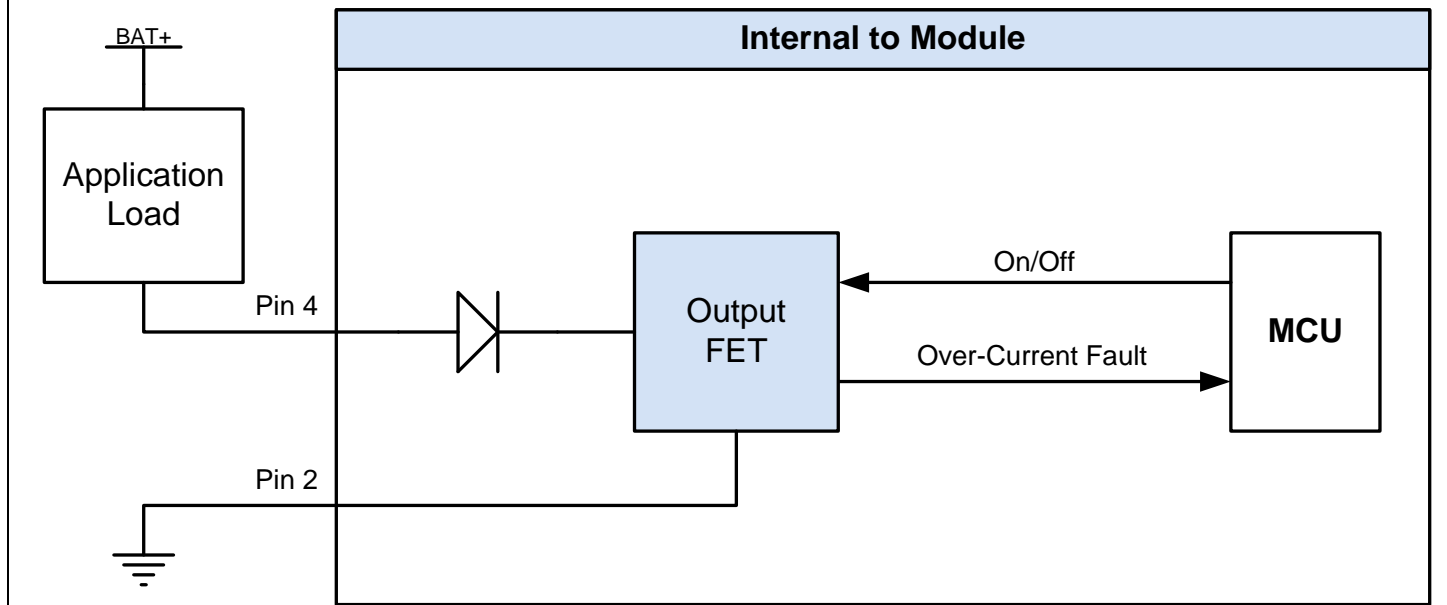
<sup>1</sup> Maximum allowable voltage defines the voltage extremes that the circuit can tolerate. Exposure to these voltages for extended periods may affect device reliability.

## BACKLIGHT AND INDICATOR LEDs

Backlight LEDs		Indicator LEDs	
Color	Dominant Wavelength	Color	Dominant Wavelength
Yellow	583 – 595 nm	Green	520 – 530 nm
Blue	464 – 476 nm	Yellow	586 – 594 nm
Red	620 – 630 nm	Orange	598 – 612 nm
Green	519 – 543 nm	Blue	463 – 473 nm
White	Chromaticity: Cx = 0.3, Cy = 0.28 (typical)	Red	610 – 635 nm

## OUTPUT DOUT(-)/PWM(-) (PIN 4)

- Output Current
- 300mA (maximum)
- Output Voltage
- < 2V at 300mA (maximum)
- Output Protection
- Short to Battery
  - Short to Ground
  - Overcurrent
  - Open Circuit
- Output Diagnostics
- Overcurrent
- Hardware Current Limit<sup>1</sup>
- 660mA (typical)



<sup>1</sup> Output will be current-limited for a short period of time and will then shut off for currents above 350mA (typical).

## BATTERY (+) MODULE (PIN 1)<sup>1</sup>

### Operating Voltage Range

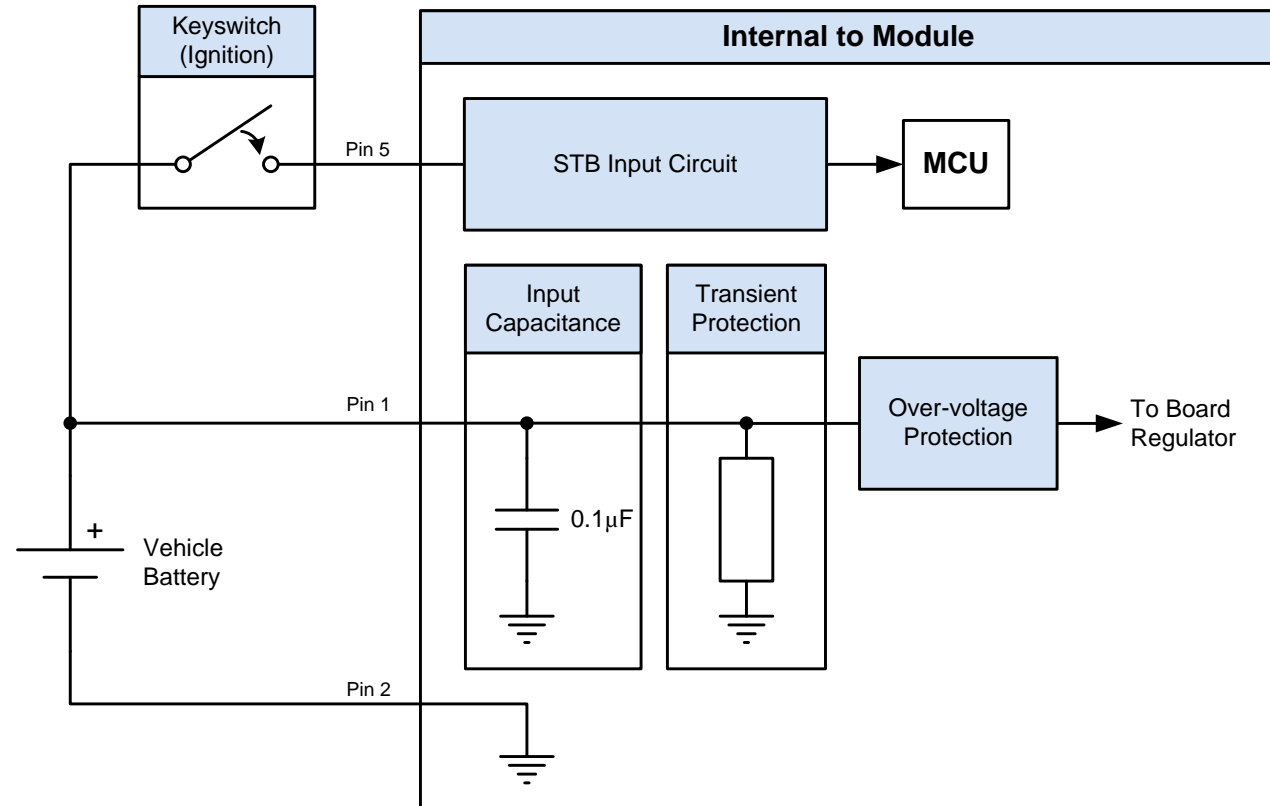
- 8VDC – 32VDC

### Maximum Continuous Voltage<sup>2</sup>

- 60VDC

### Module Current Draw

- Running, LEDs and Output On<sup>3</sup>
  - 386mA at 8.0V (typ)
  - 89mA at 12.0V (typ)
  - 65mA at 32.0V (typ)
- Running, LEDs and Output Off<sup>4</sup>
  - 35mA at 8.0V (typ)
  - 33mA at 12.0V (typ)
  - 42mA at 32.0V (typ)
- Standby<sup>5</sup>
  - 2.1mA at 8.0V (typ)
  - 2.3mA at 12.0V (typ)
  - 6.1mA at 32.0V (typ)



<sup>1</sup> The block diagram shown represents one possible implementation in the system. Other implementations may be used based on system requirements.

<sup>2</sup> Exposure to maximum voltages for extended periods may affect device reliability.

<sup>3</sup> Module current draw is measured with all LEDs on, sinking output at 300mA, switched battery (Pin 5) connected, and CAN bus keep alive message transmission.

<sup>4</sup> Module current draw is measured with all LEDs off, sinking output off, switched battery (Pin 5) connected, and CAN bus keep alive message transmissions.

<sup>5</sup> Module current draw is measured with all LEDs off, sinking output off, switched battery (Pin 5) disconnected, and no CAN bus transmission.

## REVISION HISTORY

Revision	Date	EC #	Changes
A1	7/9/15	315-067	Initial Release