

# HYDRA-X PROTOx Head

*Power Application Controllers™*

PAC52xx Expansion - HYDRA-X Prototype Head User's Guide



[www.active-semi.com](http://www.active-semi.com)

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## OVERVIEW

Active-Semi's HYDRA-PROTOx (PROTOS, PROTOM and PROTOL) Heads are expansion boards for the Hydra-X Body boards, providing enough prototyping area for most small to medium sized applications. HYDRA-X head prototype boards offer access to all Body board signal pins as well as a good number of access points for the different power rails.

Active-Semi's HYDRA-PROTOx Head kits consist of the following:

- HYDRA-PROTOx Head module
- HYDRA-PROTOx Head User's Guide
- Schematics and Layout Drawings

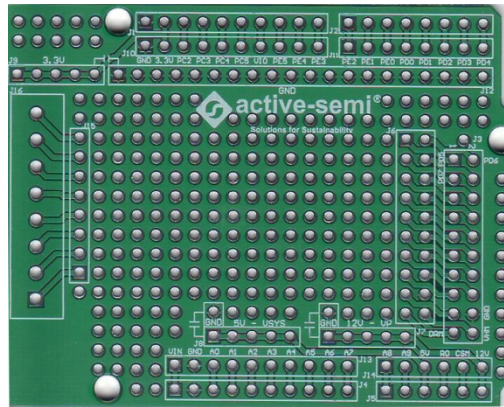


Figure 1: HYDRA-PROTOS (Small Prototyping Area) Head

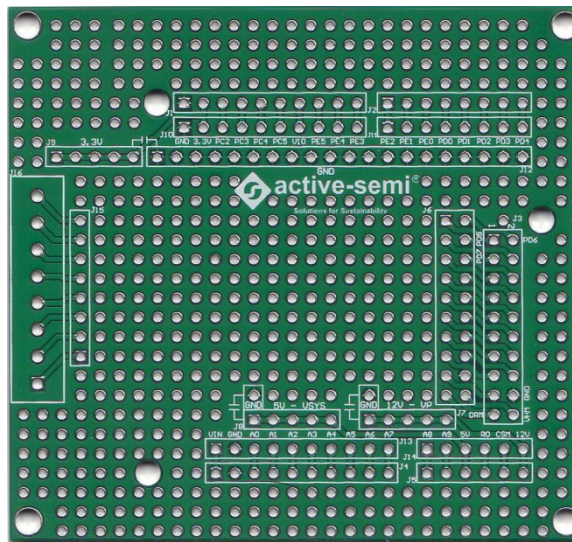
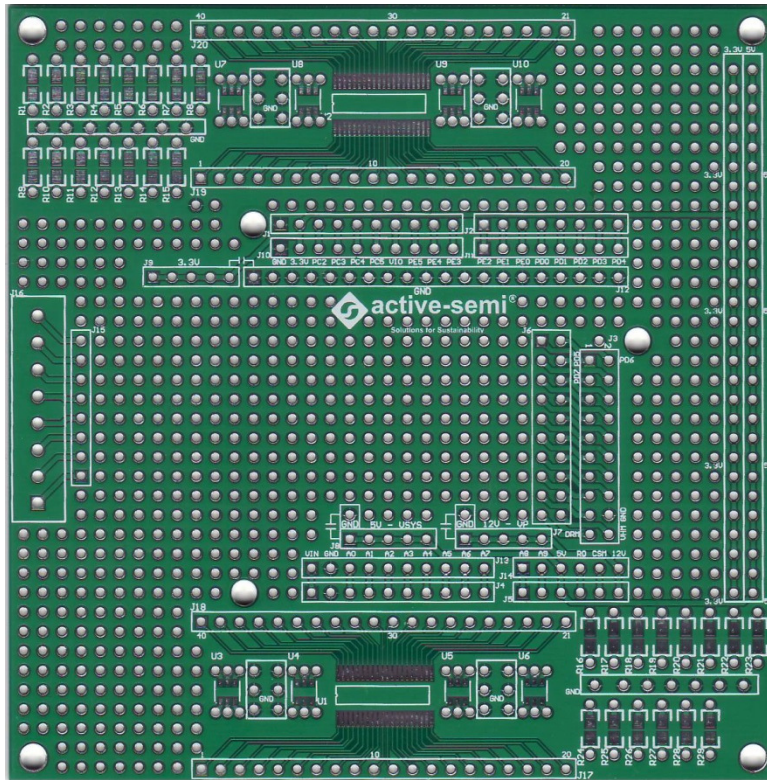


Figure 2: HYDRA-PROTOM (Medium Prototyping Area) Head



**Figure 3: HYDRA-PROTOL (Large Prototyping Area) Head**

***Solution Benefits:***

- Ideal for implementing most small add-on applications to interface to any of the HYDRA-X Body boards.
- Gives access to all Body board signals.
- Provides multiple access points to important nodes such as GND as well as voltage rails (VP, VSYS, V3P3).
- Contains the footprint for a pitch terminal block.
- Schematics and Layout drawings available



## Prototyping Space

HYDRA-X Prototype Heads will revolve around the same connectivity structure. It consists of:

1. A group of connectors to directly attach the Head to the Body Board.
2. A group of parallel connectors to grant access to the Body Board signals.
3. A group of header connectors giving access to the 3.3V, 5V and 12V rails.
4. A good number of holes connected to the GND plane.
5. Other connectors or footprints put in place to allow for further expansion.

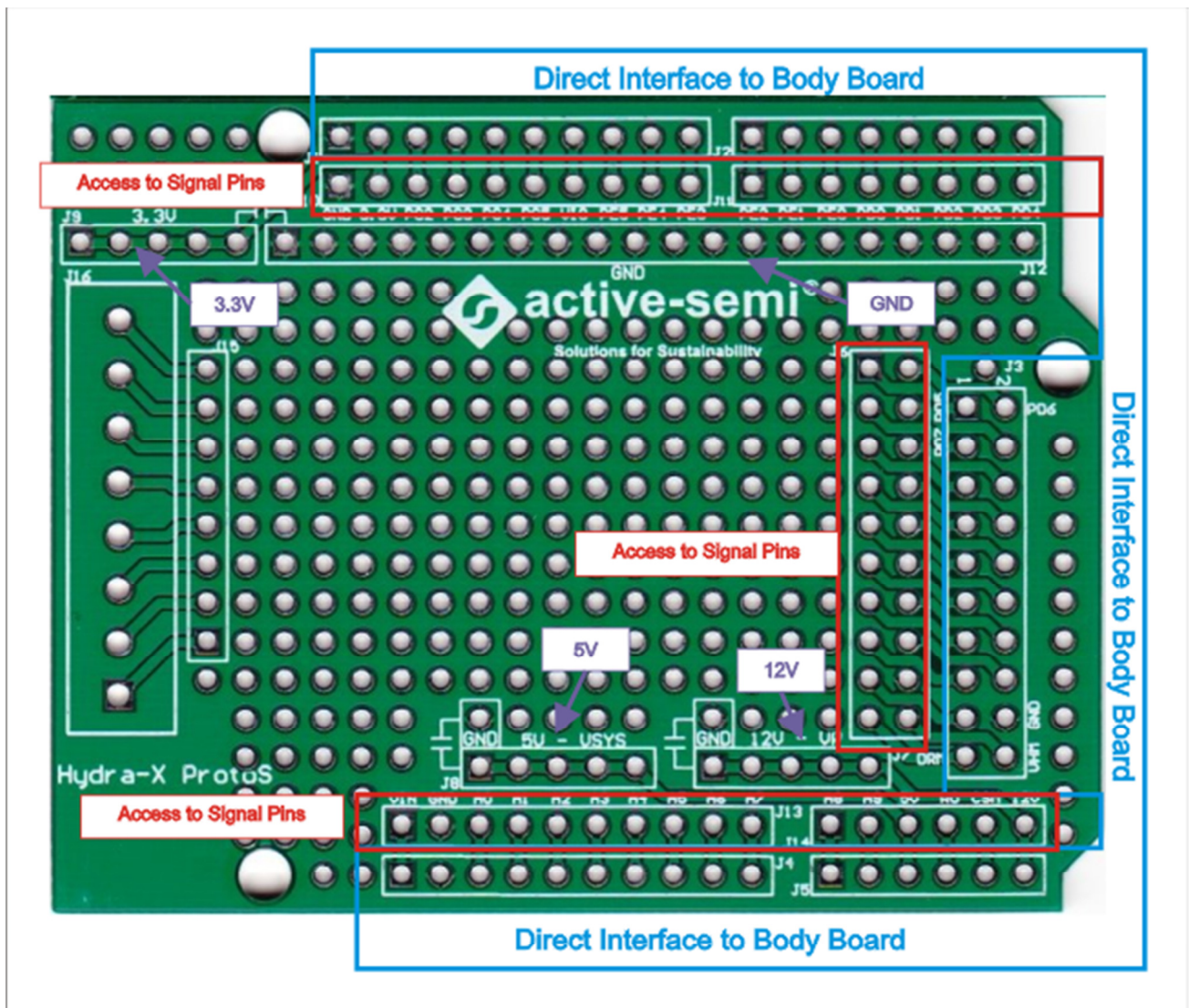


Figure 4 Typical Prototype Space

## Bypass Capacitor Placeholders

If desired, the user can add bypass capacitors to the rails. Although not present on the schematic, the board layout was designed such that certain pads are connected to the GND plane, making it easier to add bypass capacitors to the available rails (e.g. 3.3V, 5V and 12V).

Bypass capacitors could be ceramic capacitors of 0.1uf or 1uf and rated to the rail voltage.

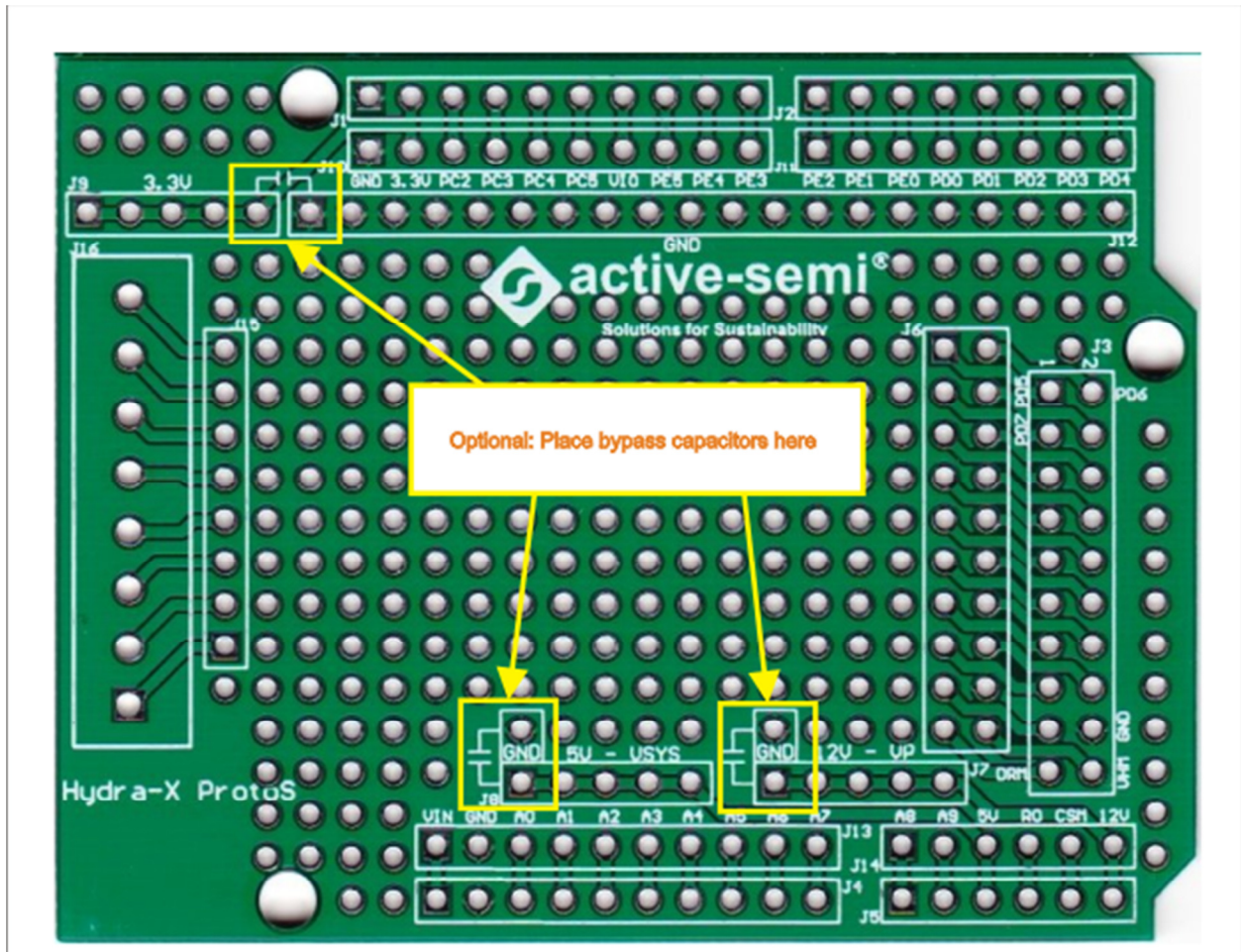


Figure 5 HYDRA-PROTOx Optional Bypass Capacitor Placeholder Locations





## ABOUT ACTIVE-SEMI

Founded in 2004 in Silicon Valley and headquartered in Allen, Texas, Active-Semi is a rapidly emerging leader in the multi-billion dollar power management IC and intelligent digital motor drive IC markets. The company's portfolio of analog and mixed signal SoCs (systems-on-chips) are scalable core platforms used in charging, powering and embedded digital control systems for end applications such as industrial, commercial and consumer equipment. The company offers power application microcontrollers, DC/DC, AC/DC, PMU and LED drivers that significantly reduce solution size and cost while improving system-level reliability. Active-Semi's turnkey solutions deliver energy-saving power conversion architectures that minimize energy usage and compress system development cycle-time by greater than 50 percent. Active-Semi ships 50 million power ICs per quarter and reached the "one billion units shipped" milestone in May 2012. The multi-national company focuses on commercializing industry leading power management IC solution platforms and has developed broad intellectual property with over 150 patents granted and pending. For more information visit: <http://active-semi.com/>

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