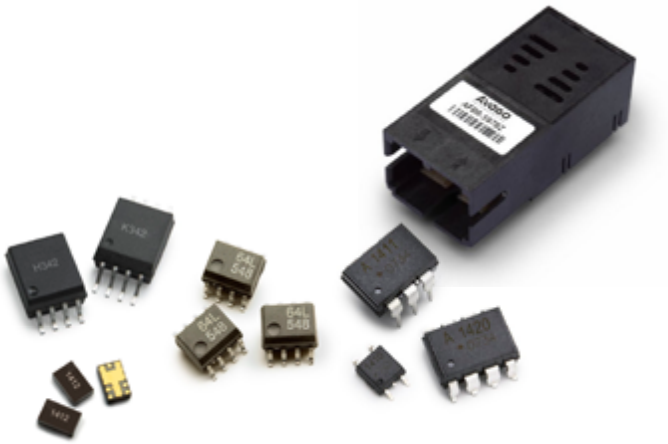
The Avago Advantage

Applications Solutions

Avago Technologies Solutions for
Smart Grid Control Systems



Your Imagination, Our Innovation

Sense • Illuminate • Connect

Avago Technologies Solutions for
Smart Grid Control Systems

As electrical power grids evolve towards smart grids, areas of automation include advanced HVDC transmission and AC grid monitoring and control as well as the ability to handle distributed alternative power generation that varies in amount of power generated throughout the day. The automation to accommodate smart grid control and switching is requiring better control communications and new power control elements.

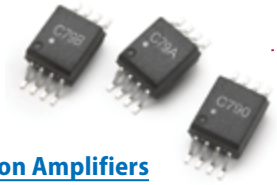
Example applications in smart grid systems include communication between different control elements using optical fiber or electrically isolated links, control of IGBT or power MOSFET drivers in remote rectifier, inverter, and AC switching equipment, fiber-based optically powered current transducers (OPCTs), control of remote solenoids, and GPS integration for precise time and location information.

IGBT Gate Drivers

Avago gate drive optocouplers provide isolated high current gate driver for IGBTs and power MOSFETs. These gate drive optocouplers come in a wide range of output current from 0.4A to 5A. Selected parts include integrated features such as Active Miller Clamp, under voltage lockout, fault status feedback and de-saturation detection.

Featured Products

- (Active Miller Clamp, rail-to-rail output voltage) Isolated Gate Driver
- (Fault status feedback, automatic fault reset) Isolated Gate Driver

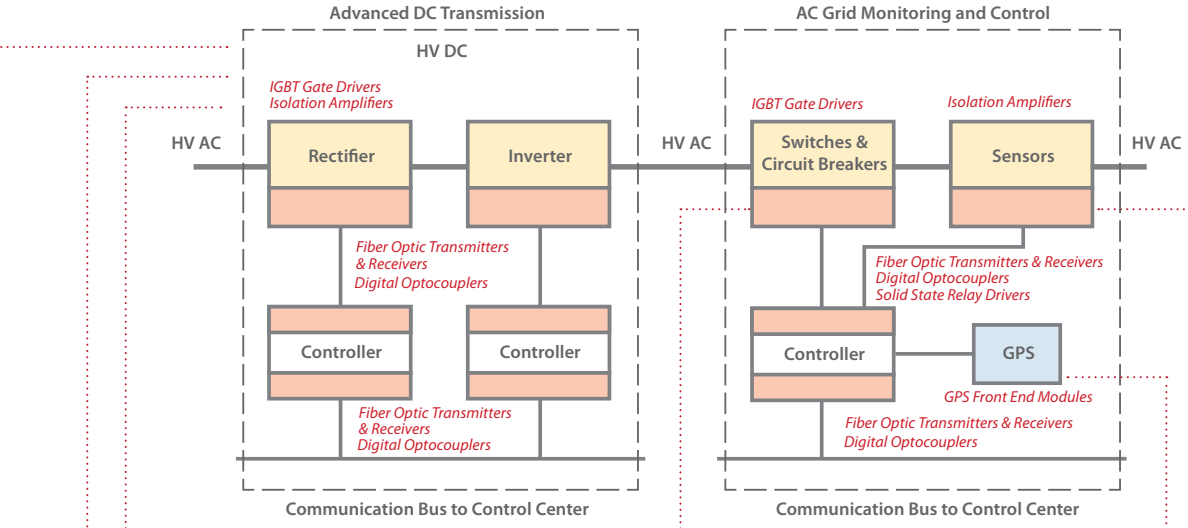


Isolation Amplifiers

Avago isolation amplifier optocouplers provide high precision, stability, and common mode rejection for current and voltage sensing applications without compromising high noise or magnetic field immunity.

Featured Products

- Miniature Isolation Amplifiers
- Optically Isolated Sigma-Delta Modulator (External clock) with Digital Output



Fiber Optic Transmitters and Receivers

Avago industrial fiber optic transmitters and receivers operate reliably for data transmission over fiber in applications where the highest electrical isolation between the transmitter and receiver is needed. Due to the insensitivity to electromagnetic radiation, these devices are suitable for use in surroundings with EMI present such as those found in high power generation, transmission, and distribution environments.

Featured Products

- 100Mbps Optical Transceiver. Suitable for electrical substation automation based on IEC 61850
- 5MBd Optical Transmitter & Receiver. Suitable for protection relay control and communication networks.
- 160MBd Optical Transmitter & Receiver with analog output. Suitable for protection relay control and communication networks, as well as optical voltage/current transducers.
- 5MBd & 10MBd Optical Transmitters & Receivers, Suitable for high/medium voltage IGBT control boards and high/medium voltage inverter applications.
- 10MBd Optical Short Link Transceiver. Suitable for medium/low voltage IGBT control boards and medium/low voltage inverter applications.

Digital Optocouplers

Avago digital optocouplers provide low power, multi-channels and a wide speed range portfolio for digital isolation without compromising on high voltage insulation and noise isolation performance.

Featured Products

- 10MBd Logic Gate Digital Optocouplers
- 1MBd Open-Collector Output Digital Optocouplers
- Multi-Channel Bi-Directional Digital Optocouplers
- 15/25MBd High Speed Digital CMOS Optocoupler

Solid State Relay Drivers

Avago solid state relays are optical isolation products that offer the ability to electrically isolate long relay control lines while driving up to 2.0A. These solid state relays are superior to traditional electro-mechanical relays in terms of their high level of integration, smaller size, faster switching speed, high-voltage insulation, lower power consumption, and much better reliability. They are suitable for remote relay control in industrial systems.

Featured Products

- Single and Dual-channel High Current Solid State Relays with MOSFET Outputs
- Single and dual-channel General Purpose Solid State Relays with MOSFET Outputs
- Hermetically Sealed Power MOSFET Optocouplers

GPS Front-End Modules

Avago Technologies integrated GPS amplifier/front-end modules help make it easy to integrate GPS capability into any grid monitoring system for accurate position and time measurement.

Featured Products

- GPS Low-Noise Amplifier/Front-End Module

Your Imagination. Our Innovation

Avago Technologies is a leading designer, developer and global supplier of a broad range of analog, mixed signal and optoelectronics components and subsystems with a focus in III-V compound semiconductor design and processing. Backed by an extensive portfolio of intellectual property. Avago products serve three primary target markets: wireless communications, wired infrastructure, and industrial and other. Avago has a global employee presence and heritage of technical innovation dating back 50 years to its Hewlett-Packard roots.

Avago products serve three diverse end markets

Wireless Communications serving the smartphone/handset and Base Station infrastructure markets with leading-edge products that include:

- Power Amplifiers
- Front End Modules
- Film Bulk Acoustic Resonator (FBAR) Filters
- GPS/GLONASS LNAs
- Optical Finger Navigation
- LED Backlighting, Screen Illumination
- Ambient Light and Proximity Sensors

Wired Infrastructure for switches/routers, data centers, supercomputers and storage/servers with products that include:

- 168Gb Parallel Optic Arrays
- 28Gb SerDes ASICs in 28nm
- Storage Fibre Channel Transceivers
- QSFP+/SFP+ Ethernet Transceivers

Industrial and Other for alternative energy power generation, electronic sign and signals, automated manufacturing, automotive lighting, GPS/GLONASS navigation, motor inverter system, battery charging and management, infotainment systems and vehicle safety systems with products that include:

- Inverters
- Isolation and Digital Optocouplers
- Motion Control Optical & Magnetic Encoders
- Polymer Optical Fiber
- Indicator and Display LEDs

Contact us for your design needs at: **www.avagotech.com**

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