

Product Line Details

Xscend sensors support resistive and capacitive sensing, have wide operating voltage ranges, and support analog and digital output. With response times under one millisecond, high accuracy and extended industrial and automotive temperature ranges, Xscend sensors will meet your demanding accuracy and quality requirements.

Part	Peak Current (A)	Dead Time	In Supply Voltage (V)	Out Supply Voltage (V)	Power Device	Ton/Toff (ns)	Additional Features	Package
XTD1000	1.7/2.2	Adjustable	10-20	900	IGBT	670/270	-	SOIC-14
XTD1001	1.7/2.2	Fixed	10-20	900	IGBT	350	Cross interlocking	PG-DSO-16
XTD1011	1.7/2.2	Fixed	10-20	800	IGBT	250	Cross interlocking, Bootstrap Diode, Gate Resistor, Miller Clamping	PG-DSO-16
XTD1027	1.7/2.2	Fixed	10-20	1200	IGBT	350	Cross interlocking	PG-DSO-16

All devices offer: Iso-ring and OCP protection

Why Choose Xscend High Voltage Driver Solutions?

Automotive & Industrial Focus: Our products are tailored to meet the specific needs of automotive and industrial applications, including high voltage support, isolation ring and overcurrent protection (OCP) and industry-specific certifications.

Cutting-Edge Innovation: Focused on high-voltage and high-current applications, including battery chargers, energy storage and EV motor control.

Cost-Efficiency: Our solutions reduce system costs and increase integration flexibility, helping customers achieve optimal performance at lower cost.

Discover more about Xscend’s innovative semiconductor solutions at [Xscend.com](https://www.xscend.com).

Description

The XTD1000 is a high-performance gate driver designed for demanding applications such as motor control, renewable energy systems, and industrial power supplies. This dual-channel device offers up to 900V output voltage, robust performance and comprehensive protection features, making it an ideal choice for driving MOSFETs, IGBTs, and SiC power devices.



SOIC-14

Benefits:

- **Enhanced Reliability:** Eliminates parasitic latch-up and ensures reliable operation across a wide temperature and voltage range.
- **Comprehensive Protection:** Integrated protection features safeguard your power devices from damage, reducing system downtime and maintenance costs.
- **Versatile and Efficient:** Drives a wide range of power devices with high efficiency, making it suitable for various high-voltage applications.
- **Easy to Use:** CMOS/TTL compatible inputs and low logic voltage operation simplify integration into your system design

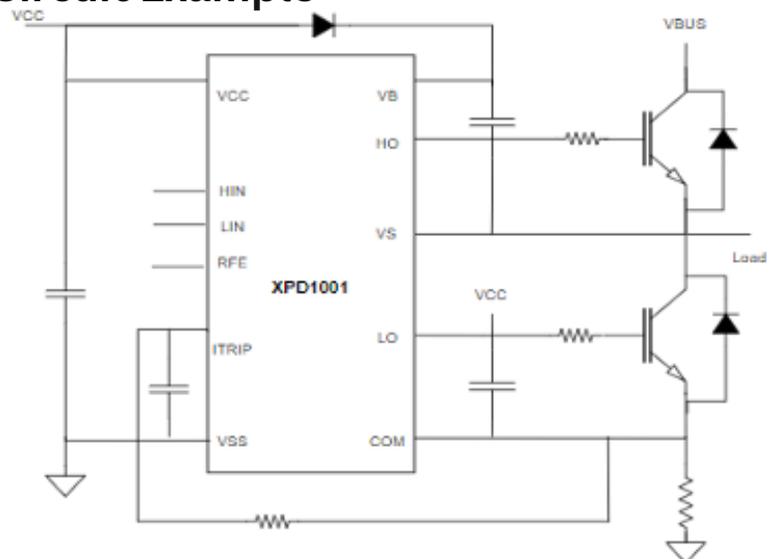
Applications

- AC compressor
- Auto motor control
- HEV/BEV Battery Charger
- AC/DC charging station
- Energy Storage System
- Industrial motor drive
- Welding

Key Features

- Floating channel designed for bootstrap operation
- Fully operational to +900V
- Tolerant to negative transient voltage dV/dt immune
- Gate drive supply range from 10 to 20V
- Undervoltage lockout for both channels
- 3.3V and 5V input logic compatible
- Matched propagation delay for both channels
- Logic and power ground +/- 5V offset.
- Lower di/dt gate driver for better noise immunity
- Output source/sink current capability 1.7A/2.2A

Circuit Example



Description

The XTD1001 is a high-performance gate driver designed for demanding applications such as robotic motor control, renewable energy systems, and industrial power supplies. The XTD1001 adds cross-interlock protection circuitry. This dual-channel device offers up to 900V output voltage, robust performance and comprehensive protection features, making it an ideal choice for driving MOSFETs, IGBTs, and SiC power devices.



PG-DSO-16

Benefits:

- **Enhanced Reliability:** Eliminates parasitic latch-up and ensures reliable operation across a wide temperature and voltage range.
- **Comprehensive Protection:** Integrated protection features safeguard your power devices from damage, reducing system downtime and maintenance costs.
- **Versatile and Efficient:** Drives a wide range of power devices with high efficiency, making it suitable for various high-voltage applications.
- **Easy to Use:** CMOS/TTL compatible inputs and low logic voltage operation simplify integration into your system design

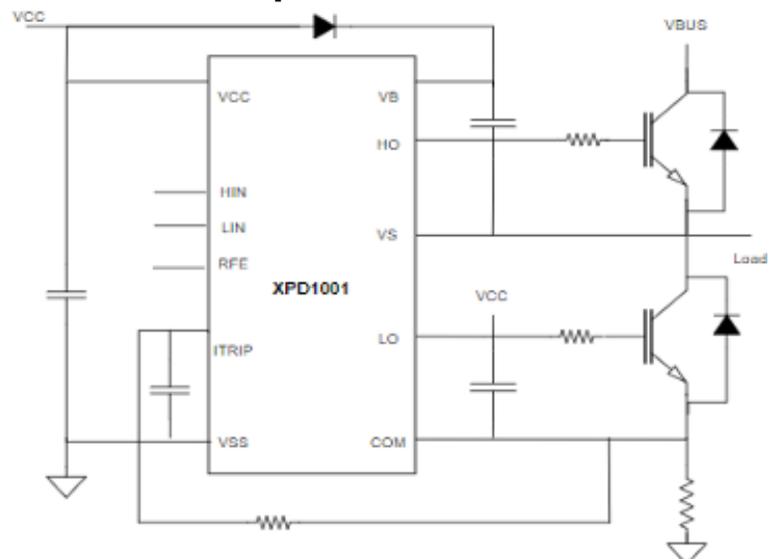
Applications

- AC compressor
- Auto motor control
- HEV/BEV Battery Charger
- AC/DC charging station
- Energy Storage System
- Industrial motor drive
- Welding

Key Features

- High drive current capability (1.7/2.2A) for efficient switching
- Dual-channel configuration with independent CMOS/TTL compatible inputs
- 900V high-voltage side withstand voltage for robust performance
- 350 ns Ton/Toff
- Cross interlock protection
- No parasitic thyristor structure, eliminating latch-up concerns
- Undervoltage lockout protection on both high-voltage and low-voltage sides
- Offline gate clamp function prevents parasitic conduction
- Suitable for half-bridge, full-bridge, and LLC topologies

Circuit Example



Description

The XTD1011 is a dual-channel gate driver IC designed to deliver exceptional performance and reliability in high-voltage power applications. This dual-channel device offers up to 800V output voltage. This highly integrated device simplifies your design and reduces board space requirements by adding the bootstrap diode and input gate resistor while ensuring robust protection for your power devices.



PG-DSO-16

Benefits:

- **Reduced System Cost:** Integrated components minimize board-level expenses and simplify design.
- **Enhanced Reliability:** Eliminates parasitic latch-up and ensures consistent performance across varying operating conditions.
- **Comprehensive Protection:** Safeguards power devices from damage under various operating conditions, including undervoltage and floating gate scenarios.
- **Versatile Performance:** Drives MOSFETs, IGBTs, SiCs, and other power devices in half-bridge, full-bridge, and LLC topologies.
- **Compact Design:** Dual-channel configuration in a single package saves valuable board space.

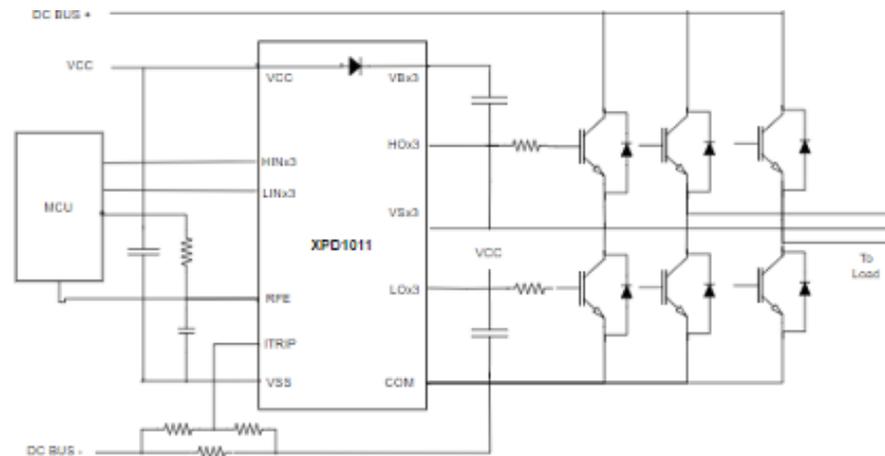
Applications

- **AC compressor**
- **Auto motor control**
- **HEV/BEV Battery Charger**
- **AC/DC charging station**
- **Energy Storage System**
- **Industrial motor drive**
- **Welding**

Key Features

- 1.7/2.2A drive current capability for driving a wide range of power devices
- Dual-channel, high- and low-side configuration
- 800V high-side withstand voltage
- 350 ns Ton/Toff
- No parasitic thyristor structure, eliminating latch-up concerns
- Independent undervoltage lockout protection with hysteresis
- Offline gate clamp function with active Miller clamping
- Integrated bootstrap diode and input gate resistor

Circuit Example



Description

The XTD1027 is a dual-channel gate driver IC designed to deliver exceptional performance and reliability in high-voltage power applications. This dual-channel device offers up to 1200V output voltage. This highly integrated device simplifies your design and reduces board space requirements by adding the bootstrap diode and input gate resistor while ensuring robust protection for your power devices.



PG-DSO-16

Benefits:

- **Reduced System Cost:** Integrated components minimize board-level expenses and simplify design.
- **Enhanced Reliability:** Eliminates parasitic latch-up and ensures consistent performance across varying operating conditions.
- **Comprehensive Protection:** Safeguards power devices from damage under various operating conditions, including undervoltage and floating gate scenarios.
- **Versatile Performance:** Drives MOSFETs, IGBTs, SiCs, and other power devices in half-bridge, full-bridge, and LLC topologies.
- **Compact Design:** Dual-channel configuration in a single package saves valuable board space.

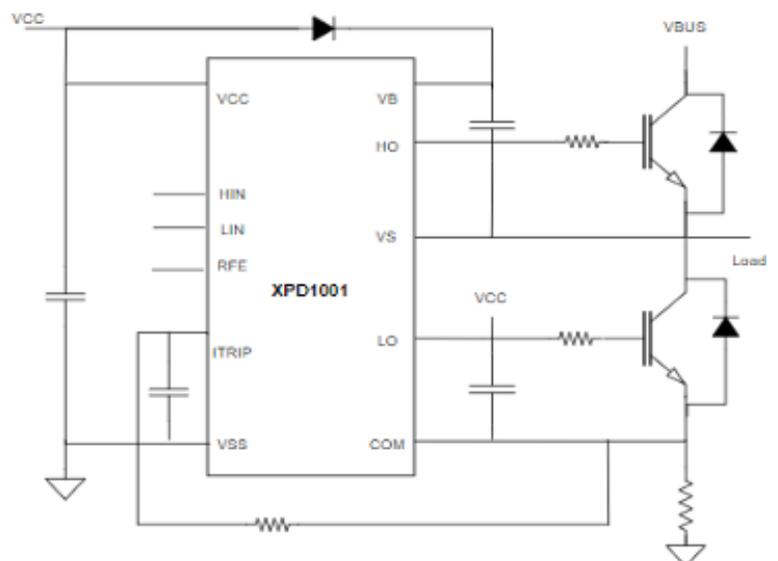
Applications

- AC compressor
- Auto motor control
- HEV/BEV Battery Charger
- AC/DC charging station
- Energy Storage System
- Industrial motor drive
- Welding

Key Features

- 1.7/2.2A drive current capability for driving a wide range of power devices
- Dual-channel, high- and low-side configuration
- 1200V high-side withstand voltage
- 350 ns Ton/Toff
- No parasitic thyristor structure, eliminating latch-up concerns
- Independent undervoltage lockout protection with hysteresis
- Offline gate clamp function with active Miller clamping
- Integrated bootstrap diode and input gate resistor

Circuit Example



Part	Peak Current (A)	Dead Time	In Supply Voltage (V)	Withstand Voltage (V)	Power Device	Ton/Toff (ns)	Isolation	Additional Features	Package
XTD1005	1.7/2.2	Fixed	-	900	MOSFet/IGBT/SiC	350	Iso-Ring	-	SOP8
XTD2000	4A	Adjust-able	10-20	1700	IGBT/SiC	200	Cap-Iso	Miller Clamping, Neg Voltage Bias	PG-DSO-16-15
XTD3000	14A	Adjust-able	10-20	1700	IGBT/SiC	200	Cap-Iso	Miller Clamping, Neg Voltage Bias	PG-DSO-16-15
Three-Phase Power Solution									
XTD1031	0.35/0.65	Fixed	10-20	800	IGBT/SiC	250	Iso-Ring	Bootstrap Diode, Gate Resistor	DSO-24

Features

High voltage (up to 1700V)
 Low cost
 Strong Isolation
 Low Ton/off time
 Robust protection measure
 OCP, Miller Clamp, Desaturation

Applications

AC compressor
 Auto motor control
 HEV/BEV Battery Charger
 AC/DC charging station
 Energy Storage System
 Industrial motor drive
 Welding

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Cutting-Edge Innovation: Focused on high-voltage and high-current applications, including battery charger, energy storage and EV motor control.

Cost-Efficiency: Our solutions reduce BOM costs and increase integration flexibility, helping customers achieve optimal performance at lower cost.

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Description

The XTD1005 is a high-performance gate driver designed for demanding applications such as motor control, renewable energy systems, and industrial power supplies. This dual-channel device offers up to 900V output voltage, robust performance and comprehensive protection features, making it an ideal choice for driving MOSFETs, IGBTs, and SiC power devices.



SOIC-14

Benefits:

- **Enhanced Reliability:** Eliminates parasitic latch-up and ensures reliable operation across a wide temperature and voltage range.
- **Comprehensive Protection:** Integrated protection features safeguard your power devices from damage, reducing system downtime and maintenance costs.
- **Versatile and Efficient:** Drives a wide range of power devices with high efficiency, making it suitable for various high-voltage applications.
- **Easy to Use:** CMOS/TTL compatible inputs and low logic voltage operation simplify integration into your system design

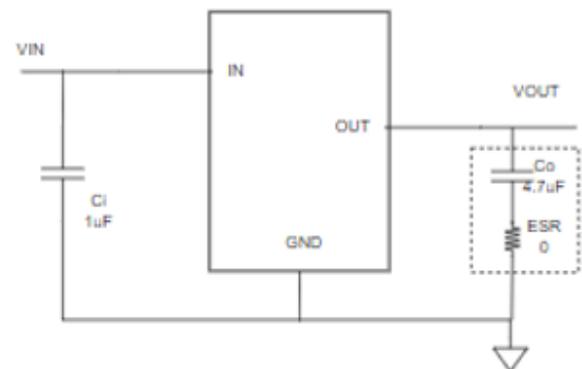
Applications

- **AC compressor**
- **Auto motor control**
- **HEV/BEV Battery Charger**
- **AC/DC charging station**
- **Energy Storage System**
- **Industrial motor drive**
- **Welding**

Key Features

- High drive current capability (4A) for efficient switching
- 1700V high-voltage side withstand voltage for robust performance
- Dual-channel configuration with independent CMOS/TTL compatible inputs
- No parasitic thyristor structure, eliminating latch-up concerns
- Undervoltage lockout protection on both high-voltage and low-voltage sides
- Offline gate clamp function prevents parasitic conduction

Circuit Example



Description

The XTD2000 is a highly versatile dual isolated gate driver with 4A and 6A drive current capability, designed for driving a broad range of power devices, including MOSFETs, IGBTs, and SiC transistors. The device ensures precise and stable timing for the safe shutdown of IGBTs when the input is disconnected from the power supply, while short-circuit clamping limits the gate voltage during fault conditions. It operates across a wide range of supply voltages, supporting both unipolar and bipolar configurations.



PG-DSO-16

Additional Benefits

- **Integrated Filters:** Reduces external component requirements.
- **Fast Switching Performance:** Ideal for high-speed applications.
- **Consistent Timing:** Precise gate drive propagation delays minimize system dead time.
- **Compact Design:** SOP16 package supports streamlined PCB layout for space-constrained designs.

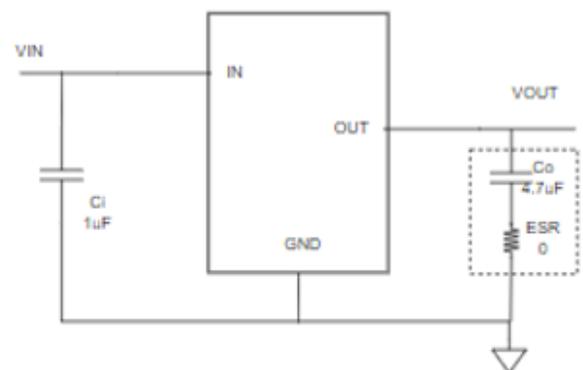
Key Features

- Dual Isolated Gate Driver for 650V, 1200V, and 1700V Power Devices.
- Enhanced Capacitance Isolation for robust and stable operation.
- Drive Current Capability: 4A and 6A peak output (pull and pour current).
- Output Supply Voltage: Up to 35V.
- Input Supply Voltage: Up to 18V.
- Low Transmission Delay: 25ns.
- Common-Mode Transient Immunity (CMTI): >200 kV/μs.
- High Voltage Isolation: 5.7kV (Vrms) for 1 minute.
- Built-In Protection:
 - Short-circuit clamping and active shutdown.
 - High precision thresholds with ±5% accuracy.
 - Independent input undervoltage lockout (UVLO) protection with hysteresis for 8V/10.5V inputs.
- Operating Temperature Range: -40°C to 125°C.
- Electrostatic Discharge (ESD) Protection: 2 kV HBM capability.
- Operating Temperature Range: -40°C to 150°C

Applications

- AC compressor
- Auto motor control
- HEV/BEV Battery Charger
- AC/DC charging station
- Energy Storage System
- Industrial motor drive
- Welding

Circuit Example



Description

The XTD3000 is a versatile gate driver with 2.3A to 14A drive current capability, ideal for driving a wide range of power devices including MOSFETs, IGBTs, and SiC transistors. It supports up to 1700V gate voltage output. Key features include independent sink and pull current control, precise timing for safe IGBT shutdown during loss of input power, and short-circuit clamping to protect against voltage spikes. Its flexibility accommodates unipolar and bipolar supply voltages.



PG-DSO-16

Additional Benefits

- Integrated Filters: Minimize the need for external components.
- High Temperature Tolerance: Performs reliably in extreme conditions.
- Fast Switching Performance: Designed for high-speed applications.
- Consistent Propagation Delays: Reduces gate driver impact on total system dead time.

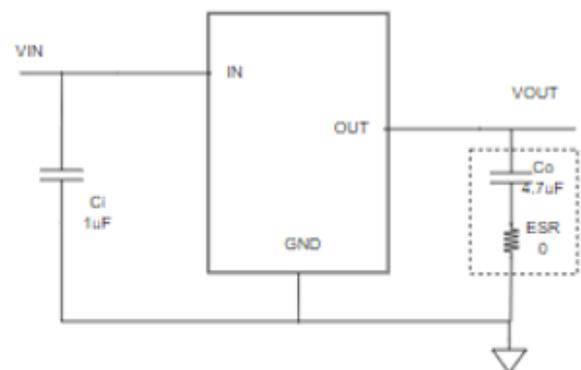
Applications

- AC compressor
- Auto motor control
- HEV/BEV Battery Charger
- AC/DC charging station
- Energy Storage System
- Industrial motor drive
- Welding

Key Features

- Single-Channel Isolated Gate Driver for 650V, 1200V, and 1700V Power Devices.
- Enhanced Capacitance Isolation for robust performance.
- Drive Current Capability: 2.3A, 4.4A, 6A, 10A, and 14A peak.
- Output Supply Voltage: Up to 35V.
- Input Supply Voltage: Up to 18V.
- Low Transmission Delay: 75ns.
- Common-Mode Transient Immunity (CMTI): >200 kV/ μ s.
- High Voltage Isolation: UL1577 (planned) certified, 5.7kV (Vrms) for 1 minute.
- Built-In Protection:
 - Short-circuit clamping and active shutdown.
 - Active Miller clamp to prevent false triggering.
 - High precision thresholds with $\pm 5\%$ accuracy.
 - Independent input undervoltage lockout (UVLO) protection with hysteresis for 8V/10.5V inputs.
- Operating Temperature Range: -40°C to 150°C

Circuit Example



Description

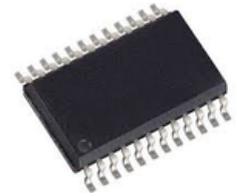
The XTD1031 chip has a drive current capability of 0.35/0.65A per channel and can be used to drive a wide range of power devices such as MOSFETs, IGBTs and SiCs. It features three dual-channel high and low side configurations with a maximum withstand voltage on the high side of 800 V. There are no parasitic thyristor structures in the device. As a result, the design is very reliable against parasitic latch-up over the operating temperature and voltage range.

The XTD1031 is controlled by six independent CMOS/TTL compatible input signals on the low side, with logic voltages as low as 3.3 V. The high and low sides have independent undervoltage detection units with hysteresis characteristics. With a symmetrical under-voltage lockout level, the offline gate clamp function provides inherent protection to the transistor against parasitic conduction under floating gate conditions when the IC is not powered by VCC. The XTD1031 integrates a bootstrap diode and an input gate resistor, greatly reducing board-level cost.

Key Features

- Floating channel designed for bootstrap operation
- High-side self-contained bootstrap diode
- Maximum bootstrap voltage (VB) of + 818 V
- Operating voltage (VS) up to + 800 V
- 1.7 A / 2.2 A Peak Transmission Pull Current / Sink Current Capability
- ± 5% High precision reference threshold
- <1 us overcurrent detection to output shutdown
- Integrated dead time and anti-strikeout logic
- Enable, fault and programmable fault clear inputs
- Can run up to -5.5V on VS pin
- DC negative voltage and withstand negative voltage pulses of -100V 700ns.
- Independent undervoltage lockout (UVLO) for each channel
- 18V VCC supply voltage (max)
- Separate logic (VSS) and input grounding
- 2 KV HBM ESD capability
- Built-in input gate resistor
- Operating temperature, -40C-150°C

Sampling



DSO-24

Applications

- Power Inverter
- Automotive, Industrial and Commercial Air Conditioning
- On-board motor control
- AC/DC, DC/DC Charging
- Electric drive for automobile
- UPS
- Power Converter
- Industrial Welding Torch

Circuit Example

