

Product brief

200 V level shift gate driver product portfolio

Including Silicon-On-Insulator (SOI) and Junction Isolation (JI) offerings

Infineon provides a comprehensive portfolio of 200 V level shift gate drivers which includes 3-phase, half-bridge, or high and low side drivers for low voltage (24 V, 36 V, and 48 V) and medium voltage (60 V, 80 V, 100 V, and 120 V) motor control applications.

The 3-phase product family utilizes Infineon's unique Silicon-On-Insulator(SOI) level shift technology to provide functional isolation with industry leading negative V_s robustness and reduced level shift losses. A solution is also available with integrated Bootstrap Diodes (BSD) to reduce BOM cost, simplify layout, and reduce PCB size.

The IRS2005/7/8 family consists of four devices with a typical output sink current of 600 mA and typical output source current of 290 mA. The 200 V devices are 3.3 V, 5 V, and 15 V logic compatible. V_{CC} and V_{BS} Undervoltage Lockout (UVLO) protection is a standard feature provided across the family. Additionally, the family has V_s operational logic of -8 V. The IRS2007 and IRS2008

include integrated dead-time and shoot-through protection. The 200 V devices feature low quiescent currents. IRS2008 also features a shutdown input pin.

The IRS2005/7/8 200 V devices are offered in eight-pin SOIC-8 (DSO-8) or smaller MLPQ 14L (VQFN-14) packages with various logic input options and standard pin-out configurations for high design flexibility and fast time to market. All devices are MSL2 qualified. The 6EDL04N02PR and 6ED003L02-F2 three-phase devices are available in small foot print TSSOP-28 packages.

Applications

- > Battery operated power tools
- > Battery operated garden tools
- > Micro inverter drives
- > Light Electric Vehicles (LEV) – e-bikes, e-scooters, e-toys
- > Drones, robotic vacuums
- > Wireless charging

Product features

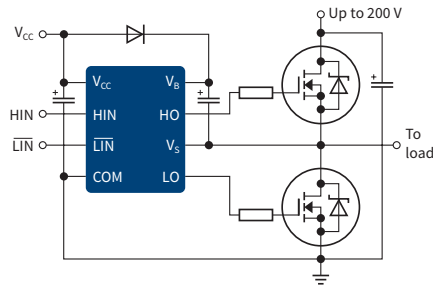
- > V_{CC} Undervoltage Lockout (UVLO) protection with additional V_{BS} UVLO for IRS2005, IRS2007 and IRS2008
- > Deadtime and cross-conduction prevention logic
- > Fully operational to +200 V offset voltage
- > Tolerate to negative transient voltage, dV/dt immune
- > Low quiescent current
- > Various input options
- > Standard pin-out and packages
- > Three-phase solution with Infineon Silicon-On-Insulator (SOI) technology with integrated Bootstrap Diodes (BSD)

Benefits

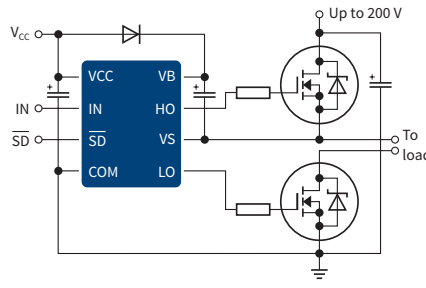
- > Fast and reliable switching
- > Protection under abnormal operation
- > Ensure reliable start-up operation
- > Increased device reliability, operational headroom
- > Low-cost bootstrap power supply
- > BOM savings
- > Easy-to-use, straight-forward design
- > Fast time to market
- > Reduced BOM cost, smaller PCB at lower cost with simpler design
- > Increased negative V_s robustness for increased reliability
- > Quicker time to market

Typical connection diagram

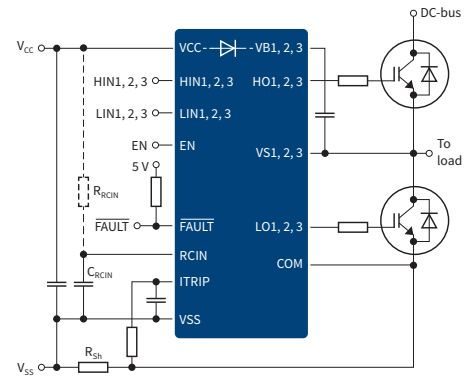
IRS2007S



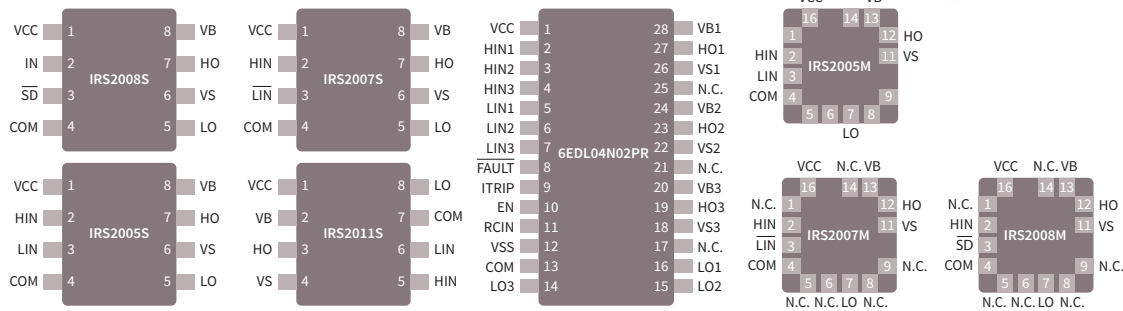
IRS2008S



6EDL04N02PR



Pin configurations



1) Coming soon in MLPQ 4x4 14L package, please contact sales for availability. SOIC-8N package devices are available now.

Product portfolio

Part number	Configuration	Voltage class [V]	Source/sink current (typ) [A]	Turn on/turn off propagation delay (typ) [ns]	UVLO turn on/off (typ) [V]	Package	Features
IRS2008S/M ¹⁾	Half-bridge	200	0.29/0.6	680/150	8.9/8.2	SOIC-8N, MLPQ 4 x 4 14L	Enable; Shutdown V _{CC} and V _{BS} Undervoltage Lockout (UVLO)
IRS2007S/M ¹⁾	Half-bridge	200	0.29/0.6	160/150	8.9/8.2	SOIC-8N, MLPQ 4 x 4 14L	V _{CC} and V _{BS} Undervoltage Lockout (UVLO)
IRS2005S/M	High-side and low-side	200	0.29/0.6	160/150	8.9/8.2	SOIC-8N, MLPQ 4 x 4 14L	V _{CC} and V _{BS} Undervoltage Lockout (UVLO) Small package
6EDL04N02PR	Three phase	200	0.165/0.375	530/530	9/8.1	TSSOP-28	Integrated bootstrap diode; Enable; Fault reporting; Overcurrent protection
6ED003L02-F2	Three phase	200	0.165/0.375	530/490	11.7/9.8	TSSOP-28	
IR2010	High-side and low-side	200	3/3	95/65	8.6/8.2	SOIC-16W, PDIP14	Enable; Shutdown
IR2011	High-side and low-side	200	1/1	80/75	9/8.2	SOIC-8N, PDIP8	
IRS2011	High-side and low-side	200	1/1	60/60	9/8.2	SOIC-8N, PDIP8	
IRS20752L	High-side	200	0.16/0.24	140/215	9/8	SOT23	Single input
IRS10752L	High-side	100	0.16/0.24	140/215	9/8	SOT23	Single input

> IRS2005 replaces IRS2001 > IRS2008S replaces IRS2004S > IRS2007S replaces IRS2003S > IRS2001, IRS2003, IRS2004 are not recommended for new designs

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