

Product brief

500–700 V level-shift gate driver product portfolio

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

Infineon provides the most comprehensive portfolio of industry-standard 500–700 V level-shift gate drivers including 3-phase, half-bridge, high and low side drivers suitable for driving IGBTs or MOSFETs.

The new 2ED2304S06F half-bridge 650 V SOI driver with integrated dead-time and shoot-through prevention logic is the latest addition to the product portfolio, and utilizes Infineon's unique Silicon-on-Insulator (SOI) level-shift technology. It provides functional isolation with industry-leading negative V_s robustness and reduced level-shift losses with the integrated bootstrap diode (BSD) enabling a lower bill of material cost and smaller PCB footprint.

SOI or JI-based level-shift gate drivers are available in simple half-bridge or high and low side drivers to full featured half-bridge and

three-phase solutions offering integrated overcurrent protection, programmable dead-time, single-pin enable and fault reporting, and matched delay outputs.

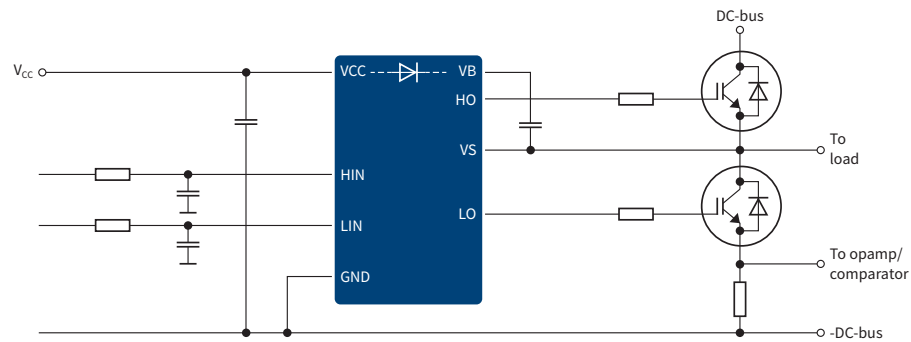
Available in industrial temperature grade and various industry standard package and pin-out options.

Applications

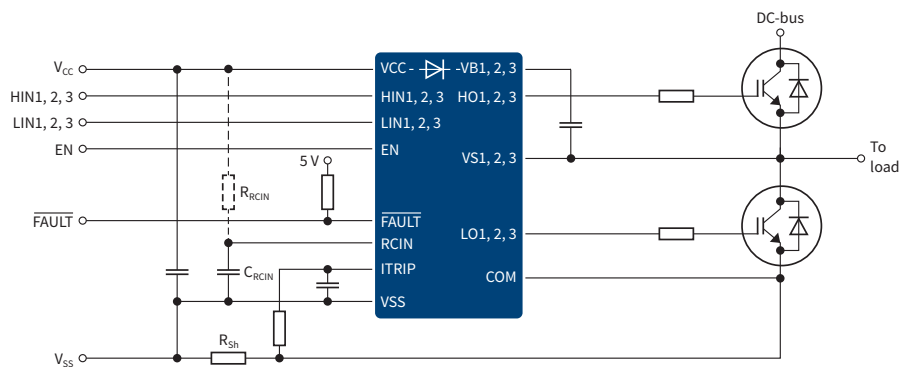
- › Major home appliances
- › Refrigeration compressors
- › Residential air-conditioning
- › Small home appliances
- › Induction heating
- › Industrial drives
- › General purpose drives
- › Motor control
- › General purpose inverters
- › 'Light' commercial airconditioning

Product features	Benefits
› Fully operational to +700 V offset voltage (varies by product)	› Increased system reliability, operational headroom, and noise immunity
› Integrated, ultra-fast and low $R_{DS(on)}$ boot-strap diode (SOI technology products)	› Reduced BOM and system level cost; smaller PCB
› 50 percent or more reduction of level shift losses (SOI technology products)	› Higher reliability – reduced high voltage component count
› High-frequency switching (SOI technology products)	› Enables reduction of magnetic and capacitive components reducing BOM costs
› Best-in-class negative V_s transient tolerance (SOI products)	› Suitable for operation above 100 kHz for HB-LLC and other similar topologies used in SMPS and LED lighting applications
› Negative voltage transient tolerant; dV/dt immune	› Consistent and reliable operation under abnormal conditions with increased robustness and headroom
› V_{CC} and V_{BS} Undervoltage Lockout (UVLO) protection	› Fast and reliable switching
› Integrated dead-time and cross-conduction prevention logic	
› Various input options; matched propagation delay outputs	› Easy-to-use, straight-forward design
› Standard pin-out and package options	› Fast time to market
› Various integrated features and functions – Undervoltage lockout for V_{CC} and V_{BS}; overcurrent protection; shutdown, programmable dead-time; enable; shutdown; fault and programmable fault clear; current sense; separate power and logic grounds	

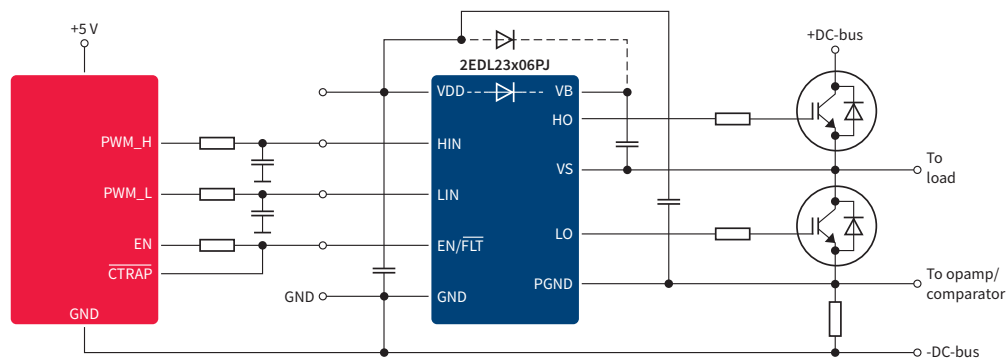
Typical connection diagram 2ED2304S06F



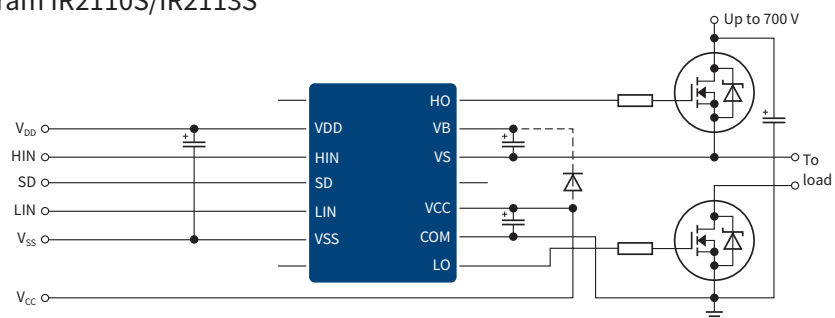
Typical connection diagram IR2136S/6EDL04(I,N)06PT (Integrated bootstrap diode)



Typical connection diagram 2EDL23(I,N)06PJ

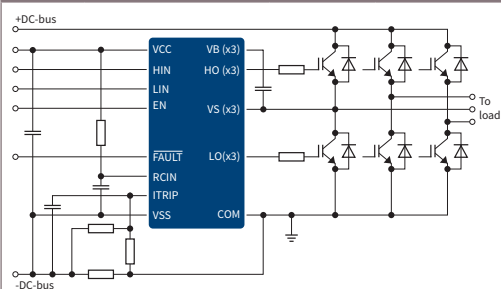


Typical connection diagram IR2110S/IR2113S



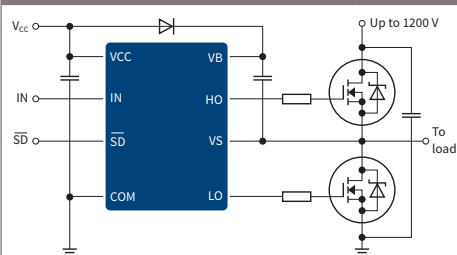
Product portfolio

Three-phase gate driver ICs

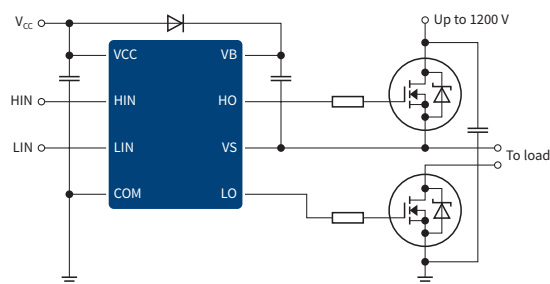


Voltage class	I _o /I _o . typ	Typ. UVLO on/off [V]	Typ. prop delay: off/on [ns]	Base PN		Features											Package																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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High-side and low-side gate driver ICs

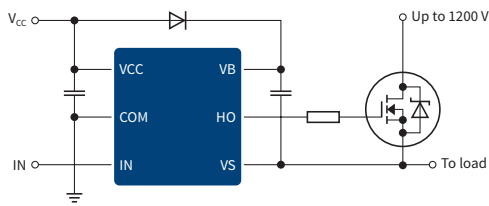


Voltage class [V]	I _{o-} /I _o . typ [mA]	Typ. UVLO on/off [V]	Typ. prop delay: off/on [ns]	Base PN		Features			Package							
700	290/700	9.1/8.2	200/200	2ED2106S07 ²⁾	SOI	✓			✓							
	2ED21064S07 ²⁾			SOI	✓				✓							
	2500/2500			2ED2181S07 ²⁾	SOI	✓			✓							
	2ED21814S07 ²⁾			SOI	✓				✓							
600	200/350	8.9/8.2	200/220	IR2106	JI				✓			✓				
		8.9/8.2		IR21064	JI		✓			✓	✓		✓			
		4.1/3.8		IR2301	JI				✓			✓				
		8.9/8.2		IR25604	JI				✓							
		4.1/3.8		IRS2301	JI				✓							
	210/360	8.9/8.2	150/160	IR2101	JI				✓			✓			✓	
		8.9/8.2		IR2102	JI				✓			✓				
	250/500	8.6/8.2	105/125	IR2112	JI			✓			✓		✓			
	290/600	8.6/8.2	130/135	IRS2112	JI		✓	✓			✓		✓		✓	
		8.9/8.2	150/160	IRS2101	JI				✓			✓			✓	
		8.9/8.2	200/220	IRS2106	JI				✓			✓			✓	
		8.9/8.2		IRS21064	JI		✓			✓	✓		✓			
	360/700	12.5/11.6	400/420	2EDL05I06BF	SOI	✓			✓							
	1900/2300	8.9/8.2	220/180	IRS2181	JI				✓			✓			✓	
		8.9/8.2		IR2181	JI				✓			✓				
		8.9/8.2		IR21814	JI		✓			✓	✓		✓			
		8.9/8.2		IRS21814	JI		✓			✓			✓	✓		
	2500/2500	8.6/8.2	94/120	IR2113	JI		✓	✓			✓		✓		✓	
		8.6/8.2		IR25607	JI		✓	✓			✓					
		8.5/8.2	120/130	IRS2113	JI		✓	✓			✓		✓	✓	✓	
	4000/4000	8.9/8.2	170/170	IRS2186	JI				✓			✓			✓	
		8.9/8.2		IRS21864	JI		✓			✓			✓			
		6.0/5.5		IRS21867	JI				✓							
500	2500/2500	8.6/8.2	94/120	IR2110	JI		✓	✓			✓		✓			
		8.5/8.2	120/130	IRS2110	JI		✓	✓			✓		✓		✓	

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2) Coming soon

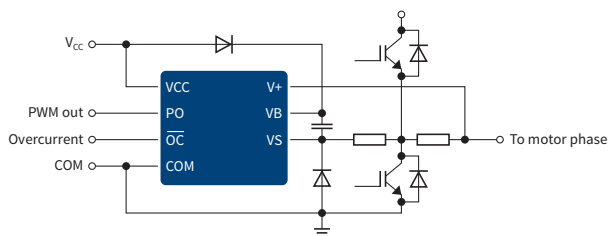
Single high-side gate driver ICs



Voltage class	I _o /I _o . typ	Typ. UVLO on/off	Typ. prop delay: off/on	Base PN		Features												Package							
[V]	[mA]	[V]	[ns]																						
600	160/240	9.0/8.0	215/140	IRS25752	J1																			✓	
	250/500	8.6/8.2	105/125	IR2117	J1												✓						✓		✓
					IR2118	J1												✓					✓		
		10.3/9.0	150/200	IR2127	J1		✓					✓		✓				✓					✓		✓
		7.2/6.8		IR21271	J1		✓					✓		✓				✓				✓			
		10.3/9.0		IR2128	J1		✓					✓		✓				✓				✓		✓	
	290/600	8.6/8.2	105/125	IRS211(7, 8)	J1												✓					✓		✓	
		10.3/9.0	150/150	IRS2127	J1		✓					✓		✓				✓					✓		✓
		7.2/6.8		IRS21271	J1		✓		✓			✓		✓				✓				✓			
	500	1600/3300	9.2/8.3	200/170	IR2125	J1		✓				✓	✓		✓				✓				✓		

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Complementary: current sense ICs



Voltage class [V]	Base PN		Features			Package		
600	IR2172	J1		✓		✓		✓
	IR2175	J1	✓	✓		✓		✓
	IR2177(1)	J1	✓	✓	✓		✓	
	IR25750	J1		✓				✓

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