Application Note AN-1111

IRS211(7,8) and IR211(7,8) Comparison

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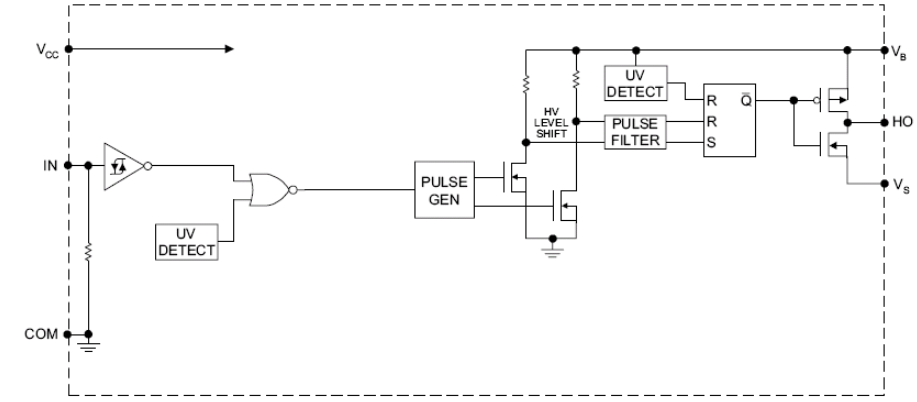
Introduction

The IRS211(7,8) are new HVIC product that replace the IR211(7,8) HVICs and are pin-to-pin compatible with each corresponding predecessor. In many cases, little or no change is necessary to use the new products. This application note describes the various differences between the IRS211(7,8) and the IR211(7,8) HVICs.

The IRS211(7,8) are high voltage, high speed power MOSFET and IGBT drivers. Proprietary HVIC and latch immune CMOS technologies enable ruggedized monolithic construction. The logic input is compatible with standard CMOS outputs. The output driver features a high pulse current buffer stage designed for minimum cross-conduction. The floating channel can be used to drive an N-channel power MOSFET or IGBT in the high or low side configuration which operates up to 600 V.

Block Diagrams



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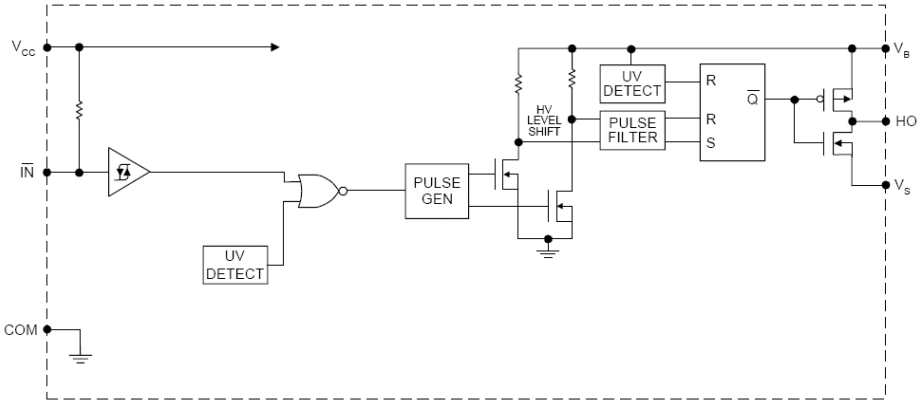

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The IRS211(7,8) share the same block diagram as each respective IR211(7,8). There are no functional changes between corresponding part numbers.

Electrical Characteristic Differences

All measurement conditions remain unchanged unless noted. Parameters not mentioned in this document have not changed.

Absolute Maximum Ratings

There are no changes in the Absolute Maximum Ratings.

Recommended Operating Conditions

There are no changes in the Recommended Operating Conditions.

Dynamic Electrical Characteristics

Parameter		IR211(7,8)		IRS211(7,8)		
Symbol	Definition	typ	max	typ	max	Units
t_r	Turn-on rise time (Vs = 0 V)	80	130	75	130	ns
t_f	Turn-off fall time (Vs = 0 V)	40	65	35	65	

The IRS211(7,8) has slightly faster rise and fall times when compared to the IR211(7,8).

Static Electrical Characteristics

Parameter		IR211(7,8)			IRS211(7,8)			
Symbol	Definition	min	typ	max	min	typ	max	Units
V_{OH}	High level output voltage, V_{BIAS} - V_O	-	-	0.1	-	0.05	0.2	V
		Io = 0 A			Io = 2 mA			
V_{OL}	Low level output voltage, V_O	-	-	0.1	-	0.02	0.1	
		Io = 0 A			Io = 2 mA			
I_{O+}	Output high short circuit pulsed current (V_O = 0 V, VIN=Logic "1", PW <= 10us)	200	250	-	200	290	-	mA
I_{O-}	Output low short circuit pulsed current (V_O = 15 V, VIN = Logic "0", PW <= 10us)	420	500	-	420	600	-	

With the IRS211(7,8),

1. The V_{OH} and V_{OL} are tested using a new standardized test condition of I_O=2 mA. The output driver's on resistance is slightly lower for IRS211(7,8).
2. The typical values for I_{O+} and I_{O-} are marginally increased, which can be neglected.

Figures

This figures shown in this section compare figures shown in the IR211(7,8) (left column) and IRS211(7,8) (right column) datasheets. Illustrations that have not changed between the two datasheets have not been included in this section.

IR211(7,8)	IRS211(7,8)

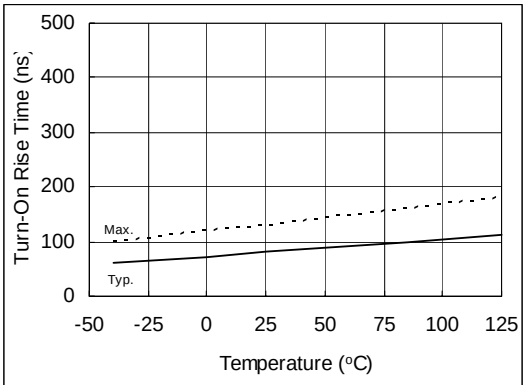

Figure 6A. Turn-On Rise Time vs.Temperature

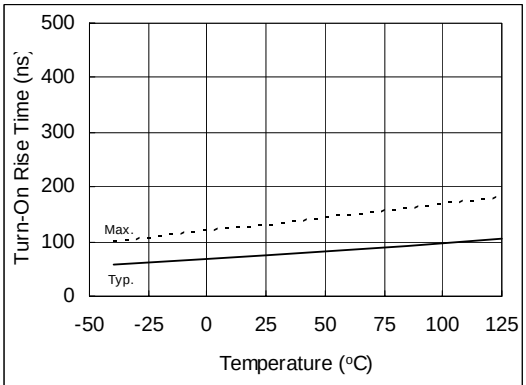

Figure 6A. Turn-On Rise Time vs.Temperature

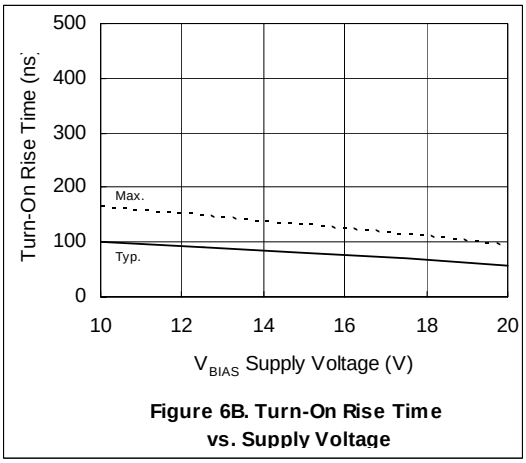

Figure 6B. Turn-On Rise Time vs. Supply Voltage

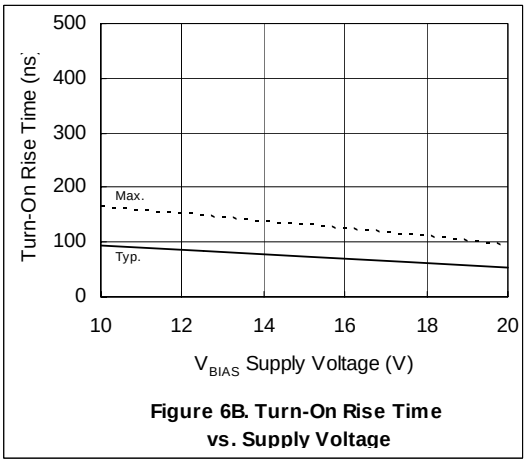

Figure 6B. Turn-On Rise Time vs. Supply Voltage

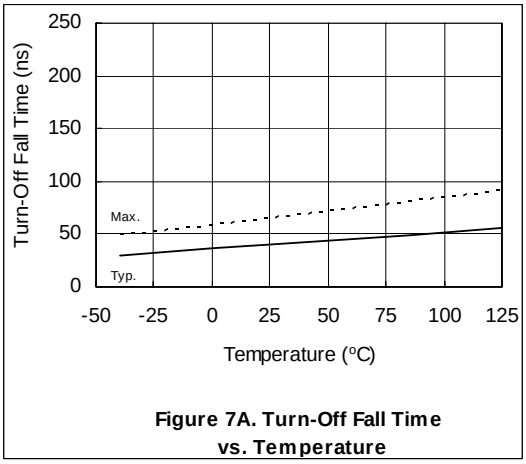

Figure 7A. Turn-Off Fall Time vs. Temperature

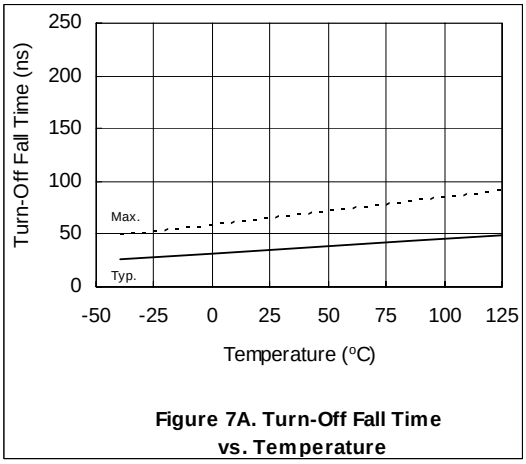

Figure 7A. Turn-Off Fall Time vs. Temperature

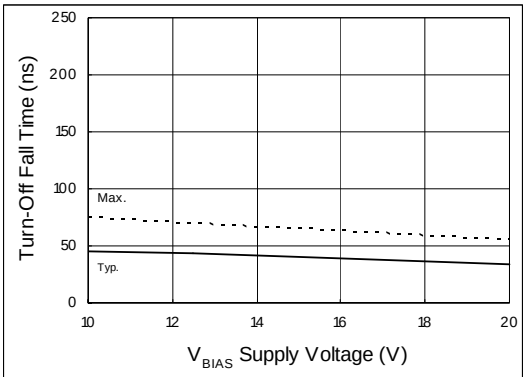

Figure 7B. Turn-Off Fall Time vs. Supply Voltage

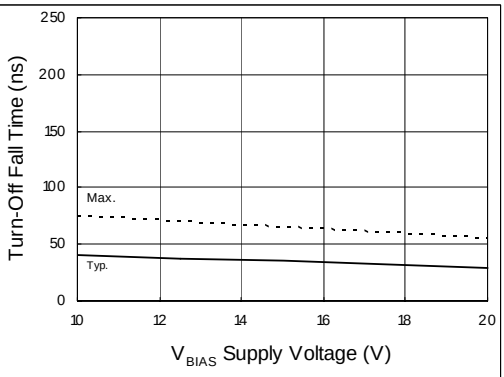

Figure 7B. Turn-Off Fall Time vs. Supply Voltage

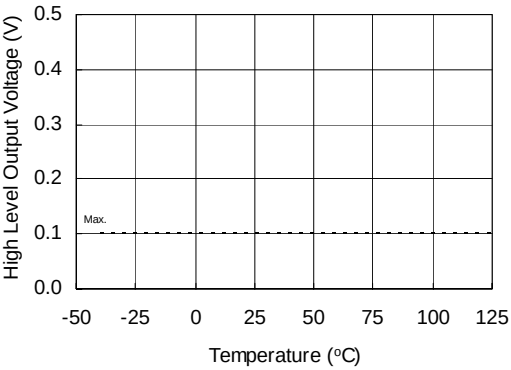

Figure 10A. High Level Output vs. Temperature (Io = 0A)

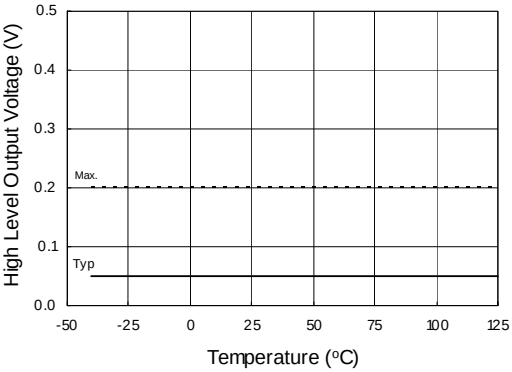

Figure 10A. High Level Output vs. Temperature (Io = 2mA)

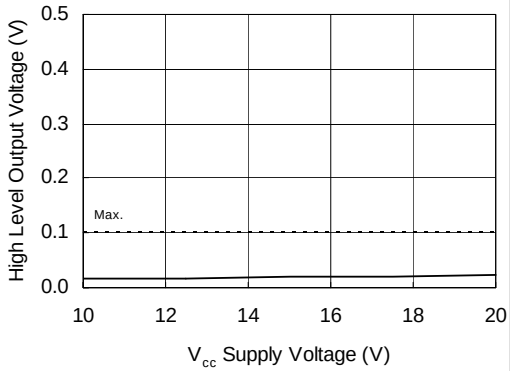

Figure 10B. High Level Output vs. Supply Voltage (Io = 0A)

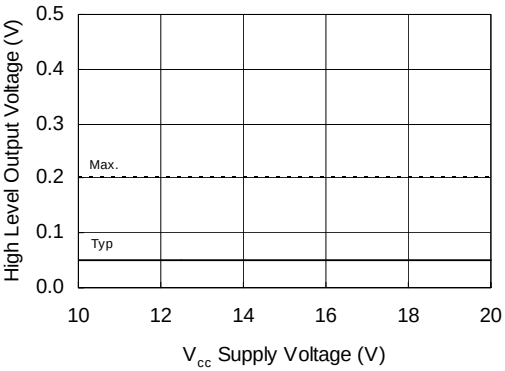

Figure 10B. High Level Output vs. Supply Voltage (Io = 2mA)

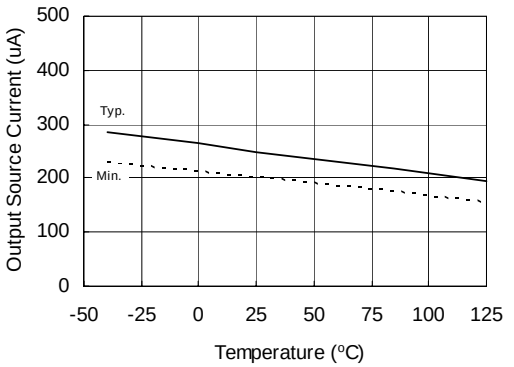

Figure 21A. Output Source Current vs. Temperature

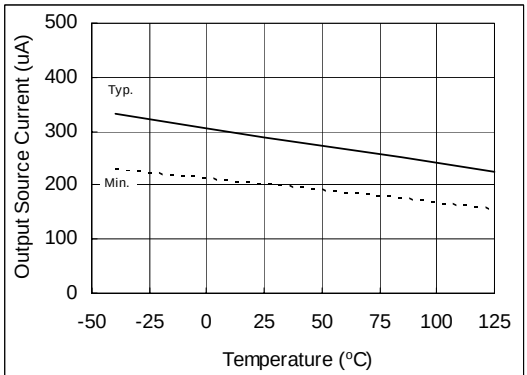

Figure 21A. Output Source Current vs. Temperature

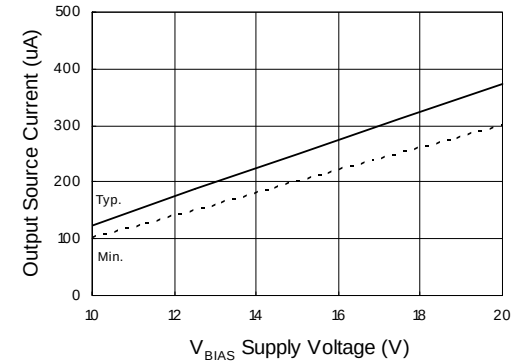

Figure 21B. Output Source Current vs. Supply Voltage

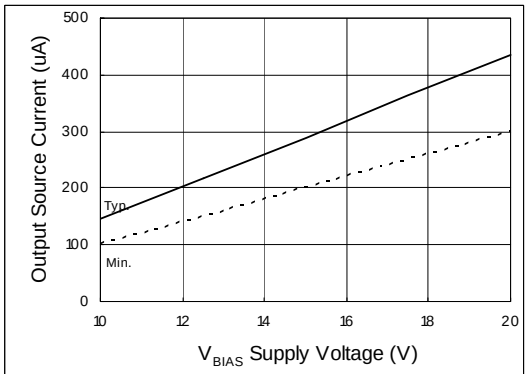

Figure 21B. Output Source Current vs. Supply Voltage

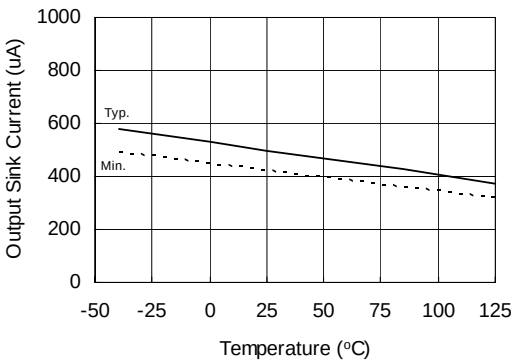

Figure 22A. Output Sink Current vs.Temperature

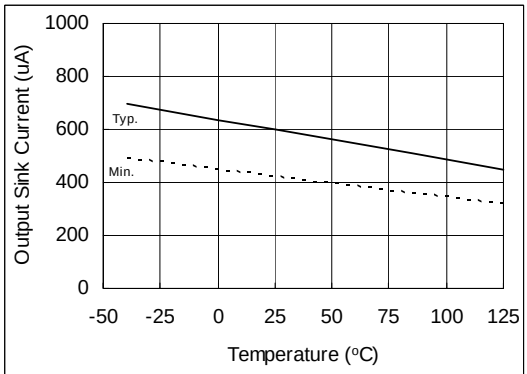

Figure 22A. Output Sink Current vs.Temperature

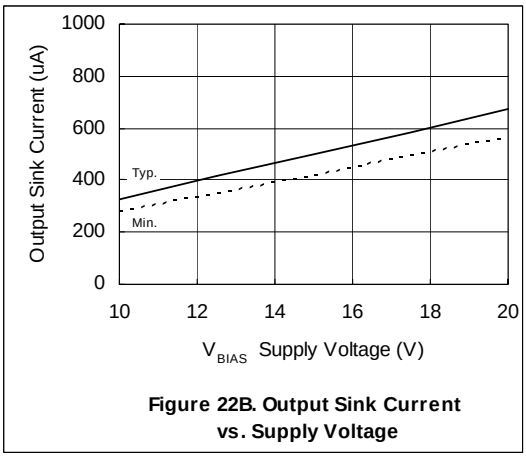

Figure 22B. Output Sink Current vs. Supply Voltage

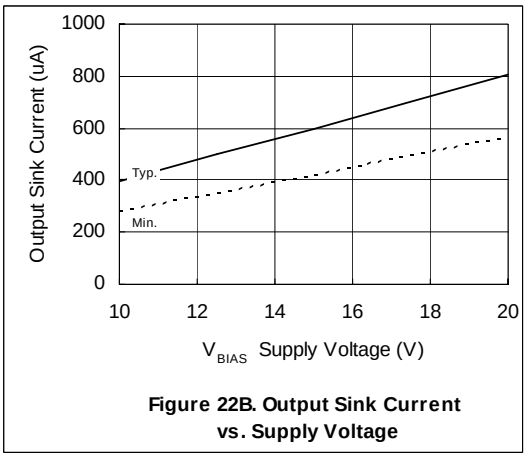

Figure 22B. Output Sink Current vs. Supply Voltage

Summary

As shown by this document, the IRS211(7,8) and the IR211(7,8) are very similar with only a few parametric differences.