



Figure 1. Typical USB 2.0 Application Circuit

NIS6350, NIV6350

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Input Voltage, operating, steady-state (V_{CC} to GND) Transient (100 ms)	V_{CC}	-0.3 to +10	V
		-0.3 to +10	
Output Voltage, operating, steady-state (SRC to GND)	V_{OUT}	-0.3 to +20	V
Voltage range on ILIM pin	V_{ILIM}	-0.3 to +20	V
Voltage range on Enable pin	V_{EN}	-0.3 to 5	V
Voltage range on FLAG pin	V_{FLAG}	-0.3 to 6	V
Voltage range on all other pins		-0.3 to 5	V
Electrostatic Discharge Human Body Model (All pins) Charged Device Model (All pins) IEC61000-4-2 Contact (Source pins, with 22 μ F C_{SOURCE} condition)	ESD		kV
		± 2	
		± 1	
		± 7	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality

NIS6350, NIV6350

ELECTRICAL CHARACTERISTICS (Unless otherwise noted: $V_{CC} = 5\text{ V}$, $C_L = 22\ \mu\text{F}$, $R_{\text{limit}} = 15\ \Omega$, $T_A = -40\text{ to }125^\circ\text{C}$)

Characteristics	Symbol	Min	Typ	Max	Unit
-----------------	--------	-----	-----	-----	------

POWER FET

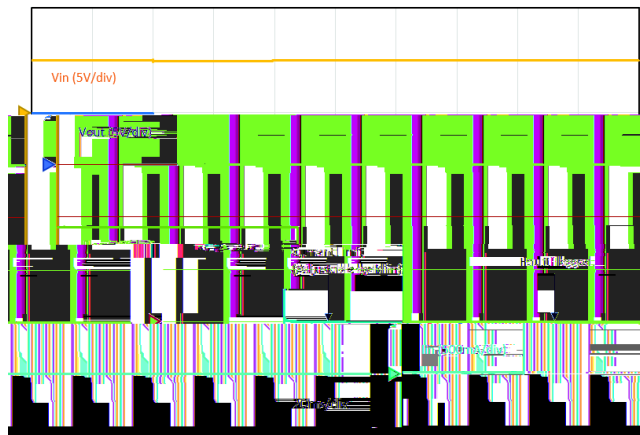
NIS6350, NIV6350

Latching vs. Auto-Retry

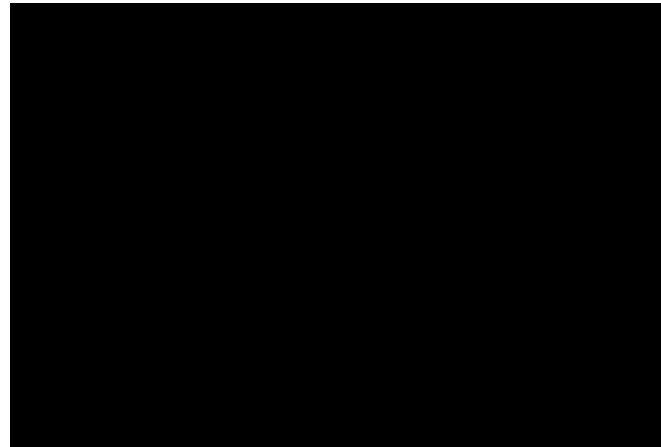
This device features two options regarding its reset ability after a thermal shutdown event. These are called latching and auto-retry which are respectively marked MT1 and MT2 as part number suffixes. Upon reaching a thermal shutdown state, a latching device (MT1) will remain shutdown with no power supplied to the output (SRC pins). The only way to reset the device is to either perform a power cycle on the VCC bus or pull the EN pin low (<0.4 V). By doing either of these actions, the fault state is cleared and the

device is allowed to pull-up the output to its normal, high state.

Instead of remaining in thermal shutdown, an Auto-retry device (MT2) will automatically attempt to pull up the output once the die temperature cools to < 135°C. If the fault remains on the output during this attempt, the device will once again enter a short period of current limiting that will eventually lead to thermal shutdown for which the auto-retry process will repeat indefinitely.



Latch version



Auto-Retry version

Figure 4. Output Short Circuit

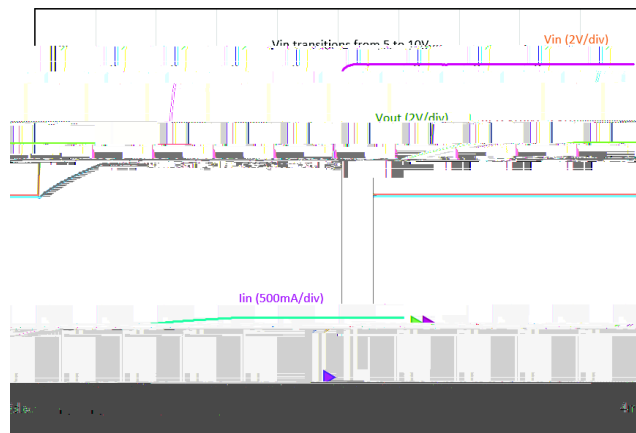


Figure 5. Output Voltage Protection

NIS6350, NIV6350

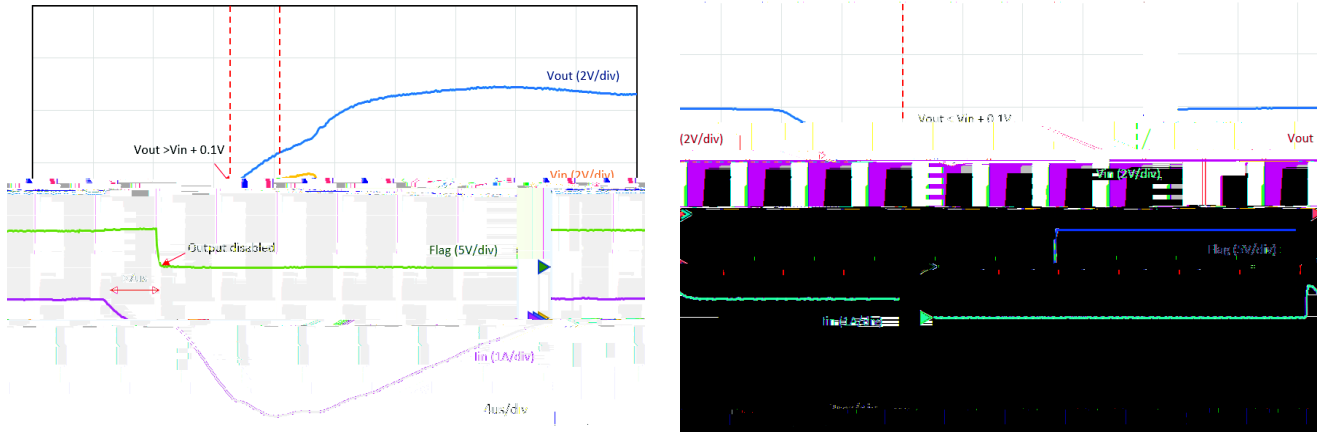


Figure 6. Reverse Current Protection

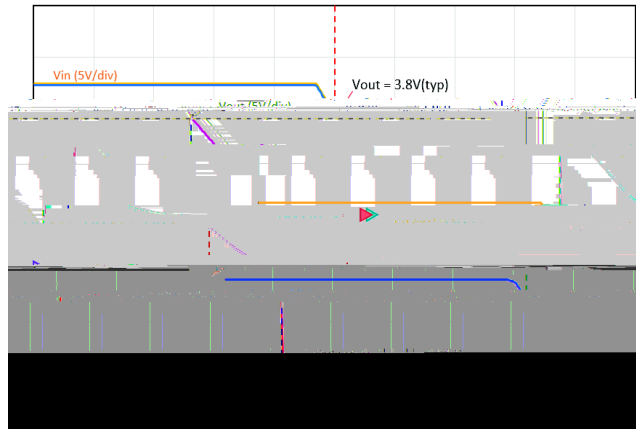


Figure 7. UVLO

ORDERING INFORMATION

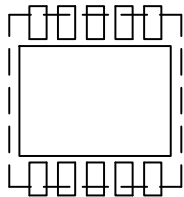
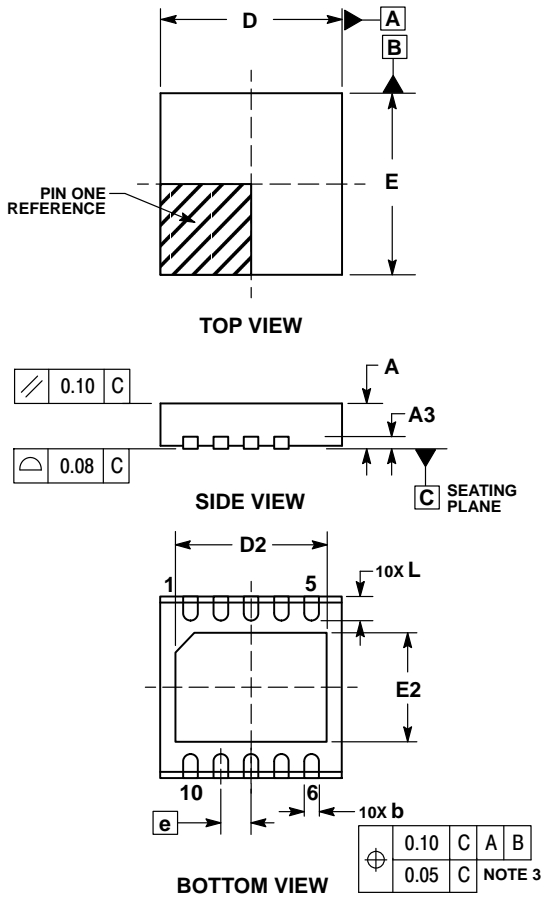
Device	Shutdown Version	Marking	Package	Shipping†
NIS6350MT1TXG	Latching	6350	WDFNW10 (Pb-Free)	3000 / Tape and Reel
*NIV6350MT1TXG	Latching	6350		
NIS6350MT2TXG	Auto-Retry	6350H		
*NIV6350MT2TXG	Auto-Retry	6350H		

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

*NIV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable.

WDFNW10, 3x3, 0.5P

SCALE 2:1



onsemi, **onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi**
