

7WB3125

2-Bit Bus Switch

The 7WB3125 is an advanced high-speed low-power 2-bit bus switch in ultra-small footprints.

Features

- High Speed: $t_{PD} = 0.25$ ns (Max) @ $V_{CC} = 4.5$ V
- $3\ \Omega$ Switch Connection Between 2 Ports
- Power Down Protection Provided on Inputs
- Zero Bounce
- TTL-Compatible Control Inputs
- Ultra-Small Pb-Free Packages
- These are Pb-Free Devices



ON Semiconductor

<http://onsemi.com>

MARKING DIAGRAMS



UDFN8
MU SUFFIX
CASE 517AJ

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 7 of this data sheet.

7WB3125

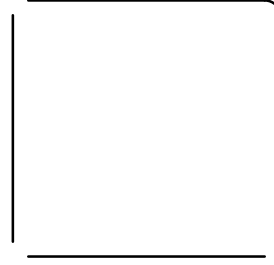
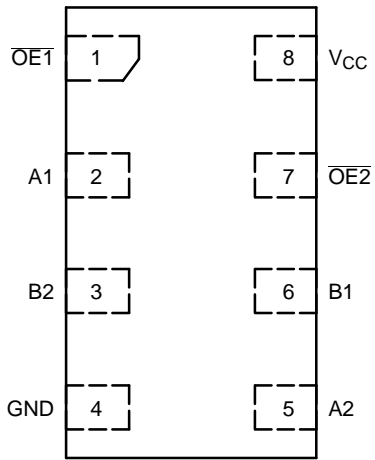


Figure 1. UDFN8
(Top Thru-View)

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MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	DC Supply Voltage	-0.5 to +7.0	V
V_{IN}	Control Pin Input Voltage	-0.5 to +7.0	V
$V_{I/O}$	Switch Input / Output Voltage	-0.5 to +7.0	V
I_{IK}	Control Pin DC Input Diode Current $V_{IN} < GND$	-50	mA
I_{OK}	Switch I/O Port DC Diode Current $V_{I/O} < GND$	-50	mA
I_O	ON-State Switch Current	± 128	mA
	Continuous Current Through V_{CC} or GND	± 150	mA
I_{CC}	DC Supply Current Per Supply Pin	± 150	mA
I_{GND}	DC Ground Current per Ground Pin	± 150	mA
T_{STG}	Storage Temperature Range	-65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 Seconds	260	°C
T_J	Junction Temperature Under Bias	150	°C
θ_{JA}	Thermal Resistance UDFN8 (Note 1) Micro8	111	°C/W
		392	
P_D	Power Dissipation in Still Air at 85°C UDFN8 Micro8	1127	mW
		319	
MSL	Moisture Sensitivity	Level 1	
F_R	Flammability Rating Oxygen Index: 28 to 34	UL 94 V-0 @ 0.125 in	
V_{ESD}	ESD Withstand Voltage Human Body Mode (Note 2) Machine Model (Note 3) Charged Device Model (Note 4)	> 2000	V
		> 200	
		N/A	
$I_{LATCHUP}$	Latchup Performance Above V_{CC} and Below GND at 125°C (Note 5)	± 200	mA

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Measured with minimum pad spacing on an FR4 board, using 10 mm-by-1 inch, 2 ounce copper trace no air flow.
2. Tested to EIA / JESD22-A114-A.
3. Tested to EIA / JESD22-A115-A.
4. Tested to JESD22-C101-A.
5. Tested to EIA / JESD78.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V_{CC}	Positive DC Supply Voltage	4.0	5.5	V
V_{IN}	Control Pin Input Voltage	0	5.5	V
$V_{I/O}$	Switch Input / Output Voltage	0	5.5	V
T_A	Operating Free-Air Temperature	-55	+125	°C
$\Delta t/\Delta V$	Input Transition Rise or Fall Rate Control Input Switch I/O	0	5	
		0		

DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V _{CC} (V)	T _A = 25°C			T _A = -55°C to +125°C		Unit
				Min	Typ	Max	Min	Max	
V _{IK}	Clamp Diode Voltage	I _{I/O} = -18 mA	4.5			-1.2		-1.2	V
V _{IH}	High-Level Input Voltage (Control)		4.0 to 5.5	2.0			2.0		V
V _{IL}	Low-Level Input Voltage (Control)		4.0 to 5.5			0.8		0.8	V
V _{OH}	Output Voltage High	See Figure 4							
I _{IN}	Input Leakage Current	0 ≤ V _{IN} ≤ 5.5 V	5.5			±0.1		±1.0	μA
I _{OFF}	Power Off Leakage Current	V _{I/O} = 0 to 5.5 V	0			±0.1		±1.0	μA
I _{CC}	Quiescent Supply Current	I _O = 0, V _{IN} = V _{CC} or 0 V	5.5			±0.1		±1.0	μA
ΔI _{CC}	Increase in Supply Current (Control Pin)	One input at 3.4 V; Other inputs at V _{CC} or GND	5.5					2.5	mA
R _{ON}	Switch ON Resistance	V _{I/O} = 0, I _{I/O} = 64 mA I _{I/O} = 30 mA	4.5						

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TYPICAL DC CHARACTERISTICS

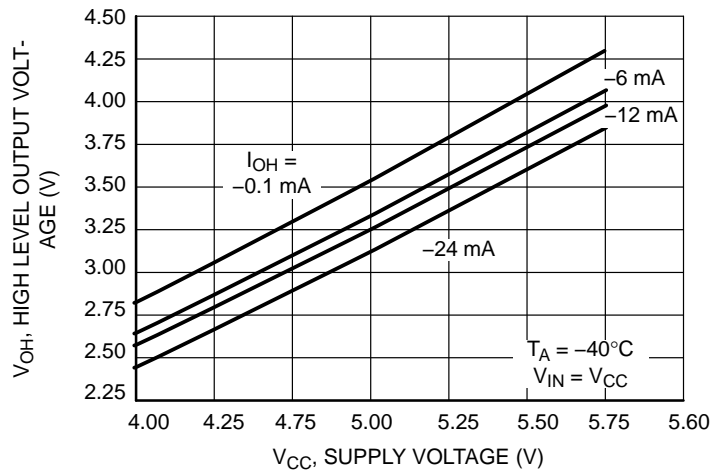
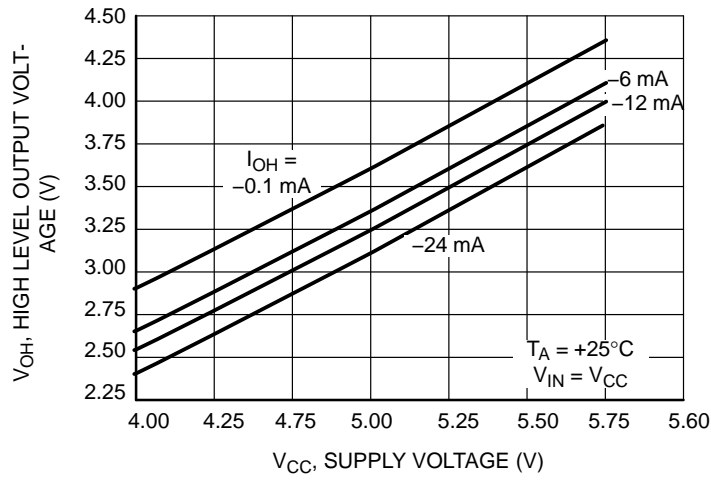
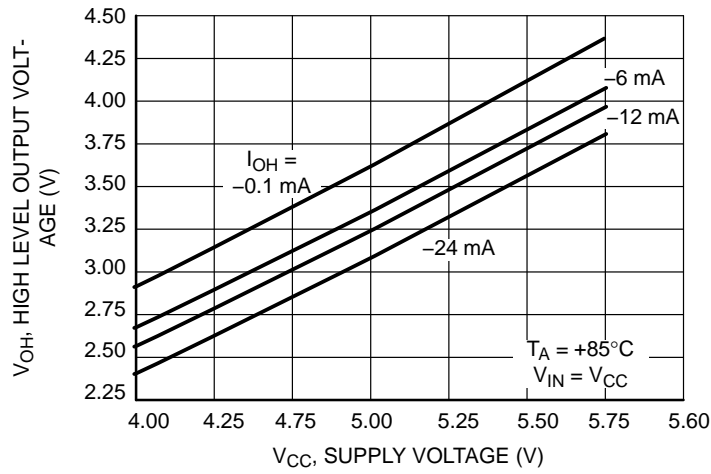


Figure 4. Output Voltage High vs Supply Voltage

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ORDERING

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PACKAGE DIMENSIONS

UDFN8 1.95x1.0, 0.5P
CASE 517CA
ISSUE O



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
4. PACKAGE DIMENSIONS EXCLUSIVE OF BURRS AND MOLD FLASH.

DIM	MILLIMETERS	
	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3		

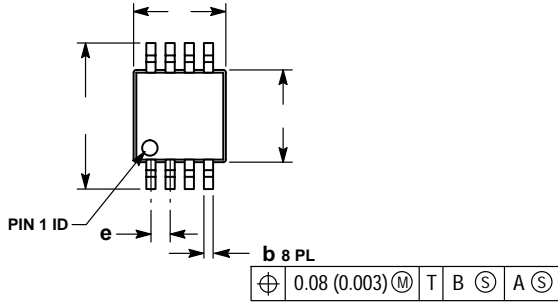
RECOMMENDED SOLDERING FOOTPRINT*

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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PACKAGE DIMENSIONS

Micro8™
CASE 846A
ISSUE H



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. 846A-01 OBSOLETE, NEW STANDARD 846A-02.

