Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

FEATURES:

- Pin-out compatible with standard '126 Logic products
- 5Ω A/B bi-directional switch
- Isolation under power-off conditions
- Over-voltage tolerant
- Latch-up performance exceeds 100mA
- V_{CC} = 2.3V - 3.6V, Normal Range
- ESD > 2000V per MIL-STD-883, Method 3015; > 200V using machine model (C = 200pF, R = 0)
- Output enable, active high
- Available in QSOP and TSSOP packages

APPLICATIONS:

- 3.3V High Speed Bus Switching and Bus Isolation

DESCRIPTION：

The CBTLV3126 features four independent switches. Each switch is enabled when the associated output-enable ($\overline{OE}$) input is high.

To ensure the high-impedance state during power up or power down, $\overline{OE}$ should be tied to GND through a pulldown resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

FUNCTIONAL BLOCK DIAGRAM
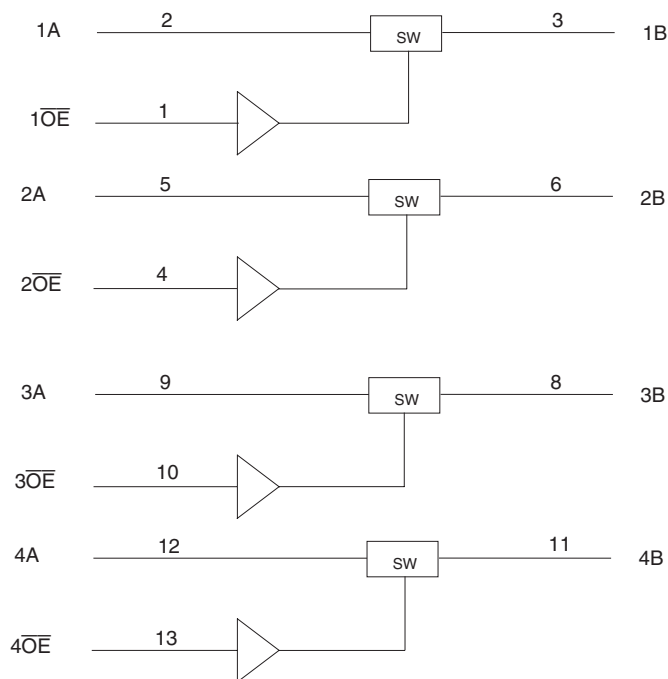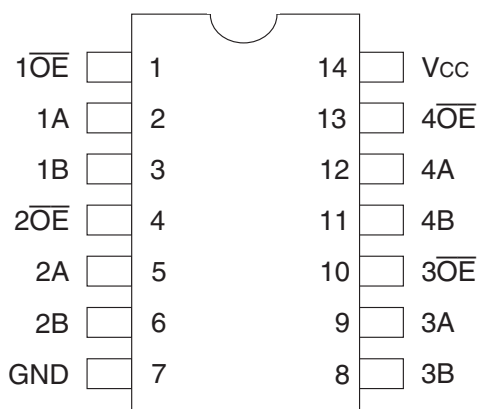

SIMPLIFIED SCHEMATIC, EACH SWITCH
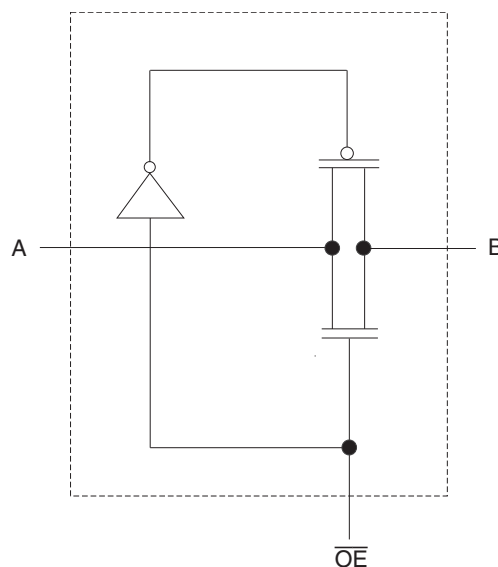
NOTE:
1. Pin numbers shown apply to the 14-pin TSSOP package.

INDUSTRIAL TEMPERATURE RANGE

JULY 2008

PIN CONFIGURATION

TSSOP
TOP VIEW
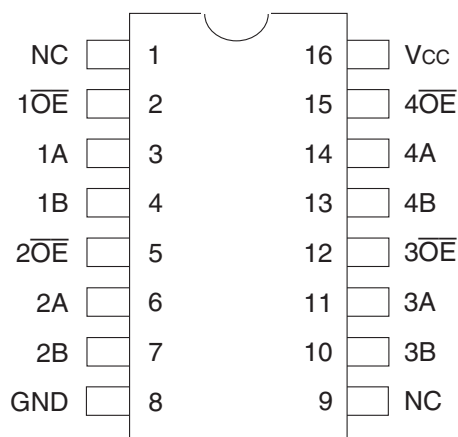
QSOP
TOP VIEW

ABSOLUTE MAXIMUM RATINGS[1]

Symbol	Description	Max	Unit
V_{CC}	Supply Voltage Range	−0.5 to +4.6	V
V_I	Input Voltage Range	−0.5 to +4.6	V
	Continuous Channel Current	128	mA
I_{IK}	Input Clamp Current, $V_{I/O} < 0$	−50	mA
T_{STG}	Storage Temperature	−65 to +150	°C

NOTE:
1. Stresses greater than those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

FUNCTION TABLE[1]

Input OE	Inputs/Outputs
H	A Port = B Port
L	Disconnect

NOTE:
1. H = HIGH Voltage Level
   L = LOW Voltage Level

OPERATING CHARACTERISTICS, $T_A = 25°C$[1]

Symbol	Parameter	Test Conditions	Min.	Max.	Unit
V_{CC}	Supply Voltage		2.3	3.6	V
V_{IH}	High-Level Control Input Voltage	V_{CC} = 2.3V to 2.7V	1.7	—	V
		V_{CC} = 2.7V to 3.6V	2	—	
V_{IL}	Low-Level Control Input Voltage	V_{CC} = 2.3V to 2.7V	—	0.7	V
		V_{CC} = 2.7V to 3.6V	—	0.8	
T_A	Operating Free-Air Temperature		−40	85	°C

NOTE:
1. All unused control inputs of the device must be held at V_{CC} or GND to ensure proper device operation.

DC ELECTRICAL CHARACTERISTICS OVER OPERATING RANGE

Following Conditions Apply Unless Otherwise Specified:
Operating Conditions: $T_A = -40°C$ to $+85°C$

Symbol	Parameter	Test Conditions		Min.	Typ.[1]	Max.	Unit
V_{IK}	Control Inputs, Data Inputs	$V_{CC} = 3V$, $I_I = -18mA$		—	—	−1.2	V
I_I	Control Inputs	$V_{CC} = 3.6V$, $V_I = V_{CC}$ or GND		—	—	±1	μA
I_{OZ}	Data I/O	$V_{CC} = 3.6V$, $V_O = 0$ or 3.6V, switch disabled		—	—	5	μA
I_{OFF}		$V_{CC} = 0$, V_I or $V_O = 0$ to 3.6V		—	—	50	μA
I_{CC}		$V_{CC} = 3.6V$, $I_O = 0$, $V_I = V_{CC}$ or GND		—	—	10	μA
ΔI_{CC}[2]	Control Inputs	$V_{CC} = 3.6V$, one input at 3V, other inputs at V_{CC} or GND		—	—	300	μA
C_I	Control Inputs	$V_I = 3V$ or 0		—	4	—	pF
$C_{IO(OFF)}$		$V_O = 3V$ or 0, OE = V_{CC}		—	6	—	pF
R_{ON}[3]	$V_{CC} = 2.3V$ Typ. at $V_{CC} = 2.5V$	$V_I = 0$	$I_O = 64mA$	—	5	8	Ω
			$I_O = 24mA$	—	5	8	
		$V_I = 1.7V$	$I_O = 15mA$	—	27	40	
	$V_{CC} = 3V$	$V_I = 0$	$I_O = 64mA$	—	5	7	
			$I_O = 24mA$	—	5	7	
		$V_I = 2.4V$	$I_O = 15mA$	—	10	15	

NOTES:
1. Typical values are at $V_{CC} = 3.3V$, +25°C ambient.
2. The increase in supply current is attributable to each current that is at the specified voltage level rather than V_{CC} or GND.
3. This is measured by the voltage drop between the A and B terminals at the indicated current through the switch. On-state resistance is determined by the lower of the voltages of the two (A or B) terminals.
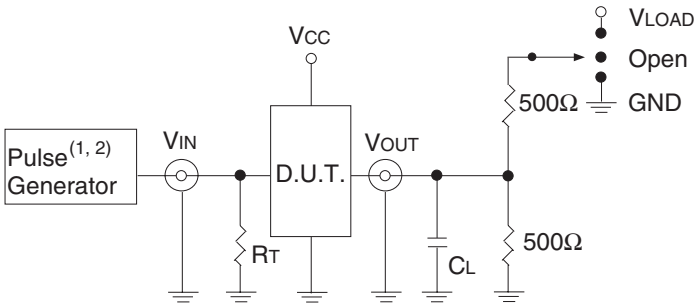
SWITCHING CHARACTERISTICS

Symbol	Parameter	$V_{CC} = 2.5V ± 0.2V$		$V_{CC} = 3.3V ± 0.3V$		Unit
		Min.	Max.	Min.	Max.	
t_{PD}[1]	Propagation Delay A to B or B to A	–	0.15	–	0.25	ns
t_{EN}	Output Enable Time OE to A or B	1	4.5	1	4.2	ns
t_{DIS}	Output Disable Time OE to A or B	1	4.7	1	4.8	ns

NOTE:
1. The propagation delay is the calculated RC time constant of the typical on-state resistance of the switch and the specified load capacitance driven by an ideal voltage source (zero output impedance).

TEST CIRCUITS AND WAVEFORMS

TEST CONDITIONS

Symbol	Vcc[1] = 3.3V±0.3V	Vcc[2] = 2.5V±0.2V	Unit
V_{LOAD}	6	2 x Vcc	V
V_{IH}	3	Vcc	V
V_T	1.5	Vcc / 2	V
V_{LZ}	300	150	mV
V_{HZ}	300	150	mV
C_L	50	30	pF

Test Circuits for All Outputs
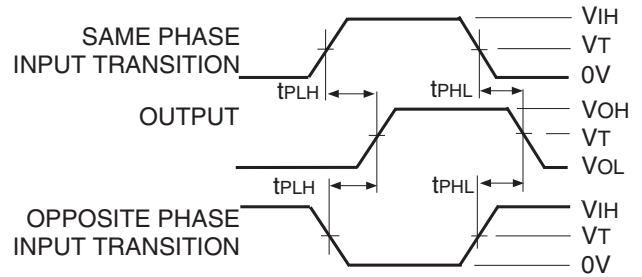
DEFINITIONS:

C_L = Load capacitance: includes jig and probe capacitance.
R_T = Termination resistance: should be equal to Z_{OUT} of the Pulse Generator.
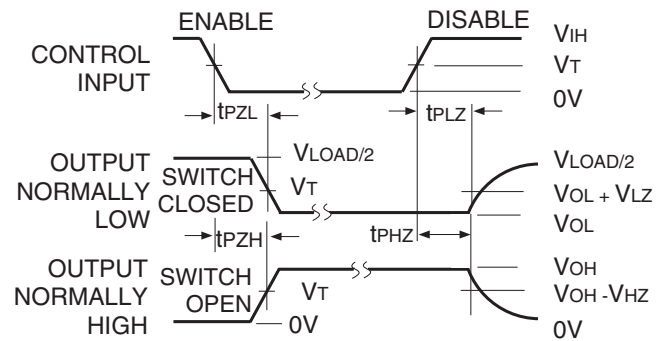
NOTES:
1. Pulse Generator for All Pulses: Rate $\leq$ 10MHz; $t_F \leq$ 2.5ns; $t_R \leq$ 2.5ns.
2. Pulse Generator for All Pulses: Rate $\leq$ 10MHz; $t_F \leq$ 2ns; $t_R \leq$ 2.5ns.

SWITCH POSITION

Test	Switch
t_{PLZ}/t_{PZL}	V_{LOAD}
t_{PHZ}/t_{PZH}	GND
t_{PD}	Open

Propagation Delay

Enable and Disable Times

ORDERING INFORMATION

IDT   XX   CBTLV   XXXX   X

    Temp. Range   Device Type Package

PG   Thin Shrink Small Outline Package
PGG TSSOP - Green
Q   Quarter Small Outline Package
QG   QSOP - Green

3126   Low-Voltage Quadruple Bus Switch

74   -40°C to +85°C
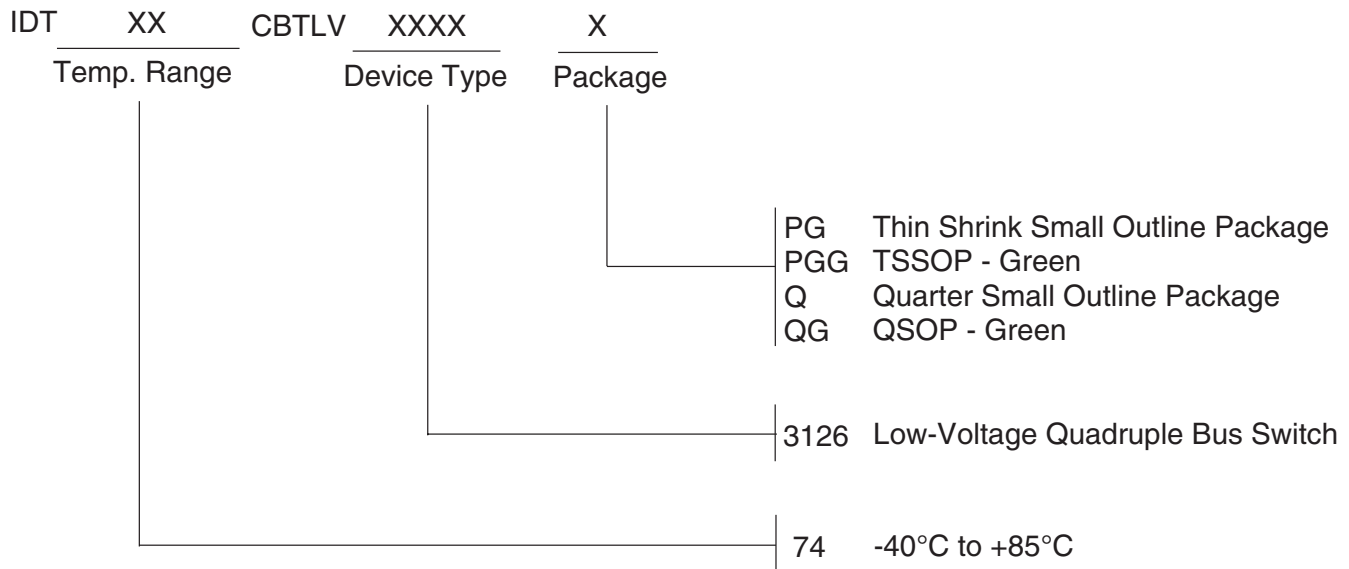
DATASHEET DOCUMENT HISTORY

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