

**2-Bit Bi-Directional Level Shifter with Automatic Sensing & Ultra Tiny Package**

**Description**

The DIODES LXS0102 is a 2-bit configurable dual supply bidirectional auto sensing translator that does not require a directional control pin. The A and B ports are designed to track two different power supply rails,  $V_{CCA}$  and  $V_{CCB}$  respectively. This allows bidirectional translation between lower and higher logic signal levels.

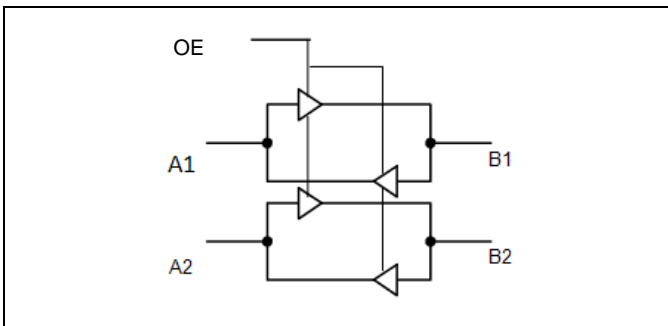
When the OE pin is low, all I/Os are configured to be high-impedance state.

Power-off protection is implemented to prevent current passing through the device when it is powered-down.

**Application(s)**

- I2C, SMBus, MDIO
- Low Voltage ASIC Level Translation
- Mobile Phones, PDAs, Cameras

**Block Diagram**



**Figure 1. Block Diagram**

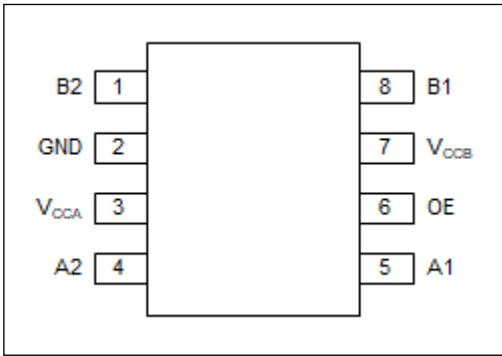
**Features**

- High-Speed with 24Mb/s Data Rate for push-pull applications
- High-Speed with 2Mb/s Data Rate for open-drain applications
- 1.65V to 3.6V on A Port and 2.3V to 5.5V on B Port
- $V_{CCA}$  must be less than or equal to  $V_{CCB}$
- No Direction-Control Signal Needed
- Low Bit-to-Bit Skew
- Non-preferential Power-up Sequencing
- ESD protection exceeds JESD22-A114
  - A Port: 2000V HBM
  - B Port: 5KV HBM – V, SS, HK  
7KV HBM – GBA only
- Integrated 10 kΩ Pull-up Resistors
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative.
  - <https://www.diodes.com/quality/product-definitions/>
- Packaging (Pb-free & Green):
  - 8-DFN1x1.4 (HK)
  - 8-VSSOP (V)
  - 8-SSOP (SS)
  - 8-WLCSP (GBA)

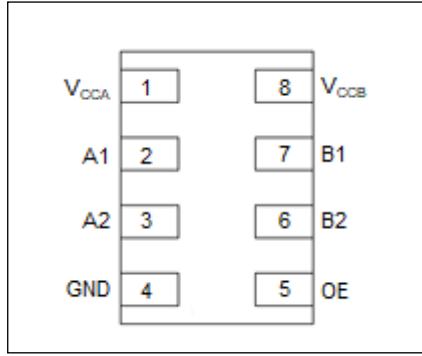
Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, “Green” and Lead-free.
3. Halogen- and Antimony-free “Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

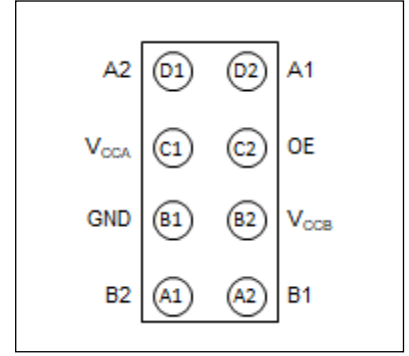
## Pin Configuration



SSOP-8/VSSOP-8 (TOP VIEW)



UDFN-8 (TOP VIEW)



WLCSP (BOTTOM VIEW)

## Pin Description

Pin Name	SSOP VSSOP	DFN	WLCSP	Type	Description
VCCA	3	1	C1	Power	A-port supply voltage. $1.65V \leq V_{CCA} \leq 3.6V$
VCCB	7	8	B2	Power	B-port supply voltage. $2.3V \leq V_{CCB} \leq 5.5V$
A1	5	2	D2	I/O	Input/output A. Referenced to VCCA.
A2	4	3	D1	I/O	Input/output A. Referenced to VCCA
B1	8	7	A2	I/O	Input/output B. Referenced to VCCB
B2	1	6	A1	I/O	Input/output B. Referenced to VCCB
OE	6	5	C2	Input	Output enable (active High). Pull OE low to place all outputs in 3-state mode. Referenced to VCCA
GND	2	4	B1	GND	Ground.

## Maximum Ratings

Storage Temperature .....	-65°C to +150°C
DC Supply Voltage port B .....	-0.5V to +6.5V
DC Supply Voltage port A .....	-0.5V to +4.6V
Vi(A) referenced DC Input Voltage .....	-0.5V to +4.6V
Vi(B) referenced DC Input Voltage .....	-0.5V to +6.5V
Enable Control Pin DC Input Voltage .....	-0.5V to +4.6V
Continuous output current, I/O .....	45mA

**Note:**  
Stresses greater than those listed under 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.

## Recommended Operation Conditions

Symbol	Parameter	Min	Typ	Max	Unit
V <sub>CCA</sub>	V <sub>CCA</sub> Positive DC Supply Voltage	1.65		3.6	V
V <sub>CCB</sub>	V <sub>CCB</sub> Positive DC Supply Voltage	2.3		5.5	V
V <sub>OE</sub>	Enable Control Pin Voltage	GND		3.6	V
V <sub>IO</sub>	I/O Pin Voltage (A1, A2)	GND		V <sub>CCA</sub>	V
	I/O Pin Voltage (B1, B2)	GND		V <sub>CCB</sub>	V
Δt / Δv	Input transition rise or fall time				
	A or B port Push-Pull Driving, ( V <sub>CCA</sub> = 1.65V to 3.6V, V <sub>CCB</sub> = 2.3V to 5.5V )			10	ns/V
	OE ( V <sub>CCA</sub> = 1.65V to 3.6V, V <sub>CCB</sub> = 2.3V to 5.5V )			10	ns/V
T <sub>A</sub>	Operating Temperature Range	-40		+85	°C

## DC Electrical Characteristics

V<sub>CCI</sub> is the supply voltage associated with the input port. V<sub>CCO</sub> is the supply voltage associated with the output port.

Symbol	Parameter	Test Conditions	V <sub>CCA</sub>	V <sub>CCB</sub>	Temp.	Min	Typ	Max	Unit
V <sub>IHB</sub>	B port Input HIGH Voltage	I <sub>OHA</sub> = -20uA V <sub>IA</sub> = V <sub>CCA</sub> x 0.67	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C	V <sub>CCI</sub> - 0.4			V
V <sub>ILB</sub>	B port Input LOW Voltage	I <sub>OLA</sub> = 1mA V <sub>IA</sub> = 0.4V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			0.15	V
V <sub>IHA</sub>	A port Input HIGH Voltage	I <sub>OHB</sub> = -20uA V <sub>IB</sub> = V <sub>CCB</sub> x 0.67	1.65V to 1.95V	2.3V to 5.5V	-40 to 85°C	V <sub>CCI</sub> - 0.2			V
			1.65V to 3.6V	2.3V to 5.5V		V <sub>CCI</sub> - 0.4			V
V <sub>ILA</sub>	A port Input LOW Voltage	I <sub>OLB</sub> = 1mA V <sub>IB</sub> = 0.4V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			0.15	V
V <sub>IH</sub>	Control Pin Input HIGH Voltage		1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C	V <sub>CCA</sub> x 0.65			V
V <sub>IL</sub>	Control Pin Input LOW Voltage		1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			V <sub>CCA</sub> x 0.35	V
V <sub>OHB</sub>	B port Output HIGH Voltage	I <sub>OHB</sub> = -20uA V <sub>IA</sub> ≥ V <sub>CCA</sub> - 0.4V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C	0.67 x V <sub>CCB</sub>			V
V <sub>OLB</sub>	B port Output LOW Voltage	I <sub>OLB</sub> = 8mA V <sub>IA</sub> ≤ 0.15V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			0.4	V
V <sub>OHA</sub>	A port Output HIGH Voltage	I <sub>OHA</sub> = -20uA V <sub>IB</sub> ≥ V <sub>CCB</sub> - 0.4V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C	0.67 * V <sub>CCA</sub>			V
V <sub>OLA</sub>	A port Output LOW Voltage	I <sub>OLA</sub> = 8mA V <sub>IB</sub> ≤ 0.15V	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			0.4	V
I <sub>I</sub>	Input leakage	OE	1.65V to	2.3V to	25°C			±1	μA

**LXS0102**

Symbol	Parameter	Test Conditions	V <sub>CCA</sub>	V <sub>CCB</sub>	Temp.	Min	Typ	Max	Unit
	current		3.6V	5.5V	-40 to 85°C			±2	
I <sub>OFF</sub>	Partial power down current	A port	0V	0V to 5.5V	25°C			±1	μA
					-40 to 85°C			±2	
		B port	0V to 5.5V	0V	25°C			±1	
					-40 to 85°C			±2	
I <sub>OZ</sub>	Off-state Leakage current	A or B port	1.65V to 3.6V	2.3V to 5.5V	25°C			±1	μA
					-40 to 85°C			±2	
I <sub>QVCCA</sub>	V <sub>CCA</sub> Supply Current	V <sub>I</sub> = V <sub>O</sub> = open, I <sub>O</sub> = 0	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			2.8	μA
			3.6V	0V	-40 to 85°C			2.2	
			0V	5.5V	-40 to 85°C			-1	
I <sub>QVCCB</sub>	V <sub>CCB</sub> Supply Current	V <sub>I</sub> = V <sub>O</sub> = open, I <sub>O</sub> = 0	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			12	μA
			3.6V	0V	-40 to 85°C			-1	
			0V	5.5V	-40 to 85°C			1	
I <sub>QVCCA</sub> + I <sub>QVCCB</sub>	Total Supply current	V <sub>I</sub> = V <sub>O</sub> = open, I <sub>O</sub> = 0	1.65V to 3.6V	2.3V to 5.5V	-40 to 85°C			14.4	μA
C <sub>I</sub>	Input Capacitance	OE	3.3V	3.3V	25°C		2.5		pF
					-40 to 85°C			4.8	
C <sub>IO</sub>	Input-to-output Capacitance	A or B port	3.3V	3.3V	25°C		10		pF
					-40 to 85°C				
		A port	0V	0V	25°C			5	
					-40 to 85°C			6	
		B port	0V	0V	25°C			6	
					-40 to 85°C			7.5	

## AC Electrical Characteristics

(Unless otherwise specified,  $-40^{\circ}\text{C} \leq T_A \leq 85^{\circ}\text{C}$ )

I/O test circuits of Figures 2, 3, 4 & 5,  $C_{\text{LOAD}} = 15\text{pF}$ ,  $R_{\text{LOAD}} = 1\text{M}\Omega$ , input pulse generator having the following characteristics:  $Z_O = 50\Omega$ ,  $\text{PRR} \leq 10\text{MHz}$ ,  $dv/dt \geq 1\text{V/ns}$

$V_{\text{CCA}} = 1.8\text{V} \pm 0.15\text{V}$

Symbol	Parameter	Test Conditions	$V_{\text{CCB}} = 2.5\text{V} \pm 0.2\text{V}$		$V_{\text{CCB}} = 3.3\text{V} \pm 0.3\text{V}$		$V_{\text{CCB}} = 5.0\text{V} \pm 0.5\text{V}$		Unit
			Min	Max	Min	Max	Min	Max	
$t_{\text{PHL-A-B}}$	High to Low propagation delay	Push-pull driving		5.3		5.4		6.8	ns
		Open-Drain driving		8.8		9.6		10	
$t_{\text{PLH-A-B}}$	Low to High propagation delay	Push-pull driving		6.8		7.1		7.5	ns
		Open-Drain driving		260		208		198	
$t_{\text{PHL-B-A}}$	High to Low propagation delay	Push-pull driving		4.4		4.5		4.7	ns
		Open-Drain driving		5.3		4.4		4	
$t_{\text{PLH-B-A}}$	Low to High propagation delay	Push-pull driving		5.3		4.5		0.5	ns
		Open-Drain driving		175		140		102	
$t_{\text{en}}$	Enable Time	OE to A or B		200		200		200	ns
$t_{\text{dis}}$	Disable Time	OE to A or B		230		230		230	ns
$t_{\text{rA}}$	A port Rise Time	Push-pull driving	3.2	9.5	2.3	9.3	2	7.6	ns
		Open-Drain driving	32.8	165	27.9	132	20.5	95	
$t_{\text{rB}}$	B port Rise Time	Push-pull driving	2.8	10.8	2.7	9.1	2.1	7.6	ns
		Open-Drain driving	30	145	23	106	10	58	
$t_{\text{fA}}$	A port Fall Time	Push-pull driving	2	5.9	1.9	6	1.7	13.3	ns
		Open-Drain driving	3	6.9	3	6.4	3.1	6.1	
$t_{\text{fB}}$	B port Fall Time	Push-pull driving	2.9	13.8	2.8	16.2	2.8	16.2	ns
		Open-Drain driving	3.1	13.8	3.2	16.2	3.9	16.2	
$t_{\text{PPSKEW}}$	Channel-to-Channel Skew			0.7		0.7		0.7	ns
$f_{\text{DATA}}$	Maximum Data Rate	Push-pull driving	21	-	22		24		Mbps
		Open-Drain driving	2	-	2		2		

**LXS0102**

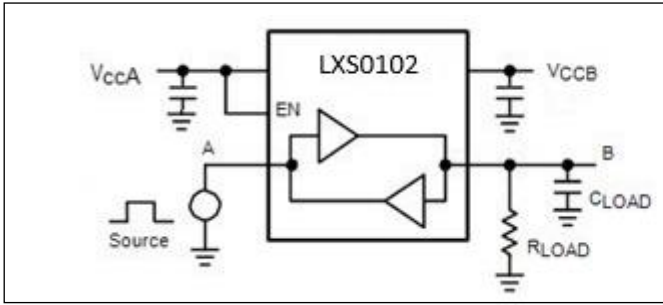
**V<sub>CCA</sub> = 2.5V ± 0.2V**

Symbol	Parameter	Test Conditions	V <sub>CCB</sub> = 2.5V ± 0.2V		V <sub>CCB</sub> = 3.3V ± 0.3V		V <sub>CCB</sub> = 5.0V ± 0.5V		Unit
			Min	Max	Min	Max	Min	Max	
t <sub>PHL-A-B</sub>	High to Low propagation delay	Push-pull driving		3.2		3.7		3.8	ns
		Open-Drain driving		6.3		6		5.8	
t <sub>PLH-A-B</sub>	Low to High propagation delay	Push-pull driving		3.5		4.1		4.4	ns
		Open-Drain driving		250		206		190	
t <sub>PHL-B-A</sub>	High to Low propagation delay	Push-pull driving		3		3.6		4.3	ns
		Open-Drain driving		4.7		4.2		4	
t <sub>PLH-B-A</sub>	Low to High propagation delay	Push-pull driving		3.4		1.6		1	ns
		Open-Drain driving		170		140		103	
t <sub>en</sub>	Enable Time	OE to A or B		200		200		200	ns
t <sub>dis</sub>	Disable Time	OE to A or B		230		230		230	ns
t <sub>RA</sub>	A port Rise Time	Push-pull driving	2.8	7.4	2.6	6.6	1.8	5.6	ns
		Open-Drain driving	24.9	149	22.8	121	18.4	89	
t <sub>RB</sub>	B port Rise Time	Push-pull driving	2.7	8.3	2.4	7.2	2	6.1	ns
		Open-Drain driving	25.5	151	20.5	112	12	64	
t <sub>FA</sub>	A port Fall Time	Push-pull driving	1.9	5.7	1.9	5.5	1.8	5.3	ns
		Open-Drain driving	2.9	6.9	2.9	6.2	2.9	5.8	
t <sub>FB</sub>	B port Fall Time	Push-pull driving	2.2	7.8	2.4	6.7	2.6	6.6	ns
		Open-Drain driving	3	8.8	2.9	9.4	3.1	10.4	
t <sub>PPSKEW</sub>	Channel-to-Channel Skew			0.7		0.7		0.7	ns
f <sub>DATA</sub>	Maximum Data Rate	Push-pull driving	20		22		24		Mbps
		Open-Drain driving	2		2		2		

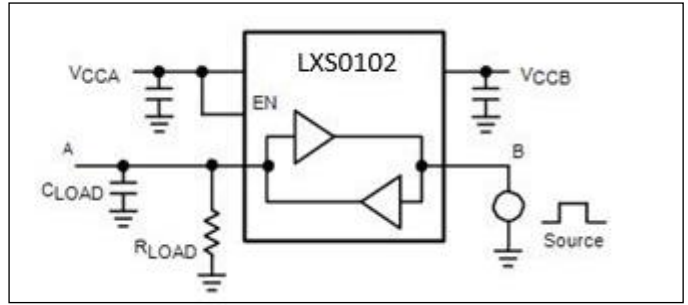
V<sub>CCA</sub> = 3.3V ± 0.3V

Symbol	Parameter	Test Conditions	V <sub>CCB</sub> = 3.3V ± 0.3V		V <sub>CCB</sub> = 5.0V ± 0.5V		Unit
			Min	Max	Min	Max	
t <sub>PHL-A-B</sub>	High to Low propagation delay	Push-pull driving		2.4		3.1	ns
		Open-Drain driving		4.2		4.6	
t <sub>PLH-A-B</sub>	Low to High propagation delay	Push-pull driving		4.2		4.4	ns
		Open-Drain driving		204		165	
t <sub>PHL-B-A</sub>	High to Low propagation delay	Push-pull driving		2.5		3.3	ns
		Open-Drain driving		124		97	
t <sub>PLH-B-A</sub>	Low to High propagation delay	Push-pull driving		2.5		2.6	ns
		Open-Drain driving		139		105	
t <sub>en</sub>	Enable Time	OE to A or B		200		200	ns
t <sub>dis</sub>	Disable Time	OE to A or B		230		230	ns
t <sub>RA</sub>	A port Rise Time	Push-pull driving	2.3	5.6	1.9	4.8	ns
		Open-Drain driving	17.4	116	15.4	85	
t <sub>RB</sub>	B port Rise Time	Push-pull driving	2.5	6.4	2.1	7.4	ns
		Open-Drain driving	17.7	116	11.8	72	
t <sub>FA</sub>	A port Fall Time	Push-pull driving	2	5.4	1.9	5	ns
		Open-Drain driving	2.8	6.1	2.8	5.7	
t <sub>FB</sub>	B port Fall Time	Push-pull driving	2.3	7.4	2.4	7.6	ns
		Open-Drain driving	2.8	7.6	2.9	8.3	
t <sub>PPSKEW</sub>	Channel-to-Channel Skew			0.7		0.7	ns
f <sub>DATA</sub>	Maximum Data Rate	Push-pull driving	23		24		Mbps
		Open-Drain driving	2		2		

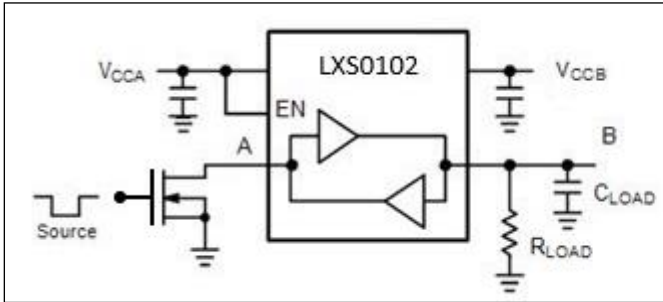
**Test Circuits**



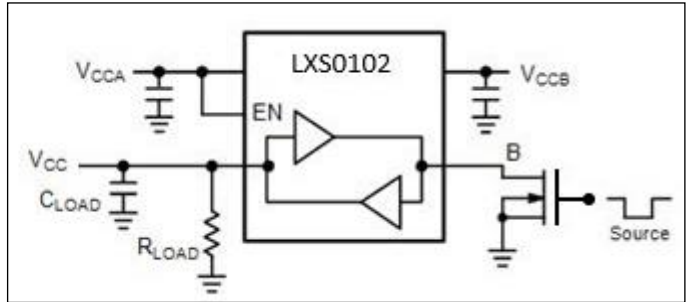
**Figure 2. Push-Pull Driving A**



**Figure 3. Push-Pull Driving B**

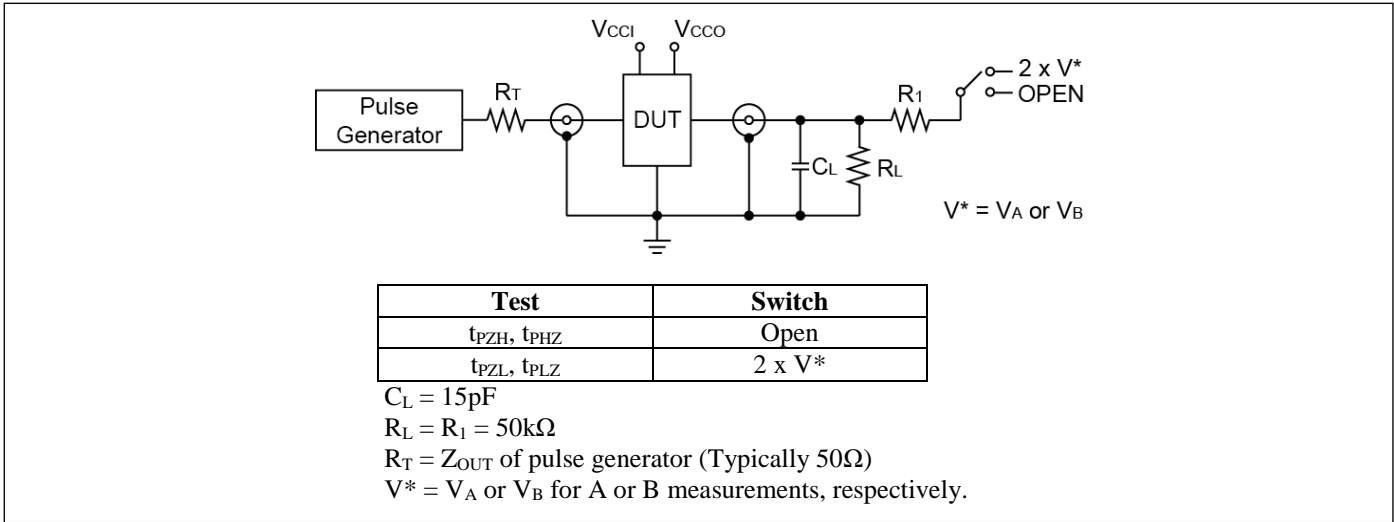


**Figure 4. Open-Drain Driving A**

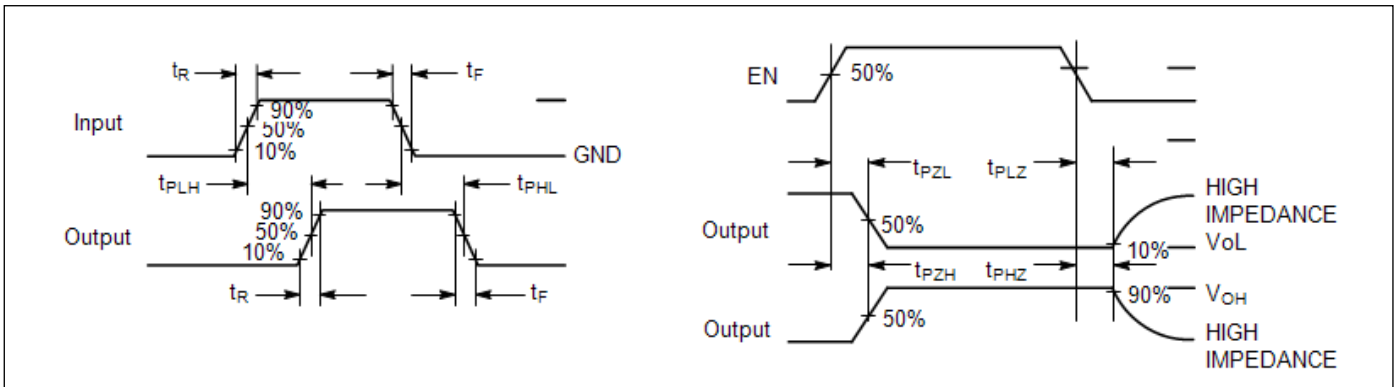


**Figure 5. Open-Drain Driving B**





**Figure 6. Test Circuit for Enable/Disable Time Measurement**



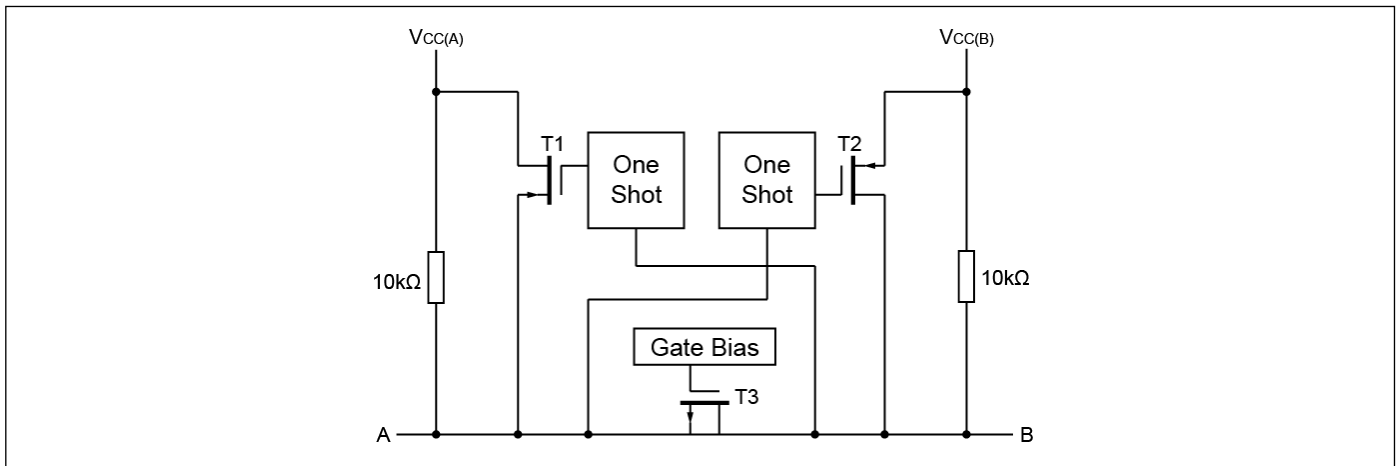
**Figure 7. Timing Definitions for Propagation Delays and Enable/Disable Measurement**

## Functional Description

### Level Translator Architecture

The LXS0102 is a 2-bit configurable dual supply bidirectional auto sensing translator that does not require a directional control pin. The A port operating voltage range is from 1.65 V to 3.6 V, and the B port operating voltage range is from 2.3 V to 5.5 V. Figure 8 shows its architecture.

The translator has integrated a 10 kΩ pull-up resistor on each I/O line. The integrated pull-up resistors are used to pull the I/O lines to either  $V_{CCA}$  or  $V_{CCB}$ . When OE goes low, the pull-up resistors are disabled. There is a NMOS transistor that connects the A-port and B-port. In addition, each output has integrated an one-shot rising edge detector to turn on the PMOS transistor within a short duration to improve the low-to-high transition.



**Figure 8. Architecture of LXS0102 I/O Cell (one channel)**

### Input Driver Requirements

The rise ( $t_R$ ) and fall ( $t_F$ ) timing parameters of the open drain outputs depend on the magnitude of the pull-up resistors. In addition, the propagation times ( $t_{PD}$ ) and maximum data rate depend on the impedance of the device that is connected to the translator. The timing parameters listed in the data sheet assume that the output impedance of the drivers connected to the translator is less than 50 Ω.

### Output Enable and Disable (OE)

The LXS0102 has an Output Enable pin (OE) that enables the device by setting HIGH. Driving the Output Enable pin to a low logic level will minimize the power consumption of the device and set all I/Os in high-impedance OFF state. Normal translation operation occurs when the OE pin is equal to a logic high signal. The OE pin is referenced to the  $V_{CCA}$  supply.

### Power Supply Guidelines

During normal operation, supply voltage  $V_{CCA}$  must be less than or equal to  $V_{CCB}$ . The sequencing of the power supplies will not damage the device during the power up operation. For optimal performance, 0.01 μF to 0.1 μF decoupling capacitors should be used on the  $V_{CCA}$  and  $V_{CCB}$  power supply pins. Ceramic capacitors are a good design choice to filter and bypass any noise signals on the voltage lines to the ground plane of the PCB. The noise immunity will be maximized by placing the capacitors as close as possible to the supply and ground pins, along with minimizing the PCB connection traces.

**Part Marking**

**HK Package**

LX

L: LXS0102HKE  
X: One Character Shorted Date Code

**V Package**

xR  
YYW

xR: LXS0102VE  
1st Y: Die Rev  
2nd Y: Date Code (Year)  
W: Date Code (Workweek)  
Bar above W means Cu wire

**SS Package**

xRSSE  
YYWXX

xR: LXS0102SSE  
1st Y: Die Rev  
2nd Y: Date Code (Year)  
W: Date Code (Workweek)  
1st X: Assembly Site Code  
2nd X: Fab Site Code  
Bar above 2nd "X" means Cu wire

**GBA Package**

xRYW

xR: LXS0102GBAE  
Y: Date Code (Year)  
W: Date Code (Workweek)

**Packaging Mechanical**

**8-DFN (HK)**

**TOP VIEW**

**Bottom VIEW**

**RECOMMENDED LAND PATTERN(unit:mm)**

**SIDE VIEW**

PKG. DIMENSIONS(MM)			
SYMBOL	Min	Nom	Max
A	0.36	0.40	0.43
A1	0	0.02	0.05
A3	0.13 REF		
D	0.95	1.00	1.05
E	1.35	1.40	1.45
b	0.12	0.15	0.20
e	0.35 BSC		
L	0.25	0.30	0.35
L1	0.35	0.40	0.45

**Notes:**

1. Ref. JEDEC MO-288
2. LAND PATTERN REFERENCE DIODES X2-DFN1410-8 PACKAGE INFORMATION

<b>DIODES PERICOM</b>		<b>DATE: 12/10/20</b>
<b>DESCRIPTION: 8-Pin, X1-DFN1410-8</b>		
<b>PACKAGE CODE: HK (HK8)</b>		
<b>DOCUMENT CONTROL#: PD-2264</b>	<b>REVISION:--</b>	

20-0540

**LXS0102**

**8-VSSOP (V)**

**Top View**

**Side View**

**RECOMMENDED LAND PATTERN(unit:mm)**

**Side View**

PKG DIMENSIONS(MM)			
SYMBOL	Min.	Nom.	Max.
A	0.60	--	0.90
A1	--	--	0.10
A2	0.55	--	0.80
b	0.17	0.21	0.25
c	0.08	--	0.23
D	1.90	2.00	2.10
E	3.00	3.10	3.20
E1	2.20	2.30	2.40
e	0.50 BSC		
L	0.20	0.35	0.40
L1	0.40 REF		
$\theta$	0°	3°	6°

**NOTE:**  
 1. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES IN DEGREES.  
 2. REFER JEDEC MO-187F/CA  
 3. PACKAGE OUTLINE DIMENSIONS DO NOT INCLUDE MOLD FLASH AND METAL BURR.  
 4. LAND PATTERN REFERENCE DIODES MSOP-8 PACKAGE INFORMATION.

**DIODES PERICOM** DATE: 12/16/20  
 DESCRIPTION: 8-Pin, VSSOP-8L  
 PACKAGE CODE: V (V8)  
 DOCUMENT CONTROL #: PD-2265 REVISION: -

20-0546

**LXS0102**

**8-SSOP (SS)**

**Top View**

**Side View**

**RECOMMENDED LAND PATTERN(unit:mm)**

**Side View**

PKG DIMENSIONS(MM)			
SYMBOL	Min.	Nom.	Max.
A	--	--	1.30
A1	0.05	--	0.15
A2	0.95	1.05	1.20
b	0.15	0.23	0.30
C	0.08	--	0.23
D	2.75	2.95	3.15
E	3.75	4.00	4.25
E1	2.70	2.80	2.90
e	0.65 BSC		
L	0.20	0.40	0.60
L1	0.60 REF		
θ	0°	4°	8°

**NOTE:**  
 1. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES IN DEGREES.  
 2. REFER JEDEC MO-187F/DA  
 3. PACKAGE OUTLINE DIMENSIONS DO NOT INCLUDE MOLD FLASH AND METAL BURR.  
 4. LAND PATTERN REFERENCE DIODES MSOP-8 PACKAGE INFORMATION.

**DIODES PERICOM** ENABLING SERIAL CONNECTIVITY **DATE: 03/02/21**

**DESCRIPTION: 8-Pin, SSOP-8L**

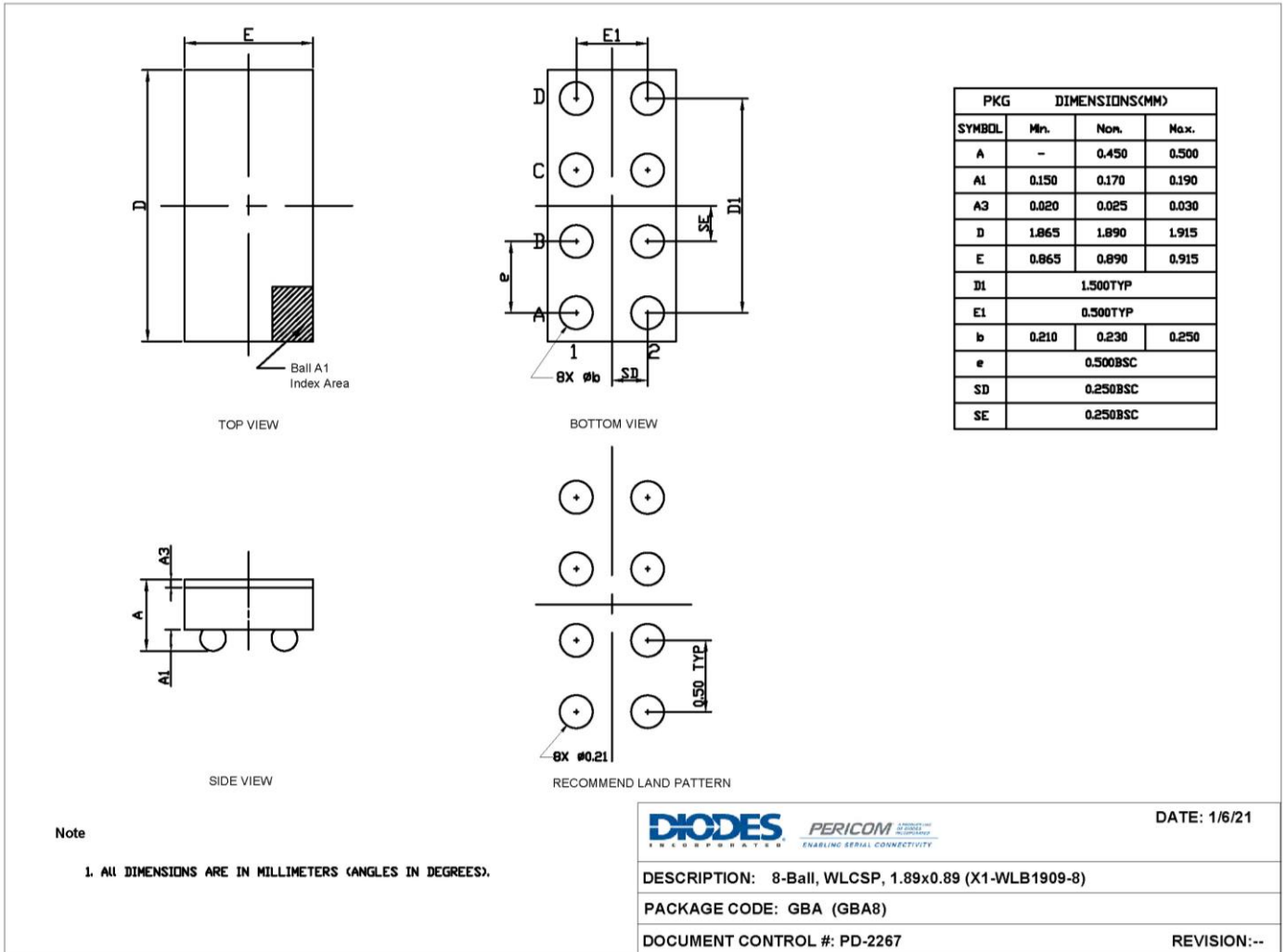
**PACKAGE CODE: SS (SS8)**

**DOCUMENT CONTROL #: PD-2266** **REVISION: A**

21-1374

**LXS0102**

8-WLCSP (GBA)



21-0560

For latest package info.

please check: <http://www.diodes.com/design/support/packaging/pericom-packaging/packaging-mechanicals-and-thermal-characteristics/>

**Ordering Information**

Part Number	Package Code	Package Description
LXS0102HKEX	HK	8-pin, 1x1.4, X1-DFN1410-8 (DFN)
LXS0102VEX	V	8-pin (VSSOP)
LXS0102SSEX	SS	8-pin (SSOP)
LXS0102GBAEX	GBA	8-ball, 1.89x0.89 (WLCSP) (X1-WLB1909-8)

- Notes:**
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  - See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - E = Pb-free and Green
  - X suffix = Tape/Reel

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