



Features

- Each channel has an independent DIR control input
- Control inputs V_{IH}/V_{IL} levels are referenced to V_{CCA} voltage
- 1.1 V to 1.95 V on A Port and 1.65 V to 5.5 V on B Port
- I/Os are 2.5V tolerant (IOA) and 6.5V tolerant (IOB).
- I_{off} Supports partial power-down-mode operation
- Typical data rates
 - 380Mbps (1.8V to 3.3V translation)
 - 200Mbps (<1.8V to 3.3V translation)
 - 200Mbps (translate to 2.5V or 1.8V)
 - 150Mbps (translate to 1.5V)
 - 100Mbps (translate to 1.2V)
- Latch-up performance exceeds 100mA Per JESD 78, class II
- AEC-Q100 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.
- ESD Protection exceeds the following levels
 - $\pm 4000V$ Human-body model
 - $\pm 1000V$ Charged-device model

Applications

- Automotive Infotainment
- Advanced Driver Assistance Systems(ADAS)
- Telematics
- Personal electronic
- Industrial
- Enterprise
- Telecom

Description

This 4-bit noninverting bus transceiver uses two separate configurable power-supply rails. The A port is designed to track V_{CCA} . V_{CCA} accepts any supply voltage from 1.1V to 1.95V. The B port is designed to track V_{CCB} . V_{CCB} accepts any supply voltage from 1.65V to 5.5V. This allows for universal low-voltage bi-directional translation between any of the 1.2V, 1.5V, 1.8V, 2.5V, and 3.3V voltage nodes.

The RS7LS4T774Q is designed for asynchronous communication between data buses. The logic levels of the direction-control (DIR) input and the output-enable ($\overline{OE}$) input activate either the B-port outputs or the A-port outputs or place both output ports in the high-impedance mode. The device transmits data from the A bus to the B bus when the B outputs are activated, and from the B bus to the A bus when the A outputs are activated. The input circuitry on both A and B ports is always active and must have a logic HIGH or LOW level applied to prevent excess I_{CC} and I_{CCZ} .

The RS7LS4T774Q is designed so that the control pins (DIR1, DIR2, DIR3, DIR4, and $\overline{OE}$) are supplied by V_{CCA} . This device is fully specified for partial-power-down applications using I_{off} . The I_{off} circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down. The V_{CC} isolation feature ensures that if either V_{CC} input is at GND, then both ports are in the high-impedance state.

For a high-impedance state during power-up or power-down, $\overline{OE}$ should be tied to V_{CCA} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver. Since this device has CMOS inputs, it is very important to not allow them to float. If the inputs are not driven to either a high V_{CC} state, or a low-GND state, an undesirable larger than expected I_{CC} current may result. Since the input voltage settlement is governed by many factors (for example, capacitance, board-layout, package inductance, surrounding conditions, and so forth), ensuring that these inputs are kept out of erroneous switching states and tying them to either a high or a low level minimizes the leakage current.

Ordering Information

Part Number	Package	Description
RS7LS4T774QLE	TSSOP16	5mm × 6.4mm
RS7LS4T774QZPE	DFN16	2.5mm x 3.5mm
RS7LS4T774QZNE	QFN16	2.6mmX1.8mm



Application

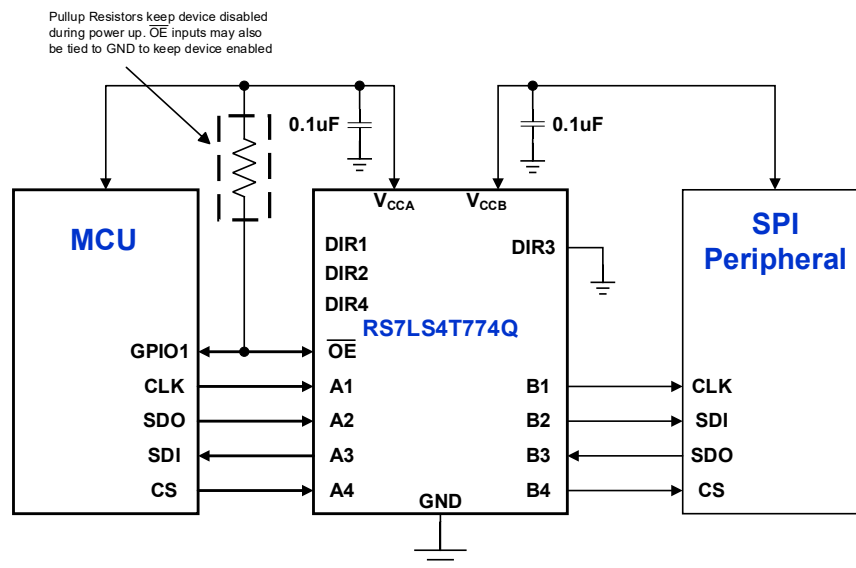


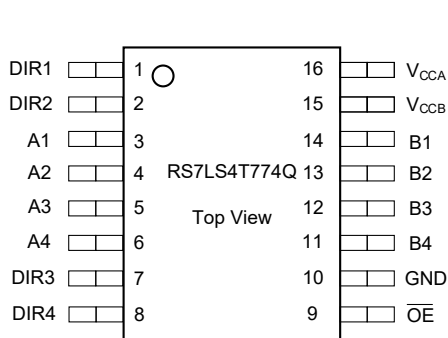
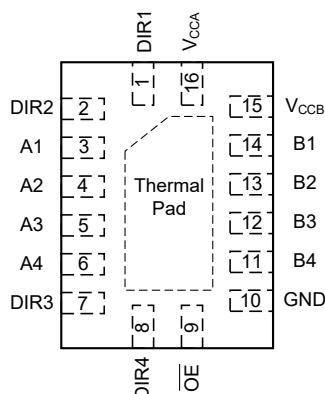
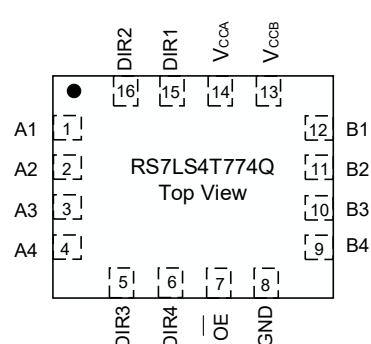
Figure 1. Typical Application Schematic

**RSM**

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RS7LS4T774Q

4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs With Independent Direction Control Inputs

Pin Configuration**Figure 2. TSSOP16, Top View****Figure 3. DFN16L, Top View****Figure 4. QFN16L, Top View****Table 1. Pin Functions**

PIN NAME	No.		TYPE (1)	Description
	TSSOP16, DFN16	QFN16		
DIR1	1	15	I	Direction-control input referenced to V_{CCA} , controls signal flow for the first (A1/B1) I/O channels.
DIR2	2	16	I	Direction-control input referenced to V_{CCA} , controls signal flow for the second (A2/B2) I/O channels.
A1	3	1	I/O	Input/output A1. Referenced to V_{CCA} .
A2	4	2	I/O	Input/output A2. Referenced to V_{CCA} .
A3	5	3	I/O	Input/output A3. Referenced to V_{CCA} .
A4	6	4	I/O	Input/output A4. Referenced to V_{CCA} .
DIR3	7	5	I	Direction-control input referenced to V_{CCA} , controls signal flow for the third (A3/B3) I/O channels.
DIR4	8	6	I	Direction-control input referenced to V_{CCA} , controls signal flow for the fourth (A4/B4) I/O channels.
/OE	9	7	I	3-state output-mode enables. Pull OE high to place all outputs in 3-state mode. Referenced to V_{CCA} .
GND	10	8	—	Ground.
B4	11	9	I/O	Input/output B4. Referenced to V_{CCB} .
B3	12	10	I/O	Input/output B3. Referenced to V_{CCB} .
B2	13	11	I/O	Input/output B2. Referenced to V_{CCB} .
B1	14	12	I/O	Input/output B1. Referenced to V_{CCB} .
V_{CCB}	15	13	—	B-port supply voltage. $1.65V \leq V_{CCB} \leq 5.5V$.
V_{CCA}	16	14	—	A-port supply voltage. $1.1V \leq V_{CCA} \leq 1.95V$.



Absolute Maximum Ratings

Over operating free-air temperature range (unless otherwise noted) ⁽¹⁾

Symbol	Parameter		MIN	MAX	Unit
V _{CCA}	Supply voltage		−0.5	2.5	V
V _{CCB}	Supply voltage		−0.5	6.5	
V _I	Input voltage range ⁽²⁾	I/O ports (A port)	−0.5	2.5	V
		I/O ports (B port)	−0.5	6.5	
		Control inputs	−0.5	2.5	
V _O	Voltage range applied to any output in the high-impedance or power-off state ⁽²⁾	A port	−0.5	2.5	V
		B port	−0.5	6.5	
V _O	Voltage range applied to any output in the high or low state ⁽²⁾⁽³⁾	A port	−0.5	V _{CCA} + 0.5	V
		B port	−0.5	V _{CCB} + 0.5	
I _{IK}	Input clamp current	V _I < 0	−0.5	−50	mA
I _{OK}	Output clamp current	V _O < 0		−50	mA
I _O	Continuous output current			±50	mA
	Continuous current through V _{CCA} , V _{CCB} , or GND			±100	mA
T _J	Junction temperature			+150	°C
T _{stg}	Storage temperature		−65	+150	°C

(1) Stresses beyond those listed under [Absolute Maximum Ratings](#) may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under [Recommended Operating Conditions](#) is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

(2) The input voltage and output negative-voltage ratings may be exceeded if the input and output current ratings are observed.

ESD Ratings

Symbol	Parameter		Value	Unit
V _(ESD)	Electrostatic discharge	Human body model (HBM), per ANSI/ESDA/JEDEC JS-001	±8000	V
		Charged device model (CDM), per JEDEC specification JESD22-C101	±1000	

(1) JEDEC document JEP155 states that 500V HBM allows safe manufacturing with a standard ESD control process.

(2) JEDEC document JEP157 states that 250V CDM allows safe manufacturing with a standard ESD control process.



Recommended Operating Conditions

Over operating free-air temperature range (unless otherwise noted) ⁽¹⁾ ⁽²⁾ ⁽³⁾

Symbol	Parameter		V _{CCI}	V _{CCO}	MIN	MAX	Unit
V _{CCA}	Supply voltage				1.1	1.95	V
V _{CCB}	Supply voltage				1.65	5.5	V
V _{IH}	High-level voltage input	Data inputs ⁽⁴⁾	1.1V to 1.95V		V _{CCI} × 0.85		V
			1.95V to 2.7V		V _{CCI} × 0.85		
			2.7V to 5.5V		V _{CCI} × 0.85		
V _{IL}	Low-level voltage input	Data inputs ⁽⁴⁾	1.1V to 1.95V			V _{CCI} × 0.35	V
			1.95V to 2.7V			V _{CCI} × 0.35	
			2.7V to 5.5V			V _{CCI} × 0.35	
V _{IH}	High-level voltage input	Control Inputs (referenced to V _{CCA}) ⁽⁵⁾ (DIRx, $\overline{\text{OE}}$)	1.1V to 1.95V		V _{CCA} × 0.65		V
V _{IL}	Low-level voltage input	Control Inputs (referenced to V _{CCA}) ⁽⁵⁾ (DIRx, $\overline{\text{OE}}$)	1.1V to 1.95V			V _{CCA} × 0.35	V
V _I	Input voltage				0	V _{CCI}	V
V _O	Output voltage	Active state			0	V _{CCO}	V
		3-state			0	V _{CCO}	
I _{OH}	High-level output current			1.1V to 1.3V		-4	mA
				1.4V to 1.6V		-8	
				1.65V to 1.95V		-12	
				2.3V to 2.7V		-18	
				3V to 5.5V		-24	
I _{OL}	Low-level output current			1.1V to 1.3V		4	mA
				1.4V to 1.6V		8	
				1.65V to 1.95V		12	
				2.3V to 2.7V		18	
				3V to 5.5V		24	
Δt/Δv	Input transition rise or fall rate					5	ns/V
T _A	Operating free-air temperature				-40	125	°C

(1) V_{CCI} is the V_{CC} associated with the input port.(2) V_{CCO} is the V_{CC} associated with the output port.(3) All unused data inputs of the device must be held at V_{CCI} or GND to ensure proper device operation.(4) For V_{CCI} values not specified in the data sheet, V_{IH} min = V_{CCI} × 0.7V, V_{IL} max = V_{CCI} × 0.3V.(5) For V_{CCI} values not specified in the data sheet, V_{IH} min = V_{CCA} × 0.7V, V_{IL} max = V_{CCA} × 0.3V.



Electrical Characteristics

over recommended operating free-air temperature range (unless otherwise noted)

Parameter	Conditions		V _{CCA}	V _{CCB}	TA=25°C		TA=-45°C to 125°C		UNIT
					TYP	MAX	MIN	MAX	
VOHA	I _{OH} = -4mA	V _I =V _{IH}	1.1V	1.65V to 5.5V			V _{CCA} *0.7		V
	I _{OH} = -4mA		1.4V	1.65V to 5.5V			V _{CCA} *0.75		
	I _{OH} = -4mA		1.65V	1.65V to 5.5V			V _{CCA} *0.75		
VOLA	I _{OH} = -4mA	V _I =V _{IL}	1.1V	1.65V to 5.5V				V _{CCA} *0.3	
	I _{OH} = -4mA		1.4V	1.65V to 5.5V				V _{CCA} *0.25	
	I _{OH} = -4mA		1.65V	1.65V to 5.5V				V _{CCA} *0.25	
VOHB	I _{OH} = -4mA	V _I =V _{IH}	1.1V to 1.95V	1.65V			V _{CCB} *0.75		V
	I _{OH} = -8mA		1.1V to 1.95V	2.3V			V _{CCB} *0.75		
	I _{OH} = -12mA		1.1V to 1.95V	3V			V _{CCB} *0.75		
	I _{OH} = -18mA		1.1V to 1.95V	4.5V			V _{CCB} *0.75		
	I _{OH} = -24mA		1.1V to 1.95V	5.5V			V _{CCB} *0.75		
VOLB	I _{OH} = -4mA	V _I =V _{IL}	1.1V to 1.95V	1.65V				V _{CCB} *0.25	
	I _{OH} = -8mA		1.1V to 1.95V	2.3V				V _{CCB} *0.25	
	I _{OH} = -12mA		1.1V to 1.95V	3V				V _{CCB} *0.25	
	I _{OH} = -18mA		1.1V to 1.95V	4.5V				V _{CCB} *0.25	
	I _{OH} = -24mA		1.1V to 1.95V	5.5V				V _{CCB} *0.25	
I _I	Control inputs	V _I =V _{CCA} or GND	1.1V to 1.95V	1.65V to 5.5V	±0.1	±0.25		±1	uA
I _{off}	A port	V _I or V _O = 0 to 1.95V	0V	0V to 5.5V	±0.1	±1		±5	uA
	B port	V _I or V _O = 0 to 5.5V	0V to 1.95V	0V	±0.1	±1		±8	
I _{OZ}	A or B port	V _O = V _{CCO} or GND, V _I = V _{CCI} or GND, $\overline{OE}$ = V _{IH}	1.95	5.5V	±0.5	±2.5		±5	uA
I _{CCA}	V _I = V _{CCI} or GND, I _O = 0		1.1V to 1.95V	1.65V to 5.5V				8	uA
			0V	0V to 5.5V			-2	-2	
			0V to 1.95V	0V				8	
I _{CCB}	V _I = V _{CCI} or GND, I _O = 0		1.1V to 1.95V	1.65V to 5.5V				8	uA
			0V	0V to 5.5V				8	
			0V to 1.95V	0V			-2	-2	
I _{CCA} + I _{CCB}	V _I = V _{CCI} or GND, I _O = 0		1.1V to 1.95V	1.65V to 5.5V				16	uA

(1) V_{CCI} is the V_{CC} associated with the input port.

(2) V_{CCO} is the V_{CC} associated with the output port.

(3) All unused data inputs of the device must be held at V_{CCI} or GND to ensure proper device operation.



AC Electrical Characteristics

Switching Characteristics: $V_{CCA} = 1.2V \pm 0.1V$

See Figure 4 and Table 2 for test circuit and loading. See Figure 5 and Figure 6 for measurement waveforms.

Parameter	From	To	Test Conditions	V _{CCB} = 1.8V±0.1V		V _{CCB} = 2.5V±0.15V		V _{CCB} = 3.3V±0.2V		V _{CCB} = 5.5V±0.3V		Unit
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t _{PLH}	A	B	T _A =25°C	1	5.5	1	4	0.5	4	0.5	4	ns
t _{PHL}				1	5.5	0.5	4.5	0.5	6	0.5	6	
t _{PLH}	B	A		1	6	1	6	1	6	1	6	
t _{PHL}				1	4.5	0.5	4	0.5	4	0.5	4	
t _{PZH}	$\overline{OE}$	A		1	10	1	8	1	8.5	1	8.5	
t _{PZL}				1.5	9	1	9	1	9	1	9	
t _{PZH}	$\overline{OE}$	B		1	13	1	9.5	0.5	30	0.5	30	
t _{PZL}				1	11	1	8.5	0.5	24	0.5	24	
t _{PHZ}	$\overline{OE}$	A		2	6.5	1.5	6.5	2	6.5	2	6.5	
t _{PLZ}				2.5	6.5	2	6.5	2	6.5	2	6.5	
t _{PHZ}	$\overline{OE}$	B		2	8.5	1.5	7.5	2	6.5	2	6.5	
t _{PLZ}				2.5	5.5	1.5	7.5	2	6	2	6	

Switching Characteristics: $V_{CCA} = 1.5V \pm 0.1V$

See Figure 4 and Table 2 for test circuit and loading. See Figure 5 and Figure 6 for measurement waveforms.

Parameter	From	To	Test Conditions	V _{CCB} = 1.8V±0.1V		V _{CCB} = 2.5V±0.15V		V _{CCB} = 3.3V±0.2V		V _{CCB} = 5.5V±0.3V		Unit
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t _{PLH}	A	B	T _A =25°C	0.3	5.2	0.4	4.2	0.4	4.2	0.4	4.2	ns
t _{PHL}				0.3	5.2	0.4	4.2	0.4	4.2	0.4	4.2	
t _{PLH}	B	A		0.5	6	0.4	5.7	0.3	5.6	0.3	5.6	
t _{PHL}				0.5	6	0.4	5.7	0.3	5.6	0.3	5.6	
t _{PZH}	$\overline{OE}$	A		1.1	9.5	0.7	9.4	0.4	9.4	0.4	9.4	
t _{PZL}				1.1	9.5	0.7	9.4	0.4	9.4	0.4	9.4	
t _{PZH}	$\overline{OE}$	B		1.1	7.7	0.9	5.8	0.9	5.6	0.9	5.6	
t _{PZL}				1.1	7.7	0.9	5.8	0.9	5.6	0.9	5.6	
t _{PHZ}	$\overline{OE}$	A		1.5	10.2	1.3	10.2	1.6	10.2	1.6	10.2	
t _{PLZ}				1.5	10.2	1.3	10.2	1.6	10.2	1.6	10.2	
t _{PHZ}	$\overline{OE}$	B		1.9	9.1	1.4	7.4	1.2	7.6	1.2	7.6	
t _{PLZ}				1.9	9.1	1.4	7.4	1.2	7.6	1.2	7.6	

**Switching Characteristics: $V_{CCA} = 1.8\text{ V} \pm 0.15\text{ V}$**

See Figure 4 and Table 2 for test circuit and loading. See Figure 5 and Figure 6 for measurement waveforms.

Parameter	From	To	Test Conditions	V _{CCB} = 1.8V±0.1V		V _{CCB} = 2.5V±0.15V		V _{CCB} = 3.3V±0.2V		V _{CCB} = 5.5V±0.3V		Unit
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t _{PLH}	A	B	T _A =25°C	0.3	5.2	0.4	4.2	0.4	4.2	0.4	4.2	ns
t _{PHL}				0.3	5.2	0.4	4.2	0.4	4.2	0.4	4.2	
t _{PLH}	B	A		0.5	6	0.4	5.7	0.3	5.6	0.3	5.6	
t _{PHL}				0.5	6	0.4	5.7	0.3	5.6	0.3	5.6	
t _{PZH}	OE	A		1.1	9.5	0.7	9.4	0.4	9.4	0.4	9.4	
t _{PZL}				1.1	9.5	0.7	9.4	0.4	9.4	0.4	9.4	
t _{PZH}	OE	B		1.1	7.7	0.9	5.8	0.9	5.6	0.9	5.6	
t _{PZL}				1.1	7.7	0.9	5.8	0.9	5.6	0.9	5.6	
t _{PHZ}	OE	A		1.5	10.2	1.3	10.2	1.6	10.2	1.6	10.2	
t _{PLZ}				1.5	10.2	1.3	10.2	1.6	10.2	1.6	10.2	
t _{PHZ}	OE	B		1.9	9.1	1.4	7.4	1.2	7.6	1.2	7.6	
t _{PLZ}				1.9	9.1	1.4	7.4	1.2	7.6	1.2	7.6	



Parameter Measurement Information

Load Circuit and Voltage Waveforms

Unless otherwise noted, all input pulses are supplied by generators having the following characteristics:

- $F = 10\text{MHz}$
- $Z_o = 50\Omega$
- $\Delta t/\Delta V \leq 1\text{ns/V}$

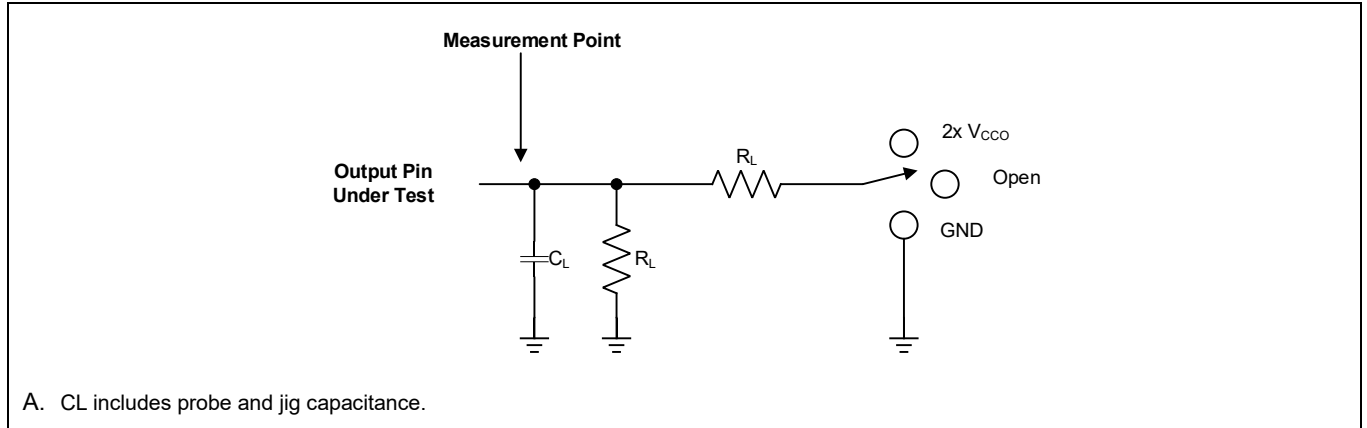


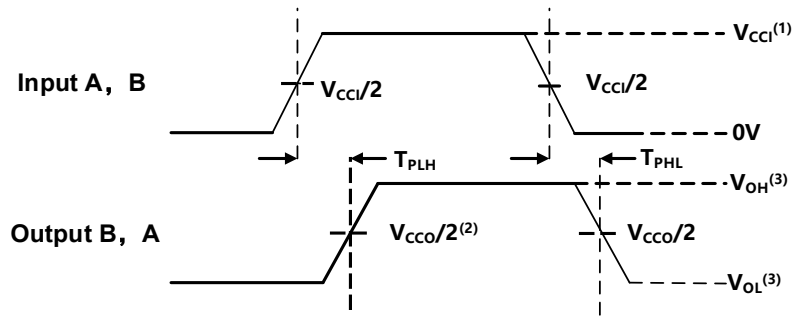
Figure 5. Load Circuit

Table 2. Load Circuit Parameters

Test Parameter		S1
t_{pd}	Propagation (delay) time	Open
t_{PZL}, t_{PLZ}	Enable time, disable time	$2 \times V_{CCO}$
t_{PZH}, t_{PHZ}	Enable time, disable time	GND

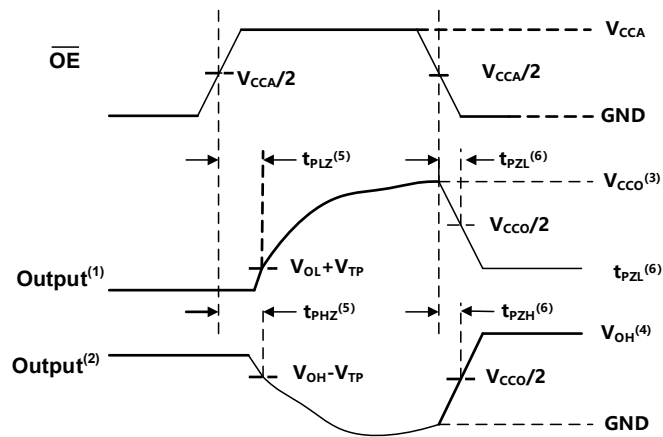
Table 3. Load Circuit Conditions

V_{CCO}	R_L	C_L	V_{TP}
$1.2V \pm 0.1V$	$2k\Omega$	$15pF$	$0.1V$
$1.5V \pm 0.1V$	$2k\Omega$	$15pF$	$0.1V$
$1.8V \pm 0.15V$	$2k\Omega$	$15pF$	$0.15V$
$2.5V \pm 0.2V$	$2k\Omega$	$15pF$	$0.15V$
$3.3V \pm 0.3V$	$2k\Omega$	$15pF$	$0.3V$
$5.5V \pm 0.3V$	$2k\Omega$	$15pF$	$0.3V$



- (1) V_{CCI} is the V_{CC} associated with the input port.
- (2) V_{CCO} is the V_{CC} associated with the output port.
- (3) V_{OH} and V_{OL} are typical output voltage levels that occur with specified R_L , C_L , and S_1 .
- (4) t_{PLH} and t_{PHL} are the same as t_{pd} .
- (5) The outputs are measured one at a time, with one transition per measurement.

Figure 6. Propagation Delay



- (1) Output waveform on the condition that input is driven to a valid Logic Low.
- (2) Output waveform on the condition that input is driven to a valid Logic High.
- (3) V_{CCO} is the supply pin associated with the output port.
- (4) V_{OH} and V_{OL} are typical output voltage levels with specified R_L , C_L , and S_1 .
- (5) t_{PLZ} and t_{PZH} are the same as t_{dis} .
- (6) t_{PZL} and t_{PZH} are the same as t_{en} .

Figure 7. Enable Time And Disable Time



Detailed Description

● Overview

The RS7LS4T774Q is a 4-bit, dual-supply, noninverting, bi-directional voltage level translation. Pins An and control pins (DIR1, DIR2, DIR3, DIR4 and $\overline{OE}$) are support by VCCA and pins Bn are support by VCCB. The A port is able to accept I/O voltages ranging from 1.1V to 1.95V, while the B port can accept I/O voltages from 1.65V to 5.5V. A high on DIR allows data transmission from An to Bn and a low on DIR allows data transmission from B to A when $\overline{OE}$ is set to low. When $\overline{OE}$ is set to high, both An and Bn are in the high-impedance state.

● Functional Block Diagram

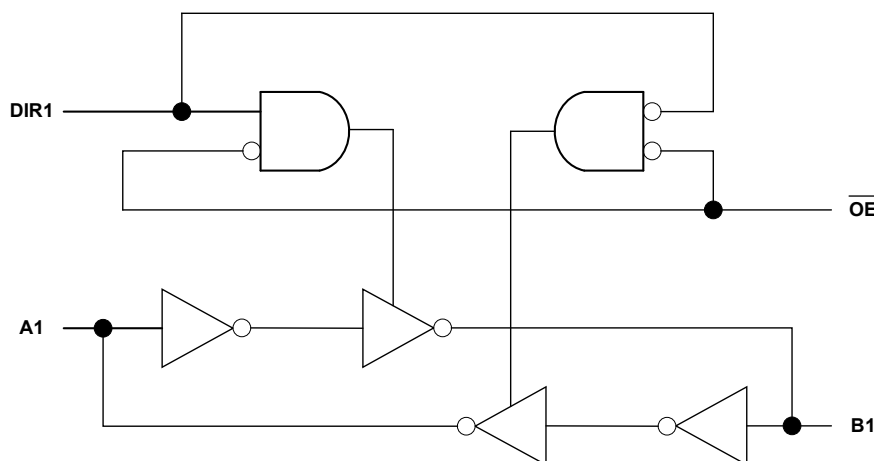


Figure 8. Logic Diagram (Positive Logic)

● Feature Description

1. Fully Configurable Dual-Rail Design Allows Each Port to Operate Over the Respective Power-Supply Range: VCCA at 1.1V to 1.95V and VCCB at 1.65V to 5.5V.

Both VCCA (1.1V to 1.95V) and VCCB (1.65V to 5.5V) can be supplied at any voltage within their respective ranges, making the device suitable for translating between various low-voltage and standard-voltage nodes (1.2V, 1.8V, 2.5V, 3.3V, and 5V).

2. Support High-Speed Translation

RS7LS4T774Q can support high data rate application. The translated signal data rate can be up to 380Mbps when signal is translated from 1.8V to 3.3V.

3. I_{off} Supports Partial-Power-Down Mode Operation

I_{off} prevents backflow current by disabling I/O output circuits when device is in partial-power-down mode.

● Device Functional Modes

Table 4. Function Table (Each Bit)

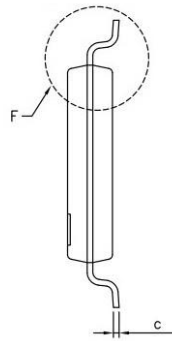
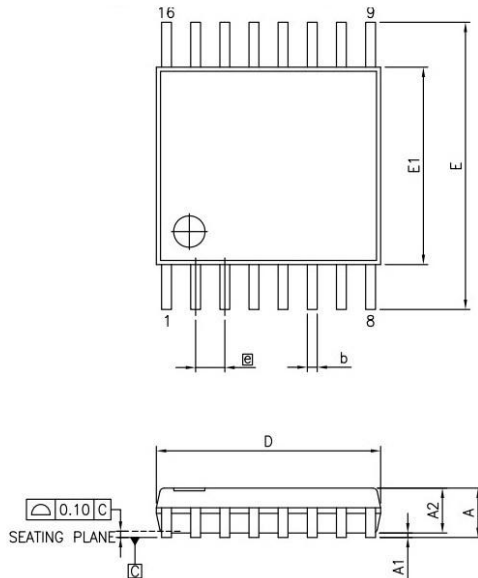
CONTROL INPUTS		OUTPUT CIRCUITS		OPERATION
$\overline{OE}$	DIR	A PORT	B PORT	
L	L	Enabled	Hi-Z	B data to A data
L	H	Hi-Z	Enabled	A data to B data
H	X	Hi-Z	Hi-Z	Isolation

**RSM**

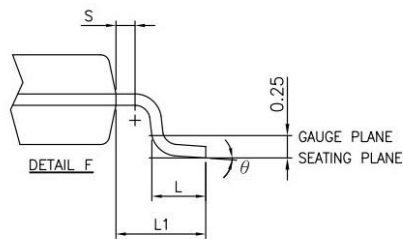
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RS7LS4T774Q

4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs With Independent Direction Control Inputs

Package Information**TSSOP16**

SYMBOLS	MIN.	NOM.	MAX.
A	—	—	1.20
A1	0.05	—	0.15
A2	0.80	1.00	1.05
b	0.19	—	0.30
c	0.09	—	0.20
D	4.90	5.00	5.10
E1	4.30	4.40	4.50
E	6.20	6.40	6.60
e	0.65 BSC		
L1	1.00 REF		
L	0.45	0.60	0.75
S	0.20	—	—
θ	0°	—	8°

**Note:**

- 1.All dimensions are in mm. Angels in degrees.
- 2.Dimensions exclude burrs, mold flash or protrusions.
- 3.Refer Jedec MS-012

**Raystar Microelectronics Technology Inc.**

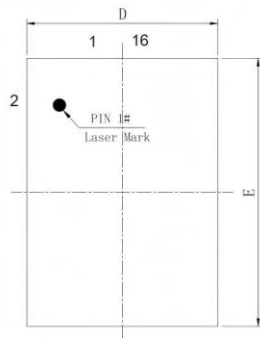
TSSOP16 POD Rev.0

**RSM**

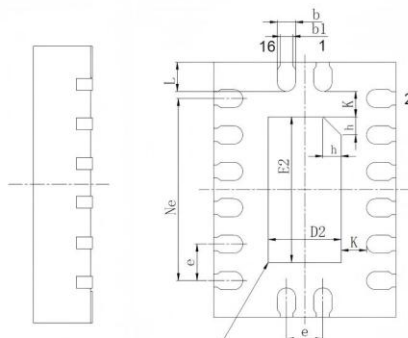
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RS7LS4T774Q

4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs With Independent Direction Control Inputs

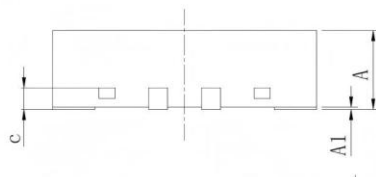
DFN2.5X3.5X0.75 16L(ZP16)

TOP VIEW



BOTTOM VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0	0.02	0.05
b	0.20	0.25	0.30
b1	0.18REF		
e	0.203REF		
D	2.40	2.50	2.60
D2	0.90	1.00	1.10
e	0.50BSC		
Ne	2.50BSC		
E	3.40	3.50	3.60
F2	1.90	2.00	2.10
L	0.30	0.40	0.50
h	0.20	0.25	0.30
K	0.35REF		



SIDE VIEW

Note:

1. All dimensions are in mm.
2. Dimensions exclude burrs, mold flash or protrusions.
3. Refer Jecdec MO-220

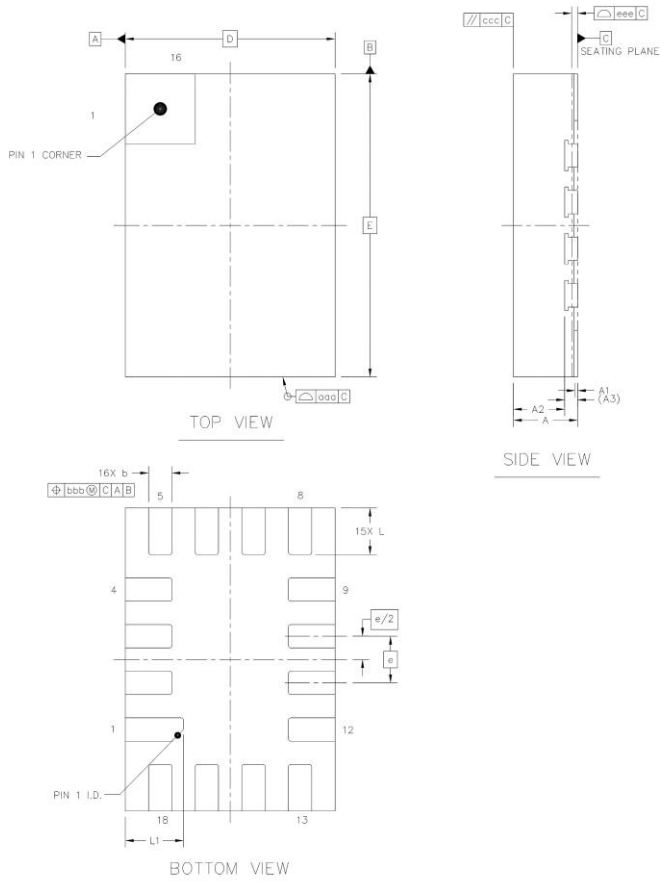

DFN2.5X3.5X0.7516L (ZP16) POD
Raystar Microelectronics Technology Inc.

**RSM**

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RS7LS4T774Q

4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs With Independent Direction Control Inputs

QFN2.6X1.8X0.55 16L(ZN16)

	SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS	A	0.5	0.55	0.6
STAND OFF	A1	-0.004	---	0.046
MOLD THICKNESS	A2	---	0.44	---
L/F THICKNESS	A3		0.11 REF	
LEAD WIDTH	b	0.15	0.2	0.25
BODY SIZE	X		1.8 BSC	
	Y		2.6 BSC	
LEAD PITCH	e		0.4 BSC	
LEAD LENGTH	L	0.35	0.4	0.45
	L1	0.45	0.5	0.55
PACKAGE EDGE TOLERANCE	ooo		0.1	
MOLD FLATNESS	ccc		0.1	
COPLANARITY	eee		0.05	
LEAD OFFSET	bbb		0.07	

Notes:

1. All dimensions are in mm.
2. Dimensions exclude burrs, mold flash or protrusions.
3. Refer to JEDEC MO-220

**QFN2.6X1.8X0.55 16L(ZN16) POD****Raystar Microelectronics Technology Inc.**



Revision History

Revision	Description	Date
V0.9	Preliminary release	2025/04/10
V1.0	Update the minimum voltage of VIL	2026/01/27
V1.1	ADD QFN2.6X1.8X0.55 (ZN16) package	2026/06/30