

1-Bit Dual-Supply Bus Transceiver with Configurable Voltage Translation and 3-State Outputs

FEATURES

- Control Input threshold Referenced to V_{CCA} Voltage
- Power-Supply Range: V_{CCA} and V_{CCB} : 1.65V to 5.5V
- V_{CC} Isolation: If Either V_{CC} is at GND, Both Ports are in the High-Impedance State
- Low power consumption, 4 μ A Max
- Output drive up to $\pm 24\text{mA}$ @3.0V
- No Power-Supply Sequencing Required: Either V_{CCA} or V_{CCB} can be Ramped First
- I_{OFF} : Supports Partial-Power-Down Mode Operation
- Extended Temperature: -40°C to $+125^{\circ}\text{C}$

APPLICATIONS

- Industrial
- Enterprise
- Telecom, such as VOIP
- Personal electronic

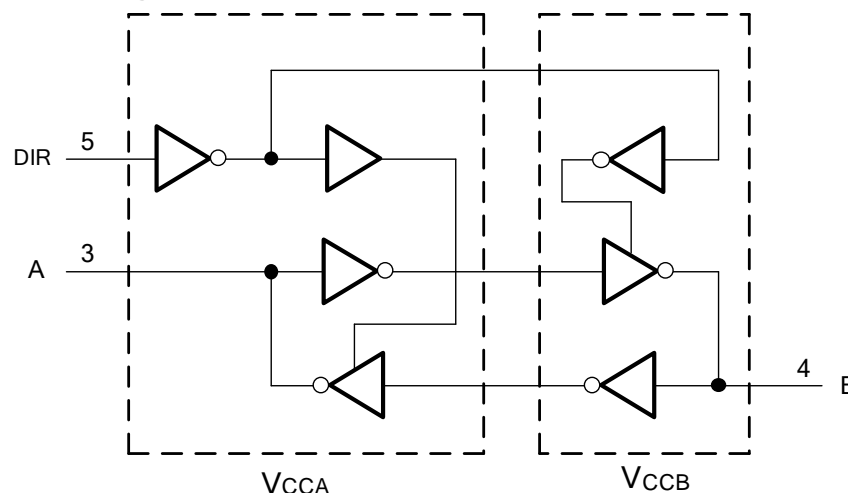
DESCRIPTION

The RS1T45 is 1-bit non-inverting bus transceiver uses two separate configurable power supply rails. The A port and DIR are designed to track V_{CCA} , which supporting operating voltages from 1.65V to 5.5V, and the B port supporting operating voltages from 1.65V to 5.5V while it tracks the V_{CCB} supply. This allows for universal low-voltage bidirectional translation between any of the 1.8V, 2.5V, 3.3V and 5V voltage nodes.

The RS1T45 is designed for asynchronous communication between two data buses. The logic levels of the direction-control (DIR) input activate either the B-port outputs or the A-port outputs. The device transmits data from the A bus to the B bus when the B-port outputs are activated and from the B bus to the A bus when the A-port outputs are activated. The input circuitry is always active on both A and B ports and must have a logic HIGH or LOW level applied to prevent excess I_{CC} and I_{CCZ} .

The RS1T45 is available in Green SOT23-6 and SC70-6 packages. It operates over an ambient temperature range of -40°C to $+125^{\circ}\text{C}$.

Functional Block Diagram

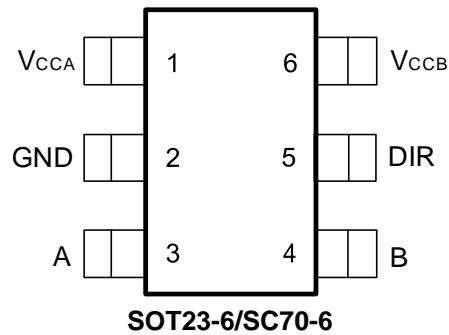


Revision History

Note: Page numbers for previous revisions may differ from page numbers in the current version.

VERSION	Change Date	Change Item
A.1	2020/11/29	Initial version completed

PIN CONFIGURATIONS



PIN DESCRIPTION

PIN	NAME	TYPE ⁽¹⁾	FUNCTION
SOT23-6/SC70-6			
1	V _{CCA}	P	A Port Supply Voltage. $1.65V \leq V_{CCA} \leq 5.5V$
2	GND	–	Ground.
3	A	I/O	Input/output A. Reference to V _{CCA} .
4	B	I/O	Input/output B. Reference to V _{CCB} .
5	DIR	I	Direction control. Referenced to V _{CCA} .
6	V _{CCB}	P	B Port Supply Voltage. $1.65V \leq V_{CCB} \leq 5.5V$.

(1) I=input, O=output, I/O=input and output, P=power

Function Table ⁽²⁾

CONTROL INPUTS ⁽¹⁾	OUTPUT CIRCUITS		OPERATION
	A PORT	B PORT	
DIR L	Enabled	Hi-Z	B data to A bus
H	Hi-Z	Enabled	A data to B bus

Note:

(1) The input circuit of the data I/O is always active.

(2) When either V_{CCA} or V_{CCB} is at GND level, the device goes into suspend mode.

SPECIFICATIONS

Absolute Maximum Ratings

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

SYMBOL	PARAMETER	MIN	MAX	UNIT	
V _{CCA} ⁽³⁾	Supply Voltage Range	-0.5	6.5	V	
V _{CCB} ⁽³⁾	Supply Voltage Range	-0.5	6.5	V	
V _I ⁽²⁾	Input Voltage Range	A port	-0.5	6.5	V
		B port	-0.5	6.5	
V _O ⁽²⁾	Voltage range applied to any output in the high-impedance or power-off state	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	-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		

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

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

(3) The value of V_{CCA} and V_{CCB} are provided in the recommended operating conditions table.

ESD Ratings

		VALUE	UNIT	
V _(ESD)	Electrostatic discharge	Human-body model (HBM)	±3000	V
		Machine Model (MM)	±400	V

PACKAGE/ORDERING INFORMATION

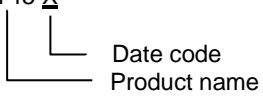
PRODUCT	ORDERING NUMBER	TEMPERATURE RANGE	PACKAGE LEAD	PACKAGE MARKING ⁽¹⁾	MSL ⁽²⁾	PACKAGE OPTION
RS1T45	RS1T45XH6	-40°C ~+125°C	SOT23-6	1T45	MSL3	Tape and Reel,3000
	RS1T45XC6	-40°C ~+125°C	SOT363 (SC70-6)	1T45 \underline{X}	MSL3	Tape and Reel,3000

NOTE:

- (1) There may be additional marking, which relates to the lot trace code information(data code and vendor code), the logo or the environmental category on the device.
- (2) MSL, The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications.

MARKING INFORMATION

1T45 \underline{X}



└─── Date code
└─── Product name

Recommended Operating Conditions

V_{CCI} is the supply voltage associated with the input port. V_{CCO} is the supply voltage associated with the output port.

PARAMETER		$V_{CCI}^{(1)}$	$V_{CCO}^{(2)}$	MIN	TYP	MAX	UNIT
Supply voltage ⁽¹⁾	V_{CCA}			1.65		5.5	V
	V_{CCB}			1.65		5.5	
High-level input Voltage (V_{IH})	Data inputs ⁽⁴⁾	1.65V to 1.95V		$V_{CCI} \times 0.65$			V
		2.3V to 2.7V		1.7			
		3V to 3.6V		2			
		4.5V to 5.5V		$V_{CCI} \times 0.7$			
Low-level input Voltage (V_{IL})	Data inputs ⁽⁴⁾	1.65V to 1.95V				$V_{CCI} \times 0.35$	V
		2.3V to 2.7V				0.7	
		3V to 3.6V				0.8	
		4.5V to 5.5V				$V_{CCI} \times 0.3$	
High-level input Voltage (V_{IH})	DIR (referenced to V_{CCA}) ⁽⁵⁾	1.65V to 1.95V		$V_{CCA} \times 0.65$			V
		2.3V to 2.7V		1.7			
		3V to 3.6V		2			
		4.5V to 5.5V		$V_{CCA} \times 0.7$			
Low-level input Voltage (V_{IL})	DIR (referenced to V_{CCA}) ⁽⁵⁾	1.65V to 1.95V				$V_{CCA} \times 0.35$	V
		2.3V to 2.7V				0.7	
		3V to 3.6V				0.8	
		4.5V to 5.5V				$V_{CCA} \times 0.3$	
Input voltage	V_i			0		5.5	V
Output voltage	V_o			0		V_{CCO}	V
High-level output current (I_{OH})			1.65V to 1.95V			-4	mA
			2.3V to 2.7V			-8	
			3V to 3.6V			-24	
			4.5V to 5.5V			-32	
Low-level output current (I_{OL})			1.65V to 1.95V			4	mA
			2.3V to 2.7V			8	
			3V to 3.6V			24	
			4.5V to 5.5V			32	
Input transition rise or fall rate($\Delta t/\Delta v$)	Data inputs ⁽³⁾	1.65V to 1.95V				20	ns/V
		2.3V to 2.7V				20	
		3V to 3.6V				10	
		4.5V to 5.5V				5	
	Control inputs	1.65 V to 5.5 V				5	
T_A Operating free-air temperature				-40		125	°C

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

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

(3) All unused or driven (floating) data inputs (I/Os) of the device must be held at logic HIGH or LOW (preferably V_{CCI} or GND) to ensure proper device operation and minimize power.

(4) For V_{CCI} values not specified in the data sheet, $V_{IH} \text{ min} = V_{CCI} \times 0.7 \text{ V}$, $V_{IL} \text{ max} = V_{CCI} \times 0.3 \text{ V}$.

(5) For V_{CCA} values not specified in the data sheet, $V_{IH} \text{ min} = V_{CCA} \times 0.7 \text{ V}$, $V_{IL} \text{ max} = V_{CCA} \times 0.3 \text{ V}$.

Electrical Characteristics

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

PARAMETER		CONDITIONS	V _{CCA}	V _{CCB}	TEMP	MIN	TYP	MAX	UNIT	
V _{OH}		I _{OH} = -100 μA V _I = V _{IH}	1.65V to 4.5V	1.65V to 4.5V	Full	V _{CCO} - 0.1			V	
		I _{OH} = -4mA V _I = V _{IH}	1.65V	1.65V		1.2				
		I _{OH} = -8mA V _I = V _{IH}	2.3V	2.3V		1.9				
		I _{OH} = -24mA V _I = V _{IH}	3V	3V		2.4				
		I _{OH} = -32mA V _I = V _{IH}	4.5V	4.5V		3.8				
V _{OL}		I _{OL} = 100 μA V _I = V _{IL}	1.65V to 4.5V	1.65V to 4.5V					0.1	V
		I _{OL} = 4mA V _I = V _{IL}	1.65V	1.65V					0.45	
		I _{OL} = 8mA V _I = V _{IL}	2.3V	2.3V					0.3	
		I _{OL} = 24mA V _I = V _{IL}	3V	3V					0.55	
		I _{OL} = 32mA V _I = V _{IL}	4.5V	4.5V					0.55	
I _i	DIR Input leakage current	V _I = V _{CCA} or GND	1.65V to 5.5V	1.65V to 5.5V	+25°C			±1	μA	
					Full			±2		
I _{off}	A Port	V _I or V _O = 0 to 5.5V	0V	0V to 5.5V	+25°C			±1	μA	
	B Port		0V to 5.5V	0V	Full			±2		
I _{OZ}	A or B Port	V _O = V _{CCO} or GND	1.65V to 5.5V	1.65V to 5.5V	+25°C			±1	μA	
					Full			±2		
I _{CCA}	V _{CCA} supply current	V _I = V _{CCi} or GND I _O = 0	1.65V to 5.5V	1.65V to 5.5V	Full			3	μA	
			5V	0V	Full			2		
			0V	5V	Full			-2		
I _{CCB}	V _{CCB} supply current	V _I = V _{CCi} or GND I _O = 0	1.65V to 5.5V	1.65V to 5.5V	Full			3	μA	
			5V	0V	Full			-2		
			0V	5V	Full			2		
I _{CCA} + I _{CCB}	Combined supply current	V _I = V _{CCi} or GND I _O = 0	1.65V to 5.5V	1.65V to 5.5V	Full			4	μA	
ΔI _{CCA}	A port	One A port at V _{CCA} - 0.6 V, DIR at V _{CCA} , B port = open	3V to 5.5V	3V to 5.5V	Full			50	μA	
	DIR	DIR at V _{CCA} - 0.6 V, B port = open A port at V _{CCA} or GND			Full			50		
ΔI _{CCB}	B port	One B port at V _{CCB} - 0.6 V, DIR at GND, A port = open	3V to 5.5V	3V to 5.5V	Full			50	μA	
C _i	Input capacitance	DIR	3.3V	3.3V	+25°C		4		pF	
C _{IO}	Input-to-output internal capacitance	A port or B port	3.3V	3.3V	+25°C		8.5		pF	

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

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

Timing Requirements

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

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB}=1.8V \pm 0.15V$		$V_{CCB}=2.5V \pm 0.2V$		$V_{CCB}=3.3V \pm 0.3V$		$V_{CCB}=5V \pm 0.5V$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	3	17.5	2	9.3	1.5	7.5	1.8	9.1	ns
t_{PHL}			2	10.3	1.7	6.4	1.1	4.5	2.4	9.8	
t_{PLH}	B	A	2.3	13.8	2	14.1	1.9	14	1.9	15.1	ns
t_{PHL}			2.2	11	1.9	11.6	1.8	11.6	2.2	14.7	
t_{PHZ}	DIR	A	4	14.7	3.8	14.8	4.6	17.9	6.6	22.2	ns
t_{PLZ}			2.5	11.6	2.5	12.6	6.8	30.5	5.3	18.5	
t_{PHZ}	DIR	B	5.6	16.6	3.9	9.2	4.5	10	3.6	10.7	ns
t_{PLZ}			4.6	17.6	4.4	11	9.4	23.9	4.1	10.1	
t_{PZH}	DIR	A		29.7		22.2		20.1		17.6	ns
t_{PZL}				19.2		17.1		18.1		18.4	
t_{PZH}	DIR	B		24.8		18.3		16		14.8	ns
t_{PZL}				17.9		18.9		20.1		21.7	

 $V_{CCA}=2.5V\pm 0.2V$

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB}=1.8V \pm 0.15V$		$V_{CCB}=2.5V \pm 0.2V$		$V_{CCB}=3.3V \pm 0.3V$		$V_{CCB}=5V \pm 0.5V$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	2.2	15.2	1.3	7.6	1.4	7	1.1	5.1	ns
t_{PHL}			1.7	10.5	1.4	7.3	1.4	5.9	0.9	4.5	
t_{PLH}	B	A	1.8	8.2	1.4	7.7	1.4	8	0.9	6.8	ns
t_{PHL}			2	7.7	1.6	8.8	2	10.5	1.3	8.7	
t_{PHZ}	DIR	A	9.9	26.7	9.9	25.9	12.6	36.5	12.2	30.8	ns
t_{PLZ}			7.5	33.9	7.4	33.6	6.5	29.5	3.8	21.8	
t_{PHZ}	DIR	B	21.5	78.2	13	36.5	17.6	45.9	9.1	27	ns
t_{PLZ}			22.4	108.7	18.2	54.7	14	42	6.8	20	
t_{PZH}	DIR	A		29.2		16.3		14.3		10.2	ns
t_{PZL}				16.1		13.2		13.8		12.9	
t_{PZH}	DIR	B		21.9		13		10.7		8.7	ns
t_{PZL}				10.5		11		10.8		12.3	

$V_{CCA}=3.3V\pm 0.3V$

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB}=1.8V \pm 0.15V$		$V_{CCB}=2.5V \pm 0.2V$		$V_{CCB}=3.3V \pm 0.3V$		$V_{CCB}=5V \pm 0.5V$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	2.1	15.5	1.4	8	0.8	6.7	0.6	4.3	ns
t_{PHL}			1.9	11.8	1.3	7	0.9	5.9	0.9	5.2	
t_{PLH}	B	A	1.5	7.5	1	5.1	0.8	7	0.7	5.9	ns
t_{PHL}			1.6	6.4	1.8	7.6	0.8	5	1.4	9	
t_{PHZ}	DIR	A	3.5	8.8	3	7.3	3.6	9.5	5.8	12.4	ns
t_{PLZ}			2.7	8.4	1.6	5.6	3.5	9.1	2.6	6.8	
t_{PHZ}	DIR	B	6.8	25	3.8	10	3.8	11.4	4.1	11.6	ns
t_{PLZ}			5	21.8	2.9	7.8	3.8	11.4	2	5.9	
t_{PZH}	DIR	A		25.1		12.8		11.2		8.2	ns
t_{PZL}				12.7		10.1		10.4		10.1	
t_{PZH}	DIR	B		23.2		12.2		10		8.1	ns
t_{PZL}				9.2		9.3		9.2		10.2	

 $V_{CCA}=5V\pm 0.5V$

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB}=1.8V \pm 0.15V$		$V_{CCB}=2.5V \pm 0.2V$		$V_{CCB}=3.3V \pm 0.3V$		$V_{CCB}=5V \pm 0.5V$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	2.1	16.6	1	7.4	0.6	5.2	0.7	5.1	ns
t_{PHL}			1.8	12.2	0.9	6.2	1.1	7.2	0.8	5.6	
t_{PLH}	B	A	1.4	7.2	1	5.1	0.8	5.3	0.7	5.5	ns
t_{PHL}			1.5	6.3	1.1	5.8	0.9	5.2	1	7	
t_{PHZ}	DIR	A	4.6	11.9	2.6	6.3	5.8	14.6	5.8	14.3	ns
t_{PLZ}			2.7	11.2	5.9	22.4	4.2	15.7	7.4	30.3	
t_{PHZ}	DIR	B	10.6	44.4	2.9	11.5	2.6	22.5	6.6	17.2	ns
t_{PLZ}			12.4	43.7	14.8	43.7	10.6	29.8	13.1	36.9	
t_{PZH}	DIR	A		24.2		6.3		8		6.7	ns
t_{PZL}				10.9		8.6		9.5		9	
t_{PZH}	DIR	B		20.8		5.5		6.4		6.1	ns
t_{PZL}				7		7		7.6		7.7	

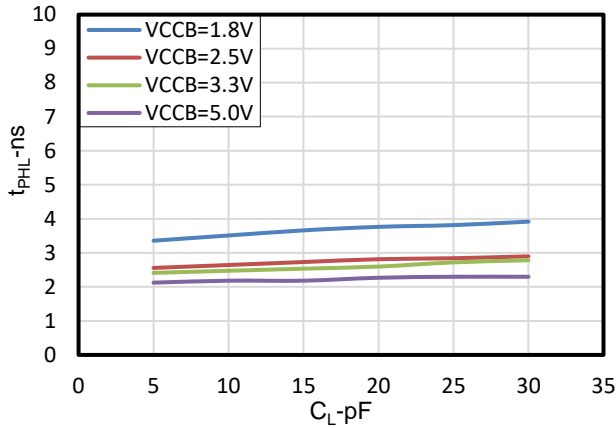
Operating Characteristics

 $T_A=25^\circ C$

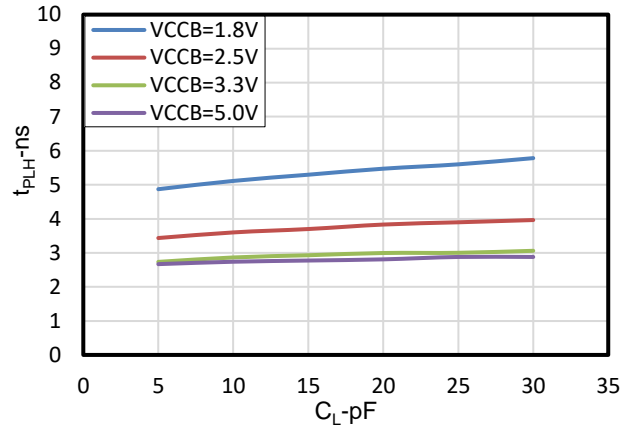
PARAMETER ⁽¹⁾		CONDITIONS	$V_{CCA}=V_{CCB}=1.8V$	$V_{CCA}=V_{CCB}=2.5V$	$V_{CCA}=V_{CCB}=3.3V$	$V_{CCA}=V_{CCB}=5V$	UNIT
			TYP	TYP	TYP	TYP	
C_{pdA}	A port input, B port output	$C_L=0pF$ $f=10MHz$ $t_r=t_f=1ns$	2	2	2	3	pF
	B port input, A port output		12	13	13	16	
C_{pdB}	A port input, B port output	$C_L=0pF$ $f=10MHz$ $t_r=t_f=1ns$	13	13	14	16	pF
	B port input, A port output		2	2	2	3	

(1) Power dissipation capacitance per transceiver

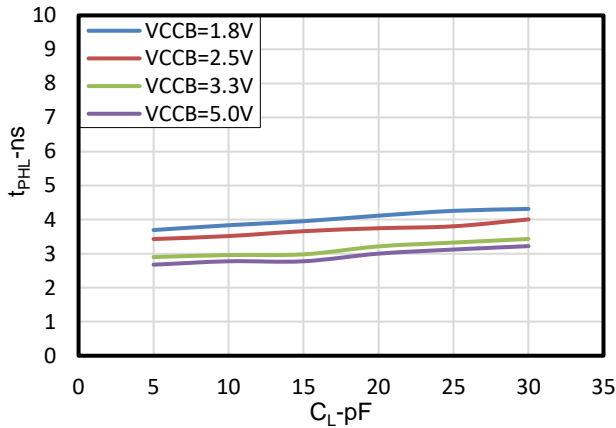
Typical Characteristics



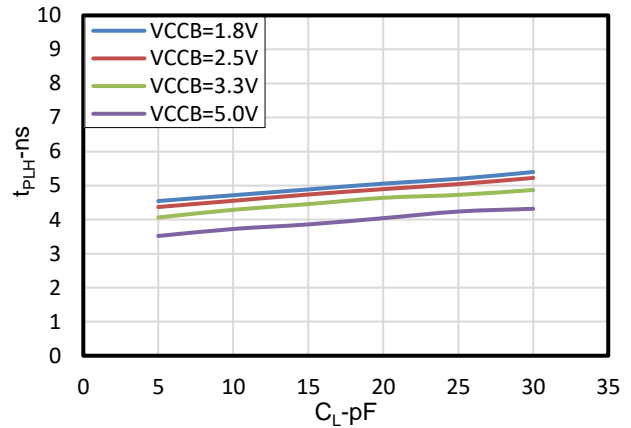
$T_A = 25^\circ\text{C}$, $V_{CCA} = 1.8\text{ V}$
Figure 1. Typical Propagation Delay of High-to-Low (A to B) vs Load Capacitance



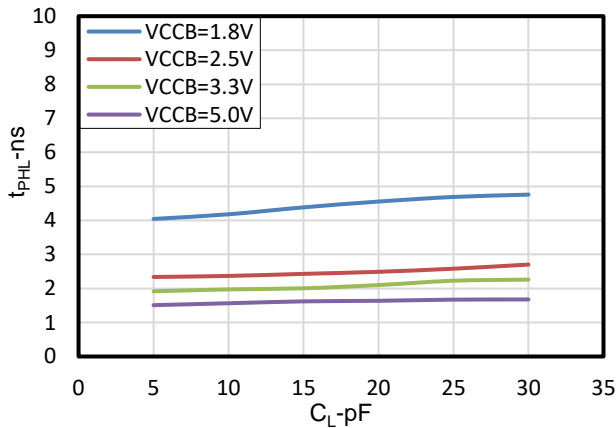
$T_A = 25^\circ\text{C}$, $V_{CCA} = 1.8\text{ V}$
Figure 2. Typical Propagation Delay Low-to-High (B to A) vs Load Capacitance



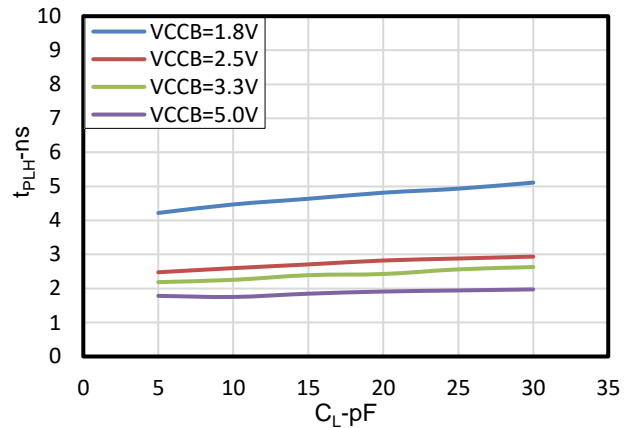
$T_A = 25^\circ\text{C}$, $V_{CCA} = 2.5\text{ V}$
Figure 3. Typical Propagation Delay High-to-Low (A to B) vs Load Capacitance



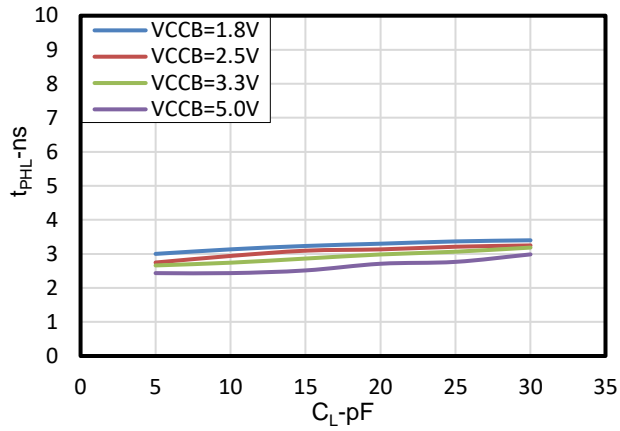
$T_A = 25^\circ\text{C}$, $V_{CCA} = 2.5\text{ V}$
Figure 4. Typical Propagation Delay Low-to-High (B to A) vs Load Capacitance



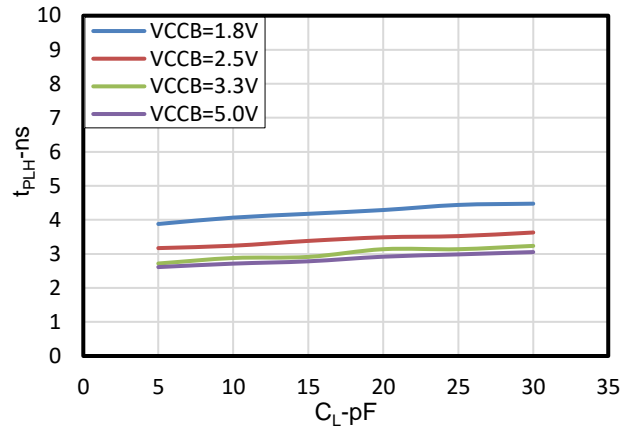
$T_A = 25^\circ\text{C}$, $V_{CCA} = 3.3\text{ V}$
Figure 5. Typical Propagation Delay High-to-Low (A to B) vs Load Capacitance



$T_A = 25^\circ\text{C}$, $V_{CCA} = 3.3\text{ V}$
Figure 6. Typical Propagation Delay Low-to-High (B to A) vs Load Capacitance

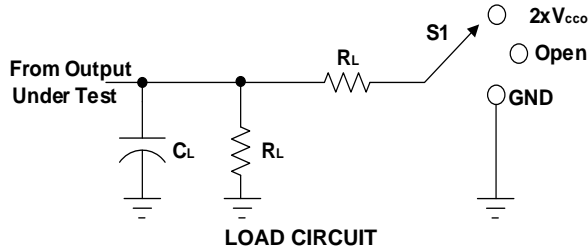


$T_A = 25^\circ\text{C}$, $V_{CCA} = 5\text{ V}$
Figure 7. Typical Propagation Delay High-to-Low (A to B) vs Load Capacitance



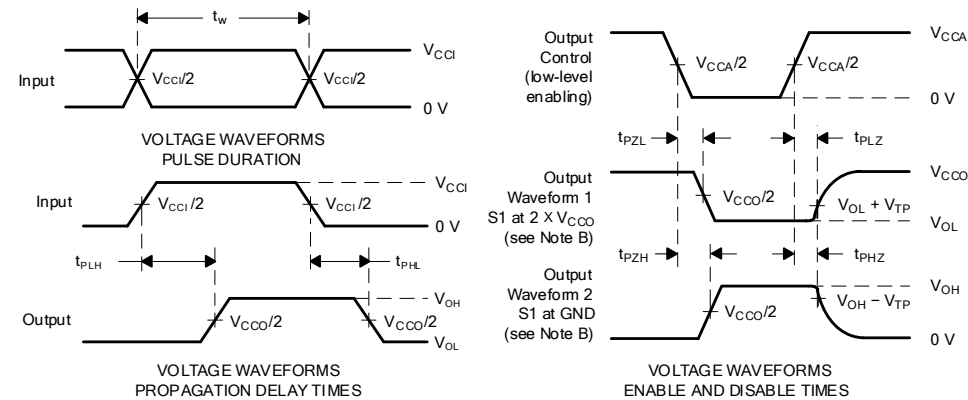
$T_A = 25^\circ\text{C}$, $V_{CCA} = 5\text{ V}$
Figure 8. Typical Propagation Delay Low-to-High (B to A) vs Load Capacitance

Parameter Measurement Information



TEST	S1
t_{pd}	Open
t_{PLZ}/t_{PZL}	2 X V_{CC0}
t_{PHZ}/t_{PZH}	GND

V_{CC}	C_L	R_L	V_{TP}
1.8V±0.15V	15pF	2kΩ	0.15V
2.5V±0.2V	15pF	2kΩ	0.15V
3.3V±0.3V	15pF	2kΩ	0.3V
5V±0.5V	15pF	2kΩ	0.3V



NOTES: A. C_L includes probe and jig capacitance.

B. Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control.

Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.

C. All input pulses are supplied by generators having the following characteristics: $PRR \leq 10$ MHz, $Z_o = 50 \Omega$, $dv/dt \geq 1V/ns$.

D. The outputs are measured one at a time, with one transition per measurement.

E. t_{PLZ} and t_{PHZ} are the same as t_{dis} .

F. t_{PZL} and t_{PZH} are the same as t_{en} .

G. t_{PLH} and t_{PHL} are the same as t_{pd} .

H. V_{CCi} is the V_{CC} associated with the input port.

I. All parameters and waveforms are not applicable to all devices.

Figure 9. Load Circuit and Voltage Waveforms

Application Information

The RS1T45 device can be used in level-translation applications for interfacing devices or systems operating at different interface voltages with one another. The maximum output current can be up to 32 mA when device is powered by 5 V.

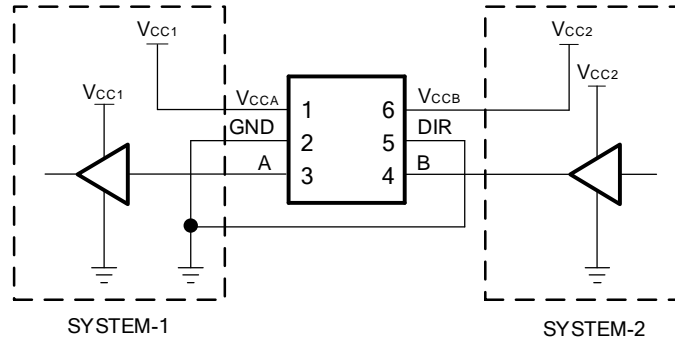


Figure 10. Unidirectional Logic Level-Shifting Application (B to A)

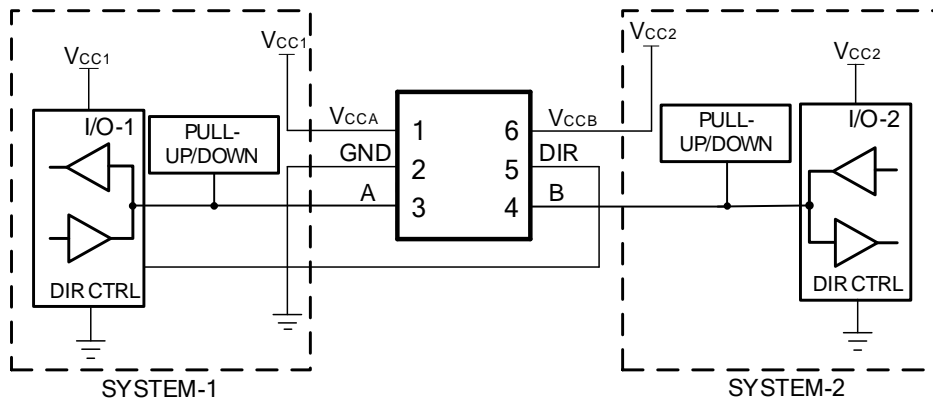
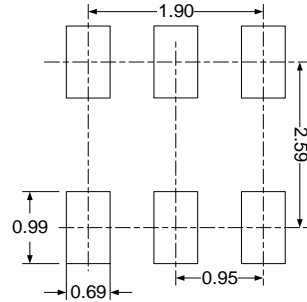
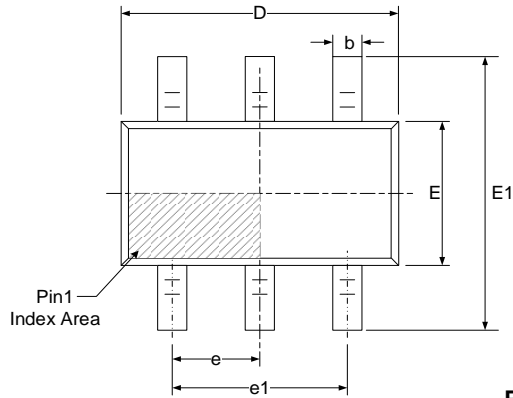
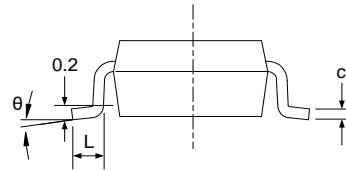
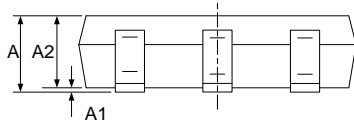


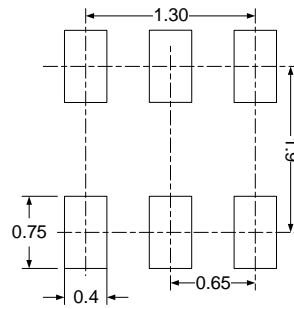
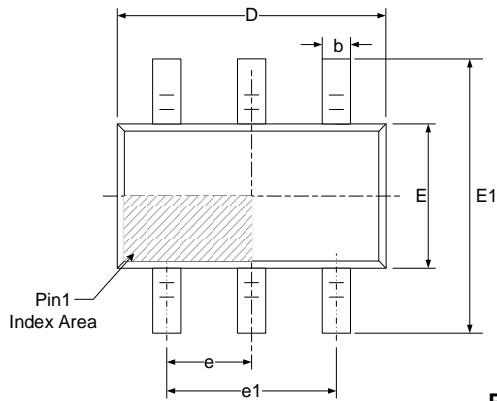
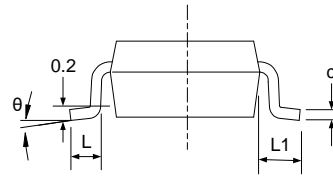
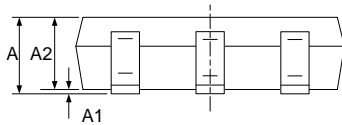
Figure 11. Bidirectional Logic Level-Shifting Application (B to A or A to B)

PACKAGE OUTLINE DIMENSIONS

SOT23-6


RECOMMENDED LAND PATTERN (Unit: mm)


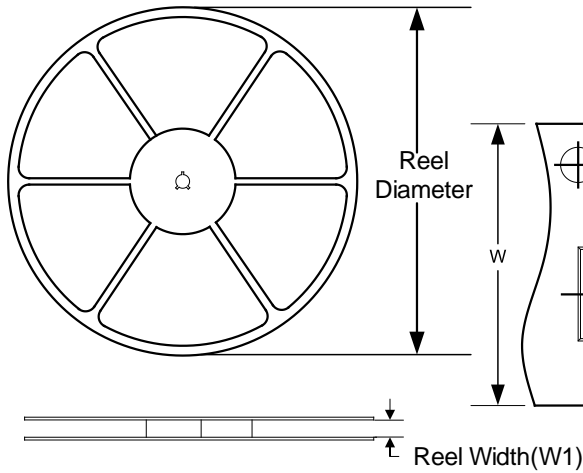
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT363 (SC70-6)

RECOMMENDED LAND PATTERN (Unit: mm)


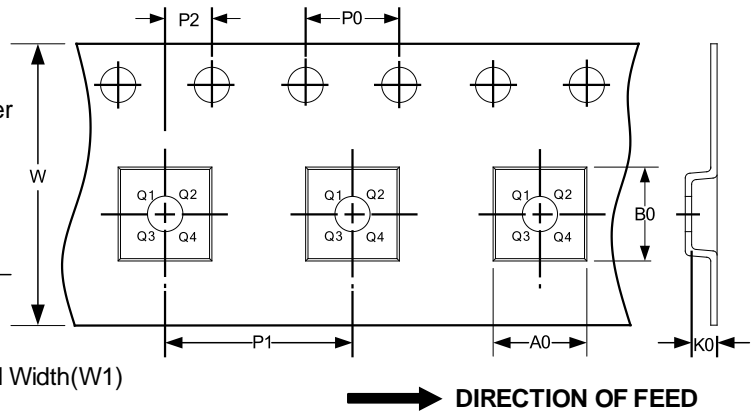
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650(BSC)		0.026(BSC)	
e1	1.300(BSC)		0.051(BSC)	
L	0.260	0.460	0.010	0.018
L1	0.525		0.021	
θ	0°	8°	0°	8°

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSION



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SOT23-6	7"	9.5	3.2	3.2	1.4	4.0	4.0	2.0	8.0	Q3
SC70-6	7"	9.5	2.4	2.5	1.2	4.0	4.0	2.0	8.0	Q3