SERTECH LABS
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TSC362/363
5 Volt to 11-16V Interface
- Dual Translator
- Quad 2-Input NAND

Features

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- CONVERTS, DTL, TTL OR RTL TO HiNIL LOGIC LEVELS
- INVERTING AND NONINVERTING INPUTS
- SPECIFIED TO TTL AND RTL CHARACTERISTICS
- IDEAL COMPANION TO 361 INPUT INTERFACE

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- FANOUT UP TO 15
- VERSATILE TTL TO HiNIL INTERFACE
- EXPANDABLE
- COLLECTOR OR'able OUTPUTS
- EXCELLENT LINE DRIVER

General Descriptions

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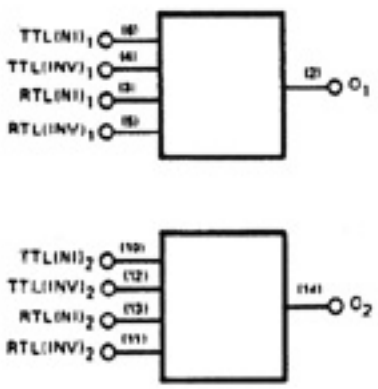
The 362 converts TTL or RTL logic levels to HiNIL logic levels. The converted data is available at the active pullup output in inverted or noninverted form, depending on the choice of input.

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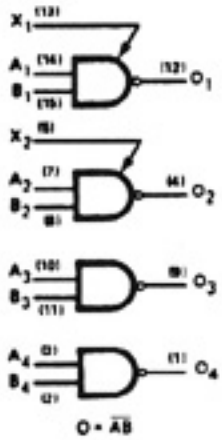
The 363 converts TTL logic levels to HiNIL levels and drives lines at the HiNIL levels. For applications flexibility, the 363 is configured as a quad NAND gate with passive pullup outputs and two expander inputs.

Logic Diagrams

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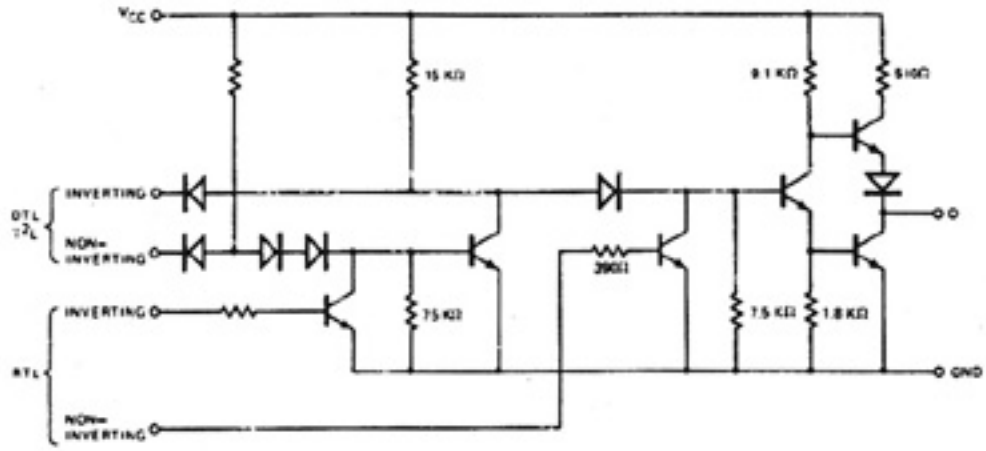
363



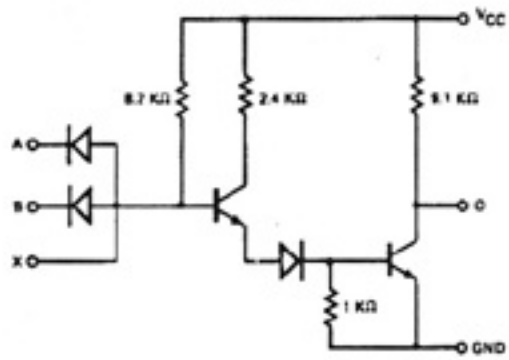
GRD = 8
V_{CC} = 16

Equivalent Circuits

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Specifications

V_{OHL}	6V min @ V_{CC} = 12V (Type C), 9V min @ V_{CC} = 15V (Type A)							
V_{OH}	9V min @ V_{CC} = 11V (Type C), 12V min @ V_{CC} = 14V (Type A)							
I_{CC} (WORST-CASE)	10 mA @ 13V, 13 mA @ 16V							
t_{PD} I/O FUNCTION FOR t_{PD}	160 ns RTLI+–	400 ns RTLI–+	335 ns RTLNI––	225 ns RTLNI++	100 ns TTLI+–	235 ns TTLI–+	125 ns TTLNI––	225 ns TTLNI++

Note: I_{CC} is tested at V_{CC} +1 Volt (+13V for C type and +16V for A type) and is guaranteed across the applicable temp range. t_{PD} is guaranteed at V_{CC} ± 1V and across the applicable temp range with the output loaded with 5 unit loads.

See page 12 for electrical summary data.

362 SPECIFICATIONS FOR RTL INPUTS

	C and A Types		
Temp (°C)	–30	+25	+70/+85
I_{IN} (μA)	460	440	470
V_{INH} (V)	0.95	0.85	0.75
V_{INL} (V)	0.6	0.5	0.38

362 SPECIFICATIONS FOR TTL INPUTS

V_{INH} = 2.0V; I_{INH} = 10μA
V_{INL} = 0.8V; I_{INL} = 1.6 mA at V_{IN} = 0.4V
(these specs apply over full temperature range)

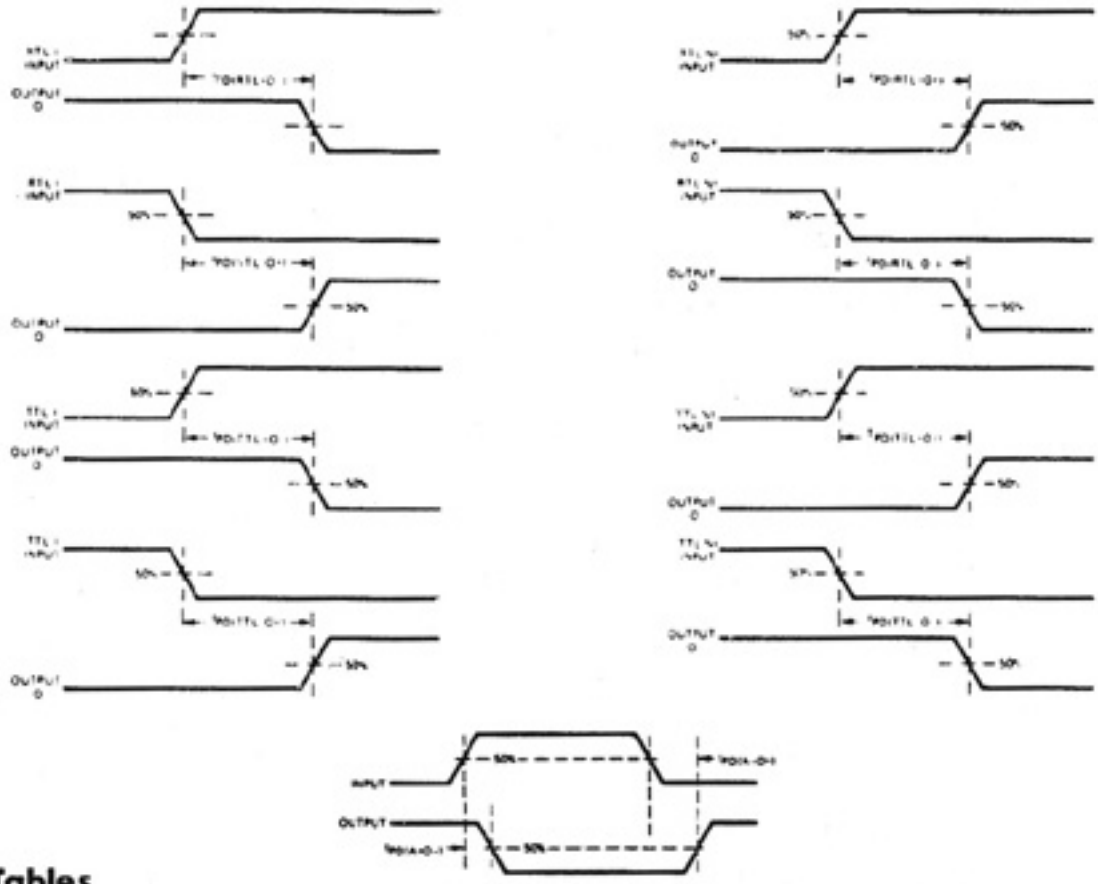
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I_{CC} (WORST-CASE)	51 mA @ 13V, 64 mA @ 16V	
t_{PD} I/O FUNCTION FOR t_{PD}	240 ns A+O–	600 ns A–O+

363 SPECIFICATIONS FOR TTL INPUTS

V_{INH} = 2.0V; I_{INH} = 10μA
V_{INL} = 0.8V; I_{INL} = 2.4 mA @ V_{CC} = 13V, V_{IN} = 0.4V
V_{INL} = 0.8V; I_{INL} = 3.0 mA @ V_{CC} = 16V, V_{IN} = 0.4V

Switching Time Waveforms



Loading Tables

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TTL, RTL O	Inputs Outputs	See specifications 5 UL

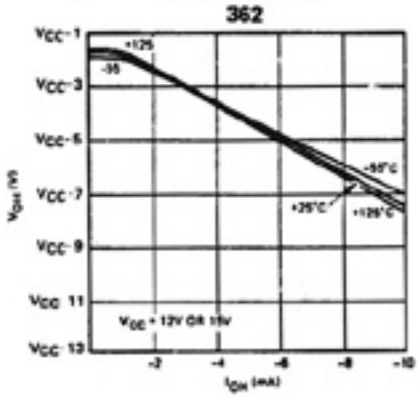
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PINS	FUNCTIONS	LOADING
A, B	TTL inputs	1 TTL load
X	Expanders	TTL expander input loading applies
O	Outputs	5 UL 15 UL with 8.2K supplemental pullup resistor

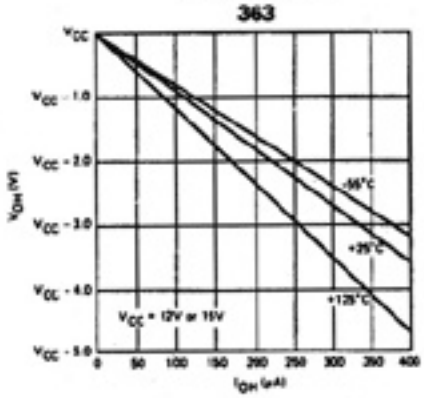
Typical Performance Characteristics

OUTPUT CURRENT VS OUTPUT VOLTAGE

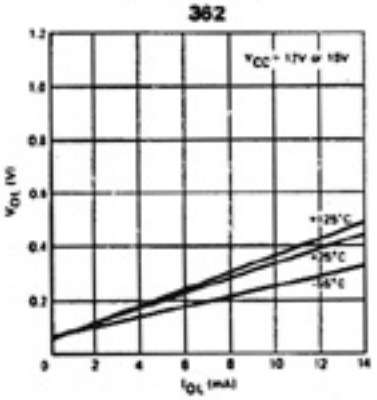
OUTPUT HIGH
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OUTPUT HIGH
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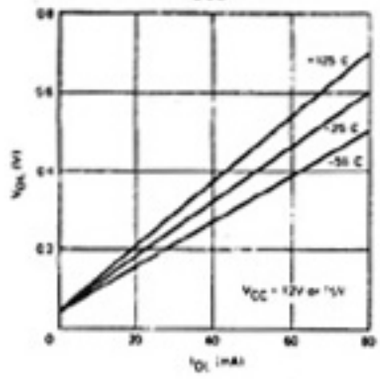


OUTPUT LOW
362



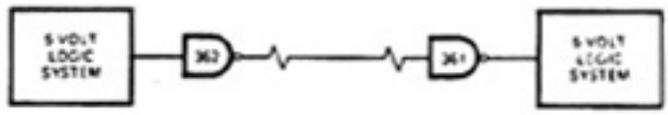
Typical Performance Characteristics (contd.)

OUTPUT LOW
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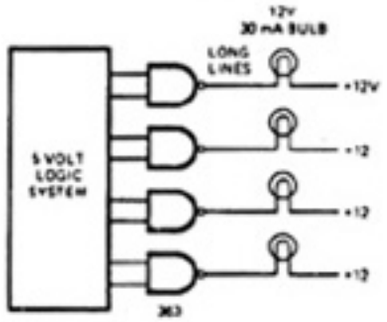
Typical Applications

LOW-NOISE DATA TRANSMISSION



When signal lines between two low-level logic systems pass through a noisy environment, use 362 and 361 transmit/receive pairs to prevent noise pickup by the receiving system.

INDICATOR DRIVER



Because of its higher output sink current and voltage, the 363 is an excellent output interface for 5V logic systems. Here, it allows a 5V logic system to control indicator lamps.