

## Features

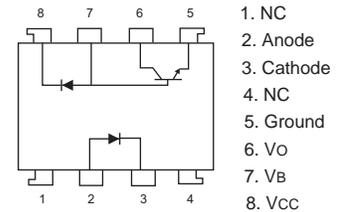
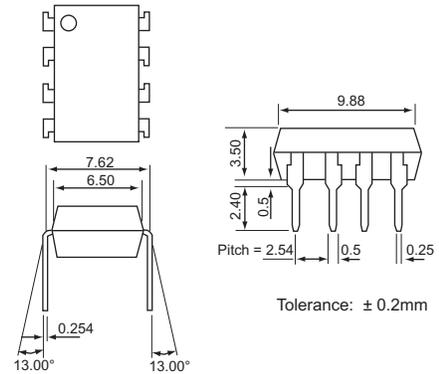
1. High speed response  $t_{PHL}$ ,  $t_{PLH}$   
(Max. 1.5uS at  $R_L = 4.1\text{kohms}$ )
2. High common mode rejection voltage.  
( $CM_H$ : TYP. 1kV/uS)
3. Standard dual-in-line package.
4. Available package types: DIP(shown)/ SMD/ H (Page: 138).

**Part Numbering System:** Page 2. **Part Marking System:** Page 4.

## Applications

1. Computers, measuring instruments, control equipment.
2. High speed line receivers, high speed logic.
3. Telephone sets.
4. Signal transmission between circuits of different potentials and impedances.

## Outside Dimension: Unit (mm)



1. NC
2. Anode
3. Cathode
4. NC
5. Ground
6. Vo
7. Vb
8. Vcc

## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

	Parameter	Symbol	Rating	Unit
Input	Forward current	IF	25	mA
	Peak transient forward current <sup>1</sup>	IFM	1	A
	Reverse voltage	VR	5	V
	Power dissipation	PD	45	mW
Output	Supply voltage & Output voltage	VCC & Vo	-0.5 to +15	V
	Emitter-base reverse with-stand voltage (Pin 5 to 7)	VEBO	5	V
	Average output current, Peak output current	Io, IOP	8, 16	mA
	Base current (Pin 7)	IB	5	mA
	Power dissipation	PO	100	mW
	Isolation voltage 1 minute <sup>2</sup>	Viso	2500	Vrms
	Operating temperature	Topr	-55 to +100	°C
Storage temperature	Tstg	-55 to +125	°C	
	Soldering temperature 10 second <sup>3</sup>	Tsol	260	°C

1. Pulse width  $\leq 1\mu\text{S}$ , 300 pulse/sec. Peak forward current, 50mA, 50% duty cycle, Pulse width 1mS, Decrease at the rate of 1.6mA/°C if the external temperature is 70°C or more.
2. 40 to 60% RH, AC for 1 minute.
3. For 10 seconds.

## Electro-optical Characteristics

(Ta = 0 to 70°C unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Current transfer ratio <sup>1</sup>	CTR(1)	Ta = 25°C, IF = 16mA Vo = 0.4V, VCC = 4.5V	7	40	-	%
	CTR(2)	IF = 16mA, Vo = 0.5V, VCC = 4.5V	5	43	-	%
Logic (0) output voltage	VOL	<sup>2</sup> VCC = 4.5V, IF = 16mA	-	0.1	0.4	V
Logic (1) output current	IOH(1)	Ta = 25°C, IF = 0 Vo = VCC = 5.5V	-	3.0	500	nA
	IOH(2)	Ta = 25°C, IF = 0 Vo = VCC = 15V	-	0.01	1.0	uA
	IOH(3)	VCC = Vo = 15V, IF = 0	-	-	50	uA
Logic (0) supply current	ICCL	IF = 16mA, Vo = open, VCC = 15V	-	200	-	uA
Logic (1) supply current	ICCH(1)	Ta = 25°C, Io = 0 VF = open, VCC = 15V	-	0.02	1.0	uA
	ICCH(2)	Io = 0 Vo = open, VCC = 15V	-	-	2.0	uA
Input forward voltage	VF	Ta = 25°C, IF = 16mA	-	1.7	1.95	V
Input forward voltage temperature coefficient	ΔVF / ΔTa	IF = 16mA	-	-1.9	-	mV/°C
Input reverse voltage	BVR	Ta = 25°C, IR = 10uA	5.0	-	-	V
Input capacitance	CIN	VF = 0, f = 1MHz	-	60	-	PF
Leak current (input-output) <sup>3</sup>	II-0	Ta = 25°C, 45%RH V I-0 = 3kVDC, t = 5s	-	-	1.0	uA
Isolation resistance (input-output) <sup>3</sup>	RI-0	V I-0 = 500VDC	-	10 <sup>12</sup>	-	Ω
Capacitance (input-output) <sup>3</sup>	CI-0	f = 1MHz	-	0.6	-	pF
Transistor current amplification factor	hFE	Vo = 5V, Io = 3mA	-	70	-	

1. Current transfer ratio is the ratio of input current and output current expressed in %.
2. Io = 1.1mA
3. Measured as 2-pin element (Short 1, 2, 3, 4 and 5, 6, 7, 8).

## Switching Characteristics

(Ta = 25°C, VCC = 5V, IF = 16mA)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Propagation delay time <sup>1,4</sup> Output (1) → (0)	tPHL	RL = 4.1kohms	-	0.3	1.5	uS
Propagation delay time <sup>1,4</sup> Output (0) → (1)	tPLH	RL = 4.1kohms	-	0.4	1.5	uS
Instantaneous common mode rejection voltage <sup>2,5</sup> Output (1)	CMH	IF = 0, VCM = 10Vp-p	-	1000	-	V/uS
Instantaneous common mode rejection voltage <sup>2,5</sup> Output (0)	CML	IF = 16mA, VCM = 10Vp-p	-	-1000	-	V/uS
Bandwidth <sup>3</sup>	BW	RL = 100ohms	-	2.0	-	MHZ

1. RL = 4.1kohms is equivalent to one LSTTL and 6.1kohms pull-up resistor.
2. Instantaneous common mode rejection voltage "output(1)" represents a common mode voltage variation that can hold the output above(1) level (Vo > 2.0V).  
Instantaneous common mode rejection voltage "output(0)" represents a common mode voltage variation that can hold the output above (0) level (Vo < 0.8V).
3. Bandwidth represents a point where AC input goes down by 3dB.
4. Tset Circuit Propagation Delay Time
5. Tset Circuit for Instantaneous Common Mode Rejection Voltage

