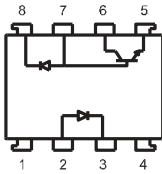## Schematic:

For dimensions and pin-outs, see the last page of this document.

Features:

1. High speed response t $_{PLH}$, t$_{PHL}$ (MAX.1.5us at RL=4.1kΩ)

2. High common mode rejection voltage (CM:TYP.1kV/us)

3. Standard dual-in-line package

Ordering:

Suffix to Standard Part Number

- V = VDE Approved
- G = 10mm Lead Spread
- S = Surface Mount Lead-form
- T = Tape & Reel

Applications:

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

Absolute Maximum Ratings:

(Ta=25℃)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I$_F$	25	mA
	*1 Peak forward current	I$_F$	50	mA
	*2 Peak transient forward current	I$_{FM}$	1	A
	Reverse voltage	V$_R$	5	V
	Power dissipation	P	45	mW
Output	Supply voltage	Vcc	-0.5 to 15	V
	Output voltage	Vo	-0.5 to 15	V
	Emitter-base reverse with-stand voltage (Pin 5 to 7)	V$_{EBO}$	5	V
	Average output current	Io	8	mA
	Peak output current	Iop	16	mA
	Base current (Pin 7)	I$_B$	5	mA
	Power dissipation	Po	100	mW
	*3 Isolation voltage 1 minute	Viso	2500	Vrms
	Operating temperature	Topr	-55 to +100	° C
	Storage temperature	Tstg	-55 to +125	° C
	*4 Soldering temperature	Tsol	260	° C

*1 50% duty cycle,Pulse width : 1mS
   Decreases at the rate of 1.6mA/℃ if the external temperature is 70℃ or more.
*2 Pulse width<=1uS,300pulse/sec
*3 40 to 60% RH,AC for 1 minute
*4 For 10 seconds

Electrical Characteristics:

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

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
[*5] Current transfer ratio	CTR (1)	Ta= 25°C , I_F=16mA Vo = 0.4V , Vcc = 4.5V	7	40	-	%
	CTR (2)	I_F=16mA Vo = 0.5V , Vcc = 4.5V	5	43	-	%
Logic (0) output volage	V_{OL}	[*6] Vcc = 4.5V, I_F=16mA	-	0.1	0.4	V
Logic (1) output current	$I_{OH(1)}$	Ta= 25°C , I_F = 0 Vo = Vcc = 5.5V	-	3.0	500	nA
	$I_{OH(2)}$	Ta'= 25°C , I_F = 0 Vo = Vcc = 15V	-	0.01	1.0	uA
	I_O (3)	Vcc = Vo = 15V, I_F = 0	-	-	50	uA
Logic (0) supply current	I_{CCL}	I_F = 16mA Vo = open , Vcc = 15V	-	200	-	uA
Logic (1) supply current	$I_{CCH(1)}$	Ta= 25°C , I_O = 0 V_F = open , Vcc = 15V	-	0.02	1.0	uA
	$I_{CCH(2)}$	I_O = 0 Vo = open , Vcc = 15V	-	-	2.0	uA
Input forward voltage	V_F	Ta= 25°C , I_F = 16mA	-	1.7	1.95	V
Input forward voltage temperature coefficient	$\triangle V_F / \triangle Ta$	I_F = 16mA	-	-1.9	-	mV/°C
Input reverse voltage	B_{AR}	Ta=25°C , I_R =10uA	5.0	-	-	V
Input capacitance	C_{IN}	V_F=0 , f=1MHz	-	60	-	pF
[*7] Leak current(input-output)	I_{I-O}	Ta= 25°C , 45 % RH V_{I-O} =3kVDC , t = 5s	-	-	1.0	uA
[*7] Isolation resistance(input-output)	R_{I-O}	V_{I-O} = 500VDC	-	10^{12}	-	Ω
[*7] Capacitance(input-output)	C_{I-O}	f=1MHz	-	0.6	-	pF
Transistor current amplification factor	h_{FE}	Vo = 5V , Io = 3mA	-	70	-	

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

Switching Characteristics

(Ta=25°C,Vcc=5V,I_F =16mA)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
[*8][*9] Propagation delay time Output (1)–>(0)	t_{PHL}	R_L= 4.1kΩ	-	0.3	1.5	uS
[*8][*9] Propagation delay time Output (0)–>(1)	t_{PLH}	R_L= 4.1kΩ	-	0.4	1.5	uS
[*10][*11] Instantaneous common mode rejection voltage "Output (1)"	CM_H	I_F=0,V_C=10V p-p	-	1000	-	V/uS
[*10][*11] Instantaneous common mode rejection voltage "Output (0)"	CM_L	I_F=16mA,V_{CM}=10Vp-p	-	-1000	-	V/uS
[*12] Bandwidth	BW	R_L= 100Ω	-	2.0	-	MHz

*8 R_F=4.1kΩ is equivalent to one LSTTL and 6.1kΩ pull-up resistor.
*10 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)
*12 Bandwidth represents a point where AC input gose down by 3dB.

*9 Tset Circuit Propagation Delay Time
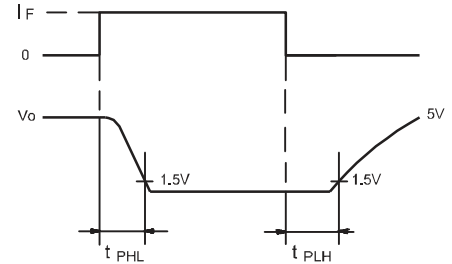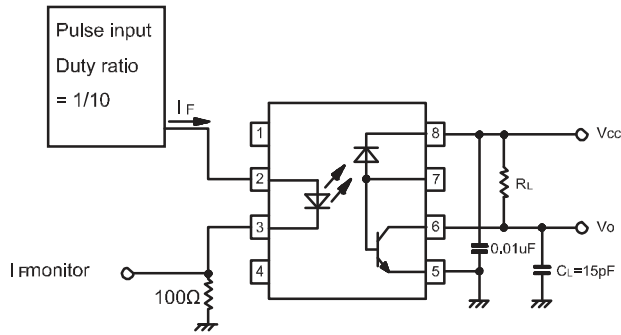
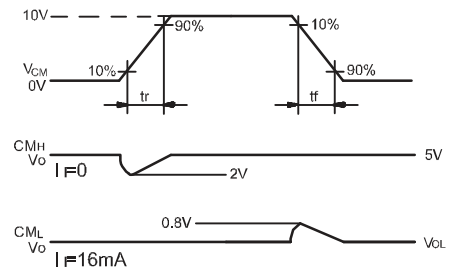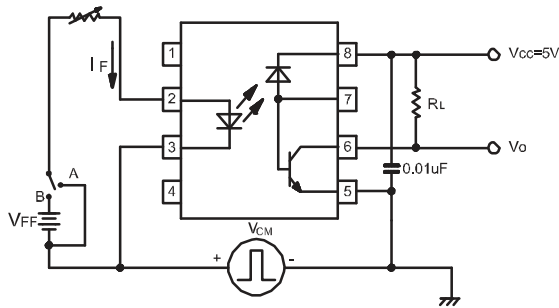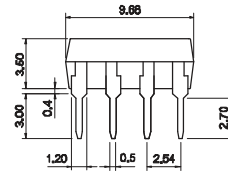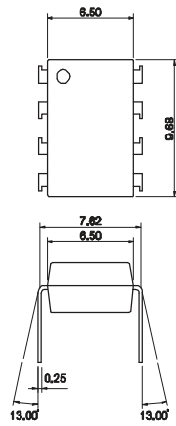*11 Tset Circuit for Instantaneous Common Mode Rejection Voltage

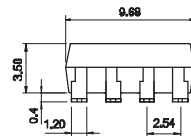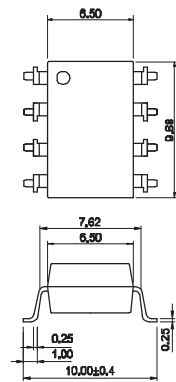## Fig.7 : 8-pin DIP type

TOLERANCE : ±0.2mm

Fig.8 : 8-pin SMD type

TOLERANCE : ±0.2mm

Fig.9 : 8-pin G type

TOLERANCE : ±0.2mm