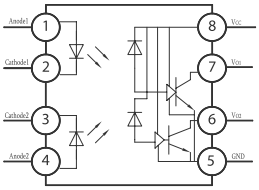
High Speed Optocoupler

multicomp PRO

Features:

- High speed: 10MBit/s
- 10kV/µs min. common mode transient immunity
- High isolation voltage between input and output (Viso =5000V rms)
- Operating Temperature: -40°C to 100°C
- Logic gate output

RoHS Compliant



Applications:

- Ground loop elimination
- LSTTL to TTL, LSTTL or 5-volt CMOS
- Line receiver, data transmission
- Data multiplexing
- Switching power supplies
- Pulse transformer replacement
- Computer-peripheral interface
- High speed logic ground isolation

Mechanical Data

- Case: DIP-8L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Truth Table (Positive Logic)

Input	Output
H	L
L	H

Maximum Ratings: @ T_A 25°C unless otherwise specified.

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	20	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	40	mW
Output	Power dissipation	P_C	60	mW
	Output Current	I_O	50	mA
	Supply Voltage	V_{CC}	7	V
	Output Voltage	V_O	7	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Output Power Dissipation	P_O	85	mW
Isolation Voltage *2	V_{ISO}	5000	Vrms
Operating Temperature	T_{OPR}	-40 ~ +100	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature *3	T_{SOL}	260	°C

Notes

1. 40 to 60% RH, AC for 1 minute, In this test, pins 1, 2, 3 & 4 are shorted together, and pins 5, 6, 7 & 8 are shorted together
2. For 10 seconds

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter		Symbol	Test conditions	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F = 10mA	-	1.4	1.8	V
	Reverse Voltage	V_R	I_R=10μA	5	-	-	V
	Capacitance	C_{in}	V_R = 0V, f = 1MHz	-	60	-	pF
	Diode Temperature Coefficient	$\Delta V_F/\Delta T_A$	I_F=10mA	-	-1.8	-	mV/°C
Output	High Level Supply Current	I_{CCH}	V_{CC}=5.5V, I_F=0mA	-	12.5	18	mA
	Low Level Supply Current	I_{CCL}	V_{CC}=5.5V, I_F=10mA	-	14.5	21	mA
Transfer Characteristics	High Level Output Current	I_{OH}	V_{CC}=5.5V, V_O=5.5V I_F= 250μA	-	2.1	100	μA
	Low Level Output Voltage	V_{OL}	V_{CC}=5.5V, I_F=5mA I_{CL}=13mA	-	0.35	0.6	V
	Input Threshold Current	I_{FT}	V_{CC}=5.5V, V_O=0.6V I_{OL}=13mA	-	2.5	5	mA

Switching Characteristics: (@ TA = -40°C - 100°C, VCC= 5V, IF= 7.5mA, unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Propagation Delay Time to Output HIGH Level	T_{PLH}	C_L=15pF R_L=350Ω T_A=25°C	-	35	100	ns
Propagation Delay Time to Output Low Level	T_{PHL}		-	40	100	
Pulse Width Distortion	$\lvert T_{PHL}-T_{PLH}\rvert$	C_L=15pF R_L=350Ω	-	5	35	
Output Rise Time (10–90%)	t_r		-	40	-	
Output fall Time (90–10%)	t_f		-	10	-	
Common Mode Transient Immunity (at Output HIGH Level) BL2630	$\lvert CM_H\rvert$	T_A=25°C, I_F=0mA $\lvert V_{CM}\rvert$=1KV (Peak) V_{OH}=2.0V, R_L=350Ω	5000	-	-	V/μs
Common Mode Transient Immunity (at Output HIGH Level) BL2631			10000	20000	-	
Common Mode Transient Immunity (at Output LOW Level) BL2630	$\lvert CM_L\rvert$	I_F=7.5mA,V_{OL}=0.8V $\lvert V_{CM}\rvert$=1KV (Peak) R_L=350Ω,TA=25°C	5000	-	-	
Common Mode Transient Immunity (at Output LOW Level) BL2631			10000	20000	-	

Ratings and Characteristics Curves: (@ T_A = 25°C unless otherwise specified)

Fig.1 Typical High Level Output Current vs. Temperature

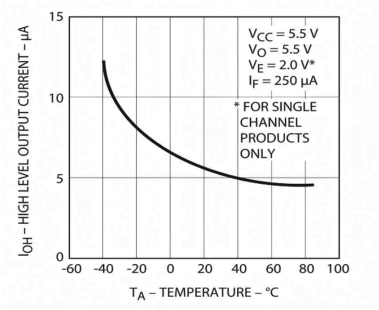


Fig.2 Typical Output Voltage vs. Forward Input Current

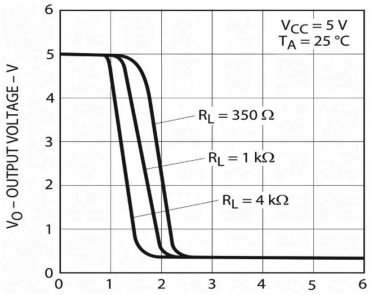


Fig.3 Typical Input Threshold Current vs. Temperature

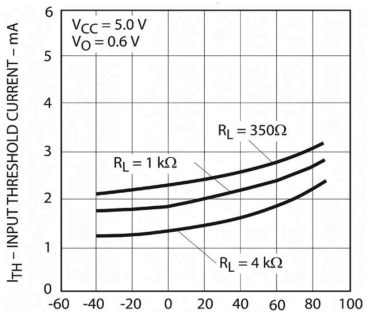


Fig4 Typical Low Level Output Voltage vs. Temperature

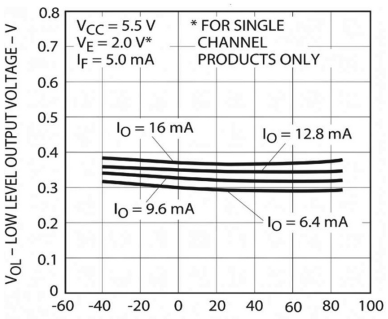


Fig.5 Typical Low Level Output Current vs. Temperature

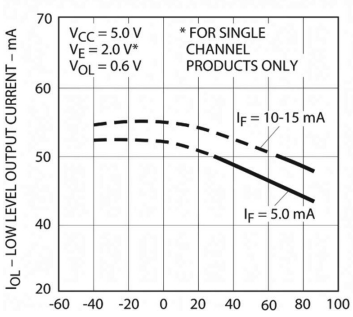


Fig.6 Typical Input Diode Forward Characteristic

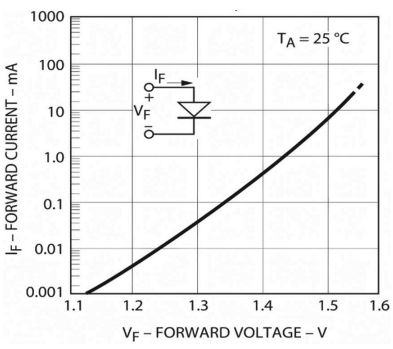


Fig.7 Typical Temperature Coefficient of Forward Voltage vs. Input Current

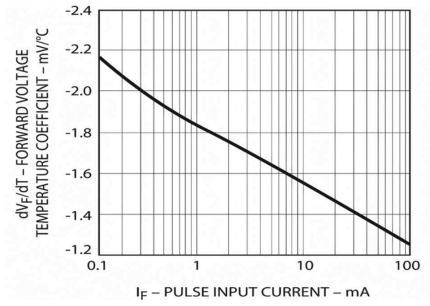


Fig.8 Propagation Delay vs. Temperature

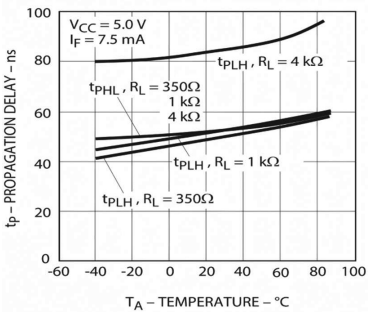


Fig.9 Propagation Delay vs. Pulse Input Current

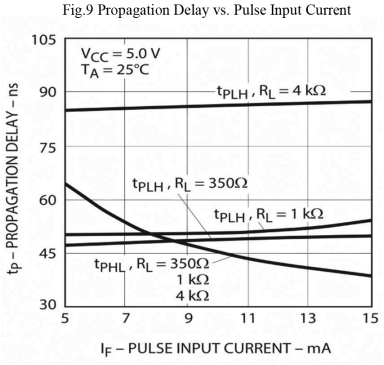


Fig.10 Pulse Width Distortion vs. Temperature

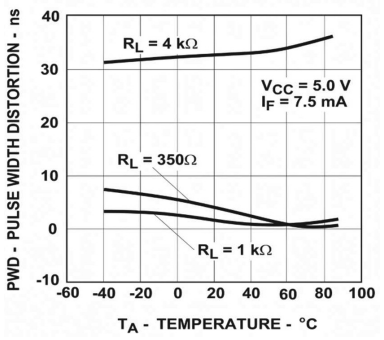
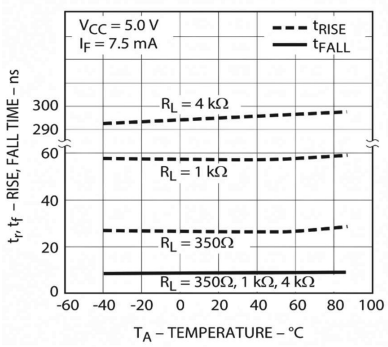
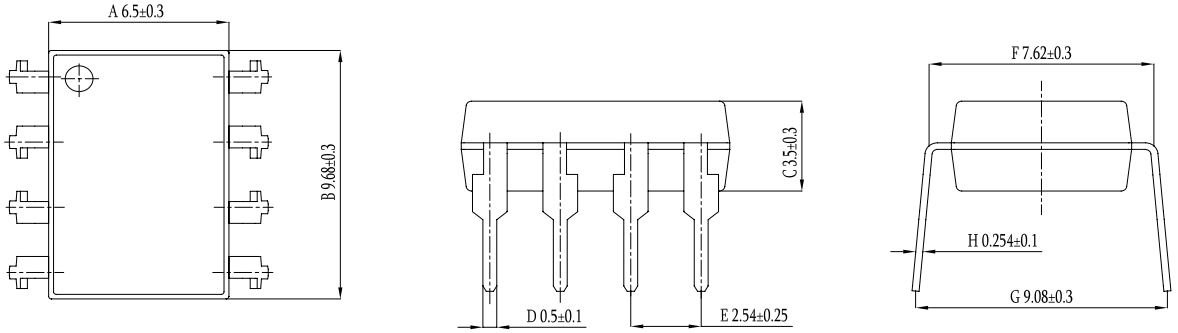


Fig.11 Typical Rise and Fall Time vs. Temperature



Outline Dimensions



Part Number Table

Description	Part Number
Optocoupler, High Speed, 20mA, 5V, 5000Vrms, DIP 8L	BL2630

Dimensions : Millimetres