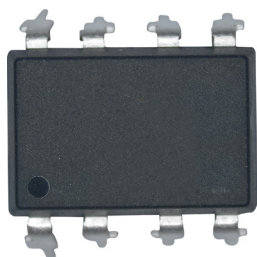


Gate Driver Optocoupler

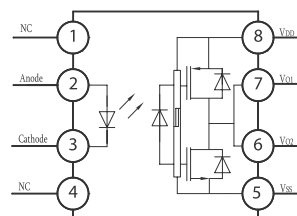
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Features:

- 15kV/us minimum Common Mode Rejection (CMR)
- 0.6 A maximum peak output current
- Fast switching speed
- 500 ns maximum propagation delay
- Under Voltage Lock-Out protection (UVLO) with hysteresis
- Wide operating range: 10 to 30 Volts (VCC)
- Operating Temperature: -40°C~100°C
- Meet reinforced insulation standards

**RoHS
Compliant**



Applications:

- Motor drive
- IGBT/MOSFET gate drive
- Industrial Inverter
- Switch Mode Power Supplies
- Uninterruptible power supply (UPS)

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

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

Parameter		Symbol	Min.	Max.	Unit
Emitter	Average Input Current	I _{F(AVG)}	-	25	mA
	Reverse Voltage	V _R	-	5	V
	Peak Transient Input Current	I _{F(TRAN)}	-	1	A
	(<1 μs Pulse Width, 300 pps)				
Detector	“High” Peak Output Current *1	I _{OH(PEAK)}	-	0.6	V
	“Low” Peak Output Current*1	I _{OL(PEAK)}	-	0.6	
	Total Output Supply Voltage	(V _{DD} - V _{SS})	0	35	
	Output Voltage	V _{O(PEAK)}	0	V _{DD}	

Thermal Characteristics

Parameter	Symbol	Value	Unit
Isolation Voltage ^{*2}	V _{ISO}	5000	V _{rms}
Operating Temperature	T _{OPR}	-40 ~ +100	°C
Storage Temperature Range	T _{STG}	-55 ~ +125	°C

Notes

1. Exponential waveform. Pulse width ≤ 10 μs, f ≤ 15 kHz
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

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Electrical Characteristics @ $T_A = 25^\circ\text{C}$ and $V_{CC} - V_{EE} = 30\text{ V}$ unless otherwise specified

Parameter		Symbol	Test conditions	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.2	1.5	1.8	V
	Reverse Voltage	I_R	$V_R = 5\text{V}$	-	-	10	μA
	Threshold Current (Low to High)	V_{FHL}	$I_O = 0\text{mA}$, $V_O > 5\text{V}$	-	2.2	5	mA
	Threshold Voltage (High to Low)	V_{FHL}	$I_O = 0\text{mA}$, $V_O < 5\text{V}$	0.8	-	-	V
Output	High Level Supply Current	I_{CCH}	$I_F = 7\text{--}16\text{mA}$, $V_O = \text{Open}$	-	2.5	5	mA
	Low Level Supply Current	I_{CCL}	$V_F = -3\text{--}0.8\text{V}$, $V_O = \text{Open}$	-	2.7	5	
	High Level Output Current	I_{OH}^{*1}	$V_O = (V_{DD} - 4\text{V})^{*1}$	0.1	0.4	-	A
			$V_O = (V_{DD} - 15\text{V})^{*2}$	0.5	-	-	
	Low Level Output Current	I_{OL}	$V_O = (V_{SS} + 2.5\text{V})^{*1}$	0.1	0.6	-	
			$V_O = (V_{SS} + 12\text{V})^{*2}$	0.5	-	-	
	High Level Output Voltage	V_{OH}	$I_O = -100\text{mA}$	$V_{DD} - 6$	$V_{DD} - 4$	-	V
	Low Level Output Voltage	V_{OL}	$I_O = 100\text{mA}$	$V_{DD} - 0.6$	$V_{DD} - 0.35$	-	
	UVLO Threshold	V_{UVLO+}	$V_O > 5\text{V}$	6.9	7.8	8.7	
		U_{UVLO-}	$I_F = 10\text{ mA}$	5.9	6.7	7.5	
	UVLO Hysteresis	U_{VLOHYS}	-	-	1.6	-	

Switching Characteristics: (@ $T_A = 25^\circ\text{C}$, $V_{CC} - V_{EE} = 30\text{ V}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Propagation Delay Time to Output HIGH Level	T_{PLH}	$R_g = 47\Omega$, $C_g = 3\text{nF}$, $f = 10\text{ kHz}$, $I_F = 7\text{ to }16\text{ mA}$	100	300	500	nS
Propagation Delay Time to Output Low Level	T_{PHL}		100	300	500	
Pulse Width Distortion	P_{WD}		-	-	300	
Propagation delay difference between any two parts or channels	P_{DD}^{*1}		-350	-	350	
Output Rise Time (10–90%)	T_r	$R_g = 10\Omega$, $C_g = 10\text{nF}$, $f = 10\text{ kHz}$, $I_F = 7\text{ to }16\text{ mA}$,	-	100	-	
Output Rise Time (90–10%)	T_f		-	100	-	
Common Mode Transient Immunity (at Output HIGH Level)	$ CM_H ^{*2}$	$T_A = 25^\circ\text{C}$, $I_F = 10\text{ to }16\text{ mA}$, $V_{CM} = 1500\text{ V}$, $V_{DD} = 30\text{ V}$	15	30	-	KV/us
Common Mode Transient Immunity (at Output LOW Level)	$ CM_L ^{*3}$	$T_A = 25^\circ\text{C}$, $V_F = 0\text{ V}$, $V_{CM} = 1500\text{ V}$, $V_{DD} = 30\text{ V}$	15	30	-	KV/us
UVLO Turn On Delay	$T_{UVLO\text{ ON}}$	$I_F = 10\text{mA}$, $V_O > 5\text{V}$		0.8		μs
UVLO Turn Off Delay	$T_{UVLO\text{ OFF}}$	$I_F = 10\text{mA}$, $V_O < 5\text{V}$		0.6		

Ratings and Characteristics Curves: (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Fig.1 High Level Output Current vs. Temperature

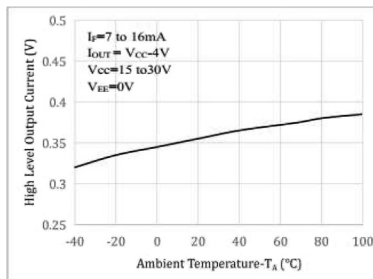


Fig.2 High Level Output Voltage vs. Ambient Temperature

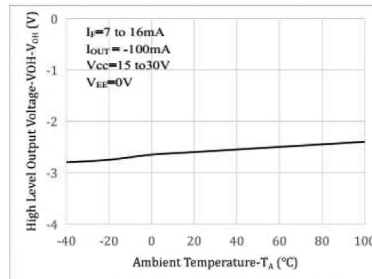


Fig.3 Low Level Output Voltage vs. Ambient Temperature

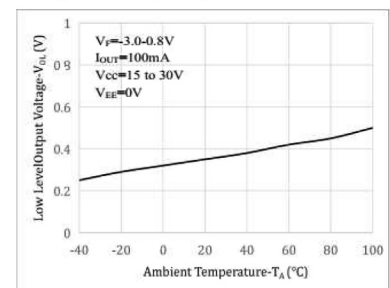


Fig.4 Supply Current vs. Ambient Temperature

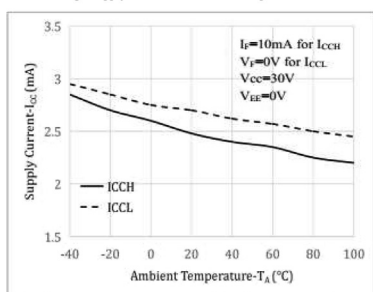


Fig.5 Supply Current vs. Supply Voltage

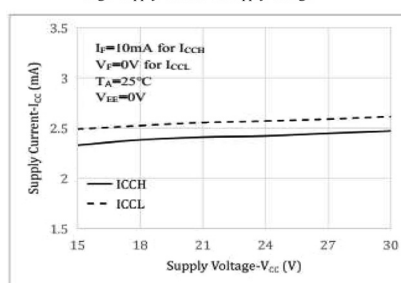


Fig.6 Output Voltage vs Threshold Input Current Low to High

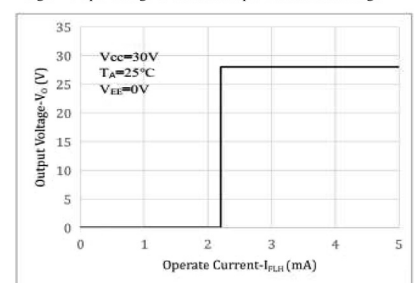


Fig.7 Threshold Input Current Low to High vs. Ambient Temperature

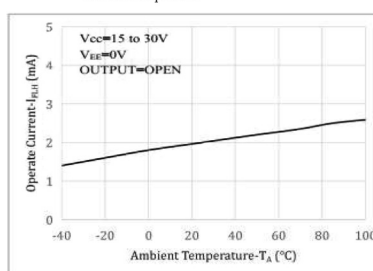


Fig.8 Propagation Delays vs. Supply Voltage

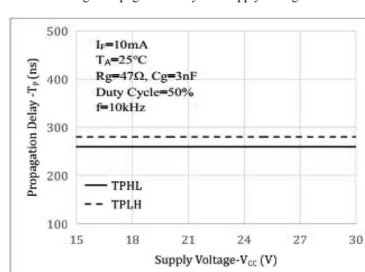


Fig.9 Propagation Delays vs. Forward Current

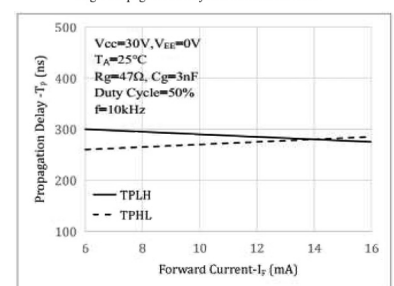


Fig.10 Propagation Delays vs. Ambient Temperature

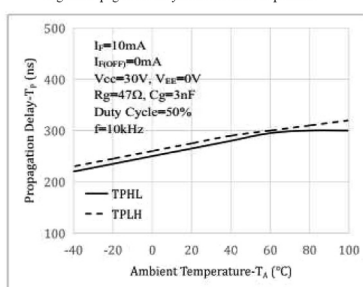
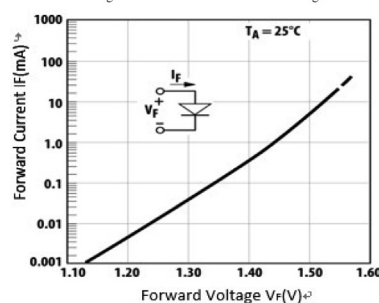
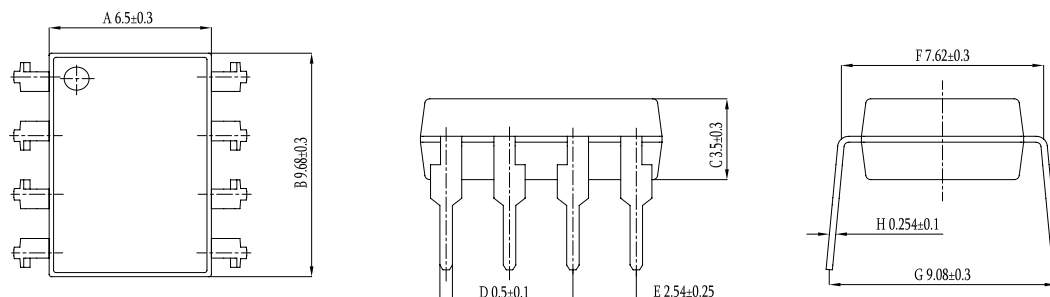


Fig.11 Forward Current vs. Forward Voltage



Outline Dimensions



Part Number Table

Description	Part Number
Gate Driver Optocoupler, 25mA, 5V, 5000Vrms	BL3150

Dimensions : Millimetres

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