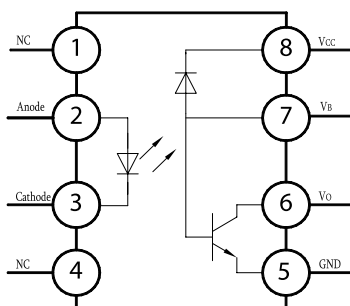


**RoHS
Compliant**



Features:

- Very high speed: 1 MBit/s
- High isolation voltage between input and output (Viso =5000Vrms)
- Operating Temperature: -40°C~100°C
- Open-Collector Output

Truth Table (Positive Logic)

LED	VO
OFF	H
ON	L

Applications:

- Output interface to CMOS-LSTTL-TTL
- Telecommunication equipment
- Power transistor isolation in motor drives
- Replacement for low speed phototransistor photo couplers

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	Value	Unit
Input	DC/Average forward input current	I _F (avg)	25	mA
	Peak forward input current (50% duty cycle, 1 ms p.w.)	I _{F(pk)}	50	mA
	Reverse Voltage	V _R	5	V
	Peak transient input current	I _{F(trans)}	1	A
	Power Dissipation	P _I	45	mW
Output	Supply Voltage	V _{CC}	-0.5-30	V
	Output Current	I _O	8	mA
	Peak output current	I _{O(pk)}	16	mA
	Output power dissipation	P _O	100	mW
	Output Voltage	V _O	-0.5-20	V
	Emitter-base reverse voltage	V _{EBR}	5	V
	Base current	I _B	5	mA

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
Soldering Temperature ^{*3}	T _{SOL}	260	°C

Notes

1. Pulse width ≤ 1μs, 300 pps
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V _F	I _F = 16mA	-	1.45	1.7	V
	Reverse Breakdown Voltage	B _{VR}	I _R = 10μA	5	20	-	V
	Diode Temperature Coefficient	ΔV _F /ΔT _A	I _F = 16mA	-	-1.6	-	mV/°C
Output	High Level Supply Current	I _{CCH}	V _{CC} = 15V, I _F = 0mA V _O = Open	-	-	1	μA
			T _A = 0 ~ 70°C	-	-	2	μA
	Low Level Supply Current	I _{CCL}	V _{CC} = 15V, I _F = 16mA, V _O = Open	-	50	200	μA
Transfer Characteristics	High Level Output Current	I _{OH}	V _{CC} = 5.5V, V _O = 5.5V I _F = 0mA	-	0.001	0.5	μA
			V _{CC} = 15V, V _O = 15V I _F = 0mA	-	0.005	1	
			V _{CC} = 15V, V _O = 15V T _A = 0 ~ 70°C	-	-	50	
	Low Level Output Voltage	V _{OL}	V _{CC} = 4.5V, I _F = 16mA I _O = 3mA	-	0.1	0.4	V
		C _{TR}	V _{CC} = 4.5V, I _F = 16mA V _O = 0.4V	19	24	50	%
	Isolation Voltage	V _{ISO}	RH < 50%, T _A = 25°C, I _{I-O} ≤ 50μA	5000	-	-	V _{RMS}
	Isolation Resistance	R _{IO}	V _{IO} = 500V	-	1 × 10 ¹²	-	Ω
	Floating Capacitance	C _{IO}	f = 1MHz	-	0.6	-	pF

Switching Characteristics @ $T_A = -40^\circ\text{C}, 85^\circ\text{C}, V_{CC} = 5\text{V}, I_F = 7.5\text{mA}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Propagation Delay Time to Output HIGH Level	T_{PLH}	6N136 $I_F = 16\text{mA}, R_L = 1.9\text{k}\Omega$	-	600	800	ns
Propagation Delay Time to Output Low Level	T_{PHL}	6N136 $I_F = 16\text{mA}, R_L = 1.9\text{k}\Omega$	-	200	800	
Common Mode Transient Immunity (at Output HIGH Level)	$ CM_H $	6N136 $R_L = 1.9\text{k}\Omega$ $T_A = 25^\circ\text{C}, I_F = 0\text{mA}$ $ V_{CM} = 10\text{V(Peak)}, C_L = 15\text{pF}$	1000	-	-	$\text{V}/\mu\text{s}$
Common Mode Transient Immunity (at Output LOW Level)	$ CM_L $	6N136 $R_L = 1.9\text{k}\Omega$ $T_A = 25^\circ\text{C}, I_F = 16\text{mA}$ $ V_{CM} = 10\text{V(Peak)}, C_L = 15\text{pF}$	1000	-	-	$\text{V}/\mu\text{s}$

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

Fig.1 Normalized CTR vs. Input current

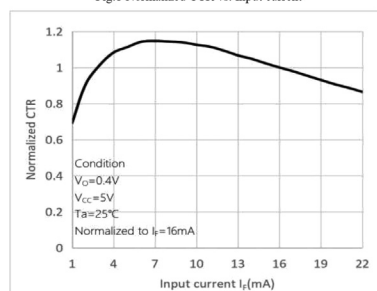


Fig.2 Normalized CTR vs. Ambient temperature

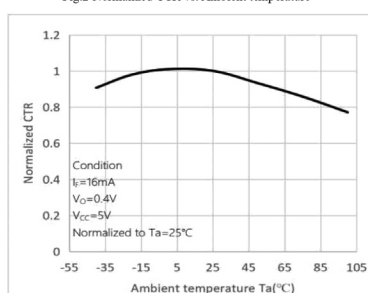


Fig.3 Output current vs. Output voltage

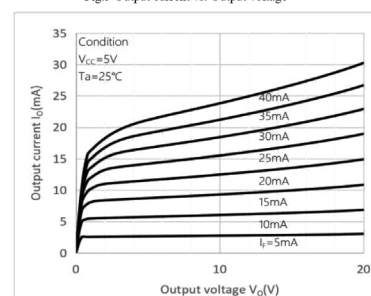


Fig.4 High level output voltage vs. Ambient temperature

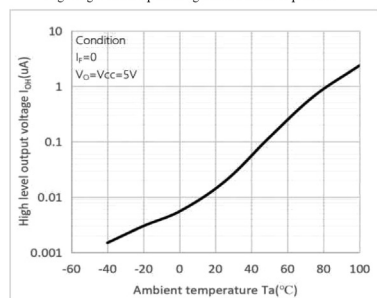


Fig.5 Propagation Delay Time vs. Ambient temperature

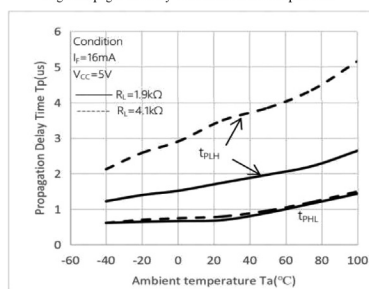
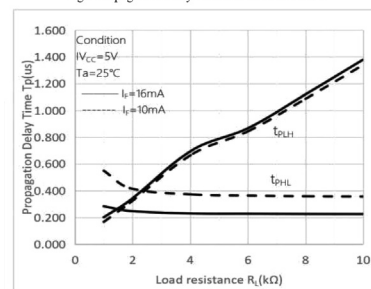
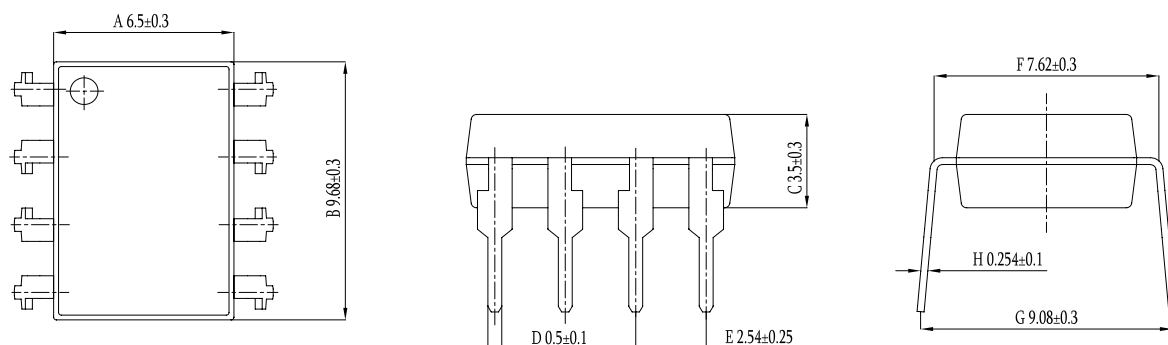


Fig.6 Propagation Delay Time vs. Load resistance



Outline Dimensions



Part Number Table

Description	Part Number
Optocoupler, High Speed, 25mA, 5V, 5000Vrms	BL6N136

Dimensions : Millimetres

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