

High Speed Optocoupler

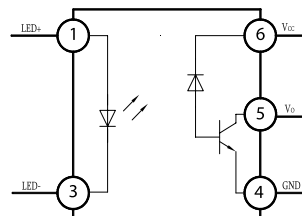
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Features:

- Very high speed: 1 MBit/s
- High isolation voltage between input and output ($V_{iso} = 3750V_{rms}$)
- Operating Temperature: $-40^{\circ}C$ to $100^{\circ}C$

**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

Mechanical Data

- Case: SOP5
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Maximum Ratings: @ T_A $25^{\circ}C$ unless otherwise specified.

Parameter		Symbol	Value	Unit
Emitter	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	45	mW
Detector	Collector Output	P_O	100	mW
	Output Current	I_O	16	mA
	Supply Voltage	V_{CC}	30	V
	Output Voltage	V_O	20	V

Truth Table

LED	VO, OUTPUT
OFF	H
ON	L

Thermal Characteristics

Parameter	Symbol	Value	Unit
Isolation Voltage ^{*2}	V_{ISO}	3750	V_{rms}
Operating Temperature	T_{OPR}	$-40 \sim +100$	$^{\circ}C$
Storage Temperature Range	T_{STG}	$-55 \sim +125$	$^{\circ}C$
Soldering Temperature ^{*3}	T_{SOL}	260	$^{\circ}C$

Notes

1. Pulse width $\leq 1\mu s$, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

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sg.element14.com/b/multicomp-pro

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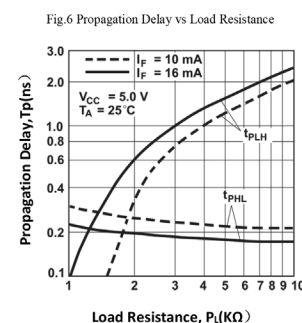
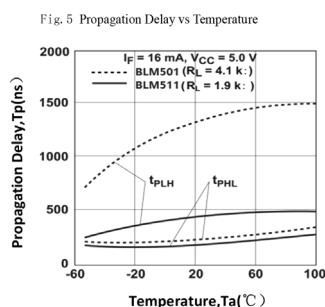
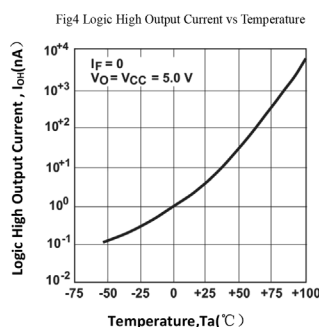
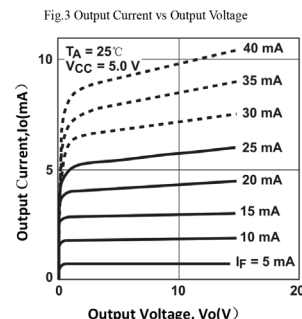
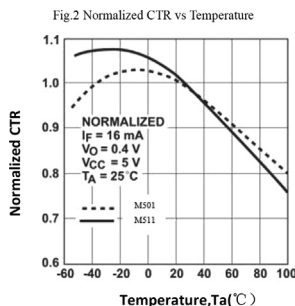
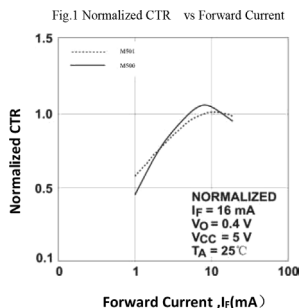
Electrical Characteristics @ TA = 25°C unless otherwise specified

Parameter		Symbol	Test conditions	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 =10mA	-	-1.6	-	mV/°C
Output	High Level Supply Current	I _{CCH}	V _{CC} =15V, I _F =0mA, V _O =Open	-		1	mA
			T _A =0-70°C			2	
	Low Level Supply Current	I _{CCL}	V _{CC} =15V, I _F =16mA, V _O =Open	-	120	800	mA
Transfer Characteristics	High Level Output Current	I _{OH}	I _F = 0mA, V _O =5.5V V _{CC} =5.5V		0.001	0.5	μA
			I _F = 0mA, V _O =15V, V _{CC} =15V		0.005	1	
			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
			V _{CC} =4.5V, I _F =16mA, I _O =2.4mA	-	0.1	0.5	
	Current transfer ratio	C _{TR}	I _F =16mA, V _{CC} =4.5V, V _O =0.4V	19	24	80	%
			I _F =16mA, V _{CC} =4.5V, V _O =0.5V	15	25		
	Isolation Resistance	R _{IO}	V _{IO} = 500V DC, 40~60% R.H.	-	1×10 ¹²	-	Ω
	Floating Capacitance	C _{IO}	f = 1MHz	-	0.6	-	mA

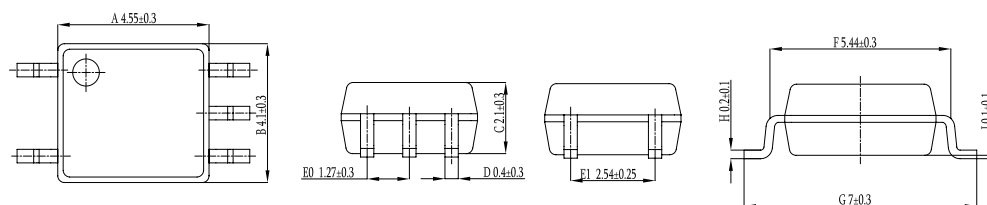
Switching Characteristics: (@ TA = 25°C - 100°C, V_{CC} = 5V, I_F = 16mA, unless otherwise specified)

Parameter		Symbol	Test conditions	Min.	Typ.	Max.	Unit
Propagation Delay Time to Output HIGH Level		T _{PLH}	I _F =16mA, R _L =1.9kΩ, T _A =25°C	-	150	800	ns
			I _F =16mA, R _L =1.9kΩ			800	
Propagation Delay Time to Output Low Level		T _{PHL}	I _F =16mA, R _L =1.9kΩ, T _A =25°C	-	200	800	
			I _F =16mA, R _L =1.9kΩ			800	
Common Mode Transient Immunity(at Logic High)	M501	C _{MH}	T _A =25°C, I _F =0mA V _{CM} =10V(Peak) C _L =15pF, R _L =1.9KΩ	5000	-	-	V/μs
	M511		T _A =25°C, I _F =0mA V _{CM} =1500V (Peak) C _L =15pF, R _L =1.9KΩ	15000	-	-	
Common Mode Transient Immunity (at Logic Low)	M501	C _{ML}	T _A =25°C, I _F =16mA V _{CM} =10V (Peak) C _L =15pF, R _L =1.9KΩ	50000	-	-	
	M511		T _A =25°C, I _F =16mA V _{CM} =1500V (Peak) C _L =15pF, R _L =1.9KΩ	15000	-	-	

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



Outline Dimensions



Part Number Table

Description	Part Number
Optocoupler, High Speed, 50mA, 5V, 3750Vrms, SOP5	BLM511

Dimensions : Millimetres

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