High Reliability Photologic® Hermetic Sensors

OPL800TXV

Features:

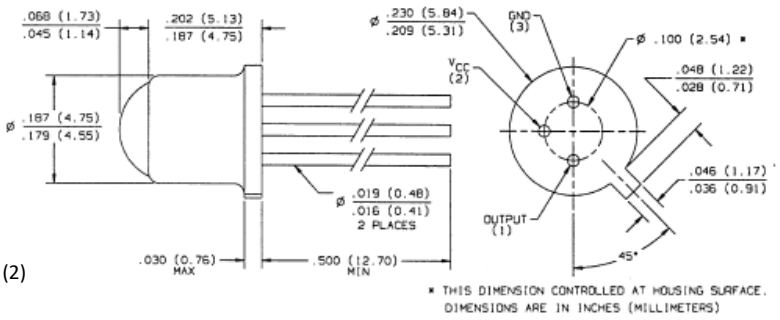
- 100% screened and quality conformance tested to Optek's High Reliability program
- Direct TTL/STTL interface
- Hermetic, lensed TO-18 package
- Mechanically and spectrally matched to OP235/OP236TX/TXV LEDs

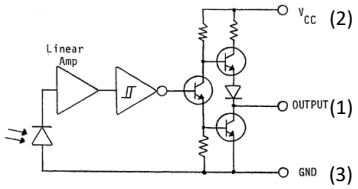
Description:

The OPL800TXV is a high reliability optoelectronic microcircuit that incorporates a photodiode, linear amplifier and Schmitt trigger on a single silicon chip. The device features TTL/STTL compatible logic level output which can drive up to 8 TTL loads without additional interface circuitry. The Photologic® chip is mounted on a standard TO-18 header with gold plated leads which is hermetically sealed in a lensed gold plated metal can. These devices are mechanically and spectrally matched to the OP235TX/TXV and OP236TX/TXV infrared emitting diodes. All parts are processed to Optek's 100 percent screening program patterned after Method 5004 of MIL-STD-883 and the quality conformance testing of Method 5005. Typical characteristic curves are shown on the commercial OPL800 datasheet.

Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine Safety
- End of travel sensor
- Door sensor
- Military and harsh environments





Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Supply Voltage, V_{CC} (not to exceed 3 sec)	+10.0 V
Storage Temperature Range	-55° C to +150° C
Operating Temperature Range	-55° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	240° C(1)
Power Dissipation	250 mW(2)
Duration of Output Short to V_{CC} or Ground	1.00 sec
Irradiance	3 mW/cm^2

Notes:
1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when wave soldering.
2. Derate linearly 2.5 mW/°C above 25°C.
3. Light measurements are made with λ = 935 nm.

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Electrical Specifications

Group A Inspection-Electrical Tests

(Performed on each inspection lot after all devices have been subjected to the 100% processing requirements.)

SYMBOL	EXAMINATION OR TEST	METHOD	CONDITIONS	N/C	LIMIT		UNITS
					MIN	MAX	
Subgroup 1[3]							
I_{CCH}	Supply Current, High	3005	V_{CC}= 5.5 V, E_e = 1.0 mw/cm^2	116/0		15.0	mA
I_{CCL}	Supply Current, Low	3005	V_{CC}= 5.5 V, E_e = 0.0 mw/cm^2			15.0	mA
V_{OL}	Low Level Output Voltage	3007	V_{CC}= 4.5 V, I_{OL} = 12.8 mA, E_e = 0.0 mw/cm^2			0.40	V
V_{OH}	High Level Output Voltage	3006	V_{CC}= 4.5 V, I_{OH} = -800 µA, E_e = 1.0 mw/cm^2		2.4		V
I_{OS}	Short Circuit Output Current	3011	V_{CC}= 4.5 V, E_e = 1.0 mw/cm^2, Output = Ground		-20	-100	mA
Subgroup 2[3] **T_A = +125°** C							
I_{CCH}	Supply Current, High	3005	V_{CC}= 5.5 V, E_e = 1.0 mw/cm^2	116/0		15.0	mA
I_{CCL}	Supply Current, Low	3005	V_{CC}= 5.5 V, E_e = 0.0 mw/cm^2			15.0	mA
V_{OL}	Low Level Output Voltage	3007	V_{CC}= 4.5 V, I_{OL} = 12.8 mA, E_e = 0.0 mw/cm^2			0.40	V
V_{OH}	High Level Output Voltage	3006	V_{CC}= 4.5 V, I_{OH} = -800 µA, E_e = 1.0 mw/cm^2		2.4		V
Subgroup 3[3] **TA = -55°** C							
I_{CCH}	Supply Current, High	3005	V_{CC}= 5.5 V, E_e = 1.0 mw/cm^2	116/0		15.0	mA
I_{CCL}	Supply Current, Low	3005	V_{CC}= 5.5 V, E_e = 0.0 mw/cm^2			15.0	mA
V_{OL}	Low Level Output Voltage	3007	V_{CC}= 4.5 V, I_{OL} = 12.8 mA, E_e = 0.0 mw/cm^2			0.40	V
V_{OH}	High Level Output Voltage	3006	V_{CC}= 4.5 V, I_{OH} = -800 µA, E_e = 1.0 mw/cm^2		2.4		V
Subgroup 3[3]							
t_r, t_f	Rise and Fall Time	3004	V_{CC}= 5.0 V, R_L = 8TTL loads	116/0		100	ns
t_{PHL}	Propagation Delay, Low-High	3003	V_{CC}= 5.0 V, R_L = 8TTL loads			10.0	µs
t_{PLH}	Propagation Delay, High-Low	3003	V_{CC}= 5.0 V, R_L = 8TTL loads			10.0	µs

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