



**FEATURES:**

- Dual channel
- 0.010" aperture
- Photo IC sensor

**PRODUCT DESCRIPTION**

Direction of travel sensing is accomplished with Opto Technology's OTIN-0190 Dual Channel Interrupters. These interrupters feature two GaAlAs infrared emitting diodes and two photo IC sensors mounted side by side in a molded plastic housing. The sensor consists of a photodiode with low-level amplifier, Schmitt trigger, voltage regulator and an open collector driver output. The housing features a 0.100" interrupter gap with a 0.010" aperture over each sensor. The OTIN-0190 output with external pull up resistor switches "off" when the device is interrupted with an opaque material.

**ABSOLUTE MAXIMUM RATINGS**

**General**

Storage Temperature Range ----- -55°C to +100°C  
 Operating Temperature Range ----- -40°C to +85°C  
 Lead Soldering Temperature (1/16" from case  
 for 5 sec. with soldering iron) ----- 260°C<sup>(1)</sup>

**Input Diode**

Reverse Voltage ----- 5 V  
 Continuous Forward Current ----- 50 mA  
 Power Dissipation ----- 100 mW<sup>(2)</sup>

**Photo IC Sensor**

Supply Voltage ----- 15 V  
 Output Voltage ----- 15 V  
 Output Current ----- 25 mA

**Notes:**

- (1) RMA flux recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate 1.33 mW/°C above 25°C ambient.
- (3) Methanol or isopropyl alcohols are recommended as cleaning agents.
- (4) T<sub>A</sub> = 25°C unless otherwise specified.



**Infrared Emitting Diode<sup>(4)</sup>**

Parameter	Symbol	Min	Typ	Max	Units
Forward Voltage ( $I_F = 20 \text{ mA}$ )	$V_F$			1.5	V
Reverse Current ( $V_R = 5 \text{ V}$ )	$I_R$			10	$\mu\text{A}$
Wavelength at Peak Emission ( $I_F = 20 \text{ mA}$ )	$\lambda_P$		940		nm

**Photo IC<sup>(4)</sup>**

Parameter	Symbol	Min	Typ	Max	Units
Supply Voltage	$V_{CC}$	4.0	5.0	15.0	V
Supply Current	$I_{CC}$		4.0	10.0	mA
Collector Emitter Saturation Voltage $I_C = 15\text{mA}$	$V_{CE(SAT)}$		0.3	0.5	V
Collector Emitter Saturation Voltage $I_C = 25\text{mA}$	$V_{CE(SAT)}$		0.5	0.8	V
Low Level Output Current	$I_C$			50	mA
Hysteresis			12		%

**Coupled Electrical Characteristics: (25°C)**

Parameter	Symbol	Min	Typ	Max	Units
LED Forward Current (turn on)	$I_F$			10	mA
LED Forward Voltage ( $I_F = 60 \text{ mA}$ )	$V_F$			1.7	V
Rise Time	$t_{on}$		200	500	ns
Fall Time	$t_{off}$		200	500	ns
Propagation Delay ( $I_F = 20\text{mA}$ )	$t_p$		20		$\mu\text{S}$

