Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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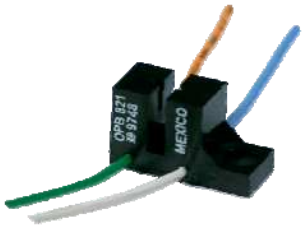
High Resolution Slotted Optical Switch

OPB821TX, OPB821TXV



Features:

- Non-contact switching
- Low profile to facilitate stacking
- Hermetically sealed components
- 24" (609.60 mm) minimum length wire conforms to MIL-W-16878
- TX and TXV components processed to MIL-PRF-19500

Description:

Each **OPB821TX** and **OPB821TXV** device consists of a gallium aluminum arsenide LED and a silicon phototransistor, which are soldered into a printed circuit board and mounted in a high temperature plastic housing on opposite sides of an 0.080" (2.03 mm) wide slot. Lead wires are #24 AWG polytetraflouroethylene (PTFE) insulated, which conforms to MIL-W-16878.

Phototransistor switching takes place when an opaque object passes through the slot. For maximum output signal, neither the LED nor the phototransistor is apertured.

TX and TXV device components are processed to OPTEK's military screening program patterned after MIL-PRF-19500.

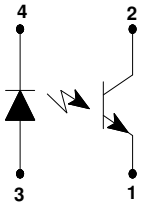
Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

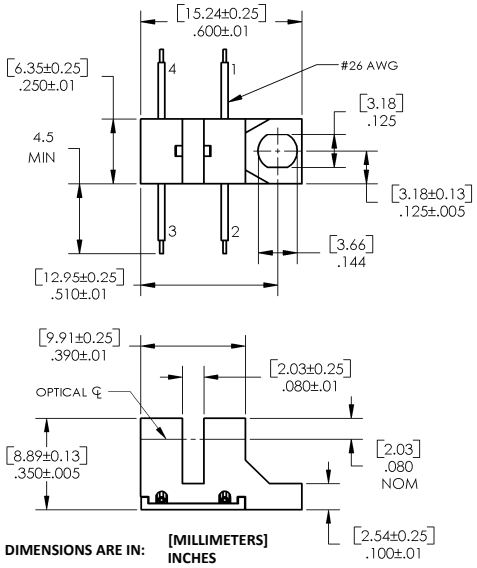
Contact your local representative or OPTEK for more information.

Applications:

- Non-contact object sensing
- Assembly line automation
- Machine automation
- Equipment safety
- Machine safety

Part Number	LED Peak Wavelength	Sensor	Slot Width / Depth	$I_{C(ON)}$ (mA) Min	I_F (mA) Typ / Max	V_{CE} (Volts) Max	Aperture Emitter/ Sensor	Lead Length / Spacing
OPB821TX	880 nm	Transistor	0.080" / 0.255"	0.80	20 / 50	30	0.040"/ 0.040"	24"/26 AWG wire
OPB821TXV								





RoHS

Color/Pin #	Description	Color/Pin #	Description
Green-3	Cathode	White-2	Collector
Orange-4	Anode	Blue-1	Emitter

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High Resolution Slotted Optical Switch

OPB821TX, OPB821TXV

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

Storage Temperature	-65°C to +150° C
Operating Temperature	-65°C to +125° C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 seconds with soldering iron)(1)	260° C
Input Diode	
Continuous Forward Current	50 mA
Reverse Voltage	2 V
Power Dissipation(1)	100 mW
Output Phototransistor	
Collector-Emitter Voltage	50 V
Emitter-Collector Voltage	7 V
Power Dissipation(1)	100 mW

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage(3)	1.00	1.35	1.70	V	I_F = 20 mA
		1.20	1.55	1.90		I_F = 20 mA, T_A = -55° C
		0.80	1.20	1.60		I_F = 20 mA, T_A = 100° C
I_R	Reverse Current	-	0.10	100	µA	V_R = 2 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	50	110	-	V	I_C = 1 mA, I_F = 0
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	7	10	-	V	I_E = 100 µA, I_F = 0
$I_{C(OFF)}$	Collector-Emitter Dark Current	-	0.20	100	nA	V_{CE} = 10 V, I_F = 0
		-	10	100	µA	V_{CE} = 10 V, I_F = 0, T_A = 100° C
Coupled						
$I_{C(ON)}$	On-State Collector Current(3)	800	-	-	µA	V_{CE} = 10 V, I_F = 20 mA
		500	-	-		V_{CE} = 10 V, I_F = 20 mA, T_A = -55° C
		500	-	-		V_{CE} = 10 V, I_F = 20 mA, T_A = 100° C
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage OPB820S10, OPB821S10	-	0.20	0.30	V	I_C = 250 µA, I_F = 20 mA

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Electrical Characteristics (T_A = 25° C unless otherwise noted)

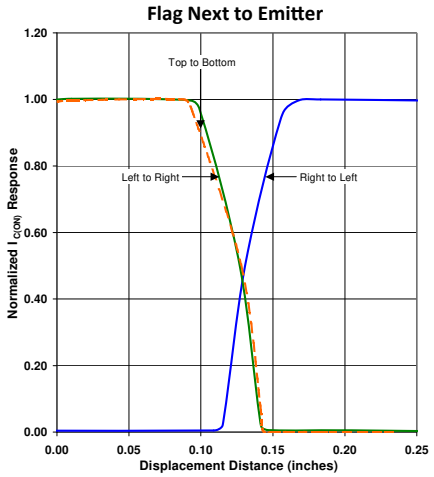
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Coupled						
t_r	Output Rise Time	-	12	20	µs	V_{CC} = 10 V, I_F = 20 mA, R_L = 1000 Ω
t_f	Output Fall Time	-	12	20		

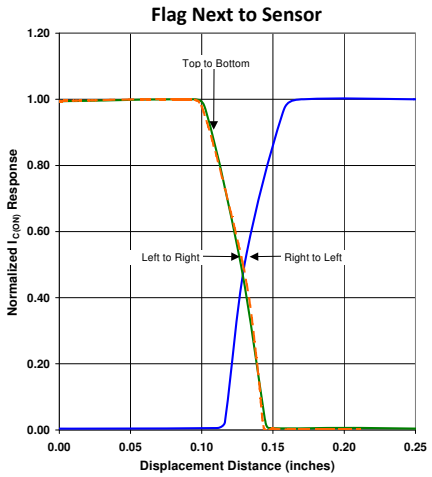
Notes:

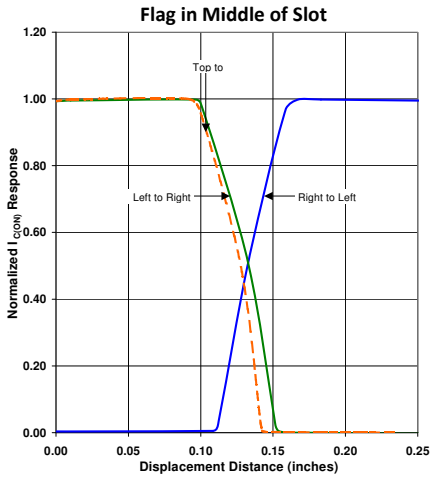
(1) Derate linearly 1.00 mW/° C above 25° C.

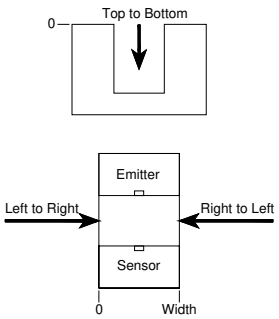
(2) Methanol or isopropanol are recommended cleaning agents.

(3) Measurement is taken during the last 500 µs of a single 1.0 ms test pulse. Heating due to increased pulse rate or pulse width can cause









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