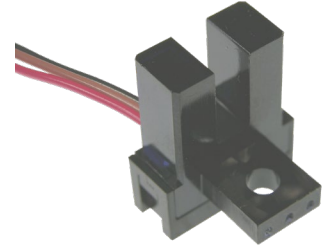


OPB857Z



Features:

- Three #26 AWG UL rated wires for economy in electrical connection
- Water resistant, no optical openings in upper plastic body
- Internal narrow aperture for high motion resolution

Description:

OPB857Z is a non-contact optical switch with a NPN silicon phototransistor and infrared Light Emitting Diode (LED) which are mounted on opposite sides of a 0.150" (3.8 mm) wide slot and with #26 AWG UL rated wires.

The device's upper body is a single molded piece IR transparent plastic that is tinted to reduce ambient light interference and offers water resistance as well as dirt/dust protection. The phototransistor has an internal aperture that offers good optical resolution. LED emissions are near infrared (890 nm).

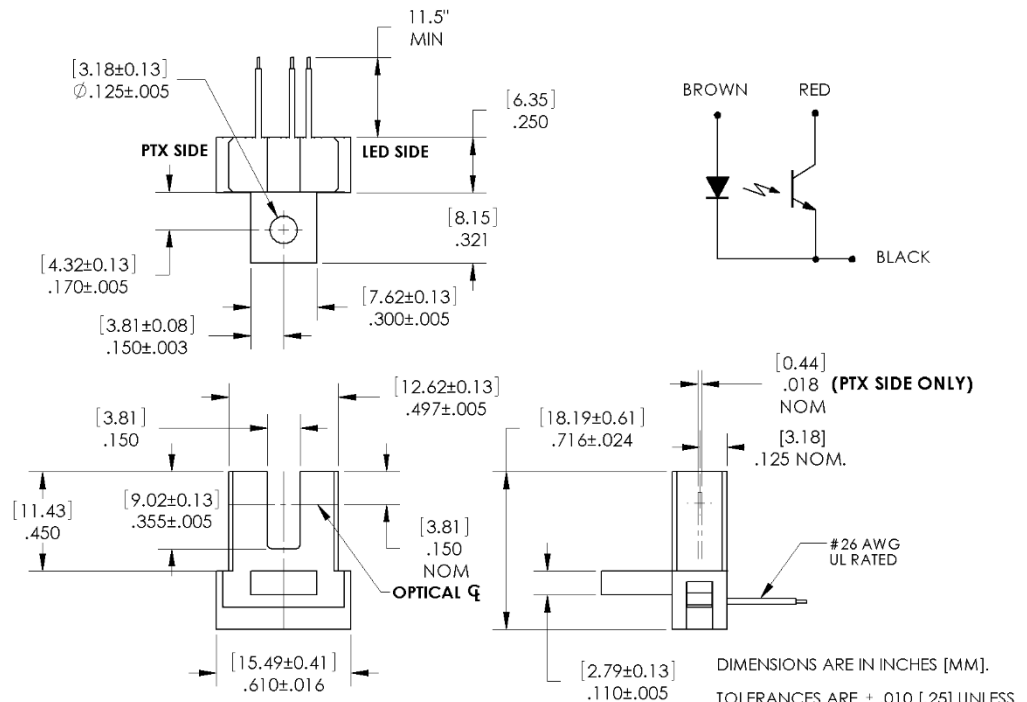
Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

For application information, refer to Application Bulletins 248 and 213.

Applications:

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

Wire Color	Description
Red	Collector
Brown	Anode
Black	Common



Notes:

- (1) Wire is #26 AWG UL Rated PVC ii
- (2) Ideal torque for bolt or screw 0,45 to 0,68 nm (4 to 6 in-lbs).
- (3) When using a thread lock compound, ND Industries "ND Vibra-Tite® Formula 3" will avoid stress cracking plastic.
- (4) Plastic is soluble in chlorinated hydrocarbons and ketones. Methanol or isopropanol are recommended as cleaning agents.



RoHS

General Note

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Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Storage & Operating Temperature Range	-40° C to +80° C
Input Diode	
Input Diode Power Dissipation ⁽¹⁾	100 mW
Input Diode Forward D.C. Current, $T_A = 25^\circ\text{C}$	50 mA
Input Diode Peak Forward Pulse Current, $T_A = 25^\circ\text{C}$ (1 μs pulse width, 300 pps)	1 A
Input Diode Reverse D.C. Voltage, $T_A = 25^\circ\text{C}$	2 V
Phototransistor	
Power Dissipation ⁽¹⁾	100 mW
Collector - Emitter Voltage	30 V
Emitter - Collector Voltage	5.0 V

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	1.0	-	1.70	V	$I_F = 20\text{ mA}$
I_R	Reverse Current	-	-	100	μA	$V_R = 2\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 1\text{ mA}$, $E_E = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0	-	-	V	$I_E = 100\text{ }\mu\text{A}$, $E_E = 0$
I_{CEO}	Collector Dark Current	-	-	100	nA	$V_{CE} = 10\text{ V}$, $I_F = 0$, $E_E = 0$
Coupled						
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	0.40	V	$I_C = 1.50\text{ mA}$, $I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1.5	-	17.0	mA	$V_{CE} = 10\text{ V}$, $I_F = 20\text{ mA}$

Notes:

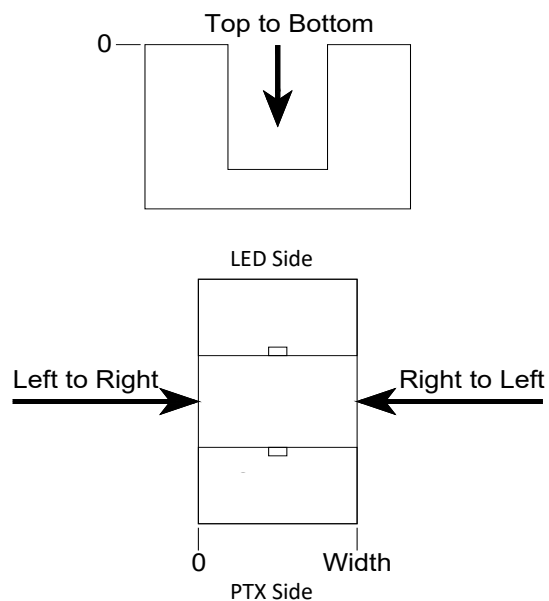
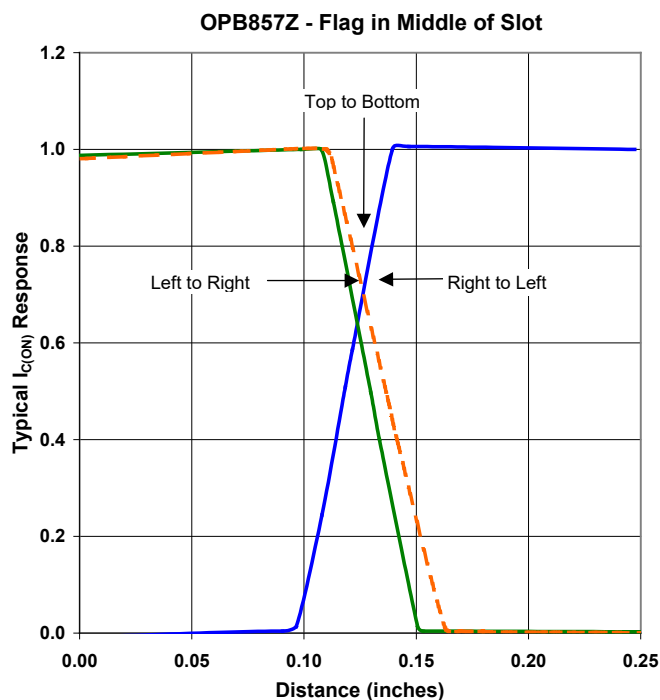
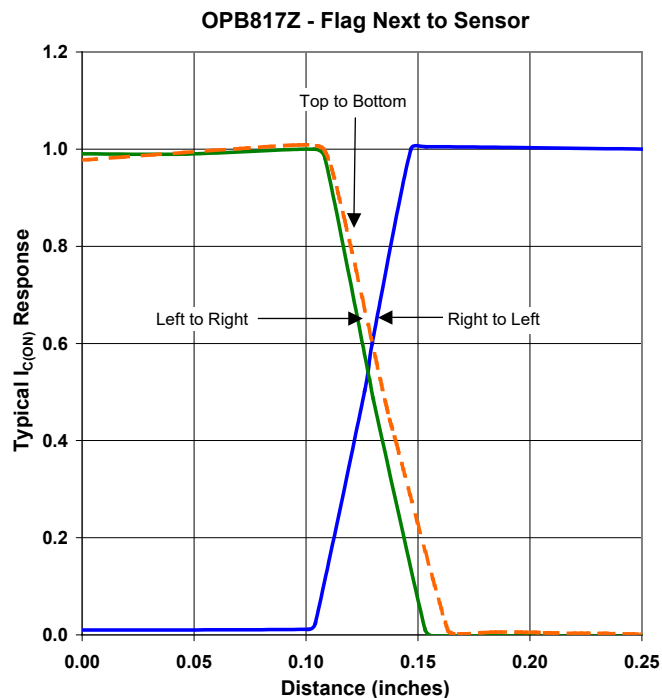
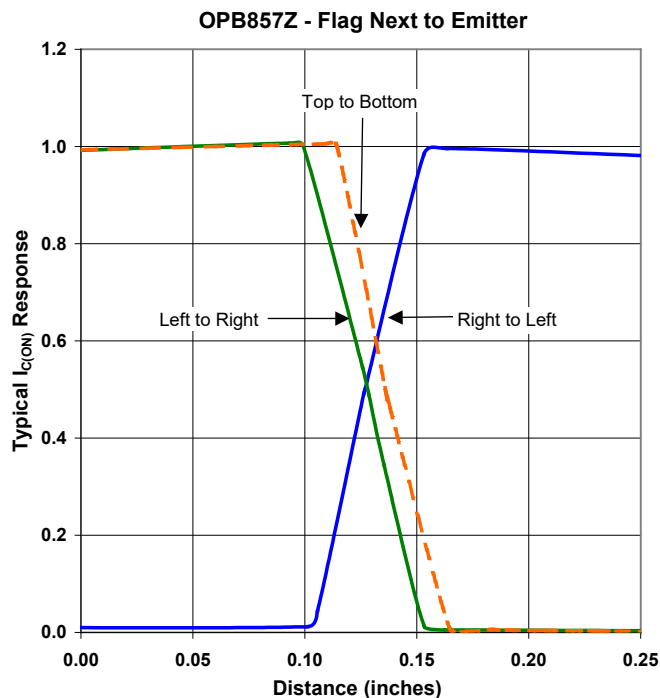
- (1) Derate linearly 1.45 mW/° C above 25° C.
- (2) Plastic is soluble in chlorinated hydrocarbons and ketones. Methanol or isopropanol are recommended as cleaning agents.

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Typical Performance



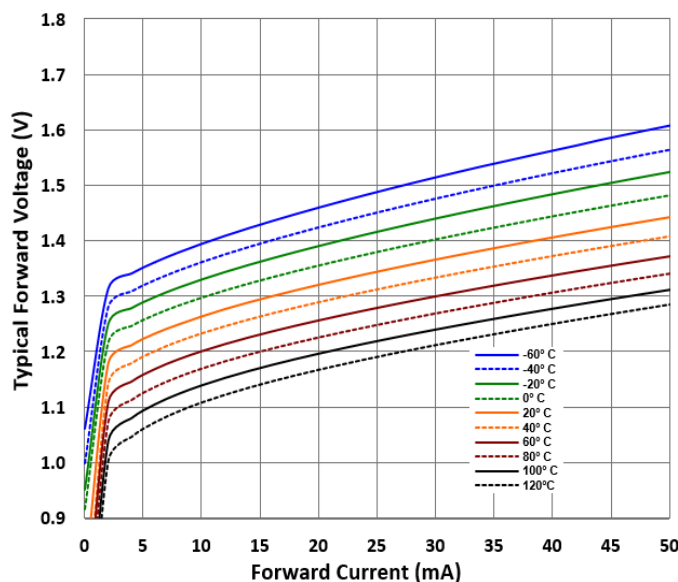
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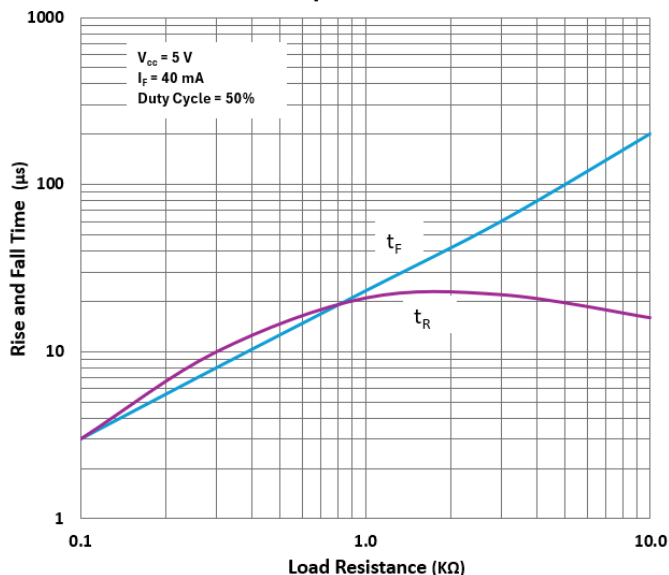
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Typical Performance

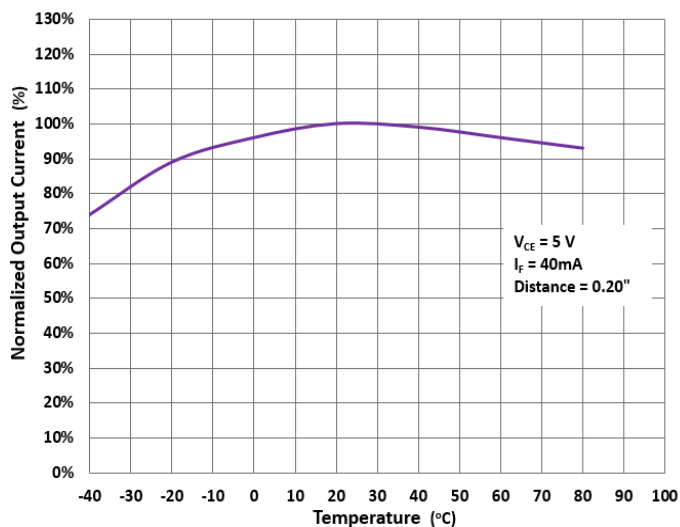
LED Forward Voltage vs I_F vs Temperature



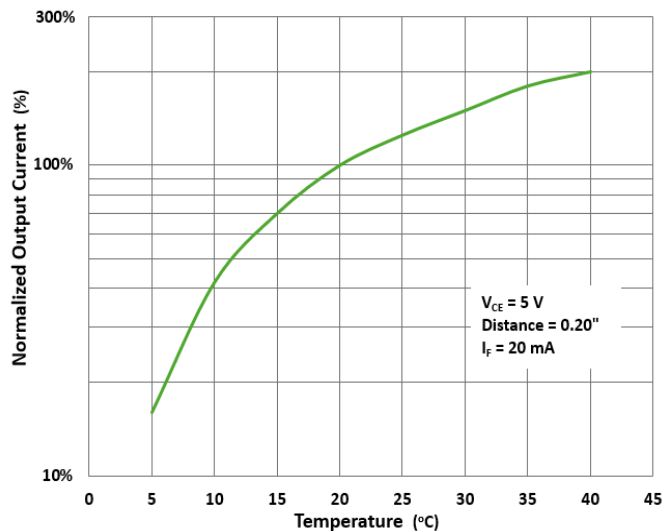
Transistor Output - Rise and Fall Time



Collector Current vs Temperature



Output Current vs LED Current



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