

Types OPB930W, OPB940W Series

Electrical Characteristics ($T_A = -40^\circ\text{C}$ to $+70^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage			1.7	V	$I_F = 20\text{ mA}$, $T_A = 25^\circ\text{C}$
I_R	Reverse Current			100	μA	$V_R = 2\text{ V}$, $T_A = 25^\circ\text{C}$
Output Photologic[®] Sensor						
V_{CC}	Operating D.C. Supply Voltage	4.75		5.25	V	
I_{CCL}	Low Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}^{(5)}$
	Inverted Totem-Pole Output Inverted Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 15\text{ mA}$
I_{CCH}	High Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 15\text{ mA}$
	Inverted Totem-Pole Output Inverted Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}^{(5)}$
V_{OL}	Low Level Output Voltage: Buffered Totem-Pole Output Buffered Open-Collector Output			0.4	V	$V_{CC} = 4.75\text{ V}$, $I_{OL} = 12.8\text{ mA}$ $I_F = 0\text{ mA}^{(5)}$
	Inverted Totem-Pole Output Inverted Open-Collector Output			0.4	V	$V_{CC} = 4.75\text{ V}$, $I_{OL} = 12.8\text{ mA}$ $I_F = 15\text{ mA}$
V_{OH}	High Level Output Voltage: Buffered Totem-Pole Output	2.4			V	$V_{CC} = 4.75\text{ V}$, $I_{OH} = -800\text{ mA}$ $I_F = 15\text{ mA}$
	Inverted Totem-Pole Output	2.4			V	$V_{CC} = 4.75\text{ V}$, $I_{OH} = -800\text{ mA}$ $I_F = 0\text{ mA}^{(5)}$
I_{OH}	High Level Output Current: Buffered Open-Collector Output			100	μA	$V_{CC} = 4.75\text{ V}$, $V_{OH} = 30\text{ V}$, $I_F = 15\text{ mA}$, $T_A = 25^\circ\text{C}$
	Inverted Open-Collector Output			100	μA	$V_{CC} = 4.75\text{ V}$, $V_{OH} = 30\text{ V}$, $I_F = 0\text{ mA}$, $T_A = 25^\circ\text{C}$
$I_F(+)$	LED Positive-Going Threshold Current			15	mA	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$
$I_F(+)/I_F(-)$	Hysteresis		2.0			$V_{CC} = 5\text{ V}$
I_{OS}	Short Circuit Output Current: Buffered Totem-Pole Output	-30		-100	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 15\text{ mA}$ Output = GND
	Inverted Totem-Pole Output	-30		-100	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}$ Output = GND
t_r, t_f	Output Rise Time, Output Fall Time		70		ns	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$ $I_F = 0$ or 15 mA $R_L = 8\text{ TTL Loads (Totem-Pole)}$ $R_L = 360\ \Omega$ (Open-Collector)
t_{PLH}, t_{PHL}	Propagation Delay Low-High & High-Low		5.0		μs	

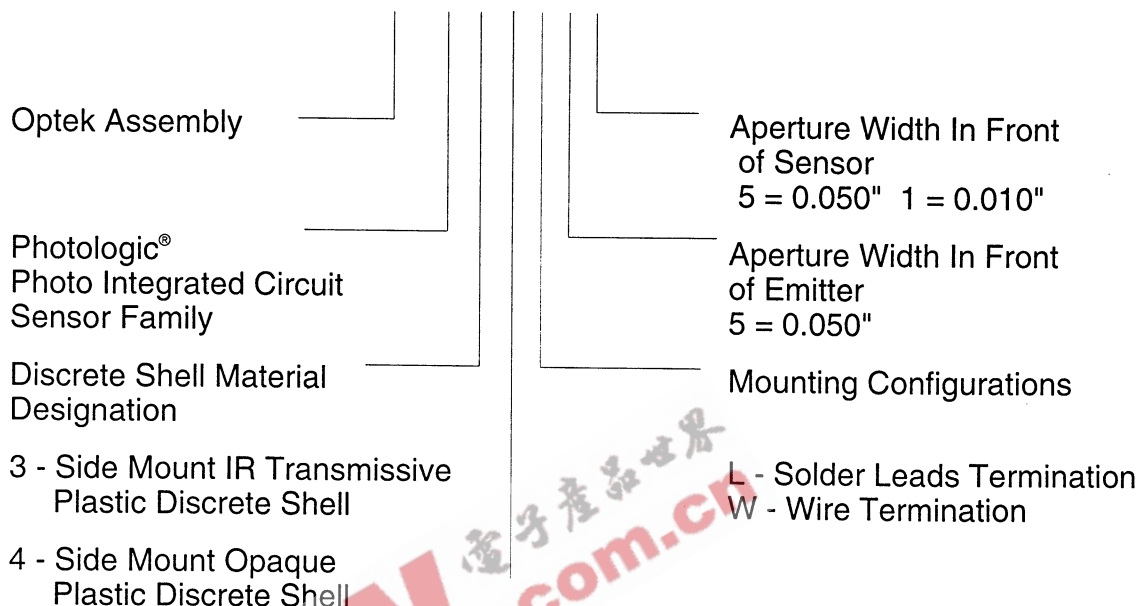
Housing

All housings are an opaque grade of injection-molded plastic to minimize the assembly's sensitivity to ambient radiation, both visible and near-infrared. Discrete shells (exposed on the parallel faces inside the device throat) are either IR transmissive plastic for applications where aperture contamination may occur or opaque plastic for maximum protection against ambient light.

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PART NUMBER GUIDE

OPB 9 X X X X X

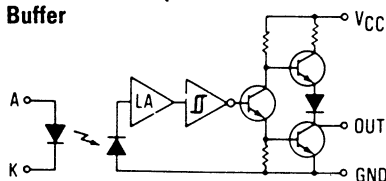


Electrical Specification Variations

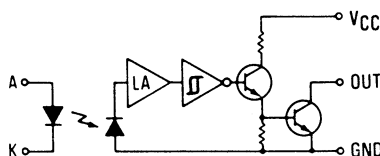
- 0 - Buffered Totem-Pole Output
- 1 - Buffered Open-Collector Output
- 2 - Inverted Totem-Pole Output
- 3 - Inverted Open-Collector Output

Schematics

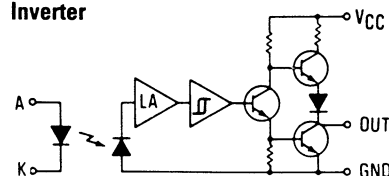
OPB930, OPB940
(Totem-Pole Output)
Buffer



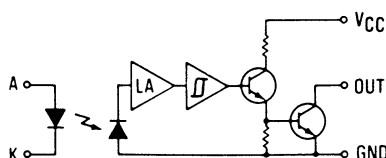
OPB931, OPB941
(Open-Collector Output)
Buffer



OPB932, OPB942
(Totem-Pole Output)
Inverter



OPB933, OPB943
(Open-Collector Output)
Inverter



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V_{CC}	Operating D.C. Supply Voltage	4.75		5.25	V	
I_{CCL}	Low Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}^{(5)}$
	Inverted Totem-Pole Output Inverted Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 15\text{ mA}$
I_{CCH}	High Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 15\text{ mA}$
	Inverted Totem-Pole Output Inverted Open-Collector Output			15	mA	$V_{CC} = 5.25\text{ V}$, $I_F = 0\text{ mA}^{(5)}$
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	Inverted Totem-Pole Output Inverted Open-Collector Output			0.4	V	$V_{CC} = 4.75\text{ V}$, $I_{OL} = 12.8\text{ mA}$ $I_F = 15\text{ mA}$
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	Inverted Totem-Pole Output	2.4			V	$V_{CC} = 4.75\text{ V}$, $I_{OH} = -800\text{ mA}$ $I_F = 0\text{ mA}^{(5)}$
I_{OH}	High Level Output Current: Buffered Open-Collector Output			100	μA	$V_{CC} = 4.75\text{ V}$, $V_{OH} = 30\text{ V}$, $I_F = 15\text{ mA}$, $T_A = 25^\circ\text{C}$
	Inverted Open-Collector Output			100	μA	$V_{CC} = 4.75\text{ V}$, $V_{OH} = 30\text{ V}$, $I_F = 0\text{ mA}$, $T_A = 25^\circ\text{C}$
$I_F(+)$	LED Positive-Going Threshold Current			15	mA	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$
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t_r, t_f	Output Rise Time, Output Fall Time		70		ns	$V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$ $I_F = 0$ or 15 mA $R_L = 8\text{ TTL Loads (Totem-Pole)}$ $R_L = 360\ \Omega$ (Open-Collector)
t_{PLH}, t_{PHL}	Propagation Delay Low-High & High-Low		5.0		μs	

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