

# Reflective Object Sensor

OPB700Z, OPB700ALZ

OPB701Z, OPB701ALZ



Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)	
Storage Temperature Range	-40° C to + 125° C
Operating Temperature Range	-40° C to + 100° C
Lead Soldering Temperature	260° C
Input Diode	
Continuous Forward Current	100 mA
Reverse Voltage	2 V
Power Dissipation <sup>(1)</sup>	80 mW
Output Phototransistor	
Collector-Emitter Voltage OPB700Z, OPB700ALZ OPB701Z, OPB701ALZ	24 V 15 V
Emitter-Collector Voltage	5 V
Power Dissipation <sup>(1)</sup>	50 mW

Notes:

- (1) Derate linearly 1.07 mW/°C above 25 ° C.

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	-	-	1.7	V	$I_F = 50\text{ mA}$
$I_R$	Reverse Current	-	-	100	$\mu\text{A}$	$V_R = 2\text{ V}$
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage OPB700Z, OPB700ALZ	25	-	-	V	$I_C = 100\ \mu\text{A}$
	OPB701Z, OPB701ALZ	15	-	-	V	$I_C = 100\ \mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100\ \mu\text{A}$
$I_{CEO}$	Collector Dark Current OPB700Z, OPB700ALZ	-	-	100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = \leq 0.1\ \mu\text{W}/\text{cm}^2$
	OPB701Z, OPB701ALZ	-	-	250	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_E = \leq 0.1\ \mu\text{W}/\text{cm}^2$

Notes:

- (1) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog # E 152 7795.

General Note  
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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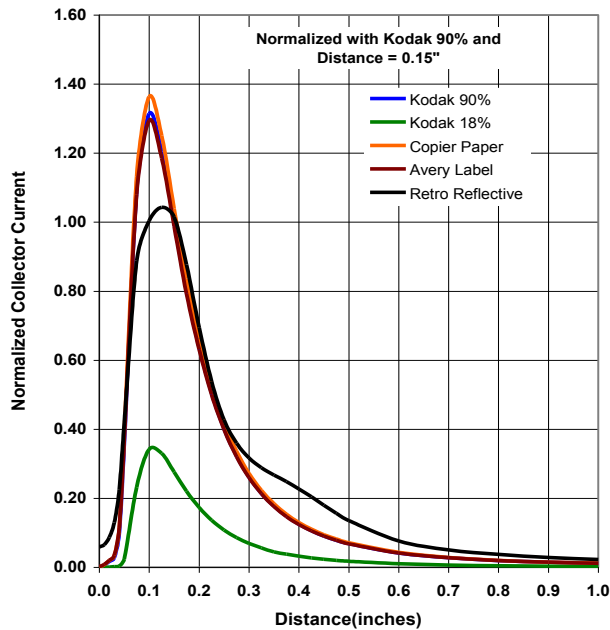


Electrical Characteristics (T <sub>A</sub> = 25° C unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Coupled Parameters OPB700Z, OPB700ALZ (Phototransistor)</b>						
I <sub>C(ON)</sub>	Collector current	0.10	-	2.50	mA	V <sub>CE</sub> = 5.0V <sup>(1)</sup> , I <sub>F</sub> = 40mA
V <sub>CE(SAT)</sub>	Saturation Voltage	-	-	0.40	V	I <sub>C</sub> = 10μA, I <sub>F</sub> = 40mA
I <sub>CX</sub>	Leakage Current	-	-	2.00	μA	V <sub>CE</sub> = 5.0V, I <sub>F</sub> = 40mA, NO Reflective Surface
<b>Coupled Parameters OPB701Z, OPB701ALZ (Photodarlington)</b>						
I <sub>C(ON)</sub>	Collector current	2.50	-	43.00	mA	V <sub>CE</sub> = 5.0V <sup>(1)</sup>
V <sub>CE(SAT)</sub>	Saturation Voltage	-	-	1.10	V	I <sub>C</sub> = 10μA, I <sub>F</sub> = 40mA
I <sub>CX</sub>	Leakage Current	-	-	20.0	μA	V <sub>CE</sub> = 5.0V, I <sub>F</sub> = 40mA, NO Reflective Surface

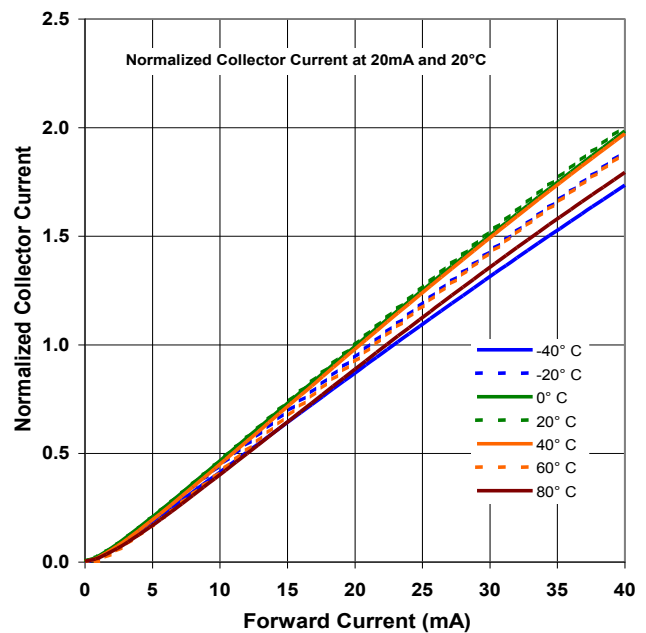
Notes:

- (1) Measured using Eastman Kodak neutral white test card with 90% diffuse reflectance as a reflecting surface. Reference: Eastman Kodak, Catalog # E 152 7795.

**OPB700 - Normalized Collector Current vs Distance**



**OPB700 - Normalized Collector Current vs Forward Current vs Temperature**



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