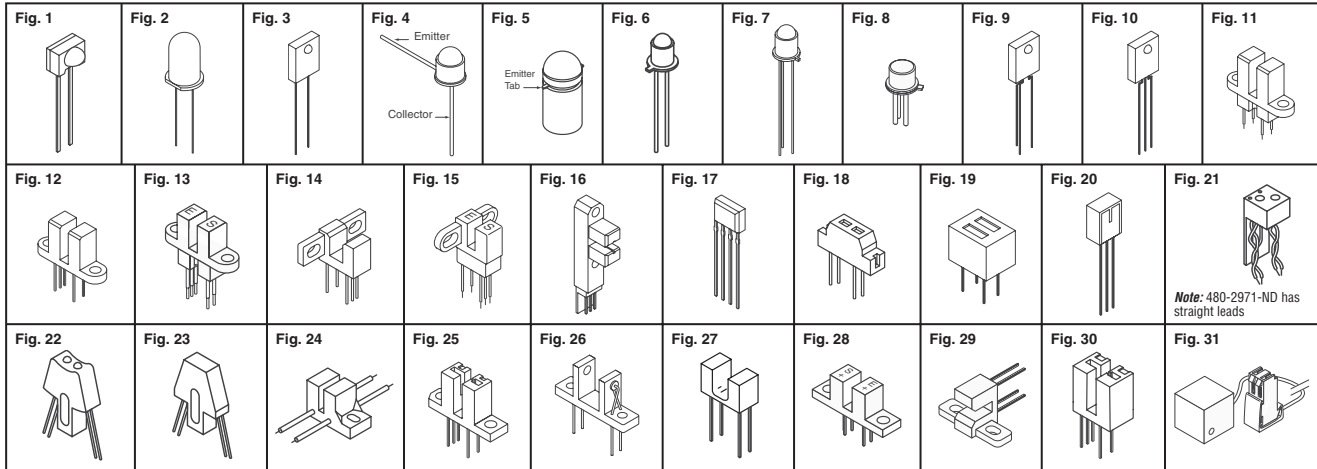


# Honeywell Optical Sensors

Sensing and Control



## Infrared Light Emitting Diodes

Fig.	Style/ Pkg.	V <sub>CEO</sub> (V)	IC (mA)	Peak Sensitivity Wavelength	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
<b>AlGaAs</b>									
1	Side-view	1.7	50	880nm	480-1968-ND	1.75	.86	.80	SEP8736-002
		1.7	50	880nm	480-1969-ND	1.92	.95	.90	SEP8736-003
2	T-1	1.7	50	880nm	480-1965-ND	1.92	.95	.90	SEP8705-003
		1.7	20	880nm	480-2985-ND	1.96	1.00	.94	SEP8705-002
3	Side-view	1.7	50	880nm	480-1966-ND	1.57	.75	.69	SEP8706-002
		1.7	50	880nm	480-1967-ND	1.66	.79	.74	SEP8706-003
4	Coaxial	1.8	50	880nm	480-1977-ND	5.32	3.17	2.97	SE1470-003L
		1.8	50	880nm	480-1978-ND	5.44	3.25	3.04	SE1470-004L
5	Mini-pill	1.8	75	880nm	480-1980-ND	3.38	1.84	1.73	SE2470-002
6	TO-46	1.9	100	880nm	480-1981-ND	4.84	2.77	2.60	SE3470-003
		1.9	100	880nm	480-1983-ND	4.60	2.63	2.47	SE5470-003
		1.9	100	880nm	480-1984-ND	4.69	2.68	2.52	SE5470-004
<b>GaAs</b>									
2	T-1	1.5	50	935nm	480-1961-ND	1.70	.83	.77	SEP8505-002
		1.5	50	935nm	480-1962-ND	1.36	.63	.60	SEP8506-001
3	Side-view	1.5	50	935nm	480-1963-ND	1.50	.72	.66	SEP8506-002
		1.5	50	935nm	480-1964-ND	1.57	.75	.69	SEP8506-003
4	Coaxial	1.6	50	935nm	480-1976-ND	5.11	2.98	2.79	SE1450-003L
		1.6	50	935nm	480-2980-ND	5.30	3.15	2.95	SE1450-004L
5	Mini-pill	1.6	75	935nm	480-1979-ND	3.12	1.70	1.59	SE2460-003
6	TO-46	1.7	100	935nm	480-1982-ND	4.25	2.39	2.20	SE5455-003
		1.7	100	935nm	480-2981-ND	4.47	2.56	2.40	SE3455-003
		1.7	100	935nm	480-2982-ND	4.47	2.56	2.40	SE5450-013
		1.7	100	935nm	480-2983-ND	4.47	2.56	2.40	SE5455-002
		1.7	100	935nm	480-2984-ND	4.40	2.52	2.36	SE5455-004

◆ RoHS Compliant

## NPN Silicon Phototransistors

Fig.	Output Type	V <sub>CC</sub> (V)	Max. Output Current (mA)	Rise/ Fall (µs)	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
<b>Silicon</b>									
1	Transistor	30	10.0	15	480-1957-ND	1.66	.79	.74	SDP8436-002
		30	17.5	15	480-1958-ND	1.66	.79	.74	SDP8436-003
2	Transistor	30	14	15	480-1951-ND	1.79	.89	.84	SDP8405-002
		30	24	15	480-1952-ND	1.79	.87	.82	SDP8405-003
		30	0.92	15	480-1953-ND	1.83	.91	.86	SDP8405-013
		30	1.85	15	480-1954-ND	1.67	.82	.76	SDP8405-014
3	Transistor	30	3.60	15	480-1955-ND	1.36	.63	.60	SDP8406-002
		30	6.50	15	480-1956-ND	1.36	.63	.60	SDP8406-003
4	Transistor	30	3.0	15	480-1970-ND	4.69	2.68	2.52	SD1440-003L
5	Transistor	30	4.0	15	480-1971-ND	2.92	1.56	1.47	SD2440-003
		30	7.0	15	480-1972-ND	3.00	1.60	1.51	SD2440-004
7	Transistor	15	8.0 min.	75	480-2976-ND	4.75	2.72	2.55	SD5410-003
		30	4.0 min.	15	480-2977-ND	4.27	2.40	2.21	SD5443-002
		30	8.0 min.	15	480-2978-ND	4.27	2.40	2.21	SD5443-003
		30	16.0 min.	15	480-2979-ND	4.19	2.40	2.25	SD5443-004
		30	8.0	2	480-1973-ND	5.26	3.07	2.88	SD5491-004
8	Transistor	30	2.0 min.	15	480-2975-ND	4.34	2.44	2.25	SD3443-003
<b>Low Light Rejection</b>									
3	Transistor	30	6.0	15	480-1959-ND	1.72	.84	.78	SDP8476-201

## Optoschmitt Detectors

Fig.	Output Type	V <sub>CC</sub> (V)	Max. Output Current (mA)	Rise/ Fall (ns)	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
7	TTL	16	18	60/15	480-1974-ND	5.07	2.96	2.77	SD5600-001
		16	18	60/15	480-1975-ND	5.01	2.92	2.73	SD5620-001
9	TTL	12	18	60/15	480-1960-ND	3.16	1.72	1.62	SDP8600-001
<b>Open-Collector Output</b>									
10	TTL	12	15	7	480-1950-ND	3.59	1.95	1.83	SDP8314-301

## Slotted Optoschmitt Sensors

Fig.	Output Type	V <sub>CC</sub> (V)	Max. Output Current (mA)	Rise/ Fall (ns)	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
<b>Transmissive</b>									
11	Diode	7	15	70	480-1945-ND	7.74	4.65	4.42	HOA6990-T51
12	Transistor	10	10	60/15	480-1933-ND	5.26	3.06	2.87	HOA0961-N51
	Transistor	10	10	60/15	480-1934-ND	5.09	2.97	2.78	HOA0971-N51
	Open-Collector	12	15	70	480-1943-ND	6.05	3.61	3.38	HOA6961-T51
13	Open-Collector	4.5-12	50	70	480-2974-ND	8.82	5.52	5.24	HOA6991-T51
14	Schmitt Trigger	12	12	60/15	480-1941-ND	5.85	3.49	3.27	HOA2004-001
15	Transistor	12	12	60/6	480-1942-ND	9.27	5.80	5.51	HOA2005-001
16	Totem Pole	7	15	70	480-1944-ND	5.22	3.10	2.90	HOA6972-N55
		12	15	70	480-1946-ND	10.58	6.90	6.44	HOA6991-T55
<b>Connectorized Transmissive — RoHS Compliant</b>									
16	Totem Pole	5.5	40	70	480-1947-ND	9.58	5.99	5.69	HOA7720-M22
<b>Encoder Detector — RoHS Compliant</b>									
17	Inverting Logic	5.5	7	100	480-1949-ND	3.54	2.00	1.84	HLC2701-001

◆ RoHS Compliant

## Reflective Object Sensors

Fig.	Output Type	V <sub>CC</sub> (V)	Max. Output Current (mA)	Rise/ Fall (µs)	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
18	Transistor	30	30	15	480-1928-ND	4.43	2.54	2.38	HOA0149-001
19	Transistor	30	30	15	480-1935-ND	4.66	2.67	2.50	HOA1397-002
	Darlington	15	30	75	480-1936-ND	4.73	2.71	2.54	HOA1397-032
20	Transistor	30	30	15	480-1948-ND	2.94	1.57	1.47	HLC1395-001
21	Transistor	30	30	15	480-1985-ND	13.06	8.42	8.13	HOA1180-002
	Transistor	30	50	15	480-2971-ND	9.52	5.96	5.66	HOA2498-002
	Darlington	15	50	75	480-2960-ND	14.90	9.82	9.49	HOA1180-003
22	Transistor	30	30	15	480-1986-ND	11.48	7.41	7.15	HOA1404-002
	Darlington	15	50	75	480-2961-ND	11.54	7.44	7.19	HOA1404-003
		30	0.2	15	480-1987-ND	5.16	3.01	2.82	HOA1405-001
		30	50	15	480-2962-ND	21.36	14.96	14.42	HOA1406-001
		30	0.8	15	480-1988-ND	5.24	3.05	2.86	HOA1405-002
		30	50	15	480-2957-ND	3.09	1.65	1.55	HLC1395-002
24	Photodarlington	15	50	75	480-2963-ND	8.13	4.88	4.64	HOA1870-033
<b>Transmissive</b>									
11	Transistor	30	50	15	480-2958-ND	7.07	4.33	4.11	HOA0881-T55
15	Transistor	30	50	15	480-2969-ND	7.94	4.97	4.72	HOA1887-012
25	TTL	4.5-5	50	100ns	480-2959-ND	8.00	4.80	4.56	HOA0901-012
26	Transistor	30	30	15	480-1989-ND	9.01	5.63	5.35	HOA1877-001
	Transistor	30	50	15	480-2966-ND	9.25	5.79	5.50	HOA1877-002
	Darlington	15	50	75	480-2967-ND	10.22	6.39	5.96	HOA1877-003
27	Transistor	30	50	15	480-2965-ND	9.25	5.79	5.50	HOA1875-002
28	10kΩ Pull-Up	12	50	60/15ms	480-2970-ND	5.16	3.01	2.82	HOA2001-001
29	Transistor	30	50	15	480-2968-ND	5.71	3.41	3.19	HOA1884-012
<b>Emitter Detector Pair</b>									
31	—	2-7	10	—	480-2972-ND†	13.85	9.14	8.82	HOA6299-002
	2.4kΩ Pull-Up	4.5-12	10	5	480-2973-ND‡	16.07	10.60	10.23	HOA6299-003

† Emitter ‡ Detector

## Slotted Optical Sensors

Fig.	Output Type	V <sub>CC</sub> (V)	Max. Output Current (mA)	Rise/ Fall (µs)	Digi-Key Part No.	Price Each	Honeywell Part No.		
						1	100	250	
11	Transistor	30	15	15	480-1939-ND	6.54	4.01	3.80	HOA1881-012
		30	30	15	480-1931-ND	6.12	3.66	3.42	HOA0890-L51
12	Transistor	30	30	15	480-1938-ND	5.43	3.24	3.03	HOA1879-015
		30	30	15	480-1929-ND	4.05	2.28	2.10	HOA0866-T55
		30	30	15	480-1930-ND	4.59	2.63	2.46	HOA0875-N51
24	Transistor	30	30	15	480-1937-ND	8.07	4.85	4.60	HOA1870-031
27	Transistor	30	82	15	480-1940-ND	3.60	2.03	1.87	HOA1882-012
28	Darlington	15	50	75	480-2964-ND	4.80	2.75	2.58	HOA1873-013
<b>Transmissive Encoder — RoHS Compliant</b>									
30	TTL	5.5	12	20	480-1932-ND	8.59	5.37	5.10	HOA0902-011

◆ RoHS Compliant

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# Panasonic PIR Motion Sensors



Panasonic Electric Works

MP motion sensors are passive infrared sensors which detect changes in infrared rays when there is movement from a person or object. Intended as human body and animal detection with the world's smallest built-in amplifier design and small size. Perfect for connecting directly into a microprocessor. **Sensor Types:** • Standard Detection for most general purpose movement detection • Slight Detection for movements as low as 7.8" • Spot Detection for detecting movements in a much smaller area or focused spot. • 10 Meter Detection for long distance, wide area movement detection **Output Types:** • Digital for automated On-Off controls, energy saving for vending machines, ATMs, video games and theme parks • Analog for fine motion detection, slight movements and small detection • Lens color does not affect sensor operation

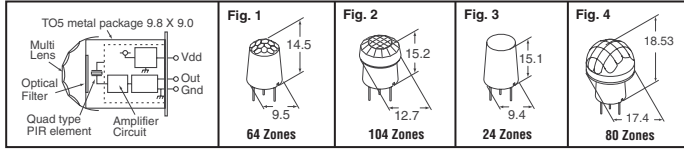


Fig.	Sensor Type	Detection Distance	Output Type	Lens Color	Digi-Key Part No.	Price Each 1 25	Panasonic Part No.
1	Standard Detection	16.4" Max	Digital - 5V	Black	255-1849-ND	34.69 31.86	AMN11111
			Digital - 5V	White	255-1812-ND	34.69 31.86	AMN11112
			Digital - 3V Low Power	Black	255-1808-ND	35.38 32.49	AMN41121
			Analog	Black	255-1815-ND	34.69 31.86	AMN22111
2	Slight Detection	6.56" Max	Digital - 5V	White	255-1813-ND	34.69 31.86	AMN12112
			Digital - 3V Low Power	Black	255-1809-ND	35.38 32.49	AMN42121
			Analog	Black	255-1816-ND	34.69 31.86	AMN22111
			Analog	White	255-1806-ND	34.69 31.86	AMN22112
3	Spot Detection	16.4" Max	Digital - 5V	Black	255-1850-ND	34.69 31.86	AMN13111
			Digital - 5V	White	255-1814-ND	34.69 31.86	AMN13112
			Digital - 3V Low Power	Black	255-1810-ND	35.38 32.49	AMN43121
			Analog	Black	255-1804-ND	35.38 32.49	AMN23111
4	10 meter Detection	32.8" Max	Digital - 5V	White	255-1803-ND	36.63 33.64	AMN14112
			Digital - 3V Low Power	Black	255-1811-ND	38.64 35.49	AMN44121
			Analog	Black	255-1817-ND	36.63 33.64	AMN24111
			Analog	White	255-1818-ND	36.63 33.64	AMN24112

# TT electronics Switches

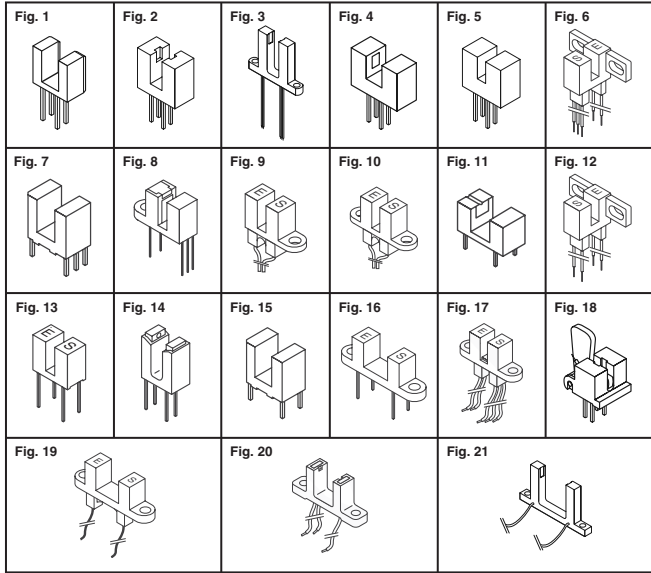


Fig.	Output Type	Slot Width Inch (mm)	Lead Spacing Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
<b>Slotted Optical</b>						
1	Rbe Phototransistor	.190 (4.83)	.320 (8.13)	365-1008-ND	2.15 1.25 1.20	OPB620
2	Phototransistor	.150 (3.81)	.300 (7.62)	365-1017-ND	2.17 1.27 1.22	OPB804
3	Phototransistor	.20 (5.08)	—	365-1260-ND	5.56 3.24 3.11	OPB817Z
4	Phototransistor	.200 (5.08)	.400 (10.16)	365-1019-ND	7.59 4.42 4.25	OPB917BZ
5	Phototransistor	.100 (2.54)	.300 (7.62)	365-1021-ND	3.00 1.75 1.68	OPB818
6	Photologic	.125 (3.18)	—	365-1234-ND	2.78 1.62 1.56	OPB848
7	Photologic	.190 (4.83)	.320 (8.13)	365-1235-ND	7.10 4.13 3.97	OPB941W51Z
		.125 (3.18)	—	365-1265-ND	7.07 4.12 3.96	OPB930W55Z
8	Photologic	.125 (3.18)	—	365-1090-ND	2.78 1.62 1.56	OPB625
		.125 (3.18)	—	365-1111-ND	4.81 2.80 2.70	OPB970N11
9	Photologic	.125 (3.18)	—	365-1113-ND	4.24 2.47 2.37	OPB973N51
		.125 (3.18)	.320 (8.13)	365-1087-ND	3.91 2.28 2.19	OPB460L11
10	Phototransistor	.125 (3.18)	—	365-1341-ND	5.34 3.11 2.99	OPB880P51Z
11	Photologic	.125 (3.18)	—	365-1246-ND	6.22 3.62 3.48	OPB990T55Z
		.125 (3.18)	—	365-1235-ND	5.31 3.09 2.97	OPB891T51Z
12	Phototransistor	.125 (3.18)	—	365-1401-ND	5.17 3.01 2.90	OPB829CZ
		.205 (5.21)	.380 (9.65)	365-1105-ND	2.67 1.56 1.50	OPB855
13	Phototransistor	.125 (3.18)	—	365-1335-ND	5.75 3.35 3.22	OPB930W55Z
		.125 (3.18)	.320 (8.13)	365-1337-ND	7.34 4.28 4.11	OPB840W11Z
		.125 (3.18)	—	365-1101-ND	4.02 2.34 2.25	OPB840L11
		.125 (3.18)	—	365-1338-ND	5.78 3.36 3.24	OPB841W55Z
14	Phototransistor	.125 (3.18)	.220 (5.59)	365-1106-ND	4.26 2.48 2.39	OPB865N11
15	Phototransistor	.160 (4.06)	.300 (7.62)	365-1099-ND	2.31 1.35 1.30	OPB825
16	Phototransistor	.150 (3.81)	.275 (6.99)	365-1089-ND	2.15 1.25 1.20	OPB610
17	Photologic	.125 (3.18)	.320 (8.13)	365-1110-ND	4.92 2.87 2.76	OPB960T11
		.125 (3.18)	—	365-1112-ND	4.04 2.36 2.27	OPB970T55
18	Photologic	.125 (3.18)	—	365-1402-ND	6.41 3.73 3.59	OPB981T51Z
		.125 (3.18)	—	365-1403-ND	6.30 3.67 3.53	OPB990T51Z
<b>Slotted Optical Flag</b>						
18	Transistor	.080 (2.03)	.275 (6.99)	365-1009-ND	5.34 3.11 2.99	OPB680
<b>Wide Gap Slotted Optical</b>						
16	Phototransistor	.375 (9.53)	570 (14.48)	365-1094-ND	3.25 1.89 1.82	OPB800L55
		.375 (9.53)	—	365-1095-ND	3.33 1.94 1.87	OPB810L51
		.375 (9.53)	—	365-1097-ND	3.19 1.86 1.79	OPB811L55
19	Phototransistor	.375 (9.53)	—	365-1331-ND	5.64 3.28 3.16	OPB810W51Z
		.375 (9.53)	—	365-1333-ND	5.39 3.14 3.02	OPB811W55Z
20	Phototransistor	.375 (9.53)	—	365-1400-ND	5.78 3.36 3.24	OPB815WZ
21	Phototransistor	1.26 (32)	—	365-1262-ND	7.78 4.53 4.36	OPB819Z

# Sensors

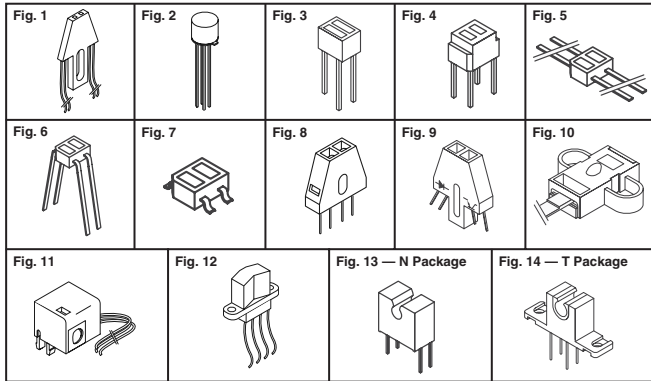


Fig.	Continuous Forward Curr. (mA)	Reverse DC Voltage	V(BR)/CEO Voltage (Min.)	Min. Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
5	50	5.0	30	.374 (9.5)	365-1407-ND	.50 .29 .28	OPB609AX
6	50	5.0	30	.370 (9.4)	365-1408-ND	.50 .29 .28	OPB609RA
7	50	5.0	30	.038 (.95)	365-1409-1-ND†	.85 .55 .47	OPB609GU
8	40	2.0	30	.15 (3.81)	365-1014-ND*	3.16 1.84 1.77	OPB742
				.15 (3.81)	365-1015-ND*	3.93 2.29 2.20	OPB745
9	40	2.0	30	.165 (4.19)	365-1091-ND	3.63 2.12 2.04	OPB704

‡ Cut Tape † Tape and Reel \* Collector Emitter Voltage: OPB742: 30V; OPB745: 15V

## Reflective Color Sensor

Fig.	Continuous Forward Current (mA)	Supply Voltage VDD	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
10	30	5	365-1378-ND	24.92 14.50 13.94	OPB780Z

## Photologic® Reflective Object Sensors

Fig.	Operating DC Supply Voltage	Minimum Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
11	4.75 - 5.25	18.0 (457.2)	365-1255-ND	9.35 5.44 5.24	OPB716Z
12	4.75 - 5.25	12.0 (304.8)	365-1258-ND	9.74 5.67 5.45	OPB707Z

## Liquid Tube Sensors

Fig.	Continuous Forward Current (mA)	Reverse DC Voltage	V(BR)/CEO Voltage (Min.)	Min. Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
13	50	2.0	30	.33 (8.38)	365-1236-ND	6.93 4.04 3.88	OPB350
				.33 (8.38)	365-1237-ND	7.40 4.31 4.14	OPB350L187
				.33 (8.38)	365-1238-ND	7.40 4.31 4.14	OPB350L250
				.33 (8.38)	365-1405-ND	7.40 4.31 4.14	OPB350L062
				.24 (6.10)	365-1239-ND	9.65 5.62 5.40	OPB350W187Z
14	50	2.0	30	.24 (6.10)	365-1240-ND	9.65 5.62 5.40	OPB350W250Z
				.24 (6.10)	365-1406-ND	9.65 5.62 5.40	OPB350W062Z

## Reflective Object Sensors

Fig.	Continuous Forward Curr. (mA)	Reverse DC Voltage	V(BR)/CEO Voltage (Min.)	Min. Lead Wire Length Inch (mm)	Digi-Key Part No.	Price Each 1 100 250	TT Electronics Part No.
1	100	2.0	25	18.0 (457.2)	365-1399-ND	12.35 7.19 6.91	OPB700ALZ
				4.0 (101.6)	365-1364-ND	10.92 6.36 6.11	OPB700Z
				18.0 (457.2)	365-1253-ND	14.27 8.31 7.99	OPB701ALZ
2	50	3.0	30	.50 (12.7)	365-1012-ND	8.36 4.87 4.68	OPB710
3	50	2.0	30	.45 (11.43)	365-1093-ND	3.69 2.15 2.07	OPB707A
				.45 (11.43)	365-1092-ND	2.86 1.67 1.60	OPB706A
4	50	2.0	30	.180 (4.57)	365-1088-ND	1.73 1.01 .97	OPB606A

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