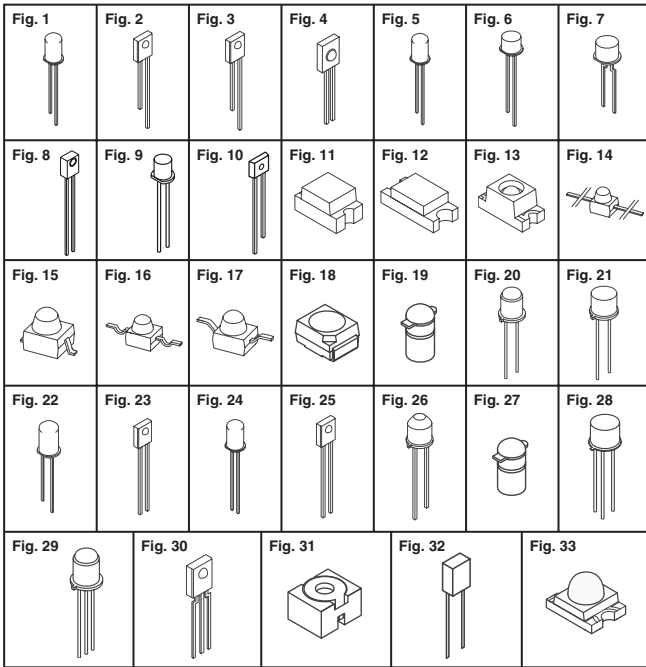


Infrared Emitters and Receivers



Infrared Light Emitting Diodes

Fig.	Style/ Pkg.	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Digi-Key Part No.	Price Each	TT Electronics Part No.		
							1	100	250	
Plastic										
1	T-1 3/4	750mA	50mW/cm ²	890nm	50°	365-1060-ND	.72	.43	.41	OP294
	T-1 3/4	5.0A	44mW/cm ²	890nm	20°	365-1061-ND	.78	.46	.44	OP295A
	T-1 3/4	5.0A	77mW/cm ²	890nm	20°	365-1062-ND	.78	.46	.44	OP295B
	T-1 3/4	1.0A	0.70mW/cm ²	890nm	20°	365-1063-ND	.78	.46	.44	OP297A
	T-1 3/4	5.0A	210mW/cm ²	890nm	50°	365-1056-ND	.78	.46	.44	OP290A
	T-1 3/4	5.0A	16mW/cm ²	890nm	50°	365-1057-ND	.78	.46	.44	OP291A
	TO-46	2.0A	16mW/cm ²	890nm	60°	365-1058-ND	.72	.43	.41	OP293A
	TO-46	2.0A	13mW/cm ²	890nm	60°	365-1059-ND	.72	.43	.41	OP293B
	TO-46	2.0A	3.0mW/cm ²	890nm	25°	365-1064-ND	.72	.43	.41	OP298A
	TO-46	2.0A	2.4mW/cm ²	890nm	25°	365-1065-ND	.72	.43	.41	OP298B
T-1	3.0A	2.70mW/cm ²	890nm	18°	365-1054-ND	.92	.54	.52	OP265A	
2	Side-View	3.0A	0.60mW/cm ²	890nm	40°	365-1052-ND	.72	.43	.41	OP240A
	Side-View	3.0A	0.60mW/cm ²	890nm	40°	365-1053-ND	.78	.46	.44	OP245A
	Side-View	3.0A	0.40mW/cm ²	935nm	40°	365-1043-ND	.72	.43	.41	OP140A
3	Side-View	3.0A	0.30mW/cm ²	935nm	40°	365-1044-ND	.72	.43	.41	OP140B
	Side-View	3.0A	0.40mW/cm ²	935nm	40°	365-1045-ND	.76	.45	.43	OP145A
5	T-1	3.0A	1.95mW/cm ²	935nm	18°	365-1046-ND	.82	.48	.47	OP165A
	T-1	3.0A	0.85mW/cm ²	935nm	18°	365-1047-ND	.82	.48	.47	OP165C
	T-1	3.0A	0.95mW/cm ²	935nm	18°	365-1049-ND	.92	.54	.52	OP166A
6	T-1	3.0A	0.50mW/cm ²	935nm	90°	365-1048-ND	.90	.53	.51	OP165W
7	T-1	3.0A	1.00mW/cm ²	890nm	90°	365-1055-ND	.92	.54	.52	OP266W
8	Side-View	1.0A	—	850nm	36°	365-1005-ND	1.88	1.10	1.06	OP245PS
9	T-1	3.0A	.055mW/cm ²	850nm	120°	365-1006-ND	1.70	.99	.96	OP265WPS
10	End-Looking	100mA	—	850nm	50°	365-1007-ND	1.66	.97	.93	OP268FPS
SMT Plastic										
11	0805	50mA	0.2mW/cm ²	880nm	150°	365-1147-1-ND	.30	.20	.17	OP200
						365-1147-2-ND	392.04/3,000			OP200
12	1206	50mA	0.2mW/cm ²	880nm	150°	365-1148-1-ND	.30	.20	.17	OP250
						365-1148-2-ND	275.88/2,000			OP250
13	1206	50mA	0.3mW/cm ²	880nm	105°	365-1149-1-ND	.36	.23	.20	OP251
						365-1149-2-ND	319.44/2,000			OP251
14	Axial	50mA	1.5mW/cm ²	880nm	25°	365-1150-ND	.34	.21	.20	OP270
15	Gull Wing	50mA	1.5mW/cm ²	880nm	25°	365-1151-1-ND	.40	.26	.23	OP271
						365-1151-2-ND	181.50/1,000			OP271
17	Rev. Gull Wing	50mA	1.5mW/cm ²	880nm	25°	365-1153-1-ND	.43	.28	.24	OP273
						365-1153-2-ND	188.76/1,000			OP273
18	PLCC	50mA	0.5mW/cm ²	880nm	100°	365-1154-1-ND	.38	.25	.21	OP280
						365-1154-2-ND	348.48/2,000			OP280
18	PLCC-2	1.0A	0.50mW/cm ²	940nm	100°	365-1468-1-ND	.36	.23	.20	OP180
						365-1468-2-ND	319.44/2,000			OP180
	1.0A	0.85mW/cm ²	875nm	90°	365-1469-1-ND	1.28	.83	.71	OP280K	
					365-1469-2-ND	1132.56/2,000			OP280K	
18	PLCC-2	1.0A	0.85mW/cm ²	850nm	90°	365-1470-1-ND	.76	.49	.42	OP280KT
						365-1470-2-ND	667.92/2,000			OP280KT

Fig.	Style/ Pkg.	Pulse Forward Current	Optical Power Output	Peak Emission Wavelength	Beam Angle	Digi-Key Part No.	Price Each	TT Electronics Part No.		
							1	100	250	
18	PLCC-2	1.0A	0.15mW/cm ²	850nm	50°	365-1471-1-ND	2.34	1.51	1.30	OP280PS
						365-1471-2-ND	2061.83/2,000			OP280PS
18	PLCC-2	1.0A	2.50mW/cm ²	850nm	18°	365-1472-1-ND	8.07	5.22	4.47	OP280V
						365-1472-2-ND	7100.26/2,000			OP280V
Hermetically Sealed										
19	PC Mount PC Mount	1.0A	1.00mW/cm ²	935nm	24°	365-1040-ND	2.56	1.49	1.44	OP124
						365-1050-ND	2.48	1.45	1.39	OP224
20	TO-46 TO-46	10.0A	4.0mW/cm ²	935nm	18°	365-1041-ND	2.26	1.32	1.27	OP132
						365-1042-ND	2.26	1.32	1.27	OP133
21	TO-46	10.0A	5.0mW/cm ²	890nm	50°	365-1051-ND	2.40	1.40	1.35	OP233W

♠ Cut Tape † Tape and Reel ‡

PIN Silicon Photodiodes

Fig.	Style/ Pkg.	V _R	Peak Sensitivity Wavelength	tr/tf	Digi-Key Part No.	Price Each	TT Electronics Part No.		
						1	100	250	
22	T-1 T-1 3/4	60V	935nm	5ns	365-1084-ND	.66	.39	.38	OP906
						365-1086-ND	.82	.48	.47
23	Side-View	60V	935nm	5ns	365-1085-ND	.68	.40	.39	OP950

Infrared NPN Phototransistors

Fig.	Style/ Pkg.	V _{CEO}	I _C	Peak Sensitivity Wavelength	Digi-Key Part No.	Price Each	TT Electronics Part No.		
						1	100	250	
SMT Phototransistors									
11	0805	30V	0.1mA	935nm	365-1477-1-ND	.38	.25	.21	OP500
					365-1477-2-ND	500.94/3,000			OP500
11	0805	30V	0.1mA	935nm	365-1478-1-ND	.28	.19	.16	OP501
					365-1478-2-ND	370.26/3,000			OP501
12	1206	30V	0.5mA	935nm	365-1155-1-ND	.28	.19	.16	OP520
					365-1155-2-ND	261.36/2,000			OP520
12	1206	30V	0.5mA	935nm	365-1156-1-ND	.26	.17	.15	OP521
					365-1156-2-ND	232.32/2,000			OP521
13	1206	30V	1.0mA	935nm	365-1157-1-ND	.26	.17	.15	OP522
					365-1157-2-ND	232.32/2,000			OP522
14	Axial	30V	2.5mA	935nm	365-1158-ND	.26	.16	.15	OP570
15	Gull Wing	30V	2.5mA	935nm	365-1159-1-ND	.28	.19	.16	OP571
					365-1159-2-ND	130.68/1,000			OP571
16	Yoke	30V	5.0mA	935nm	365-1160-1-ND	.24	.16	.14	OP572
17	Rev. Gull Wing	30V	2.5mA	935nm	365-1161-1-ND	.28	.19	.16	OP573
					365-1161-2-ND	130.68/1,000			OP573
18	PLCC	30V	2.5mA	935nm	365-1162-1-ND	.38	.25	.21	OP580
					365-1162-2-ND	333.96/2,000			OP580
33	1210	30V	1.0mA	935nm	365-1475-1-ND	.36	.23	.20	OP525
					365-1475-2-ND	239.58/1,500			OP525
Phototransistors									
1	T-1 3/4	30V	2.35mA	890nm	365-1077-ND	.66	.39	.38	OP599A
24	T-1	30V	4.30mA	935nm	365-1066-ND	.60	.36	.35	OP505A
					365-1067-ND	.60	.36	.35	OP505B
					365-1068-ND	.76	.45	.43	OP506A
					365-1069-ND	.76	.45	.43	OP506B
25	Side-View	30V	2.55mA	935nm	365-1070-ND	.68	.40	.39	OP550A
					365-1071-ND	.68	.40	.39	OP550B
					365-1072-ND	.68	.40	.39	OP550C
26	TO-18	30V	3.0mA	890nm	365-1074-ND	.68	.40	.39	OP598A
					365-1075-ND	.68	.40	.39	OP598B
26	TO-18	30V	7.5mA	890nm	365-1076-ND	.68	.40	.39	OP598A
					365-1076-ND	.68	.40	.39	OP598B
27	PC Mount	25V	7.0mA	890nm	365-1078-ND	2.32	1.36	1.30	OP644SL
28	TO-18	30V	0.5mA	890nm	365-1079-ND	2.77	1.62	1.56	OP801WSL
					365-1080-ND	2.77	1.62	1.56	OP802WSL
29	TO-18	30V	7.0mA	890nm	365-1081-ND	2.13	1.25	1.20	OP804SL
					365-1082-ND	2.13	1.25	1.20	OP805SL
Photodarlington									
11	0805	35V	10.0mA	935nm	365-1480-1-ND	.36	.23	.20	OP501DA
					365-1480-2-ND	457.38/3,000			OP501DA
11	0805	35V	10.0mA	935nm	365-1479-1-ND	.36	.23	.20	OP500DA
					365-1479-2-ND	457.38/3,000			OP500DA
12	1206	35V	10mA	935nm	365-1473-1-ND	.38	.25	.21	OP521DA
					365-1473-2-ND	333.96/2,000			OP521DA
12	1206	35V	10mA	935nm	365-1474-1-ND	.38	.25	.21	OP520DA
					365-1474-2-ND	333.96/2,000			OP520DA
18	PLCC	35V	10.0mA	935nm	365-1481-1-ND	.36	.23	.20	OP580DA
					365-1481-2-ND	319.44/2,000			OP580DA
23	Side-View	15V	1.1mA	935nm	365-1073-ND	1.22	.72	.69	OP560C
					365-1083-ND	2.77	1.62	1.56	OP830WSL
33	TO-18	15V	4mA	890nm	365-1476-1-ND	.43	.28	.24	OP525DA
					365-1476-2-ND	283.14/1,500			OP525DA

♠ Cut Tape † Tape and Reel

Fig.	Style/ Pkg.	Output	Sensitivity Wavelength	Digi-Key Part No.	Price Each	TT Electronics Part No.	
					1	100	250

Kingbright Infrared LEDs

WWW.KINGBRIGHTUSA.COM

Dim. in mm

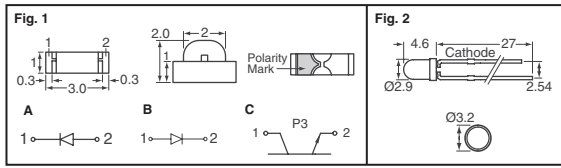


Fig.	LED Dia. (mm)	Peak Wave-Length	Lens Color	Oper. Curr. (mA)	Typ. Forward Voltage	Digi-Key Part No.	Cut Tape Pricing			Tape and Reel Pricing		Kingbright Part No.
							1	10	100	Qty.	Pricing	
1A	3.0 x 1.0	940nm	Clear	20	1.2	754-1065-1-ND	.24	1.77	12.98	2,000	71.15/M	APA3010F3C
1B	3.0 x 1.0	880nm	Clear	20	1.3	754-1070-1-ND	.43	3.19	23.36	2,000	127.78/M	APA3010SF4C
1C	3.0 x 1.0	940nm	Blue	—	—	754-1067-1-ND	.28	2.13	15.57	2,000	84.94/M	APA3010P3BT
2	3mm	940nm	Clear	20	1.2	754-1241-ND†	.15	1.10	8.87	—	—	WP7104F3C

‡ For Tape and Reel part number, change 1-ND to 2-ND. † Bulk

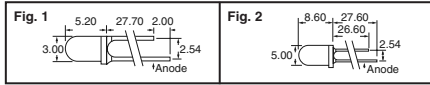


Fig.	LED Dia. (mm)	Peak Wave-Length	Lens Color	Oper. Curr. (mA)	Typ. Forward Voltage	Digi-Key Part No.	Price Each			Lumex Part No.
							1	10	100	
1	3	940 nm	Clear	60	1.2	67-1000-ND	.18	.17	.15	OED-EL-8L
2	5	940 nm	Clear	100	1.5	67-1001-ND	.20	.18	.16	OED-EL-1L2

Panasonic Photo Interrupter

Photo Interrupters are a transmissive photosensor series in which a high efficiency GaAs infrared light emitting diode is used as the light emitting element, and a high sensitivity photo transistor is used as the light detecting element. The two elements face each other, so an object passing between them is detected.

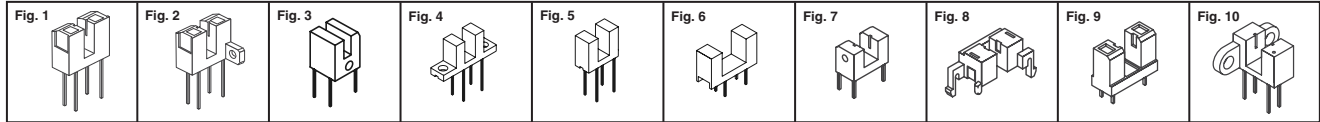
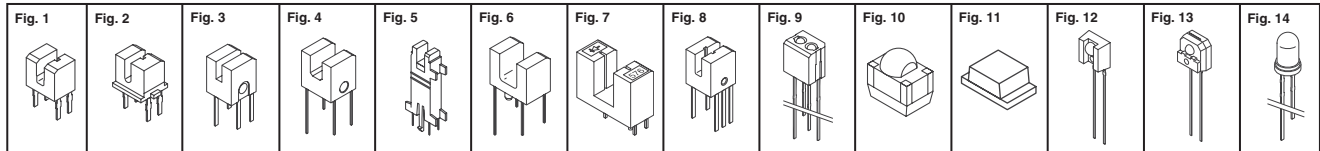


Fig.	Sensing Method	Sensing Distance	Terminal Type	Typ. 'on/off (µsec.)	Digi-Key Part No.	Price Each			Panasonic Part No.
						1	10	100	
1	Slot	3.0mm	PC Board	5/5	CNZ1021-ND◆	1.01	.84	.68	CNZ1021
2	Slot	3.0mm	PC Board	5/5	CNZ1023-ND◆	.97	.78	.58	CNZ1023
3	Slot	0.9mm 1.2mm 2.0mm	PC Board	35/35	CNZ1002-ND	.63	.53	.43	CNZ1002
			PC Board	35/35	CNA1303K-ND	.63	.53	.43	CNA1303K
			PC Board	35/35	CNA1302K-ND◆	.63	.53	.43	CNA1302K
4	Slot	5.0 mm	PC Board	6/6	CNZ1111-ND◆	1.92	1.54	1.20	CNZ1111
			PC Board	6/6	CNZ1112-ND◆	1.47	1.18	.88	CNZ1112
			PC Board	6/6	CNA1012K-ND◆	1.00	.84	.68	CNA1012K
6	Slot	10.0mm	PC Board	6/6	CNZ1120-ND◆	1.35	1.09	.82	CNZ1120
			PC Board	50/50	CNA1311K-ND◆	.63	.48	.36	CNA1311K
			PC Board	50/50	CNA1311KOTLC-ND◆	.76	.64	.51	CNA1311KOTLC
8	Slot	3.0mm	PC Board	5/5	CNA1006N-ND◆	.56	.42	.32	CNA1006N
			PC Board	5/5	CNA1007H-ND◆	.54	.41	.31	CNA1007H
			PC Board	6/6	CNA1011K-ND◆	1.10	.88	.66	CNA1011K

◆ RoHS Compliant

ROHM SEMICONDUCTOR

Optical Sensors



Optical Interrupters

Fig.	Output Type	Slot Width (mm)	Response Time (tr/τ) (µs)	Max. Output Current (mA)	Digi-Key Part No.	Pricing			Rohm Part No.
						1	10	100	
1	NPN	1.0	10/10	30	511-1336-ND	1.02	6.32	46.26	RPI-121
		1.0	10/10	30	511-1338-ND	.90	5.26	36.00	RPI-124F
		2.0	10/10	30	511-1347-ND	.86	5.01	34.28	RPI-221
		2.0	10/10	30	511-1348-ND	.86	5.01	34.28	RPI-222
		4.0	10/10	30	511-1341-ND	.86	5.01	34.28	RPI-411C1
2	NPN	0.8	10/10	30	511-1337-ND	1.02	6.32	46.26	RPI-122F
3	NPN	1.2	10/10	30	511-1339-ND	1.02	6.32	46.26	RPI-131
		2.0	10/10	30	511-1349-ND	.82	5.06	37.01	RPI-243
4	NPN	2.0	10/10	30	511-1350-ND	.90	5.26	36.00	RPI-246
5	NPN	3.0	10/10	30	511-1340-ND	.70	4.13	28.28	RPI-303
6	NPN	3.0	10/10	30	511-1351-ND	.90	5.26	36.00	RPI-352
7	NPN	5.0	10/10	30	511-1475-ND	.83	5.21	39.07	RPI-579N1
8	Photo IC	1.1	5/05	10	511-1342-ND	1.45	9.43	72.18	RPI-1133

Phototransistors



Fig.	Output Type	Style/Pkg.	Max. Output Current (mA)	Peak Sensitivity Wavelength (nm)	Digi-Key Part No.	Pricing			Rohm Part No.
						1	10	100	
10	NPN	SMT	20	800	511-1355-1-ND†	.77	4.51	30.86	RPM-012P8T87F
		SMT	20	800	511-1355-2-ND‡	230.14/1.000			RPM-012P8T87F
		SMT	10	600	511-1356-1-ND†	.77	4.51	30.86	RPM-075PT886
11	NPN	SMT	10	600	511-1356-2-ND‡	659.93/3.000			RPM-075PT886
12	NPN	Side View	30	800	511-1353-ND	.47	2.76	18.85	RPM-20PBF
13	NPN	Side View	30	800	511-1354-ND	.52	3.01	20.57	RPM-22PBF
		Top	30	800	511-1357-ND	.47	2.76	18.85	RPT-34PBF3F
14	NPN	T1	30	800	511-1358-ND	.60	3.51	23.99	RPT-37PBF3F
		T1	30	800	511-1359-ND	.60	3.51	23.99	RPT-38PBF3F

† Cut Tape ‡ Tape and Reel

Infrared Emitters

Fig.	Style/Pkg.	I _f Max. (mA)	V _f (V)	Emitting Wave-length (nm)	Digi-Key Part No.	Pricing			Rohm Part No.
						1	10	100	
12	Side View	50	1.3	950	511-1361-ND	.65	3.76	25.71	SIM-20ST
13	Side View	50	1.3	950	511-1362-ND	.65	3.76	25.71	SIM-225TF
		T1	100	1.3	950	511-1363-ND	.41	2.32	15.09
14	T1 3/4	100	1.3	950	511-1364-ND	.41	2.32	15.09	SIR-56S3FF
		75	1.2	940	511-1343-ND	.77	4.51	30.86	SIR-320S3FF
		75	1.3	940	511-1344-ND	.65	3.76	25.71	SIR-341S3FF
		100	1.38	950	511-1345-ND	.56	3.26	22.28	SIR-50S5TA47F
		100	1.34	940	511-1365-ND	.36	2.03	13.20	SIR-56S3S3FM
		100	1.6	850	511-1346-ND	1.42	9.24	70.73	SIR-56S3S3F

Photoreflectors

Fig.	Style/Pkg.	Maximum Output Current (mA)	V _f (V)	Emitting Wave-length	Digi-Key Part No.	Pricing			Rohm Part No.
						1	10	100	
9	Top	30	1.34	800	511-1366-ND	1.68	10.94	83.72	RPR-220

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

Free shipping on orders over £50! All prices are in British pound sterling and include duties.

2236 (UK091) uk.digikey.com — FREEPHONE: 0-800-587-0991 • 0-800-904-7786 — FREEFAX: 0-800-587-0992 • 0-800-904-7783