

# Kingbright Infrared LEDs

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Dim. in mm

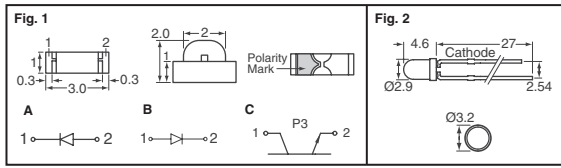


Fig.	LED Dia. (mm)	Peak Wave-Length	Lens Color	Oper. Curr. (mA)	Typ. Forward Voltage	Digi-Key Part No.	Cut Tape Pricing			Tape and Reel Pricing		Kingbright Part No.
							1	10	100	Qty.	Pricing	
1A	3.0 x 1.0	940nm	Clear	20	1.2	754-1065-1-ND	.24	1.77	12.98	2,000	71.15/M	APA3010F3C
1B	3.0 x 1.0	880nm	Clear	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

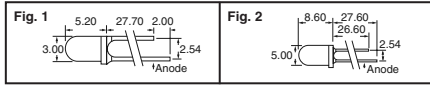


Fig.	LED Dia. (mm)	Peak Wave-Length	Lens Color	Oper. Curr. (mA)	Typ. Forward Voltage	Digi-Key Part No.	Price Each			Lumex Part No.
							1	10	100	
1	3	940 nm	Clear	60	1.2	67-1000-ND	.18	.17	.15	OED-EL-8L
2	5	940 nm	Clear	100	1.5	67-1001-ND	.20	.18	.16	OED-EL-1L2

# 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.

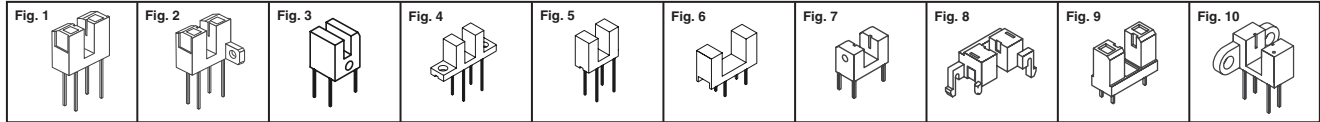
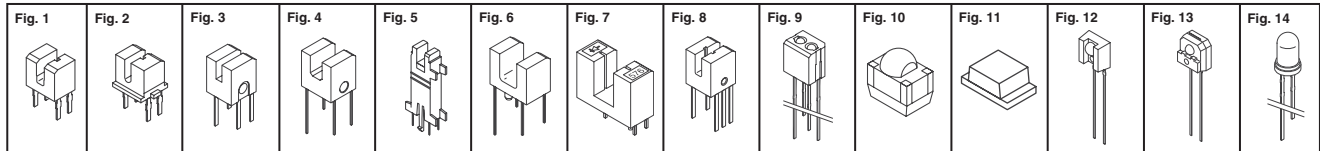


Fig.	Sensing Method	Sensing Distance	Terminal Type	Typ. 'on/off (µsec.)	Digi-Key Part No.	Price Each			Panasonic Part No.
						1	10	100	
1	Slot	3.0mm	PC Board	5/5	CNZ1021-ND◆	1.01	.84	.68	CNZ1021
2	Slot	3.0mm	PC Board	5/5	CNZ1023-ND◆	.97	.78	.58	CNZ1023
3	Slot	0.9mm 1.2mm 2.0mm	PC Board	35/35	CNZ1002-ND	.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
					511-1339-ND	1.02	6.32	46.26	RPI-131
3	NPN	1.2	10/10	30	511-1349-ND	.82	5.06	37.01	RPI-243
					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

## Photoreflectors

Fig.	Style/Pkg.	Maximum Output Current (mA)	V <sub>I</sub> (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

## 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-22PB
			30	800	511-1357-ND	.47	2.76	18.85	RPT-34P3BF
			30	800	511-1358-ND	.60	3.51	23.99	RPT-37P3BF
14	NPN	T1	30	800	511-1359-ND	.60	3.51	23.99	RPT-38P3BF

† Cut Tape ‡ Tape and Reel

## Infrared Emitters

Fig.	Style/Pkg.	I <sub>F</sub> Max. (mA)	V <sub>F</sub> (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
		100	1.6	850	511-1346-ND	1.42	9.24	70.73	SIR-56S3S3F

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.

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## Ambient Light Sensors



Fig.	Package	Peak Wave-length (nm)	Bandwidth (nm)	Photo Current Standard Typ. (µA)	View Angle (°)	Digi-Key Part No.	1	10	100	Vishay Part No.
1	0805 SMD	550	450 - 610	12	120	751-1056-1-ND† 751-1056-2-ND‡	.92 867.39/3,000	.73	.63	TEMP6200FX01 TEMP6200FX01
2	1206 SMD	540	430 - 610	0.04	120	751-1051-1-ND† 751-1051-2-ND‡	1.79 1659.20/3,000	1.37	1.17	TEMP6010FX01 TEMP6010FX01
	1206 SMD	570	360 - 970	50	120	751-1055-1-ND† 751-1055-2-ND‡	1.05 985.00/3,000	.83	.71	TEMP6000X01 TEMP6000X01
3	3mm	570	360 - 970	200	60	751-1057-ND	.51	.40	.31	TEPT4400
4	5mm	570	360 - 970	350	40	751-1058-ND	.54	.42	.33	TEPT5600
5	5mm	570	360 - 970	75	100	751-1059-ND	.54	.42	.33	TEPT5700

† Cut Tape ‡ Tape and Reel

## Reflective Sensors



Fig.	Operating Range (mm)	Peak Operating Distance (mm)	Output	Package	Digi-Key Part No.	1	10	100	Vishay Part No.
6	0 - 4.5	≤0.5	Transistor	—	751-1025-ND	.91	.74	.61	CNY70
7	0.2 - 4.0	1	Transistor	Straight Leads Bent Leads	751-1031-ND	.83	.72	.55	TCRT1000
					751-1032-ND	.85	.69	.57	TCRT1010
8	0.2 - 15	2.5	Transistor	—	751-1033-5-ND	.83	.72	.55	TCRT5000
					751-1034-5-ND	.83	.72	.55	TCRT5000L
9	2 - 25	6	PIN Photodiode	—	751-1029-1-ND†	2.28	1.74	1.50	TCND5000
					751-1029-2-ND‡	1410.04/2,000	—	—	TCND5000

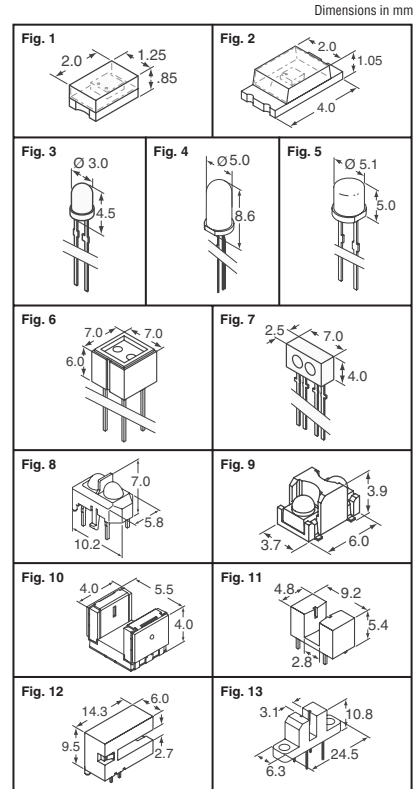
† Cut Tape ‡ Tape and Reel

## Transmissive or Interrupter Sensors



Fig.	Gap (mm)	Package	Aperture (mm)	Rise/Fall Time (µs)	Digi-Key Part No.	1	10	100	Cut Tape Price Each	Tape and Reel Pricing 2,000	Vishay Part No.
10	3.0	—	0.3	20 / 30	751-1030-1-ND	1.55	1.23	1.05	487.11/M	487.11/M	TCPT1300X01
11	2.8	—	0.3	20 / 30	751-1040-1-ND	1.76	1.35	1.16	545.52/M	545.52/M	TCUT1300X01
					751-1036-5-ND†	.81	.65	.54	—	—	TCST1230
12	2.7	—	0.5	15 / 10	751-1039-5-ND†	1.19	1.03	.80	—	—	TCST5250
					751-1035-5-ND†	1.05	.85	.71	—	—	TCST1202
13	3.1	w/o flange	0.5	10 / 8	751-1037-5-ND†	1.17	.92	.77	—	—	TCST2202
		with flange	0.25	10 / 8	751-1038-5-ND†	1.31	1.03	.87	—	—	TCST2300

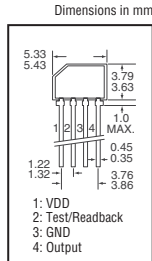
† Tube ‡ For Tape & Reel part number, change 1-ND to 2-ND.



## Programmable Linear Hall Effect ICs

### Features:

- Quad switched/chopper stabilized
- Ratio metric output for A/D interface
- Adjustable quiescent voltage (VOQ)
- Very low quiescent voltage temperature drift
- Adjustable sensitivity
- Adjustable temperature compensation of sensitivity



Description	Temp. Range (°C)	Package	Digi-Key Part No.	1	10	25	50
Precision Programmable Linear Hall IC	-40 - 85	4-SIP(VA)	MLX90215EVA-ND◆	7.18	5.39	4.46	3.72
Precision Programmable Linear Hall IC	-40 - 150	4-SIP(VA)	MLX90215LVA-ND◆	7.47	5.62	4.64	3.87
Precision Programmed Linear Hall IC, 10mV/mT, 2.5V			MLX90215LVA-BC03-ND	13.33	10.02	8.28	6.90
Precision Programmed Linear Hall IC, 20mV/mT, 2.5V			MLX90215LVA-CC03-ND	13.33	10.02	8.28	6.90
Precision Programmed Linear Hall IC, 50mV/mT, 2.5V			MLX90215LVA-GC03-ND	13.33	10.02	8.28	6.90
Precision Programmed Linear Hall IC, 100mV/mT, 1V			MLX90215LVA-LA03-ND	13.33	10.02	8.28	6.90
Precision Programmed Linear Hall IC, 100mV/mT, 2.5V	MLX90215LVA-LC03-ND	13.33	10.02	8.28	6.90		
Daughter Board for PTC Devices.....	—	—	PTC-04-DB-90316-ND	104.81	—	—	—
Programmer for PTC Devices.....	—	—	PTC-04-ND	1088.56	—	—	—

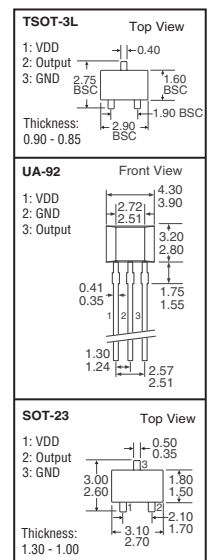
◆ RoHS Compliant

## Hall Effect Sensor ICs — US Series



Package	Supply Voltage	Operating Point (mT)	Release Point (mT)	Output Type	Operating Type†	Temperature Range	Digi-Key Part No.	1	10	25	100	Digi-Key Part No.	Tape & Reel Pricing 3,000		
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	1.0	5.0	9.0	-9.0	-5.0	-1.0	Open Drain	Bidirectional	-40°C - 85°C	US1881ESECT-ND◆	1.23	.93	.72	43
											US1881EUA-ND\$	1.29	.98	.75	45
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	0.5	—	9.5	-9.5	—	-0.5	Open Drain	Bidirectional	-40°C - 150°C	US1881LSOCT-ND	1.21	.94	.73	43
											US1881LUA-ND\$	1.44	1.09	.84	50
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	0.5	—	9.5	-9.5	—	-0.5	Open Drain	Bidirectional	-40°C - 150°C	US1881LSECT-ND◆	1.37	1.03	.80	47
											US2881EEOCT-ND	1.41	1.10	.85	51
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	0.5	2.0	4.5	-4.5	-2.0	-0.5	Open Drain	Bidirectional	-40°C - 85°C	US2881EEOCT-ND	1.37	1.03	.80	47
											US2881EUA-ND\$	1.44	1.09	.84	50
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	0.5	—	6.0	-6.0	—	-0.5	Open Drain	Bidirectional	-40°C - 150°C	US2881LSOCT-ND	1.52	1.18	.91	55
											US2881LUA-ND\$◆	1.60	1.21	.93	55
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	-3.0	—	6.0	-6.0	—	3.0	Open Drain	Bipolar	-40°C - 85°C	US2882EEOCT-ND	1.26	.98	.76	45
											US2882EECT-ND◆	1.30	.98	.76	45
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	-2.0	2.0	6.0	-6.0	-2.0	2.0	Open Drain	Bidirectional	-40°C - 150°C	US2882EUA-ND\$	1.37	1.03	.80	47
											US2882LSECT-ND◆	1.26	.98	.76	45
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	-3.5	—	6.0	-6.0	—	3.5	Open Drain	Bidirectional	-40°C - 150°C	US2882LSECT-ND◆	1.52	1.15	.88	52
											US2882LSETR-ND◆	1.45	1.09	.84	50
TSOT-3L UA-92 SOT-23 UA-92	2.2 - 18	0.5	2.0	4.5	-4.5	-2.0	-0.5	Open Drain	Bidirectional	-40°C - 85°C	US4881EUA-ND\$	1.29	.98	.75	45
											US4881LUA-ND\$	1.44	1.09	.84	50
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	15	25	30	9.5	20	28	Open Drain	Unidirectional	-40°C - 85°C	US5881EUA-ND\$	1.50	1.13	.87	52
											US5881LUA-ND\$	1.67	1.26	.97	58
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	7	12	15	3.5	7.5	10	Open Drain	Unipolar	-40°C - 85°C	US5781EEOCT-ND◆	1.58	1.19	.92	55
											US5781EUA-ND\$	1.63	1.23	.95	56
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	7	12	15	3.5	7.5	10	Open Drain	Unipolar	-40°C - 150°C	US5781EEOCT-ND◆	1.67	1.26	.97	58
											US5781LSECT-ND◆	1.76	1.33	1.02	61
TSOT-3L UA-92 SOT-23 UA-92	3.5 - 24	7	12	15	3.5	7.5	10	Open Drain	Unipolar	-40°C - 150°C	US5782LSECT-ND◆	1.82	1.37	1.05	63
											US5781LUA-ND\$◆	1.85	1.40	1.07	64

◆ RoHS Compliant † Unidirectional is only sensitive to either a north or south pole of a magnet. Bidirectional is sensitive to alternating magnetic fields of both north and south poles. \$ Bulk



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