Panasonic® Hall Effect Sensor ICs

Panasonic's Hall IC is a combination of a Hall element, amplifier, Schmidt circuit, and stabilized power supply/temperature compensator integrated on an identical chip by using the IC technology. It amplifies Hall element output at the amplifier, converts into a digital signal through the Schmidt circuit, and drives the TTL or MOS IC directly. **Features:** • Stable temperature characteristics due to the additional temperature compensator • TTL and MOS ICs directly driveable by output • Semi-permanent service life due to no contact parts • Small change of the operating flux density against mechanical stress • Provided with the Output Pull-up Resistors (typical 27kΩ or Open Collector Output; *see footnote below*) • Operating Temperature: -40°C ~ 100°C • Supply Current Maximum: 6mA • Output Circuit Maximum: 20mA **Applications:** • Speed Sensors • Position Sensors • Rotation Sensors • Keyboard Switches • Microswitches

Fig. 1

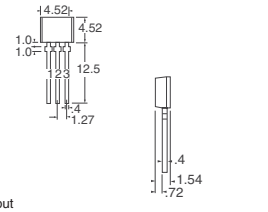


Fig. 2

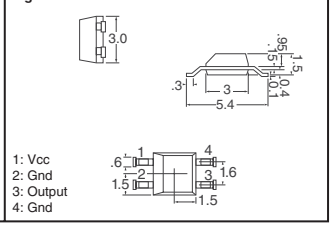
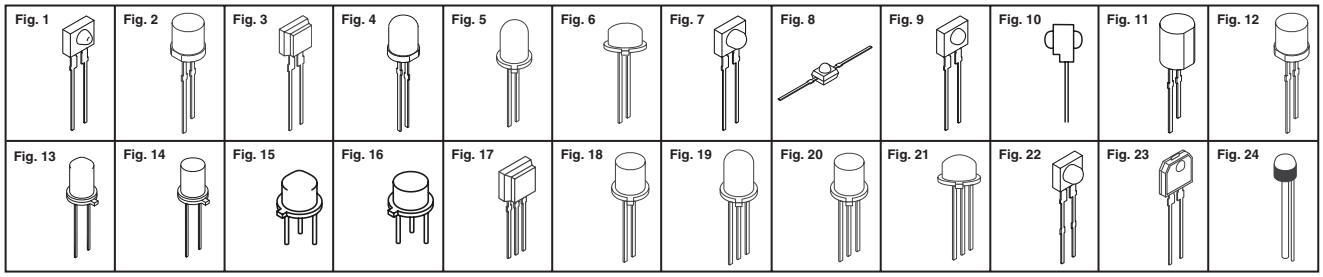


Fig.	Supply Voltage Range (V)	Operating** Flux Density (Gauss) (L-H)	(H-L)	Output* Type	Operating† Type	Pkg.	Digi-Key Part No.	Price Each 1	10	100
1	4.5 ~ 16	-175	175	0C	Bidirectional	3-Sip	DN6849SE-ND	1.10	.88	.66
2	4.5 ~ 16	5	220	0C	Unidirectional	SOH-4D	DN6848S-E1VCT-ND◆	.60	.50	.40
		5	220		Unidirectional	SOH-4D	DN6848S-E1VTR-ND◆	262.81/1,000		
		-175	175		Bidirectional	SOH-4D	DN6849S-ND	1.23	.99	.74

* Output Type: *Pull-up* = 27K Internal; *0C* = Open Collector. ** To convert Gauss to millitesla, divide by 10
† *Unidirectional* is only sensitive to either north or southside of magnetic; *Bidirectional* is sensitive to an alternating magnetic fields of both north and south sides. ◆ ***RoHS Compliant***

Infrared Photosensors

RoHS Compliant Parts Available
(parts other than indicated may be available as RoHS compliant)



Infrared Light Emitting Diode

Fig.	Style/ Package	Pulse Forward Current (A)	Optical Power Output	Peak Emission Wave-length	Beam Angle	Digi-Key Part No.	Pricing 1	10	100	Panasonic Part No.
1	Side View	1	4.6mW	950nm	17°	LN54PA-ND◆	.73	6.08	48.61	LN54
2	Top View	0.2	2.5mW	680nm	30°	LNA4501FV-ND◆	.93	7.45	55.84	LNA4501FV
	Top View	1.5	7mW	950nm	45°	LN64PA-ND◆	.66	5.49	43.91	LN64
3	Side View	2	12mW	900nm	115°	LN175PA-ND◆	1.31	10.51	78.80	LN175
	Side View	1.5	3-6mW	940nm	80°	LNA2603F-ND◆	.92	7.35	55.10	LNA2603F
4	T-1	1	3.5mW/sr	940nm	15°	LN69-ND◆	.33	2.51	18.85	LN69
	T-1	1	6mW/sr	940nm	15°	LNA2801L-ND◆	.49	3.65	27.39	LNA2801L
	T-1	1	2.5-5mW	950nm	20°	LNA2802L-ND◆	.33	2.62	19.66	LNA2802L
	T-1 3/4	1	10mW	860nm	20°	LN77L-ND◆	.83	6.28	39.10	LN77L
	T-1 3/4	1	12mW/sr	860nm	22°	LNA4801L-ND◆	.93	7.45	55.84	LNA4801L
	T-1 3/4	1.5	9mW/sr	950nm	20°	LNA2902L-ND◆	.33	2.51	18.85	LNA2902L
	T-1 3/4	1.5	9mW/sr	950nm	25°	LNA2903L-ND◆	.33	2.62	19.66	LNA2903L
	T-1 3/4	1.5	10mW/sr	950nm	20°	LNA2904L-ND◆	.65	5.39	43.07	LNA2904L
5	TO-18	2	3-6mW	950nm	8°	LN51L-ND◆	2.64	21.07	163.86	LN51L
	TO-18	2	5mW	950nm	8°	LNA2402L-ND◆	1.63	13.03	97.73	LNA2402L
6	TO-18 Small	0.2	1.5mW	680nm	80°	LNA4402L-ND◆	1.16	9.31	69.80	LNA4402L
	TO-18 Small	1.5	5-10mW	950nm	90°	LN152-ND◆	1.55	12.88	103.03	LN152
	TO-18 Small	2	3.5-6mW	950nm	100°	LN52-ND◆	2.21	17.70	137.64	LN52
7	Side View	1	1.8-3.5mW	950nm	35°	LN55-ND	.57	4.74	37.94	LN55
	Side View	1.5	4.3-5.5mW	950nm	35°	LN65-ND◆	.94	7.51	56.28	LN65
8	Axial	1	3-4.5mW	950nm	18°	LNA2W01L-ND◆	.98	8.20	65.54	LNA2W01L
9	Side View	1	6mW	880nm	25°	LN75X-ND◆	.93	7.45	55.84	LN75X
	Side View	1	6-10mW	880nm	40°	LN78-ND◆	3.61	28.87	224.55	LN78
	Side View	1	1.8-3.5mW	950nm	35°	LN58-ND◆	.70	5.85	46.82	LN58
10	Side View x2	1	1.2mW/sr	940nm	23°	LNA2701L-ND	.96	7.96	63.67	LNA2701L
	Side View x2	1	1.8mW	950nm	23°	LN59-ND	.80	6.63	53.01	LN59
	Side View x2	1	1.8mW	940nm	23°	LNA2702L-ND*◆	.45	3.35	25.13	LNA2702L

◆ ***RoHS Compliant*** * Long Leads

NPN Photo Transistor

Fig.	Style/ Package	V_{CEO} (V)	I_C (mA)	Peak Sensitivity Wave-length	tr/tf (µs)	Digi-Key Part No.	Pricing 1	10	100	Panasonic Part No.
1	Side View	20	20	800nm	4	PNZ154-ND◆	1.01	8.43	67.43	PNZ154
3	Side View	20	10	800nm	4	PNZ155-ND	.91	7.57	60.60	PNZ155
4	T-1	30	20	800nm	4	PNA1801LS-ND◆	.41	3.07	23.04	PNA1801LS
	T-1	30	20	850nm	4	PNA1801L00NC-ND◆	.41	3.07	23.04	PNA1801L00NC

Fig.	Style/ Package	V_{CEO} (V)	I_C (mA)	Peak Sensitivity Wave-length	tr/tf (µs)	Digi-Key Part No.	Pricing 1	10	100	Panasonic Part No.
4	T-1	30	20	850nm	4	PNA1801LS0NC-ND◆	.41	3.07	23.04	PNA1801LS0NC
5	TO-18	30	50	800nm	3	PNA1401L-ND◆	2.58	20.66	160.68	PNA1401L
	TO-18	20	30	900nm	5/6	PNZ107-ND◆	1.63	13.03	97.73	PNZ107
7	Side View	20	30	850nm	100	PNA2602M-ND‡	.83	6.89	55.09	PNA2602M
	Side View	20	20	800nm	4-10	PNZ150-ND	.77	6.43	51.42	PNZ150
8	Axial	20	30	800nm	200	PNA2W01M-ND‡◆	1.28	10.63	85.01	PNA2W01M
	Axial	20	20	800nm	2.5/3.5	PNZ12700S-ND◆	.87	7.25	58.02	PNZ12700S
	Axial	20	20	800nm	3-10	PNZ14700R-ND◆	.70	5.82	46.54	PNZ14700R
	Axial	20	20	800nm	3-10	PNZ14700S-ND◆	.70	5.82	46.54	PNZ14700S
	Axial	20	20	800nm	3-10	PNZ147-ND◆	1.15	9.18	68.86	PNZ147
9	Side View	20	3	800nm	100	PNA2603L-ND‡	.83	6.89	55.09	PNA2603L
17	Side View	20	10	900nm	8	PNA1605F-ND◆	1.10	8.78	65.86	PNA1605F
18	TO-18 Flat	30	50	800nm	3	PNA1401LF-ND◆	2.58	20.66	160.68	PNA1401LF
19	TO-18	40†	50	800nm	3	PNZ102-ND◆	2.58	20.66	160.68	PNZ102
	TO-18	30†	30	900nm	5/6	PNZ108-ND◆	2.58	20.66	160.68	PNZ108
	TO-18	30†	30	900nm	5/6	PNZ109L-ND	2.58	20.66	160.68	PNZ109L
20	TO-18 Flat	30†	30	900nm	8/9	PNZ109F-ND◆	2.58	20.66	160.68	PNZ109F
21	TO-18 Small	30†	20	900nm	5/6	PNZ108CL-ND◆	2.17	17.35	134.97	PNZ108CL
	TO-18 Small	20	20	900nm	5/6	PNZ108CLR-ND◆	1.16	9.31	69.80	PNZ108CLR
	TO-18 Small	20	20	900nm	5/6	PNZ108CLS-ND◆	1.16	9.31	69.80	PNZ108CLS
	TO-18 Small	30†	20	900nm	5/6	PNZ109CL-ND◆	2.17	17.35	134.97	PNZ109CL
22	Side View	20	20	800nm	4	PNA1608L-ND	.77	6.43	51.42	PNA1608L
23	Side View	20	20	850nm	4	PNA1601M-ND	.59	4.91	39.24	PNA1601M
24	T-1	20	10	800nm	1/1.3	PNZ121S0R-ND◆	.87	7.28	58.28	PNZ121S0R

◆ ***RoHS Compliant*** † V_{CBO} *(This device has signal mixing capability using the base pin.)* ‡ Darlington

Pin Photo Diode

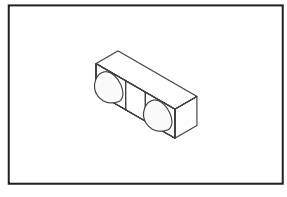
Fig.	Style/ Package	V_R (V)	Peak Sensitivity Wavelength	tr/tf (ns)	Beam Angle	Digi-Key Part No.	Pricing 1	10	100	Panasonic Part No.
3	Side View	30	850nm	2	70°	PNZ335-ND◆	.91	7.35	55.09	PNZ335
6	TO-18 Small	30	850nm	2	70°	PNZ330CL-ND	2.17	17.35	134.97	PNZ330CL
11	Side View	30	900nm	50	70°	PNZ323-ND◆	1.00	8.38	67.02	PNZ323
	Side View	30	900nm	50	70°	PNZ327-ND◆	1.00	8.38	67.02	PNZ327
	Side View	30	960nm	50	70°	PNZ323B-ND◆	.66	5.49	43.91	PNZ323B
12	Top View	50	850nm	2	70°	PNZ334-ND◆	1.06	8.82	70.57	PNZ334
13	TO-18	50	800nm	1	10°	PNZ300-ND	4.46	35.65	300.76	PNZ300
14	TO-18	50	800nm	1	40°	PNZ300F-ND	4.46	35.65	300.76	PNZ300F
15	TO-18	30	900nm	2	70°	PNZ331CL-ND	2.66	21.28	165.49	PNZ331CL
16	TO-18	30	900nm	—	40°	PNZ331F-ND	5.16	41.27	348.25	PNZ331F

◆ ***RoHS Compliant***

IrDA Transceiver Modules

Digi-Reel® RoHS COMPLIANT

V_{CC} Maximum (V)	IrDA Maximum (kbps)	Pin Count	Digi-Key Part No.	Cut Tape Price Each 1	25	100	Digi-Key Part No.	Tape and Reel Qty.	Pricing	Panasonic Part No.
3.3	115.2	7-Pin + 1 Shield	CND0204ACT-ND	1.16	.94	.70	CND0204ATR-ND	2,500	595.32/M	CND0204A
4.5	115.2	7-Pin + 1 Shield	CND0215ACT-ND	1.16	.94	.70	CND0215ATR-ND	2,500	595.32/M	CND0215A
3.3	115.2	7-Pin + 2 Shield	CND0208ACT-ND	1.16	.94	.70	CND0208ATR-ND	2,000	604.76/M	CND0208A
3.3	115.2	7-Pin + 2 Shield	CND0214ACT-ND	1.16	.94	.70	CND0214ATR-ND	2,000	604.76/M	CND0214A
3.3	115.2	7-Pin + 2 Shield	CND0209ACT-ND	1.16	.94	.70	CND0209ATR-ND	2,000	604.76/M	CND0209A
4.5	115.2	7-Pin + 2 Shield	CND0216ACT-ND	1.16	.94	.70	CND0216ATR-ND	2,000	604.76/M	CND0216A



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