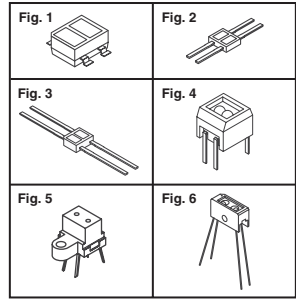


# Panasonic<sup>®</sup> Reflective Photosensors

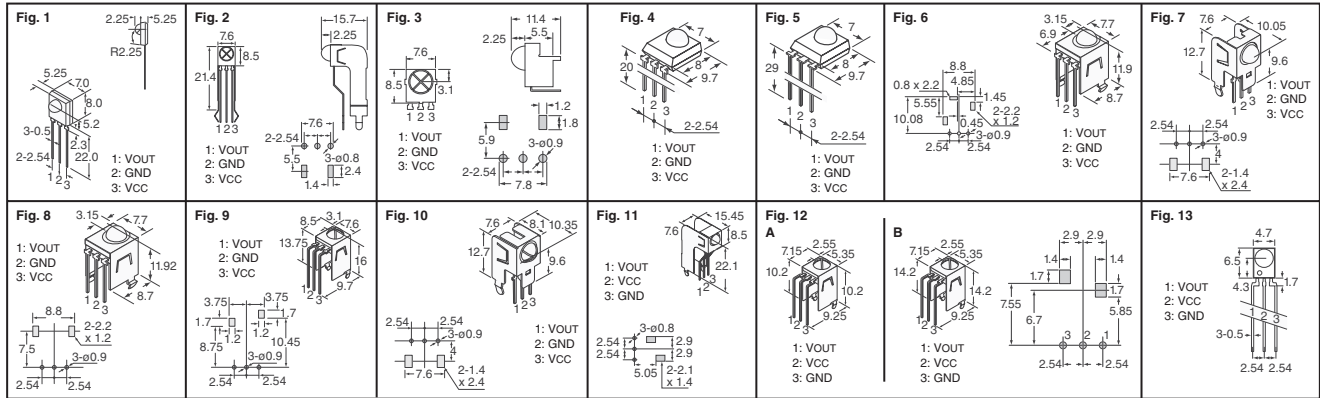
Reflective Photosensors consist of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity phototransistor in a single resin package.



Fig.	Rank	IC (µA)	Typ. Ion/Off (µsec.)	Input		Output		Digi-Key Part No.	Cut Tape Price Each			Digi-Key Part No.	Tape & Reel		Panasonic Part No.	
				VR (V)	IF (mA)	IC (mA)	VCEO (V)		1	100	500		Qty.	Pricing		
1	L	23 - 90	30/40	6	50	20	35	CNB10010LLCT-ND	.70	.54	.40	25	CNB10010LLTR-ND	1,000	235.22	CNB10010LL
	R	41 - 90	30/40	6	50	20	35	CNB10010RLCT-ND	.72	.60	.48	34	CNB10010RLTR-ND	1,000	317.26	CNB10010RL
	W	23 - 160	30/40	6	50	20	35	CNB10010WLCT-ND	.67	.51	.38	24	CNB10010WLTR-ND	1,000	222.88	CNB10010WL
	H	41 - 160	30/40	6	50	20	35	CNB10010HLCT-ND	.70	.54	.40	25	CNB10010HLTR-ND	1,000	235.22	CNB10010HL
	S	74 - 160	30/40	6	50	20	35	CNB10010SLCT-ND	.56	.47	.38	27	CNB10010SLTR-ND	1,000	247.57	CNB10010SL
	R	41 - 90	30/40	6	50	20	35	CNB10020RLCT-ND	.56	.47	.38	27	CNB10020RLTR-ND	1,000	247.57	CNB10020RL
2	R	180 - 440	20/20	3	50	20	30	CNB10112CT-ND	.56	.47	.38	27	CNB10112TR-ND	3,000	241.76/M	CNB10112
	—	—	—	—	—	—	—	CNB13020R-ND	.69	.52	.39	25	—	—	—	CNB13020R
	—	460 - 12,000	150/150	3	50	30	20	CNB2301-ND	.56	.47	.38	27	—	—	—	CNB2301
	—	1,300 - 4,950	150/150	3	50	30	20	CNB23010R-ND	.59	.49	.40	28	—	—	—	CNB23010R
	—	1,300 - 4,950	150/150	3	50	30	20	CNB23010ROLF-ND	.62	.52	.41	29	—	—	—	CNB23010ROLF
	—	360 - 880	20/20	3	50	30	30	CNB13020S-ND	.56	.42	.32	20	—	—	—	CNB13020S
3	R	180 - 440	20/20	3	50	20	30	CNB13020ROLF-ND	.60	.45	.34	21	—	—	—	CNB13020ROLF
	S	360 - 880	20/20	3	50	20	30	CNB13020SOLF-ND	.60	.45	.34	21	—	—	—	CNB13020SOLF
	—	800 - 5,200	20/20	3	50	20	30	CNB1301-ND	.93	.75	.56	51	—	—	—	CNB1301
	—	100 - 1,500	6/6	3	50	20	30	CNB1304H-ND	1.66	1.33	1.00	90	—	—	—	CNB1304H
	—	100 - 1,200	6/6	3	50	20	30	CN22153-ND	2.09	1.68	1.31	121	—	—	—	CN22153



## Bipolar Integrated Circuit with Photodetection Function



**PNA46xxM Series:** • Designed for infrared remote control  
• Extension distance is 8M or more • External parts are not required • Lens resin filters visible light for better performance • Available with shielding brackets for increased range • 5V operation voltage

**PNA47xxM Series:** • Designed for infrared remote control  
• Extension distance is 7M or more • External parts are not required • Lens resin filters visible light for better performance • Available with shielding brackets for increased range • 3.3V operation voltage

**PNA48xxM Series:** • Designed for infrared remote control  
• Extension distance is 11M or more • External parts are not required • Lens resin filters visible light for better performance • Available with shielding brackets for increased range • 3.3V operation voltage  
• Smaller size than PNA47xxM Series

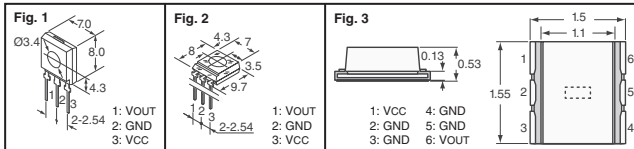
Fig.	Operating Supply Voltage Typical (V)	Current Consumption Typical (mA)	Maximum Recep. Distance (m)		Carrier Frequency Typical (kHz)	Digi-Key Part No.	Price Each			Panasonic Part No.
			Minimum	Typical			1	100	1000	
1	5.0	2.4	8.0	10.0	36.7	PNA4601M-ND	.92	.77	.62	PNA4601M
	5.0	2.4	8.0	10.0	38.0	PNA4602M-ND	.93	.75	.56	PNA4602M
	5.0	2.4	8.0	10.0	38.0	PNA4612M-ND	.92	.77	.62	PNA4612M
	3.3	0.8	7.0	—	36.7	PNA4701M-ND	1.07	.86	.64	PNA4701M
	3.3	0.8	7.0	—	38.0	PNA4702M-ND	1.06	.89	.71	PNA4702M
2	5.0	2.4	11.0	18.0	36.7	PNA4611M00YB-ND	1.04	.84	.63	PNA4611M00YB
	5.0	2.4	11.0	18.0	38.0	PNA4612M00YB-ND	1.04	.84	.63	PNA4612M00YB
3	5.0	2.4	11.0	18.0	56.9	PNA4614M00YB-ND	1.04	.84	.63	PNA4614M00YB
	5.0	2.4	11.0	18.0	36.7	PNA4611M00XD-ND	1.04	.84	.63	PNA4611M00XD
	5.0	2.4	11.0	18.0	38.0	PNA4612M00XD-ND	1.04	.84	.63	PNA4612M00XD
4	5.0	2.4	8.0	10.0	36.7	PNA4601M00LB-ND	1.06	.89	.71	PNA4601M00LB
	5.0	2.4	8.0	10.0	38.0	PNA4602M00LB-ND	1.06	.89	.71	PNA4602M00LB
5	5.0	2.4	8.0	10.0	36.7	PNA4701M00LB-ND	1.06	.89	.71	PNA4701M00LB
	5.0	2.4	8.0	10.0	38.0	PNA4601M00LC-ND	1.06	.89	.71	PNA4601M00LC
6	5.0	2.4	11.0	18.0	38.0	PNA4612M00HB-ND	1.06	.89	.71	PNA4612M00HB
	3.3	0.8	9.0	—	36.7	PNA4701M00HB-ND	1.06	.89	.71	PNA4701M00HB
7	5.0	2.4	11.0	18.0	36.7	PNA4611M00HC-ND	1.06	.89	.71	PNA4611M00HC
	5.0	2.4	11.0	18.0	36.7	PNA4611M00HD-ND	1.06	.89	.71	PNA4611M00HD
8	5.0	2.4	11.0	18.0	36.7	PNA4611M00XB-ND	1.06	.89	.71	PNA4611M00XB
	5.0	2.4	11.0	18.0	38.0	PNA4612M00XB-ND	1.06	.89	.71	PNA4612M00XB
9	5.0	2.4	11.0	18.0	36.7	PNA4611M00YA-ND	1.06	.89	.71	PNA4611M00YA
	5.0	2.4	11.0	18.0	38.0	PNA4612M00YA-ND	1.06	.89	.71	PNA4612M00YA
10	5.0	2.4	11.0	18.0	36.7	PNA4611M00YA-ND	1.06	.89	.71	PNA4611M00YA
	5.0	2.4	11.0	18.0	38.0	PNA4612M00YA-ND	1.06	.89	.71	PNA4612M00YA
11	5.0	1.9	11.0	25.0	56.9	PNA4658M00YE-ND	1.00	.81	.61	PNA4658M00YE
	12A	3.3	0.2	11.0	—	36.7	PNA4861M00XA-ND	7.0	.59	.47
12B	3.3	0.2	11.0	—	36.7	PNA4861M00XB-ND	7.0	.59	.47	PNA4861M00XB
	13	3.3	0.2	11.0	—	36.7	PNA4861M-ND	.56	.47	.38

◆ RoHS Compliant

## Ambient Light Sensor Bipolar Integrated Circuit with Photo Diode



**PNA4603H Series:** • For brightness control systems  
• Wavelength characteristics close to human visual sensitivity • External parts not required • Good output voltage linearity with respect to incident illuminance



**PNA4K01F Series:** • Bipolar Integrated Circuit with Photo Diode • The power saving control for backlight cellular phone • Light source is CIE standard A light source (Incandescent lamp) • Light source is Fluorescence light

Fig.	Description	Digi-Key Part No.	Price Each
			1 10 100
1	See PNA4603H Main Characteristics Chart	PNA4603H-ND	2.29 1.84 1.43
2	See PNA4603H Main Characteristics Chart; Right Angle	PNA4603H0LB-ND	1.63 1.31 .98
3	See PNA4K01F Main Characteristics Chart	PNA4K01FCT-ND†	.56 .42 .32
		PNA4K01FTR-ND‡	890.01/5,000

† Cut Tape ‡ Tape and Reel

PNA4603H Series Main Characteristics			
Parameter	Symbol	Conditions	Unit
Operating Supply Voltage	V <sub>CC</sub>	—	4.5 5.0 5.5 V
Current Consumption	I <sub>CC</sub>	V <sub>CC</sub> = 5.25V	0.5 1.0 1.5 mA
	V <sub>OFF</sub>	L = 0 lx, V <sub>CC</sub> = 5.0V	0.1 0.5 0.8 V
	V <sub>01</sub>	L = 10 lx, V <sub>CC</sub> = 5.0V	2.0 2.7 3.4 V
Output Voltage	V <sub>02</sub>	L = 800 lx, V <sub>CC</sub> = 5.0V	3.9 4.1 4.9 V
	η	V <sub>01</sub> -V <sub>OFF</sub> , V <sub>CC</sub> = 5.0V	1.65 1.9 3.3 V
Output Impedance	Z	—	5.0 10 15.0 kΩ
Peak Sensitivity Wavelength	λ <sub>P</sub>	—	400 600 700 nm

PNA4K01F Series Main Characteristics			
Parameter	Symbol	Conditions	Unit
Supply Voltage	V <sub>CC</sub>	—	1.4 — 5.5 V
Supply Current	I <sub>CC</sub>	V <sub>CC</sub> = 3V, EV = 1000 lx	— 480 920 µA
	I <sub>01</sub>	V <sub>CC</sub> = 3V, EV = 100 lx	29 48 90 µA
Output Current	I <sub>02</sub>	V <sub>CC</sub> = 3V, EV = 10 lx	2.5 4.3 7.9 µA
	I <sub>03</sub>	V <sub>CC</sub> = 3V, EV = 100 lx	25 43 79 µA
Output Current Ratio	I <sub>01</sub> /I <sub>03</sub>	—	— 1.1 1.65 —
Dark Output Current	I <sub>d</sub>	V <sub>CC</sub> = 3V, EV = 0 lx	— 10 100 nA
Saturation Output Voltage	V <sub>o</sub>	V <sub>CC</sub> = 3V, EV = 100 lx	2.60 2.94 3.0 V
Peak Sensitivity Wavelength	λ <sub>P</sub>	—	560 nm

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

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