

## ■ Sensors

- Photointerrupters
- Optical System Devices
- Emitters/Detectors



Pack performance into the smallest dimensions with Sharp's solutions for Lighting, Sensing, and Power handling. Sharp's Lighting, Drivers, Power handling, and Sensing modules are specifically designed for engineers with small applications demanding higher packaging density and a smaller end product.

Combine our Lighting with our Driver and Sensing modules for a complete solution. Sharp's Sensors provide the best cost/performance numbers in the industry, while Sharp's Photointerrupters are at the forefront in size and ambient light management. Sharp's Distance Sensors outperform capacitive, ultrasonic, and light-intensity offerings.

## High Luminosity LEDs

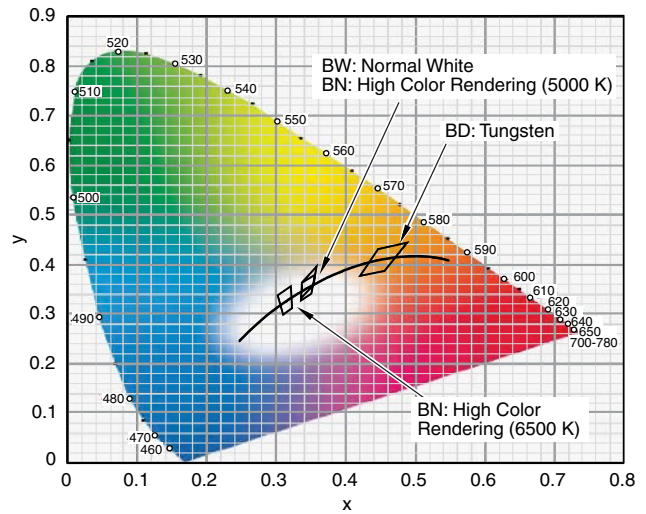
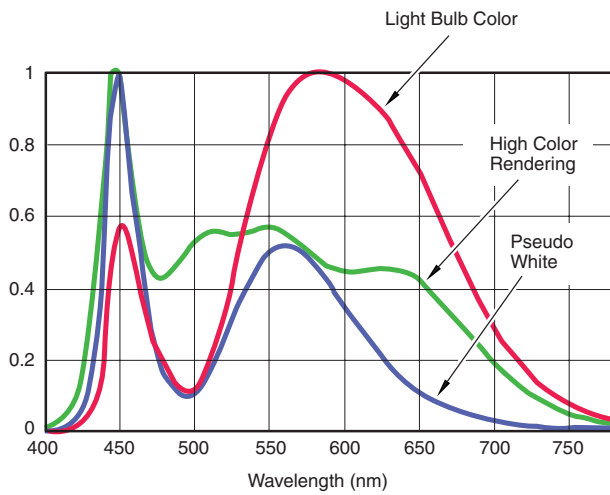
Model No.	Emitting Color	Forward Voltage (V)		Color Coordinates (x, y) or Wavelength (nm)	Luminous Intensity (mcd)	I <sub>F</sub> (mA)	Package (L × W × Thickness)
		TYP.	MAX.				
GM1BW76340A	White	14.0	15.0	(0.31, 0.31)	45 lumen, 14,000 mcd	50	2.64 × 1.64 × 0.7 mm
GM1BW76341A	White	14.0	15.0	(0.34, 0.36)	36 lumen, 11,000 mcd	50	2.64 × 1.64 × 0.7 mm
GM5BW01300A	White	3.6	4.5	(0.31, 0.31)	4,200	35	6.0 × 5.0 × 1.5 mm
GM5BW05340A	White	3.2	4.0	(0.31, 0.31)	10,000	20	5.0 × 5.0 × 1.5 mm
GM5BW05341A	White	3.2	4.0	(0.31, 0.31)	10,000	20	5.0 × 5.0 × 1.5 mm
GM5BW96320A	White	3.3	3.9	(0.31, 0.31)	1,400	20	3.2 × 2.8 × 1.9 mm
GM5BW96370A	White	3.2	3.9	(0.31, 0.31)	2,000	20	3.2 × 2.8 × 1.9 mm
GM5BW96380A	White	3.2	3.9	(0.34, 0.36)	2,400	20	3.2 × 2.8 × 1.9 mm

NOTE: Ta = 25°C

## LED Modules

Model No.	Type	I <sub>F</sub> (mA)	Color Coordinate		Chromaticity (°K)	Total Flux (lm)	Luminous Efficiency (lm/W)	Package
			x	y				
GW5BWC15L02	Normal white	360	0.35	0.35	5,000	280	78	18 × 18 mm
GW5BDC15L02	Light bulb color	360	0.45	0.41	2,800	200	53	18 × 18 mm
GW5BNC15L02	High color rendering	360	0.35	0.35	5,000	190	47	18 × 18 mm
GW5BNC15L12	High color rendering	360	0.31	0.32	6,500	190	47	18 × 18 mm

NOTE: See LED Module Colorimetry figures below.



LED Module Colorimetry

## LED Drivers

Model No.	LED Configuration		RGB	White	Input Voltage (V)	Output Current (mA)	Step-up Switching Frequency (Hz)	LED Anode Voltage Supply Source	Control	Package	Package Dimensions (mm)
	(parallel)	(series)									
IR2D07	16	N/A	N/A	N/A	3.0 – 5.5	55	N/A	External (to 7.0 V)	3-line serial	28-pin SDIP	8.6 × 25.5 × 4.4
IR2D20U	8+8+8	N/A	N/A	N/A	4.5 – 5.5	30	N/A	External (to 18 V)	3-line serial	52-pin HQFN	7.2 × 7.2 × 0.92
IR2E46Y7	3	2 sets of 2 LEDs in series	1 pair	2 sets of 2 LEDs in series	2.7 – 4.5	155	1.2M	External (to 4.5 V) Built-in step-up Coil	I <sup>2</sup> C bus	33-pin WLCSP	3.6 × 3.6 × 0.82
IR2E49U6	5	5 sets of 7 LEDs in series	N/A	5 sets of 7 LEDs in series	6 – 28	150	100k – 1M	Built-in step-up Coil	Logic input	36-pin VQFN	6.2 × 6.2 × 1.0
	35 (5 × 7) possible										
IR2E51Y7	4 (W) + 2 (W) + 3 (RGB)	N/A	1 pair	6 LEDs (4+2) in parallel	3.0 – 4.5 2.3 – 3.2	25	500k	Built-in step-up Charge pump	I <sup>2</sup> C bus	35-pin WLCSP	3.6 × 3.6 × 0.82
IR2E53Y7	6 (RGB)	18 sets of 6 LEDs in series	6	18 LEDs	3.0 – 4.5 2.3 – 3.2	25.9	660k	Built-in step-up Charge pump	I <sup>2</sup> C bus	35-pin WLCSP	3.57 × 3.57 × 0.875
PQ6CB11X1CP	N/A	1 set of 6 LEDs in series	N/A	6 LEDs in series	2.7 – 5.5	250	1.2M	Built-in step-up Coil	Logic input	6-pin SMD	1.8 × 2.0 × 0.8

## Ambient Light Sensors

Model No.	Type	Package	Absolute Maximum Ratings		Electro-optical Characteristics						
			V <sub>CC</sub> (V)	I <sub>o</sub> (mA)	T <sub>opr</sub> (°C)	Supply Voltage V <sub>CC</sub> (V)	Illuminance Range E <sub>x</sub> (lx)	Dissipation Current I <sub>CC</sub> (μA) TYP.	Peak Sensitivity Wavelength λ <sub>p</sub> (nm)	Output Current	
										I <sub>o1</sub> (μA) TYP.	I <sub>o2</sub> (μA) TYP.
GA1A2S100SS	Built-in amplification circuit. Peak sensitivity characteristic close to human vision: Linear current output. Straight leads.	Transparent resin (3 × 4 mm)	7.0	5	-40 to +85	2.7 to 3.6	10 to 10,000	500	555	480 (at E <sub>v</sub> = 1,000 lx)	48 (at E <sub>v</sub> = 100 lx)
GA1A2S100LY	Built-in amplification circuit. Peak sensitivity characteristic close to human vision: Linear current output. L-bend leads.		7.0	5	-40 to +85	2.7 to 3.6	10 to 10,000	500	555	480 (at E <sub>v</sub> = 1,000 lx)	48 (at E <sub>v</sub> = 100 lx)
GA1A1S201WP	Built-in amplification circuit. Peak sensitivity characteristic close to human vision: Logarithmic current output.	Compact (2.0 × 1.6 mm) Leadless	7.0	1	-40 to +85	2.3 to 3.2	3 to 55,000	70	555	20 (at E <sub>v</sub> = 100 lx)	30 (at E <sub>v</sub> = 1,000 lx)



GA1A2S100SS



GA1A2S100LY



GA1A1S201WP

## Photocouplers

Model No.	Features	Approved by Safety Standards	Package	Absolute Maximum Ratings			Electro-optical Characteristics						
				Forward Current $I_F$ (mA)	Isolation Voltage (AC) $V_{ISO}$ (rms) (kV)	Collector-emitter Voltage $V_{CEO}$ (V)	Current Transfer Ratio			Response Time			
							CTR (%) MIN.	$I_F$ (mA)	$V_{CE}$ (V)	$t_r$ ( $\mu$ s) TYP.	$I_C$ (mA)	$R_L$ ( $\Omega$ )	$V_{CE}$ (V)
<b>Single Phototransistor Output</b>													
PC123J00000F	High isolation voltage, long creepage distance	UL, VDE, BSI, CSA, SEMKO, DEMKO, NEMKO, FIMKO	4-pin DIP	50	5.0	70	50	5	N/A	4	N/A	100	N/A
PC357NJ0000F	General purpose	UL	Mini-flat 4-pin	50	3.75	80	50	5	5	4	2	100	2
PC354NJ0000F	Low input current, AC input response, high resistance to noise	UL	Mini-flat 4-pin	$\pm 50$	3.75	80	20	$\pm 1$	5	4	2	100	2
PC3H7J00000F	Standard	UL	Mini-flat 4-pin	50	2.5	80	20	1	5	4	2	100	2
PC3H71xNIP0F	High resistance to noise, low input current	UL	Mini-flat 4-pin	10	2.5	80	100	0.5	5	4	2	100	2
PC3H4J00000F	AC input response	UL	Mini-flat 4-pin	$\pm 50$	2.5	80	20	$\pm 1$	5	4	2	100	2
PC3H41xNIP0F	AC input response, high resistance to noise, low input current	UL	Mini-flat 4-pin	$\pm 10$	2.5	80	50	$\pm 0.5$	5	4	2	100	2
PC4H510NIP0F	High collector-emitter voltage	UL	Mini-flat 4-pin	50	2.5	350	40	5	5	4	2	100	2
PC8141xNSZ0F	High isolation voltage, low input current, high resistance to noise	UL	4-pin DIP	$\pm 10$	5.0	80	50	$\pm 0.5$	N/A	4	N/A	100	N/A
PC817XJ0000F	High isolation voltage	UL, VDE	4-pin DIP	50	5.0	80	50	5	N/A	4	N/A	100	N/A
PC8171xNSZ0F	High isolation voltage, low input current, high resistance to noise	UL	4-pin DIP	10	5.0	70	100	0.5	N/A	4	N/A	100	N/A
<b>Darlington Phototransistor Output</b>													
PC355NJ0000F	High sensitivity	UL	Mini-flat 4-pin	50	3.75	35	600	1	2	60	2	100	2
PC3H5J00000F	High sensitivity	UL	Mini-flat 4-pin	50	2.5	35	600	1	2	60	2	100	2
PC3H510NIP0F	High sensitivity, low input current	UL	Mini-flat 4-pin	10	2.5	35	600	0.5	2	60	2	100	2
PC815XJ0000F	High isolation voltage, high sensitivity	UL	4-pin DIP	50	5.0	35	600	1	N/A	60	N/A	100	N/A
PC81510NSZ0F	High isolation voltage, high sensitivity, low input current	UL	4-pin DIP	10	5.0	35	600	0.5	N/A	60	N/A	100	N/A
PC851XJ0000F	High isolation voltage, high collector-emitter voltage	UL	4-pin DIP	50	5.0	350	40	5	N/A	4	N/A	100	N/A
PC852XJ0000F	High isolation voltage, high collector-emitter voltage	UL, VDE	4-pin DIP	50	5.0	350	1,000	1	N/A	100	N/A	100	N/A
PC853XJ0000F	High isolation voltage, high collector-emitter voltage	UL, VDE	4-pin DIP	50	5.0	350	1,000	1	N/A	100	N/A	100	N/A

**NOTE:** Please contact marketing for Current Transfer Ratio (CTR), Tape & Reel and Lead Forming Options.

## Photocouplers (Cont'd)

Model No.	Features	Approved by Safety Standards	Package	Absolute Maximum Ratings		Electro-optical Characteristics							
				Forward Current $I_F$ (mA)	Isolation Voltage (AC) $V_{ISO}$ (rms) (kV)	Current Transfer Ratio				Propagation Delay Time			
						CTR (%) MIN.	$I_F$ (mA)	$V_O$ (V)	$V_{CC}$ (V)	$T_{PHL}$ ( $\mu$ s) TYP.	$T_{PLH}$ ( $\mu$ s) TYP.	$R_L$ ( $\Omega$ )	$I_F$ (mA)
<b>OPIC Output Compact, SMT Type</b>													
PC457SONIP0F	High speed (1 Mb/s), high CMR (15 kV/ $\mu$ s), For flow soldering, solder heat resistance: 270°C	UL, VDE	Mini-flat 5-pin	25	3.75	19	16	0.4	4.5	0.2	0.6	1,900	16
<b>OPIC Output DIP Type, Analog/Digital Output</b>													
PC957LONSZ0F	High speed (1 Mb/s), high CMR (15 kV/ $\mu$ s), for flow soldering, solder heat resistance: 270°C	UL, VDE	8-pin DIP	25	5.0	19	16	0.4	4.5	0.2	0.6	1,900	16

Model No.	Features	Approved by Safety Standards	Package	Absolute Maximum Ratings		Electro-optical Characteristics							
				Forward Current $I_F$ (mA)	Isolation Voltage (AC) $V_{ISO}$ (rms) (kV)	Low Level Output Voltage				Threshold Input Current			
						$V_{OL}$ (V) MAX.	$T_a$ ( $^{\circ}$ C)	$I_{OL}$ (mA)	$I_F$ (mA)	$I_{FHL}$ (mA) MAX.	$I_{FLH}$ (mA) MAX.	$R_L$ ( $\Omega$ )	
<b>OPIC Output Compact, SMT Type</b>													
PC410LONIP0F	High speed (10 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder.	UL, VDE	Mini-flat 5-pin	20	3.75	0.6	-40 to +85	13	5	5.0	N/A	350	
PC410SONIP0F	High speed (10 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder < 270°C.	UL, VDE	SOP 8-pin	20	3.75	0.6	-40 to +85	13	5	5.0	N/A	350	
PC412SONIP0F	High speed (25 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder < 270°C.	UL	SOP 8-pin	N/A	3.75	1	-40 to +85	4	$V_{IN} = V_{IL}$		N/A	N/A	
PC411LONIP0F	High speed (15 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder.	UL, VDE	Mini-flat 5-pin	20	3.75	0.1	-40 to +85	0.02	12	6.0	N/A	N/A	
PC411SONIP0F	High speed (15 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder < 270°C.	UL, VDE	SOP 8-pin	20	3.75	0.1	-40 to +85	0.02	12	6.0	N/A	N/A	
PC410SONIP0F	High speed (10 Mb/s), high CMR (10 kV/ $\mu$ s), Flow solder < 270°C, 2 ch output.	UL	SOP 8-pin	20	3.75	0.6	-40 to +85	13	5	5.0	N/A	N/A	
<b>OPIC Output Digital Output</b>													
PC900VONIPXF	Digital output, normal-off operation	UL, VDE	6-pin DIP	50	5.0	0.4	0 to +70	16	4	2.0	N/A	280	

Model No.	Features	Approved by Safety Standards	Package	Absolute Maximum Ratings			Electro-optical Characteristics						
				Forward Current $I_F$ (mA)	Isolation Voltage (AC) $V_{ISO}$ (rms) (kV)	Output current $I_{O1}$ (A)	Propagation Delay Time			$I_F$ (mA)	$R_{L1}$ ( $\Omega$ )	$R_{L2}$ ( $\Omega$ )	
							$T_{PHL}$ ( $\mu$ s) TYP.	$T_{PLH}$ ( $\mu$ s) TYP.	$V_{CC}$ (V)				
<b>OPIC Output DIP Type, Gate Drive Type</b>													
PC923LONSZ0F	Built-in drive circuit directly connectable to MOS-FET and IGBT. Low dissipation current ( $I_{CC} = 1.3$ mA TYP.). High resistance to noise (CMR: 15 kV/ $\mu$ s MIN.)	UL, VDE	8-pin DIP	20	5.0	0.1	0.3	0.3	24	5	$R_G = 47$	N/A	
PC924LONSZ0F		UL, VDE	8-pin DIP	25	5.0	0.1	1.0	1.0	24	10	$R_G = 47$	N/A	



4-pin DIP



6-pin DIP



8-pin DIP



Mini-flat 4-pin



Mini-flat 5-pin

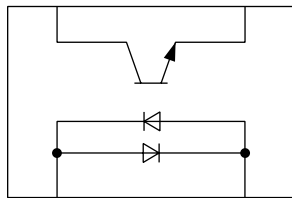


SOP 8-pin

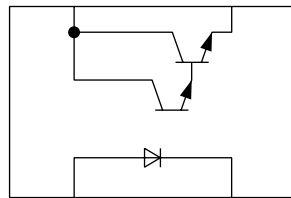
# Phototriac Couplers

Model No.	Features	Approved by Safety Standards	Package	Absolute Maximum Ratings			Electro-optical Characteristics (Trigger Current MIN.)		
				ON-state Current $I_T$ (rms) (A)	Repetitive Peak OFF-state VDRM (V)	Isolation Voltage (AC) Viso (rms) (kV)	$I_{FT}$ (mA) MAX.	$V_D$ (V)	$R_L$ ( $\Omega$ )
<b>Triggering Devices</b>									
PC3ST11NSZAF	200 V lines, compact	UL, CSA	4-pin DIP	0.1	600	5.0	10	6	100
PC3SD12NTZAF	200 V lines	UL, CSA	6-pin DIP	0.1	600	5.0	10	6	100
PC3SF11YVZAF	200 V lines, reinforced isolation	UL, CSA	6-pin DIP	0.1	600	5.0	10	6	100
PC4SF11YVZAF	200 V lines, reinforced isolation, repetitive peak-OFF-state voltage	UL, CSA	6-pin DIP	0.1	800	5.0	10	6	100
S2S4A000F	200 V lines, compact, built-in zero-cross circuit	UL, CSA	Mini-flat 4-pin	0.05	600	3.75	10	6	100
PC3SH21YFZBF	200 V lines, compact, reinforced isolation, built-in zero-cross circuit	UL, VDE, CSA, BSI, SEMKO, DEMKO, FIMKO	4-pin DIP	0.1	600	5.0	7	4	100
PC3SD21YTZBF	200 V lines, compact, reinforced isolation, built-in zero-cross circuit	UL, VDE, CSA	6-pin DIP	0.1	600	5.0	7	4	100
PC3SD21YTZDF	200 V lines, low zero-cross voltage: 20 V MAX., built-in zero-cross circuit	UL, VDE, CSA	6-pin DIP	0.1	600	5.0	3	4	100
PC3SF21YVZBF	200 V lines, low zero-cross voltage: 20 V MAX., built-in zero-cross circuit	UL, VDE, CSA, BSI, SEMKO, DEMKO, FIMKO	6-pin DIP	0.1	600	5.0	7	4	100

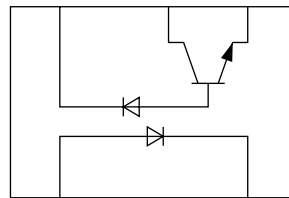
## Internal Connection Diagrams



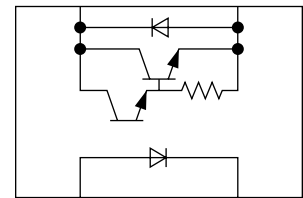
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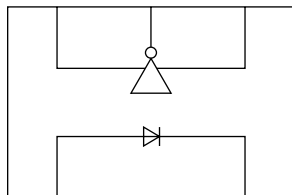
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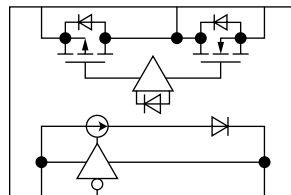
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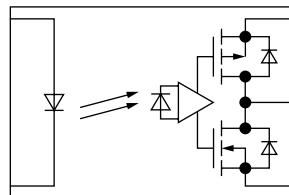
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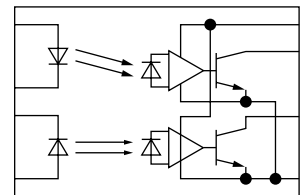
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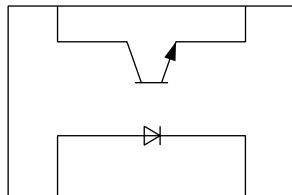
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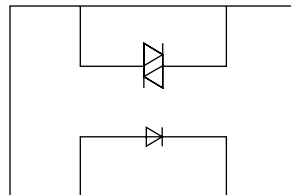
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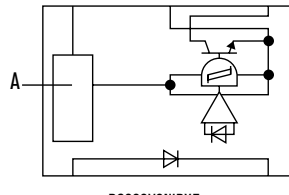
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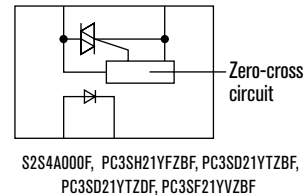
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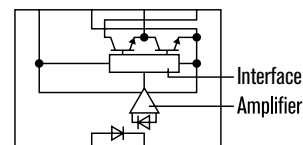
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PC900VONIPXF



S2S4A000F, PC3SH21YFZBF, PC3SD21YTZBF, PC3SD21YTZDF, PC3SF21YVZBF



PC923LONSZ0F, PC924LONSZ0F

## Photointerrupters

Model No.	Features	Detecting and Emitting Gap (mm)	Slit width (mm)	Electro-optical Characteristics							
				Current transfer ratio			Response time				
				CTR (%)	I <sub>F</sub> (mA)	V <sub>CE</sub> (V)	t <sub>r</sub> (μs) TYP.	I <sub>C</sub> (mA)	R <sub>L</sub> (Ω)	V <sub>CE</sub> (V)	
<b>Transmissive, Single Transistor Output Compact Type</b>											
GP1S092HCPIF	Height: 2.9 mm, for soldering reflow, with positioning boss	2.0	0.3	2.0	5	5	50	0.1	1,000	5	
GP1S094HCZ0F	Wide gap, with positioning pin, PWB mounting type (5.5 × 2.6 × 4.8 mm)	3.0	0.3	0.8	5	5	50	0.1	1,000	5	
GP1S096HCZ0F	Low profile (3.5 × 2.6 × 2.9 mm)	1.0	0.3	2.0	5	5	50	0.1	1,000	5	
GP1S196HCZSF	Surface mount, for soldering reflow, compact, low profile (3.1 × 2.0 × 2.7 mm)	1.1	0.3	2.0	5	5	50	0.1	1,000	5	
GP1S097HCZ0F	High resolution, wide gap, with mounting hole (4.5 × 2.6 × 4.5 mm)	2.0	0.3	2.0	5	5	50	0.1	1,000	5	



GP1S092HCPIF



GP1S094HCZ0F



GP1S096HCZ0F



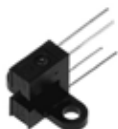
GP1S196HCZSF



GP1S097HCZ0F

Model No.	Features	Detecting and Emitting Gap (mm)	Slit width (mm)	Electro-optical Characteristics							
				Current transfer ratio			Response time				
				CTR (%)	I <sub>F</sub> (mA)	V <sub>CE</sub> (V)	t <sub>r</sub> (μs) TYP.	I <sub>C</sub> (mA)	R <sub>L</sub> (Ω)	V <sub>CE</sub> (V)	
<b>Transmissive, Single Transistor Output Case Type</b>											
GP1S51VJ000F	High resolution, side mounting type	3.0	0.5	2.5	20	5	3	2	100	2	
GP1S52VJ000F	High resolution, PWB mounting type	3.0	0.5	2.5	20	5	3	2	100	2	
GP1S53VJ000F	High resolution, PWB mounting type	5.0	0.5	2.5	20	5	3	2	100	2	
GP1S58VJ000F	High resolution, with positioning pin, PWB mounting type	5.0	0.5	2.5	20	5	3	2	100	2	

Model No.	Features	Detecting and Emitting Gap (mm)	Slit Width (mm)	Electro-optical Characteristics							
				Threshold Input Current		Propagation Delay Time					
				I <sub>FLH</sub> (mA) MAX.	V <sub>CC</sub> (V)	T <sub>PLH</sub> (μs) TYP.	T <sub>PHL</sub> (μs) TYP.	I <sub>F</sub> (mA)	R <sub>L</sub> (Ω)	V <sub>CC</sub> (V)	
<b>OPIC Case Type</b>											
GP1A50HRJ00F	Both-side mounting type	3.0	0.5	5	5	3	5	5	280	5	
GP1A51HRJ00F	Side mounting type	3.0	0.5	5	5	3	5	5	280	5	
GP1A52HRJ00F	PWB mounting type	3.0	0.5	5	5	3	5	5	280	5	
GP1A53HRJ00F	PWB mounting type	5.0	0.5	8	5	3	5	8	280	5	
GP1A57HRJ00F	PWB mounting type, with positioning pin	10.0	1.8	7	5	3	5	7	280	5	



GP1S51VJ000F



GP1S52VJ000F



GP1S53VJ000F



GP1S58VJ000F



GP1A50HRJ00F



GP1A51HRJ00F



GP1A52HRJ00F



GP1A53HRJ00F



GP1A57HRJ00F

## Photointerrupters (Cont'd)

Model No.	Features	Detecting and Emitting Gap (mm)	Slit Width (mm)	Electro-optical Characteristics					
				Supply Voltage $V_{CC}$ (V)		Low Level Output Voltage			
				MIN.	MAX.	$V_{OL}$ (V) MAX.	Light Cut-off	$I_{OL}$ (mA)	$V_{CC}$ (V)
<b>OPIC Type with 3-pin Connector</b>									
GP1A05AJ000F	Either-side mounting type	5.0	0.5	4.5	5.5	0.35	No	16	5

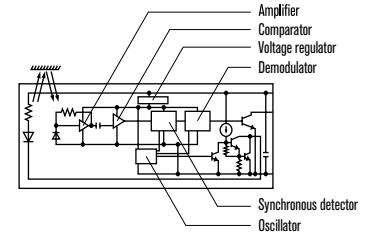
Model No.	Features	Optimum Detecting Distance (mm)	Electro-optical Characteristics						
			Supply Voltage $V_{CC}$ (V)		Dissipation Current		Low Level Output Voltage		
			MIN.	MAX.	$I_{CC}$ (mA) MAX.	$V_{CC}$ (V)	$V_{OL}$ (V) MAX.	$V_{CC}$ (V)	
<b>OPIC Output with 3-pin Connector</b>									
GP2A200LCS0F	Multi types of paper detectable, light modulation type, with connector, sensitivity adjusted	5 to 15	4.75	5.25	30	5	0.4	5	
GP2A25J0000F	Multi types of paper detectable, light modulation type, with connector, sensitivity adjusted	3 to 7	4.75	5.25	30	5	0.4	5	
GP2A231LRS0F	Compact, hook type, multi types of paper detectable, light modulation type, with connector, sensitivity adjusted	3 to 7	4.75	5.25	20	5	0.4	5	
GP2A25NJJ00F	Multi types of paper detectable, light modulation type, sensitivity adjusted, applicable to inverter fluorescent lamp, built-in visible light cut filter	3 to 6	4.75	5.25	30	5	0.4	5	



GP1A05AJ000F

GP2A200LCS0F, GP2A25J0000F,  
GP2A25NJJ00F

GP2A231LRS0F



## Photointerrupters (Cont'd)

Model No.	Features	Focal Distance (mm)	Electro-optical Characteristics							
			Current Transfer Ratio			Response Time				
			CTR (%)	I <sub>F</sub> (mA)	V <sub>CE</sub> (V)	t <sub>r</sub> (μs) TYP.	I <sub>C</sub> (mA)	R <sub>L</sub> (Ω)	V <sub>CE</sub> (V)	
<b>Reflective Type</b>										
GP2S700HCP	Compact, long focal distance, surface mounting leadless type	3	1.5	4	2	20	0.1	1,000	2	
GP2S60	Thin (3.2 × 1.7 × 1.1 mm), leadless type	(0.5)	1.75 TYP.	4	2	20	0.1	1,000	2	

## Photointerrupters with Actuator

Model No.	Features	Actuator Lever Starting Torque (Initial) MAX.	Electro-optical Characteristics									
			Light Beam Interrupted					Light Beam Uninterrupted				
			Dissipation Current		Collector Current			Dissipation Current		Collector Current		
			I <sub>CC1</sub> (mA)	V <sub>CC</sub> (V)	I <sub>C1</sub> (μA)	V <sub>CC</sub> (V)	V <sub>O</sub> (V)	I <sub>CC2</sub> (mA)	V <sub>CC</sub> (V)	I <sub>C2</sub> (mA)	V <sub>CC</sub> (V)	V <sub>O</sub> (V)
<b>Transmissive Type, Single Phototransistor Output Type with Actuator and 3-pin Connector</b>												
GP1S44S1J00F	Spring lever type actuator united with connector	1 × 10 <sup>-4</sup> N·m or less	20 MAX.	5	50 MAX.	5	5	20 MAX.	5	0.25 MIN.	5	5



## Optical System Devices

Model No.	Features	Absolute Maximum Ratings		Electro-optical Characteristics					
		V <sub>CC</sub> (V)	Topr (°C)	Distance Measuring Range (cm)	V <sub>OH</sub> (V) MIN.	V <sub>OL</sub> (V) MAX.	Dissipation Current		
							Operating (mA)	Stand-by (μA)	Measured Distance (cm)
<b>Distance Measuring Sensors</b>									
GP2D12J0000F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, linear voltage output	-0.3 to +7	-10 to +60	10 to 80	V <sub>O</sub> (TYP.) = 0.4 V (at L = 80 cm), ΔV <sub>O</sub> (TYP.) = 2.0 V (at L: 80 cm → 10 cm)		MAX. 50	N/A	N/A
GP2Y0A21YK0F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, linear voltage output	-0.3 to +7	-10 to +60	10 to 80	V <sub>O</sub> (TYP.) = 0.4 V (at L = 80 cm), ΔV <sub>O</sub> (TYP.) = 1.9 V (at L: 80 cm → 10 cm)		MAX. 40	N/A	N/A
GP2D120XJ00F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, linear voltage output	-0.3 to +7	-10 to +60	4 to 30	V <sub>O</sub> (TYP.) = 0.4 V (at L = 30 cm), ΔV <sub>O</sub> (TYP.) = 2.25 V (at L = 30 cm → 4 cm)		MAX. 50	N/A	N/A
GP2Y0D805Z0F	Light detector, infrared LED and signal processing circuit, short distance measuring sensor unit, battery drive compatible (operating power supply: 2.7 V to 6.2 V)	-0.3 to +7	-10 to +60	N/A	V <sub>CC</sub> -0.6	0.6	MAX. 6.5	MAX. 8	5
GP2Y0D810Z0F	Light detector, infrared LED and signal processing circuit, short distance measuring sensor unit, battery drive compatible (operating power supply: 2.7 V to 6.2 V)	-0.3 to +7	-10 to +60	N/A	V <sub>CC</sub> -0.6	0.6	MAX. 6.5	MAX. 8	10
GP2D15J0000F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, digital voltage output	-0.3 to +7	-10 to +60	10 to 80	V <sub>CC</sub> -0.3	0.6	MAX. 50	N/A	24
GP2Y0D21YK0F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, digital voltage output	-0.3 to +7	-10 to +60	10 to 80	V <sub>CC</sub> -0.3	0.6	MAX. 40	N/A	24
GP2D150AJ00F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit, digital voltage output	-0.3 to +7	-10 to +60	3 to 30	V <sub>CC</sub> -0.3	0.6	MAX. 50	N/A	15
GP2Y0D02YK0F	Distance measuring sensor united with PSD infrared LED and signal processing circuit, long distance measuring sensor unit (No external control signal required), digital voltage output according to the measuredDistance	-0.3 to +7	-10 to +60	20 to 150	V <sub>CC</sub> -0.3	0.6	MAX. 50	N/A	80
GP2Y0A02YK0F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit	-0.3 to +7	-10 to +60	20 to 150	V <sub>O</sub> (TYP.) = 0.4 V (at L = 150 cm), ΔV <sub>O</sub> (TYP.) = 2.0 V (at L = 150 cm → 20 cm)		MAX. 50	N/A	N/A
GP2Y0A700K0F	Distance measuring sensor united with PSD, infrared LED and signal processing circuit	-0.3 to +7	-10 to +60	100 to 550	V <sub>O</sub> (TYP.) = 2.5 V (at L = 100 cm), ΔV <sub>O</sub> (TYP.) = 0.7 V (at L = 100 cm → 200 cm)		TYP. 30	N/A	N/A



GP2D12J0000F, GP2Y0A21YK0F,  
GP2D120XJ00F, GP2D15J0000F,  
GP2Y0D21YK0F, GP2D150AJ00F



GP2Y0D805Z0F, GP2Y0D810Z0F



GP2Y0D02YK0F, GP2Y0A02YK0F



GP2Y0A700K0F

## Emitters (Infrared)

Model No.	Features	Absolute Maximum Ratings				Electro-optical Characteristics							
						$\phi_e$ (mW)		VF (V)				$\Delta\theta$ (°) TYP.	$\lambda_p$ (nm) TYP.
		$I_F$ (mA)	$V_R$ (V)	P (mW)	$T_{opr}$ (°C)	MIN.	TYP.	$I_F$ (mA)	TYP.	MAX.	$I_F$ (mA)		
<b>Infrared Emitting Diodes</b>													
GL100MNOMP	Surface mounting leadless type, epoxy resin board with lens	50	6	75	-30 to +85	1.0	3.0 (MAX.)	20	1.2	1.4	20	$\pm 10$	940
GL100MN1MP	Surface mounting leadless type, epoxy resin board with lens, high output type	50	6	75	-30 to +85	2.0	6.0 (MAX.)	20	1.2	1.5	20	$\pm 10$	940

## Detectors (Infrared)

Model No.	Features	Absolute Maximum Ratings				Electro-optical Characteristics							
						$I_C$ (mA)				$I_{CE0}$ (A)		$\Delta\theta$ (°) TYP.	$\lambda_p$ (nm) TYP.
		$V_{CE0}$ (V)	$P_C$ (mW)	$T_{opr}$ (°C)	MIN.	MAX.	$V_{CE}$ (V)	$E_e$ (mW/cm <sup>2</sup> )	MAX.	$V_{CE}$ (V)			
<b>Phototransistors</b>													
PT100MCOMP	Surface mounting	35	75	-30 to +85	1.7	5.1	5	1	$1 \times 10^{-7}$	20	$\pm 15$	900	
PT100MFOMP	Leadless type	35	75	-30 to +85	1.15	3.45	5	1	$1 \times 10^{-7}$	20	$\pm 15$	910	
PT100MF1MP1	Top view taping	35	75	-30 to +85	0.2	1.2	5	0.01	$1 \times 10^{-6}$	10	$\pm 15$	860	



GL100MNOMP, GL100MN1MP

PT100MCOMP, PT100MFOMP,  
PT100MF1MP

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