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## ■ Lighting

- High Luminosity LEDs  
 (White, Color, Side Emission)
- LED Modules
- LED Drivers
- Ambient Light Sensors



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.

## SMD High-brightness LEDs

Part Number	Package Type	Color	Color Temperature (°K)	Dominant Wavelength (nm)	Current MAX. (mA)	Tested Current (mA)	Forward Voltage (V)	Viewing Angle (degrees)	Luminous Flux (lm)	Luminous Intensity (mcd)
GM5BW96385A	PLCC2	White	5,300	NA	30	20	3.2	120	6.3	2,200
GM5BW97330A	PLCC4	White	5,300	NA	80	60	3.2	120	17	6,400
GM5BW97331A	PLCC4	White	5,000	NA	80	60	3.2	120	17	7,000
GM5BW97332A	PLCC4	Cool white	6700	NA	80	60	3.2	120	15	5,800
GM5BW97333A	PLCC4	Cool white	11,500	NA	80	60	3.2	120	12	5,100
GM5SAE27P0A	PLCC2	Warm white	2,700	NA	30	20	3.2	120	5.8	2,000
GM5SAE30P0A	PLCC2	Warm White	3,000	NA	30	20	3.2	120	5.8	2,050
GM5SAE35P0A	PLCC2	Warm White	3,500	NA	30	20	3.2	120	5.8	2,100
GM5SAE40P0A	PLCC2	White	4,000	NA	30	20	3.2	120	5.8	2,150
GM5SAE45P0A	PLCC2	White	4,500	NA	30	20	3.2	120	5.8	2,200
GM5SAE50P0A	PLCC2	White	5,000	NA	30	20	3.2	120	5.8	2,200
GM5SAE57P0A	PLCC2	Cool white	5,700	NA	30	20	3.2	120	5.8	2,200
GM5SAE65P0A	PLCC2	Cool white	6,500	NA	30	20	3.2	120	5.8	2,200
GM5BW05341A	5.0 × 5.0 with Lens	Cool white	6,500	NA	25/25/25	20/20/20	3.2	60	25	10,000
GM5BW01300A	6.0 × 5.0	Cool white	6,500	NA	40/40/40	35/35/35	3.4	120	11	4,000

NOTE: Ta = 25°C

## RGB LEDs

Part Number	Package Type	Color	Color Temperature (°K)	Dominant Wavelength (nm)	Current MAX. (mA)	Tested Current (mA)	Forward Voltage (V)	Viewing Angle (degrees)	Luminous Flux (lm)	Luminous Intensity (mcd)
GM1WA55311A	1.6 × 1.6 SMD	RGB	NA	0.27/0.26 mixed colors	10	5	1.9/3.0/2.9	110	NA	20/70/23
GM1WA55321A	1.6 × 1.6 SMD	RGB	NA	0.27/0.26 mixed colors	10	5	2.0/3.0/2.9	110	NA	28/75/25
GM4WA25300A	5.0 × 2.5 SMD	RGB	NA	0.27/0.26 mixed colors	30/30/30	20/20/20	2.2/3.3/3.3	110	NA	640/1200/400
GM5WA94313A	2.8 × 3.5 SMD	RGB	NA	627/523/463	80	20/20/20	2.2/3.3/3.2	110	NA	600/1000/300
GM5WA94310A	2.8 × 3.5 SMD	RGB	NA	0.27/0.26 mixed colors	80	20/20/7	2.2/3.3/3.2	110	NA	620/1180/270
GM5WA06256A	6.0 × 5.0 SMD	RGB	NA	0.27/0.26 mixed colors	50/50/50	22/35/13	2.3/3.7/3.7	110	NA	470/500/280
GM5ZR96270A	2.8 × 3.5 × 1.9 mm	Red	NA	624	30	20	2.2	N/A	NA	600
GM5GC96270A	2.8 × 3.5 × 1.9 mm	Green	NA	527	30	20	2.2	N/A	NA	1300
GM5ZV96270A	2.8 × 3.5 × 1.9 mm	Amber	NA	588	30	20	2.2	N/A	NA	600

## LED Lighting Module “Zenigata”

Power (Watt)	Part Number	Package Type	Color	Color Temperature (°K)	Current MAX. (mA)	Tested Current (mA)	Forward Voltage (V)	Viewing Angle (degees)	Luminous Flux (lm)
3.6	GW5BDC15L02	18mm × 18mm	Warm White	2800	400	360	10.2	120	200
	GW5BWC15L02	18mm × 18mm	White	5000	400	360	10.2	120	280
	GW5BNC15L02	18mm × 18mm	High CRI White	5000	400	360	10.2	120	190
	GW5BNC15L12	18mm × 18mm	High CRI Cool White	6500	400	360	10.2	120	190
6.7	GW5BDF15L00	18mm × 18mm	Warm White	2800	700	640	10.2	120	400
	GW5BWF15L00	18mm × 18mm	White	5000	700	640	10.2	120	540
	GW5BNF15L00	18mm × 18mm	High CRI White	5000	700	640	10.2	120	350
	GW5BNF15L10	18mm × 18mm	High CRI Cool White	6500	700	640	10.2	120	350

## Side Emission LEDs

Part Number	Package Type	Color	Color Temperature (°K)	Dominant Wavelength (nm)	Current MAX. (mA)	Tested Current (mA)	Forward Voltage (V)	Viewing Angle (degrees)	Luminous Flux (lm)	Luminous Intensity (mcd)
GM4BW853B0A	2.8 × 1.2 (T: 0.8)	White	8,000	NA	35	20	3.2	110	5.8	2,200
GM4BW653B0A	3.85 × 1.0 (T: 0.6)	White	8,000	NA	35	20	3.2	110	5.8	2,200
GM4BW53340A	3.85 × 1.0 (T: 0.5)	White	8,000	NA	35	20	3.2	110	5.4	1,800

## 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	1 pair	2 sets of 2 LEDs (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	N/A	5 sets of 7 LEDs (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) (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	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	N/A	6 LEDs (series)	2.7 - 5.5	250	1.2M	Built-in step-up Coil	Logic input	6-pin SMD	1.8 × 2.0 × 0.8
PQ7L2020BP	N/A	1 set of 9 LEDs	N/A	9 LEDs (series)	2.9 - 5.5	500	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>0</sub> (mA)	T <sub>opr</sub> (°C)	Supply Voltage V <sub>CC</sub> (V)	Illuminance Range Ex (lx)	Dissipation Current I <sub>CC</sub> (μA) TYP.	Peak Sensitivity Wavelength λ <sub>p</sub> (nm)	Output Current	
										I <sub>01</sub> (μA) TYP.	I <sub>02</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)

## Blue Laser Diodes (with integrated photodiode)

Part Number	Peak Wavelength (nm)	Optical Output Power (mW)	Threshold Current (mA) TYP.	Operating Current (mA) TYP.	Operating Voltage (V) TYP.	Packages
GH0420B2A	400 - 413	210	40	120	5.4	f5.6CAN
GH04125A2A	400 - 415	20	25	35	5.8	f5.6CAN

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