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## ■ Lighting

- High Luminosity LEDs
  - 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.

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## High Luminosity LEDs

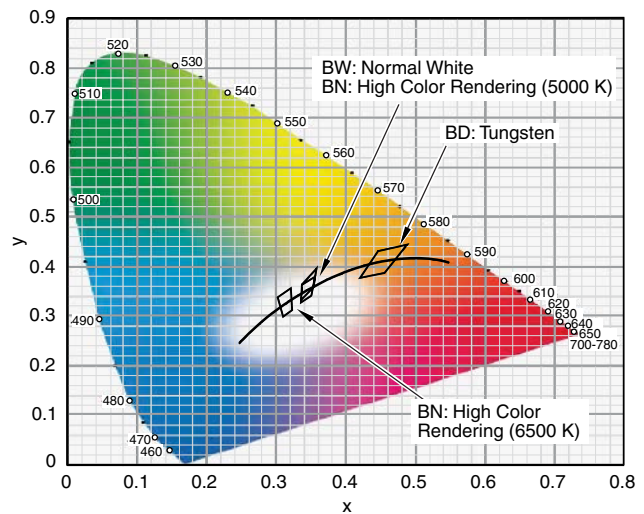
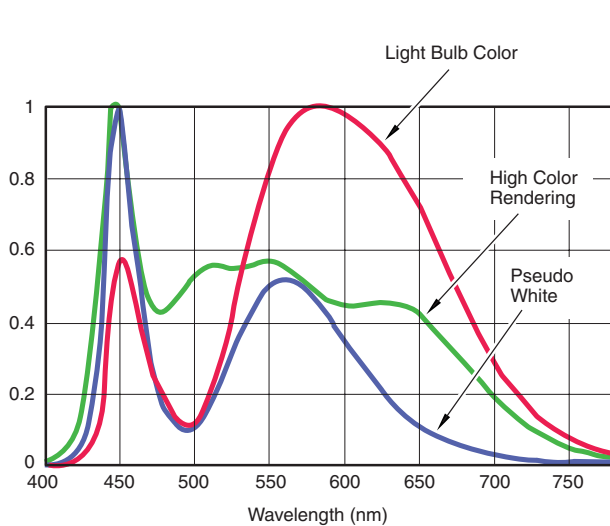
Model No.	Emitting Color	Forward Voltage (V)		Color Coordinates (x, y) or Wavelength (nm)	Luminous Intensity (mcd)	I <sub>F</sub> (mA)	Package (L × W × Thickness)
		TYP.	MAX.				
GM1BW76340A	White	14.0	15.0	(0.31, 0.31)	45 lumen, 14,000 mcd	50	2.64 × 1.64 × 0.7 mm
GM1BW76341A	White	14.0	15.0	(0.34, 0.36)	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>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 Ev = 1,000 lx)	48 (at Ev = 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 Ev = 1,000 lx)	48 (at Ev = 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 Ev = 100 lx)	30 (at Ev = 1,000 lx)



GA1A2S100SS



GA1A2S100LY



GA1A1S201WP

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