

## Solid State Lighting

Mid-Power and High-Power LEDs

Ambient Light Sensors

### Selection Guide



## Solid-State Lighting **High-Power LEDs**

# 1 Watt and 3 Watt Mini High-Power LEDs



### Description

The Mini High-Power LED family features a small scale package and comes with an isolated heat sink (for InGaN colors), which enables designs with multiple LEDs on a common heat sink without additional electrical isolation. A built-in Zener Diode enables a high ESD threshold of 16KV, thus it can be assembled in a non ESD safe environment.

### Typical Applications



- Portable lighting appliances such as torchlight, bicycle headlight and miner light
- Street lighting, tunnel lighting
- Safety, exit and emergency sign lighting
- Specialty lighting such as task lighting, small reading lights, spot lights, track lights
- Architectural facade lighting and lighting for retail outlets, casinos, restaurants
- Accent or marker lighting, strip or step lighting
- Retail lighting, decorative lighting & garden lighting

### Features

- Small footprint (4mm x 5mm) and very low profile (1.85mm height)
- Direct heat transfer from the metal slug to the mother board
- Metal slug is electrically isolated (for InGaN colors)
- Wide viewing angle: 140° / 165°
- Low forward voltage, typical Vf 3.2V at 350mA
- Low thermal resistance: 9°C/W
- LED Junction Temperature 150°C max \*
- Operating temperature: -40°C to +135°C max \*
- Long operating life due to silicone encapsulation
- Reliable: Non-Moisture sensitive - MSL 1 (unlimited floorlife, no baking required)
- Compatible with reflow soldering process
- Non-ESD sensitive (threshold > 16kV)



\* Refer to Data Sheet for details

### Secondary Optics

Part Number	Description	FWHM	Holder	Manufacturer	
10048	Plain tight Ø 26.5mm	8.31 x 8.14	10461	 <a href="http://www.carclo-optics.com">www.carclo-optics.com</a>	
10124	Narrow frosted Ø 26.5mm	13.59 x 13.26	10461		
10108	Medium frosted Ø 26.5mm	23.82 x 23.78	10461		
10049	Elliptical Ø 26.5mm	43.87 x 10.94	10461		

This is a selection of the most popular lenses for Avago High-Power LEDs. The above listed manufacturers have a much broader offering of secondary optics specifically designed for Avago High-Power LEDs. For details, please check the internet or contact one of our Distributor Partners.

### TINA2 Lens-Series for Avago's Mini High-Power LEDs

Order Code	FWHM	Efficiency	Fastening	Packing	Manufacturer	
CA12346_TINA2-RS-WHT	15°	92%	Tape	Tray	 <a href="http://www.ledil.com">www.ledil.com</a>	
CA12347_TINA2-D-WHT	17°	92%	Tape	Tray		
CA12348_TINA2-M-WHT	30°	89%	Tape	Tray		
CA12349_TINA2-O-WHT	36° x 18°	90%	Tape	Tray		
CA12350_TINA2-W-WHT	51°	92%	Tape	Tray		

Avago 3W Mini High-Power LEDs in LED Light Strip by Schneider Technologies



### 3W Mini High Power LEDs

Part Number	Color	Color Temperature (K) / Wave-length (nm)	Flux Bin (Luminous Flux /Radiometric Power @ 350mA)	Luminous Flux @ 350mA (typ)	Luminous Flux @ 700mA (typ)	DC Forward Current (max.)	Viewing Angle	Electrically Isolated Metal Slug	Packaging
ASMT-JW31-NUV01	Cool White	4,500 - 10,000K (1)	U(87.4-99.6lm) V(99.6-113.6lm)	95lm	160lm	700mA	140°	Yes	Tape and reel
ASMT-JW32-NVW01	Cool White	4,500 - 10,000K (1)	V(99.6-113.6lm) W(113.6-129.5lm)	110lm	187lm	700mA	140°	Yes	Tape and reel
ASMT-JW32-NWX01	Cool White	4,500 - 10,000K (1)	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JW32-NWXK1	Cool White	5650 - 7000K	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JW32-NWXJ1	Cool White	5000 - 6300K	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JW32-NWXH1	Cool White	4500 - 5650K	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JN31-NUV01	Neutral White	3,500 - 4,500K (1)	U(87.4-99.6lm) V(99.6-113.6lm)	95lm	160lm	700mA	140°	Yes	Tape and reel
ASMT-JN32-NVW01	Neutral White	3,500 - 4,500K (1)	V(99.6-113.6lm) W(113.6-129.5lm)	110lm	187lm	700mA	140°	Yes	Tape and reel
ASMT-JN32-NWX01	Neutral White	3,500 - 4,500K (1)	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JN32-NWXH1	Neutral White	3800 - 4500K	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JN32-NWXG1	Neutral White	3500 - 4100K	W(113.6-129.5lm) X(129.5-147.7lm)	125lm	213lm	700mA	140°	Yes	Tape and reel
ASMT-JY31-NSU01	Warm White	2,700 - 3,500K (1)	S(51.7-67.2lm) T(67.2-87.4lm) U(87.4-99.6lm)	70lm	120lm	700mA	140°	Yes	Tape and reel
ASMT-JY32-NUW01	Warm White	2,700 - 3,500K (1)	U(87.4-99.6lm) V(99.6-113.6lm) W(113.6-129.5lm)	105lm	179lm	700mA	140°	Yes	Tape and reel
ASMT-JY32-NUWK1	Warm White	3050 - 3500K	U(87.4-99.6lm) V(99.6-113.6lm) W(113.6-129.5lm)	105lm	179lm	700mA	140°	Yes	Tape and reel
ASMT-JY32-NUWJ1	Warm White	2850 - 3250K	U(87.4-99.6lm) V(99.6-113.6lm) W(113.6-129.5lm)	105lm	179lm	700mA	140°	Yes	Tape and reel
ASMT-JY32-NUWH1	Warm White	2700 - 3050K	U(87.4-99.6lm) V(99.6-113.6lm) W(113.6-129.5lm)	105lm	179lm	700mA	140°	Yes	Tape and reel
ASMT-JL31-NPR01	Royal-Blue	440 - 460nm (2,3)	P(355-435mW) Q(435-515mW) R(515-595mW)	450mW	765mW	700mA	165°	Yes	Tape and reel
ASMT-JB31-NNP01	Blue	455 - 475nm (2)	N(18.1-23.5lm) P(23.5-30.6lm)	25lm	43lm	700mA	165°	Yes	Tape and reel
ASMT-JG31-NTU01	Green	515 - 535nm (2)	T(67.2-87.4lm) U(87.4-99.6lm)	78lm	125lm	700mA	165°	Yes	Tape and reel
ASMT-JA30-ARS01	Amber	587 - 597nm (2)	R(39.8-51.7lm) S(51.7-67.2lm)	48lm	86lm	700mA	165°	No	Tape and reel
ASMT-JH30-ARS01	Red-Orange	610 - 620nm	R(39.8-51.7lm) S(51.7-67.2lm)	48lm	86lm	700mA	165°	No	Tape and reel
ASMT-JR30-ARS01	Red	620 - 635nm	R(39.8-51.7lm) S(51.7-67.2lm)	48lm	86lm	700mA	165°	No	Tape and reel
ASMT-JD30-ALN01	Deep Red	650 - 670nm (3)	L(175-225mW) M(225-275mW) N(275-355mW)	240mW	480mW	700mA	165°	No	Tape and reel

**Notes**

1. Narrow Color Temperature selections are available on request
2. Narrow color bin selections for blue, green, amber and royal-blue are available on request.
3. For royal-blue and deep-red the wavelength shown in the above table is peak wavelength

## 1W Mini High Power LEDs

Part Number	Color	Color Temperature (K) / Wave-length (nm)	Flux Bin (Luminous Flux /Radiometric Power @ 350mA)	Luminous Flux @ 350mA (typ)	Luminous Flux @ 700mA (typ)	DC Forward Current (max.)	Viewing Angle	Electrically Isolated Metal Slug	Packaging
ASMT-JW11-NTV01	Cool White	4,500 - 10,000K (1)	T(67.2-87.4lm); U(87.4-99.6lm); V(99.6-113.6lm)	90lm	-	500mA	140	Yes	Tape and reel
ASMT-JN11-NTV01	Neutral White	3,500 - 4,500K (1)	T(67.2-87.4lm); U(87.4-99.6lm); V(99.6-113.6lm)	90lm	-	500mA	140	Yes	Tape and reel
ASMT-JY11-NSU01	Warm White	2,700 - 3,500K (1)	S(51.7-67.2lm); T(67.2-87.4lm); U(87.4-99.6lm)	78lm	-	500mA	140	Yes	Tape and reel
ASMT-JL11-NMP01	Royal Blue	440-460nm (2,3)	M(225-275mW); N(275-355mW); P(355-435mW)	350mW	-	500mA	165	Yes	Tape and reel
ASMT-JB11-NMP01	Blue	460-480nm (2)	M(13.9-18.1lm); N(18.1-23.5lm); P(23.5-30.6lm)	18lm	-	500mA	165	Yes	Tape and reel
ASMT-JC11-NST01	Cyan	490-520nm (2)	S(51.7-67.2lm) T(67.2-87.4lm)	58lm	-	500mA	165	Yes	Tape and reel
ASMT-JG11-NST01	Green	515-535nm (2)	S(51.7-67.2lm); T(67.2-87.4lm)	70lm	-	500mA	165	Yes	Tape and reel
ASMT-JA10-ARS01	Amber	587-597nm (2)	R(39.8-51.7lm); S(51.7-67.2lm)	48lm	-	500mA	165	No	Tape and reel
ASMT-JH10-ARS01	Red-Orange	610-620nm	R(39.8-51.7lm); S(51.7-67.2lm)	48lm	-	500mA	165	No	Tape and reel
ASMT-JR10-ARS01	Red	620-635nm	R(39.8-51.7lm); S(51.7-67.2lm)	48lm	-	500mA	165	No	Tape and reel

### Notes

1. Narrow Color Temperature selections are available on request
2. Narrow color bin selections for blue, green, amber and royal-blue are available on request.
3. For royal-blue, the wavelength shown in the above table is peak wavelength

## High CRI 3W Mini High Power LEDs

Part Number	Color	Color Temperature (K)	Flux Bin (Luminous Flux @ 350mA)	Luminous Flux @ 350mA (typ)	Luminous Flux @ 700mA (typ)	DC Forward Current (max.)	CRI typ.	Electrically Isolated Metal Slug	Packaging
ASMT-JW33-NUV01	Cool White	4,500 - 10,000K (1)	U(87.4-99.6lm); V(99.6-113.6lm)	100lm	178lm	700mA	80	Yes	Tape and reel
ASMT-JN33-NUV01	Neutral White	3,500 - 4,500K (1)	U(87.4-99.6lm); V(99.6-113.6lm)	100lm	178lm	700mA	80	Yes	Tape and reel
ASMT-JY33-NSTJ1	Warm White	2,850 - 3,250K (1)	S(51.7-67.2lm) T(67.2-87.4lm)	70lm	125lm	700mA	85	Yes	Tape and reel
ASMT-JY33-NRS01	Warm White	2,700 - 3,500K (1)	R(39.8-51.7lm); S(51.7-67.2lm)	60lm	107lm	700mA	90	Yes	Tape and reel

### Notes

1. Narrow Color Temperature selections are available on request

# Solid-State Lighting **High-Power LEDs**

## 1 Watt and 3 Watt High-Power LEDs

### Description

This High-Power package has a footprint which is most common in the industry. It is an ideal solution to upgrade your existing applications. Its robust design supports a long life performance and IR Reflow soldering capability. It also comes with an electrically isolated heat sink for white, blue, and green colors.



### Typical Applications

- Architectural lighting
- Channel backlighting
- Contour lighting
- Retail display lighting
- Decorative lighting
- Garden lighting

### Features


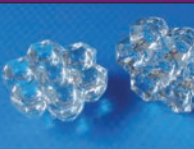




- Most common footprint (7.4mm x 13.6mm), 4.1mm height
- Direct heat transfer from the metal slug to the mother board
- Wide viewing angle: 140°
- Metal slug is electrically isolated (for InGaN colors)
- Low thermal resistance: 10°C/W
- Low forward voltage, typical Vf 3.2V at 350mA
- LED Junction Temperature 135°C max \*
- Operating temperature: -40°C to +120°C max \*
- Long operating life due to silicone encapsulation
- Moisture sensitive level (MSL) 2A
- Compatible with reflow soldering process
- Non-ESD sensitive (threshold > 16kV)

\* Refer to Data Sheet for details

Avago 1W High-Power LEDs  
in Downlight by Schneider  
Technologies



### Secondary Optics

Part Number	Description	FWHM	Holder	Manufacturer	
120	Hexagonal 16.5 x 14.3mm	6°	239	 www.polymer-optics.co.uk	
201	Hexagonal 16.5 x 14.3mm	15°	239		
124	Hexagonal 16.5 x 14.3mm	25°	239		
126	Oval, hexagonal 16.5 x 14.3mm	6 x 25°	239		
10048	Plain tight Ø 26.5mm	6.91 x 6.89	10469	 www.carclo-optics.com	
10124	Narrow frosted Ø 26.5mm	11.27 x 10.94	10469		
10108	Medium frosted Ø 26.5mm	22.32 x 21.97	10469		
10049	Elliptical Ø 26.5mm	44.01 x 8.14	10469		
PL1231A06	Round Ø 30mm	10°	integrated	 www.khatod.com	
PL1231A25LSD	Round Ø 30mm	20°	integrated		
PL1231A40	Round Ø 30mm	40°	integrated		
PL123725	Triple Ø 35mm	20°	integrated		

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## 1W High Power LEDs

Part Number	Color	Color Temperature (K) / Wavelength (nm)	Flux Bin (Luminous Flux / Radiometric Power @ 350mA)	Luminous Flux @ 350mA (typ)	Luminous Flux @ 700mA (typ)	DC Forward Current (max.)	Viewing Angle (degree)	Electrically Isolated Metal Slug	Packaging
ASMT-AW00-NTU00	Cool White	4,500 - 10,000K (1)	T(67.2-87.4lm); U(87.4-99.6lm)	80lm	-	500mA	140	Yes	Tube (2)
ASMT-AW00-NTUJ0	Cool White	5,000 - 6,300K	T(67.2-87.4lm); U(87.4-99.6lm)	80lm	-	500mA	140	Yes	Tube (2)
ASMT-AN00-NTU00	Neutral White	3,500 - 4,500K (1)	T(67.2-87.4lm); U(87.4-99.6lm)	80lm	-	500mA	140	Yes	Tube (2)
ASMT-AN00-NTUJ0	Neutral White	3,500 - 4,100K	T(67.2-87.4lm); U(87.4-99.6lm)	80lm	-	500mA	140	Yes	Tube (2)
ASMT-AN00-NTUK0	Neutral White	3,800 - 4,500K	T(67.2-87.4lm); U(87.4-99.6lm)	80lm	-	500mA	140	Yes	Tube (2)
ASMT-AY00-NST00	Warm White	2,700 - 3,500K (1)	S(51.7-67.2lm); T(67.2-87.4lm)	65lm	-	500mA	140	Yes	Tube (2)
ASMT-AY00-NSTJ0	Warm White	2,850 - 3,250K	S(51.7-67.2lm); T(67.2-87.4lm)	65lm	-	500mA	140	Yes	Tube (2)
ASMT-AY00-NSTK0	Warm White	3,050 - 3,500K	S(51.7-67.2lm); T(67.2-87.4lm)	65lm	-	500mA	140	Yes	Tube (2)
ASMT-AL00-NNP00	Royal Blue	440-460nm (3,4)	N(275-355mW); P(355-435mW)	350mW	-	500mA	140	Yes	Tube (2)
ASMT-AB00-NMP00	Blue	455-475nm (3)	M(13.9-18.1lm); N(18.1-23.5lm); P(23.5-30.6lm)	18lm	-	500mA	140	Yes	Tube (2)
ASMT-AC00-NST00	Cyan	490-520nm (3)	S(51.7-67.2lm) T(67.2-87.4lm)	58lm	-	500mA	140	Yes	Tube (2)
ASMT-AG00-NST00	Green	515-535nm (3)	S(51.7-67.2lm); T(67.2-87.4lm)	65lm	-	500mA	140	Yes	Tube (2)
ASMT-AA00-ARS00	Amber	587-597nm (3)	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	-	500mA	140	No	Tube (2)
ASMT-AH00-ARS00	Red-Orange	610-620nm	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	-	500mA	140	No	Tube (2)
ASMT-AR00-ARS00	Red	620-635nm	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	-	500mA	140	No	Tube (2)

### Notes

1. Narrow Color Temperature selections are available on request
2. All above listed LEDs are also available in Reel packing

3. Narrow color bin selections for royal-blue, blue, cyan, green and amber are available on request.
4. For royal-blue, the wavelength shown in the above table is peak wavelength

## 3W High Power LEDs

Part Number	Color	Color Temperature (K) / Wavelength (nm)	Flux Bin (Luminous Flux / Radiometric Power @ 350mA)	Luminous Flux @ 350mA (typ)	Luminous Flux @ 700mA (typ)	DC Forward Current (max.)	Viewing Angle (degree)	Electrically Isolated Metal Slug	Packaging
ASMT-AW31-NVW00	Cool White	4,500 - 10,000K (1)	V(99.6-113.6lm) W(113.6-129.5lm)	115lm	196lm	700mA	140	Yes	Tube (2)
ASMT-AW31-NUW00	Cool White	4,500 - 10,000K (1)	U(87.4-99.6lm); V(99.6-113.6lm); W(113.6-129.5lm)	115lm	196lm	700mA	140	Yes	Tube (2)
ASMT-AN31-NVW00	Neutral White	3,500 - 4,500K (1)	V(99.6-113.6lm) W(113.6-129.5lm)	115lm	196lm	700mA	140	Yes	Tube (2)
ASMT-AN31-NUW00	Neutral White	3,500 - 4,500K (1)	U(87.4-99.6lm); V(99.6-113.6lm); W(113.6-129.5lm)	115lm	196lm	700mA	140	Yes	Tube (2)
ASMT-AY31-NTU00	Warm White	2,700 - 3,500K (1)	T(67.2-87.4lm); U(87.4-99.6lm)	90lm	153lm	700mA	140	Yes	Tube (2)
ASMT-AL31-NPQ00	Royal Blue	440-460nm (3,4)	P(355-435mW); Q(435-515mW)	460mW	782mW	700mA	140	Yes	Tube (2)
ASMT-AB31-NNP00	Blue	455 - 475nm (3)	N(18.1-23.5lm); P(23.5-30.6lm)	23lm	39lm	700mA	140	Yes	Tube (2)
ASMT-AG31-NTU00	Green	515-535nm (3)	T(67.2-87.4lm); U(87.4-99.6lm)	78lm	125lm	700mA	140	Yes	Tube (2)
ASMT-AA30-ARS00	Amber	587-597nm (3)	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	94lm	700mA	140	No	Tube (2)
ASMT-AH30-ARS00	Red-Orange	610-620nm	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	94lm	700mA	140	No	Tube (2)
ASMT-AR30-ARS00	Red	620-635nm	R(39.8-51.7lm); S(51.7-67.2lm)	50lm	94lm	700mA	140	No	Tube (2)

### Notes

1. Narrow Color Temperature selections are available on request
2. All above listed LEDs are also available in Reel packing

3. Narrow color bin selections for blue, green, amber and royal-blue are available on request.
4. For royal-blue, the wavelength shown in the above table is peak wavelength

## Solid-State Lighting **Low-Power White LEDs**

# 0.1 Watt OneWhite PLCC2 LEDs

### Description

Avago's OneWhite surface mount PLCC2 LED allows designers to incorporate greater functionality while achieving superior performance in terms of light output and color uniformity. This family of SMT LEDs is packaged in the industry standard PLCC2 package. This product has very tight, orderable color bins meeting ANSI C78.377.2008 specification. Every reel will be shipped in single intensity and single color bin.



ASMT-UWB1

### Typical Applications

- Panel lighting
- Light strips
- Down lights
- Shop lighting
- Wide-surface lighting applications
- Backlighting

### Features

- High optical efficiency with 100lm/W
- ANSI color bin structure
- CRI min. 70
- High reliability package with silicone encapsulation
- Compatible with reflow soldering process
- JEDEC MSL 3
- ESD threshold of 1000V (HBM model) per JEDEC
- Also available with min. 2000mcd at 20mA

### 0.1 Watt High Brightness OneWhite PLCC2 Surface Mount LEDs

Product Number	Color	Color Temperature (CCT)	Forward Voltage (V <sub>f</sub> )	Luminous Intensity at 20mA (min.)	Luminous Intensity at 20mA (typ.)	Test Current	Max. DC Forward Current	Viewing Angle	Packaging
ASMT-UWB1-NX3A2	Cool White	8000K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3B2	Cool White	6500K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3C2	Cool White	5700K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3D2	Cool White	5000K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3E2	Neutral White	4500K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3F2	Neutral White	4000K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3G2	Warm White	3500K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3H2	Warm White	3000K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel
ASMT-UWB1-NX3J2	Warm White	2700K (ANSI)	2.8 - 3.6V	1800mcd	2300mcd	20mA	30mA	120°	Reel



Billboard Illumination using Avago LEDs

## Solid-State Lighting **Mid-Power White LEDs**

# 0.25 Watt and 0.5 Watt TheiaLED Series



Warm White  
TheiaLED



Cool and Neutral  
White TheiaLED

### Description

TheiaLED is a new series of White Mid-Power PLCC4 surface mount LEDs based on latest InGaN chip technology. The package design enables more efficient heat dissipation and can be driven at high current so that these LEDs produce more light output with better flux performance at various CRI Options. Versions with a high CRI of 85 are ideal for applications, such as retail displays, where the light output should be as close as possible to natural daylight in terms of color rendition.

The enhanced silicone resin encapsulation results in a very high reliability package that can operate across a wide range of environmental conditions. TheiaLEDs are available in correlated color temperatures (CCT) from warm white at 2700K to cool white at up to 8000K and binned according to ANSI standard color bins. To make pick and place assembly easier, the LEDs are supplied in EIA-compliant tape and reel. Each reel is shipped in a single intensity and single color bin to provide close uniformity.

### Typical Applications

- LED Tubes
- LED Down Lights
- LED Panel Lights
- LED Backlighting
- Channel Lettering
- Emergency Exit Signs
- Display Cabinet Lighting
- Compartment Lighting
- Luggage Rack Illumination
- Decorative Light Strips

### Features

- Luminous efficacy >100 lm/W
- ANSI Color Bin Structure (orderable ANSI bins)
- Available in three CRI options with typical values of 60/65, 75 and 85
- Small low profile package: 3.5 x 3.5 x 1.1 mm
- High reliability package with silicone encapsulation
- Operating Temperature: -40 to 100 °C
- Viewing Angle: 120°
- JEDEC MSL 2
- Drop-in replacement for product packages existing on the market





### 0.5 Watt TheiaLED – High Performance LEDs with various CRI Options and ANSI Color Bin Structure

Product Number	Color	Color Temperature (CCT)	CRI	Luminous Flux (lm) at 150mA		Test Current (mA)	DC Forward Current (mA)	Viewing Angle	Packaging
			Typ	Min	Typ		Max		
ASMT-QWBG-NFHAE	Cool White	8000K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJAE	Cool White	8000K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJAE	Cool White	8000K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QWBG-NFHBE	Cool White	6500K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJBE	Cool White	6500K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJBE	Cool White	6500K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QWBG-NFHCE	Cool White	5700K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJCE	Cool White	5700K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJCE	Cool White	5700K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QWBG-NFHDE	Cool White	5000K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJDE	Cool White	5000K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJDE	Cool White	5000K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QWBG-NFHFE	Neutral White	4500K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJFE	Neutral White	4500K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJFE	Neutral White	4500K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QWBG-NFHFE	Neutral White	4000K (ANSI)	85	45,7	48,0	150	180	120°	Reel
ASMT-QWBH-NGJFE	Neutral White	4000K (ANSI)	75	51,7	54,3	150	180	120°	Reel
ASMT-QWBJ-NGJFE	Neutral White	4000K (ANSI)	60	51,7	54,3	150	180	120°	Reel
ASMT-QYBG-NEGGE	Warm White	3500K (ANSI)	85	39,8	41,8	150	180	120°	Reel
ASMT-QYBH-NEGGE	Warm White	3500K (ANSI)	75	39,8	41,8	150	180	120°	Reel
ASMT-QYBJ-NEGGE	Warm White	3500K (ANSI)	65	45,7	48,0	150	180	120°	Reel
ASMT-QYBG-NEGHE	Warm White	3000K (ANSI)	85	39,8	41,8	150	180	120°	Reel
ASMT-QYBH-NEGHE	Warm White	3000K (ANSI)	75	39,8	41,8	150	180	120°	Reel
ASMT-QYBJ-NEHHE	Warm White	3000K (ANSI)	65	45,7	48,0	150	180	120°	Reel
ASMT-QYBG-NEGJE	Warm White	2700K (ANSI)	85	39,8	41,8	150	180	120°	Reel
ASMT-QYBH-NEGJE	Warm White	2700K (ANSI)	75	39,8	41,8	150	180	120°	Reel
ASMT-QYBJ-NEGJE	Warm White	2700K (ANSI)	65	45,7	48,0	150	180	120°	Reel

### 0.25 Watt TheiaLED – High Performance LEDs with various CRI Options and ANSI Color Bin Structure

Product Number	Color	Color Temperature (CCT)	CRI	Luminous Flux (lm) at 80mA		Test Current (mA)	DC Forward Current (mA)	Viewing Angle	Packaging
			Typ	Min	Typ		Max		
ASMT-UWBG-NACA8	Cool White	8000K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDA8	Cool White	8000K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDA8	Cool White	8000K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UWBG-NACB8	Cool White	6500K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDB8	Cool White	6500K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDB8	Cool White	6500K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UWBG-NACC8	Cool White	5700K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDC8	Cool White	5700K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDC8	Cool White	5700K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UWBG-NACD8	Cool White	5000K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDD8	Cool White	5000K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDD8	Cool White	5000K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UWBG-NACE8	Neutral White	4500K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDE8	Neutral White	4500K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDE8	Neutral White	4500K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UWBG-NACF8	Neutral White	4000K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UWBH-NBDF8	Neutral White	4000K (ANSI)	75	23,5	24,7	80	100	120°	Reel
ASMT-UWBJ-NBDF8	Neutral White	4000K (ANSI)	60	23,5	24,7	80	100	120°	Reel
ASMT-UYBG-NACG8	Warm White	3500K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UYBH-NACG8	Warm White	3500K (ANSI)	75	18,1	19,0	80	100	120°	Reel
ASMT-UYBJ-NACG8	Warm White	3500K (ANSI)	65	18,1	19,0	80	100	120°	Reel
ASMT-UYBG-NACH8	Warm White	3000K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UYBH-NACH8	Warm White	3000K (ANSI)	75	18,1	19,0	80	100	120°	Reel
ASMT-UYBJ-NACH8	Warm White	3000K (ANSI)	65	18,1	19,0	80	100	120°	Reel
ASMT-UYBG-NACJ8	Warm White	2700K (ANSI)	85	18,1	19,0	80	100	120°	Reel
ASMT-UYBH-NACJ8	Warm White	2700K (ANSI)	75	18,1	19,0	80	100	120°	Reel
ASMT-UYBJ-NACJ8	Warm White	2700K (ANSI)	65	18,1	19,0	80	100	120°	Reel

## Solid-State Lighting **Mid-Power LEDs**

# 0.5 Watt Mid-Power PLCC4 LEDs



0.5 Watt PLCC-4



0.5 Watt Cool White PLCC-4



0.5 Watt Warm White PLCC-4

### Description

This PLCC4 product is one of the smallest 0.5 Watt packages available on the market. The small size of the PLCC4 platform package enables higher packaging density on a given area compared to other half-Watt solutions available on the market. The higher drive current can be supported because of the enhanced heat dissipation capability which additionally allows you to operate the LED at up to +120°C ambient temperature.

### Typical Applications

- Decorative and mood lighting
- Channel and counter lighting
- Advertisement panel backlighting
- Battery powered reading lamps and flashlights
- Interior automotive: Dome, map, and reading lamps, glove compartment illumination
- Exterior automotive: Tail lights and side repeater
- Display backlighting
- Signage

### Features

- Industry Standard PLCC-4 package (3.2 x 2.8 x 1.9mm) with enhanced heat dissipation capabilities
- High reliability package with enhanced silicone resin encapsulation
- Extra high-brightness AlInGaP and InGaN dice technologies
- Wide viewing angle: 120°
- Low thermal resistance: 40°C/W min \*
- LED Junction Temperature 125°C
- Operating temperature: -40°C to +120°C max \*
- Long operating life due to silicone encapsulation
- Moisture sensitive level (MSL) 2
- Compatible with IR and TTW soldering processes
- AEC-Q101 automotive qualified
- Mountable on FR4 PCB

\* Refer to Data Sheet for details

Avago 0.5W PLCC4 LEDs in  
Tram Tango Basel by SBF



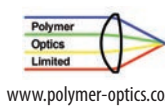

## 0.5 Watt Mid-Power PLCC-4 Surface Mount LEDs

Product Number	Color	Color Temperature / Dominant Wavelength	Luminous Flux at 150mA (min.)	Luminous Flux at 150mA (typ.)	DC Forward Current (max.)	Viewing Angle	Packaging
ASMT-QWBF-NKL0E	Cool White	4500K - 10000K <sup>(1)</sup>	43.0 lm	46.0 lm	150 mA	120°	Reel
ASMT-QWBF-NKLQE	Cool White	5600K - 7000K	43.0 lm	46.0 lm	150 mA	120°	Reel
ASMT-QWBF-NKLRE	Cool White	5000K - 5600K	43.0 lm	46.0 lm	150 mA	120°	Reel
ASMT-QWBC-NJK0E	Cool White	4500K - 10000K <sup>(1)</sup>	33.0 lm	38.0 lm	150 mA	120°	Reel
ASMT-QYBF-NJKAE	Neutral White	3650K - 4800K	33.0 lm	37.0 lm	150 mA	120°	Reel
ASMT-QYBF-NJKEE	Warm White	2800K - 3150K	33.0 lm	37.0 lm	150 mA	120°	Reel
ASMT-QYBF-NJK0E	Warm White	2500K - 4800K <sup>(1)</sup>	33.0 lm	37.0 lm	150 mA	120°	Reel
ASMT-QYBC-NHJ0E	Warm White	2500K - 4800K <sup>(1)</sup>	25.5 lm	31.0 lm	150 mA	120°	Reel
ASMT-QABD-AEF0E	Amber	593.1 nm	11.5 lm	16.5 lm	150 mA	120°	Reel
ASMT-QHBD-AFH0E	Red-Orange	616.1 nm	15.0 lm	17.5 lm	150 mA	120°	Reel
ASMT-QRBD-AEF0E	Red	621.1 nm	11.5 lm	16.5 lm	150 mA	120°	Reel
ASMT-QGBE-NFH0E	Green	522.0 nm	15.0 lm	23.0 lm	150 mA	120°	Reel
ASMT-QBB3-NBD0E	Blue	460.0 nm	5.5 lm	8.5 lm	150 mA	120°	Reel

Notes:

(1) Narrow Color Temperature selections are available on request

## Secondary Optics

Part Number	Description	FWHM	Holder	Manufacturer	
210	14mm Linear Collimator Optic	15°	integrated	 www.polymer-optics.co.uk	

## Solid-State Lighting **RGB LEDs**



# 3 x 1 Watt RGB Moonstone™ LED

### Description

The advanced 3x1Watt RGB Moonstone™ package delivers typ.108lumens at 350mA. The selection of the Red, Green, and Blue dies helps to achieve a high flux (typ. 90 lumen) D65 white color point and a wide color gamut. The robust package design makes it an excellent choice for color mixing applications.

### Typical Applications

- Stage and event lighting
- Full color signs and large area video walls
- Contour lighting
- Cove lighting
- Architectural lighting
- Garden lighting
- Decorative lighting
- Commercial lighting
- Mood lighting

### Features

- High flux output of typ. 108lm at 3x350mA
- High White flux output of typ. 90lm
- Low profile (3.3mm height), footprint is 10mm x 15.85mm
- Wide viewing angle: 120°
- Low thermal resistance: 20-23°C/W
- LED Junction Temperature 125°C
- Operating temperature: -40°C to +105°C
- Long operating life due to silicone encapsulation
- Compatible with reflow soldering process
- Non-ESD sensitive (threshold > 16kV)

Avago 3x1Watt RGB Moonstone™ in bar lighting application

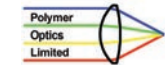


### 3 x 1 Watt RGB Moonstone™ High-Power LED

Product Number	Color	Dominant Wavelength	Flux Bin (Luminous Flux @ 350mA)	Luminous Flux @ 350mA (typ.)	DC Forward Current (max.)	Viewing Angle	Electrically Isolated Metal Slug	Packaging
ASMT-MT00-00001	Red	620 - 635nm	H (33.0 - 43.0lm) J (43.0 - 56.0lm)	40lm	350mA	120°	No	Reel
	Green	515 - 535nm (1)	J (43.0 - 56.0lm) K (56.0 - 73.0lm) L (73.0 - 95.0lm)	55lm	350mA	120°	Yes	
	Blue	460 - 480nm (1)	C (9.0 - 11.5lm) D (11.5 - 15.0lm) E (15.0 - 19.5lm)	13lm	350mA	120°	Yes	

Notes: (1) Narrow Color Bin selections for Green and Blue are available on request

### Secondary Optics

Part Number	Description	FWHM	Holder	Manufacturer
229	30mm Color Mixer Reflector	10°	Integrated	 www.polymer-optics.co.uk

This is one of most popular lenses for Avago High-Power LEDs. The above listed manufacturer has a much broader offering of secondary optics specifically designed for Avago High-Power LEDs. For details, please check the internet or contact one of our Distributor Partners.

## Solid-State Lighting **RGB LEDs**

# RGB PLCC6 Surface Mount LEDs

### Description

This high brightness family of Tricolor SMT LEDs packaged in the form of PLCC6 with separate driving capability for each color is suitable for indoor and outdoor applications. The PLCC6 package is available in black surface, black body and white surface.

### Typical Applications

- Outdoor and indoor full-color displays
- Video screens
- Advertising signs
- Full color Bus Panel Signs
- Color-changing mood-lighting applications

### Features

- Small PLCC6 package (3.4 x 2.8 x 1.8 mm) with individual addressable pin-out for higher flexibility of driving configuration for each color
- In-Line RGB dies configuration
- Black surface / full black body for increased contrast ratio
- Wide viewing angle: 120°
- LED Junction Temperature 125°C
- Operating temperature: -40°C to +110°C
- Long operating life due to silicone encapsulation
- Compatible with reflow soldering process
- Single color bin & single lv bin option available on request ("Flexi-Binning")
- Water-Resistance (IPX6\*) per IEC 60529:2001

\* See Avago Application Note 5487



ASMT-YTx2:  
Tri-Color PLCC-6

Avago Tri-color PLCC6 Surface Mount LEDs in Rex, Hilversum (NL), Designed by DEP Nederland and produced by Lux Lumen

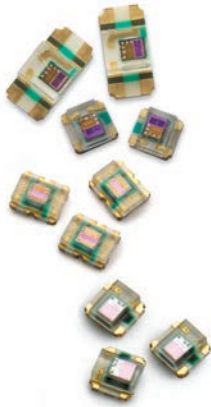


### RGB PLCC6 Surface Mount LEDs

Product Number	Type	Color	Dominant Wavelength	Luminous Intensity I <sub>v</sub> at 20mA (min.)	Luminous Intensity I <sub>v</sub> at 20mA (typ.)	Test Current	DC Forward Current (max.)	Forward Voltage typ. V <sub>f</sub>	Viewing Angle	Packaging
ASMT-YTB2-0BB02	Black-Surface RGB PLCC6	Red	618 - 628nm	560mcd	745mcd	20mA	50mA	2.1V	120°	Reel
		Green	525 - 537nm <sup>(1)</sup>	1125mcd	1600mcd	20mA	30mA	3.2V	120°	
		Blue	465 - 477nm <sup>(1)</sup>	285mcd	380mcd	20mA	30mA	3.2V	120°	
ASMT-YTC2-0AA02	Black-Body RGB PLCC6	Red	618 - 628nm	355mcd	450mcd	20mA	50mA	2.1V	120°	Reel
		Green	525 - 537nm <sup>(1)</sup>	450mcd	560mcd	20mA	30mA	3.2V	120°	
		Blue	465 - 477nm <sup>(1)</sup>	140mcd	180mcd	20mA	30mA	3.2V	120°	
ASMT-YTD2-0BB02	White-Surface RGB PLCC6	Red	618 - 628nm	560mcd	745mcd	20mA	50mA	2.1V	120°	Reel
		Green	525 - 537nm <sup>(1)</sup>	1125mcd	1600mcd	20mA	30mA	3.2V	120°	
		Blue	465 - 477nm <sup>(1)</sup>	285mcd	380mcd	20mA	30mA	3.2V	120°	

(1) Narrow Color Bin selections for green and blue are available on request

# Digital and Analog Ambient Light Sensors



## Description

Avago Technologies offers a wide range of Ambient Light Sensors; linear analog sensors fit any kind of application, logarithmic analog ones are very suitable for outdoor applications, and sensors with digital output are ideal for high accuracy and ease of use. Avago's Ambient Light sensors offer an excellent IR filtering as well as a wide luminosity (LUX) coverage.

## Typical Applications

- Automatic residential & commercial lighting management
- Control of display backlighting
- Automotive Instrumentation clusters
- Signage

## Features

- Spectral Responsivity close to that of the human eye
- Precise measurement under diverse lighting conditions
- Miniature Chipled package
- Operating temperature -40 to +85 °C
- High level of integration

## Analog Ambient Light Sensor

- Linear and Logarithm parts are available
- Reverse mounting parts are available
- Wide selection of supply voltage

## Digital Ambient Light Sensor

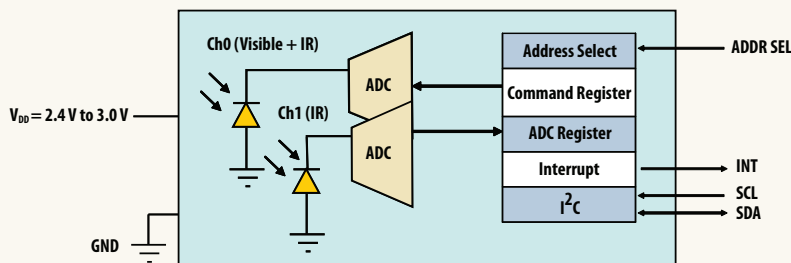
- Programmable interrupt function with user-defined threshold settings
- 16-Bit Digital Output with I<sup>2</sup>C Fast-Mode at 400 kHz
- Programmable Analog Gain and Integration Time
- Low 2.5-V Input Voltage and 1.8-V Digital Output
- Low Active Power (0.6 mW Typical) with Power Down Mode



## Digital and Analog Ambient Light Sensors

Part Number	Description	Output	Package	Pinout	Supply Voltage	Typ Output Current @ 100 Lux (μA)
APDS-9002-021	Miniature Surface-Mount Ambient Light Photo Sensor	Analog, linearity across wide illumination range	ChipLED (2.00 x 1.25 x 0.80 mm)	4 pins	2.4 -5.5 V	250
APDS-9003-020	Miniature Surface-Mount Ambient Light Photo Sensor	Analog, good linearity across wide illumination range, up to 10 K lux	ChipLED (1.60 x 1.50 x 0.55 mm)	6 pins	2.4 -5.5 V	230
APDS-9004-020	Miniature Surface-Mount Ambient Light Photo Sensor – Reverse Mounting	Analog, good linearity across wide illumination range, up to 10 K lux	ChipLED (3.20 x 1.60 x 1.10 mm)	4 pins	2.4 -5.5 V	230
APDS-9005-020	Miniature Surface-Mount Ambient Light Photo Sensor	Analog, very stable vs temperature and supply voltage, up to 10 K lux	ChipLED (1.60 x 1.50 x 0.55 mm)	6 pins	1.8 -5.5 V	40
APDS-9006-020	Miniature Surface-Mount Ambient Light Photo Sensor – Reverse Mounting	Analog, very stable vs temperature and supply voltage, up to 10 K lux	ChipLED (3.20 x 1.60 x 1.10 mm)	4 pins	2.4 -5.5 V	40
APDS-9007-020	Miniature Surface-Mount Ambient Light Photo Sensor with Logarithmic Current Output	Logarithmic output over a range of 3 lux to 70 K lux	ChipLED (2.40 x 2.00 x 0.80 mm)	6 pins	2.0 -3.6 V	30 @ 1klux (logarithmic output)
APDS-9008-020	Miniature Surface-Mount Ambient Light Photo Sensor	Analog, good linearity across wide illumination range	ChipLED (1.60 x 1.50 x 0.55 mm)	6 pins	1.6 -5.5 V	40
APDS-9300-020	Miniature Surface-Mount Ambient Light Photo Sensor with Digital (I <sup>2</sup> C) Output	16-bit digital output with I <sup>2</sup> C Fast- Mode at 400 kHz, up to 55 K lux	ChipLED (2.60 x 2.20 x 0.55 mm)	6 pins	2.4 -3.0 V	N/A
APDS-9301-020	Miniature Surface-Mount Ambient Light Photo Sensor with Digital (I <sup>2</sup> C) Output	16-bit digital output with I <sup>2</sup> C Fast- Mode at 400 kHz, up to 55 K lux	ChipLED (2.60 x 2.20 x 0.55 mm)	6 pins	2.7 - 3.6V	N/A
APDS-9303-020	Miniature Surface-Mount Ambient Light Photo Sensor with Digital (SMBus) Output	16-bit digital output with SMBus Fast- Mode at 100 kHz, up to 55 K lux	ChipLED (2.60 x 2.20 x 0.55 mm)	6 pins	2.7 - 3.6V	N/A

## APDS-930x Functional Block Diagram



# Your Imagination. Our Innovation



From the smartphone that keeps you in touch, to the fiber optic network that keeps a \$10-billion corporation connected, we get our information these days through an ever-increasing array of sophisticated device technologies. And behind it all, are semiconductors that sense, illuminate, and connect the signals in order to process that digital data.

Avago Technologies is a leading supplier in III-V compound and silicon semiconductors providing an extensive range of analog, mixed signal and optoelectronics components that are backed by over 5,000 patents to approximately 40,000 end customers.

Our heritage of technical innovation dates back 45 years, and includes over 1,000 talented design and product engineers. We believe in strong customer service support and intense collaboration to create leading-edge proprietary technologies to solve customers' technical bottlenecks. In that way - Our innovation helps bring your imagination to market.

## Avago products serve four diverse end markets

**Wireless Communications** serving the smartphone/handset and Base Station infrastructure markets with over 250 patents and leading-edge products that include:

- Power Amplifiers
- Front End Modules
- Film Bulk Acoustic Resonator (FBAR) Filters
- GPS LNAs
- LED Backlighting, Screen Illumination
- Ambient Light and Proximity Sensors

**Wired Infrastructure** for switches/routers, data centers, supercomputers and storage/servers with over 200 patents in parallel optics alone and products that include:

- 120Gb Parallel Optic Arrays
- 20Gb SerDes ASICs in 40nm
- Storage Fibre Channel Transceivers
- QSFP/SFP Sonet Transceivers

**Industrial and Automotive Electronics** for alternative energy power generation, electronic sign and signals, automated manufacturing, automotive lighting, GPS navigation, motor inverter system, battery charging and management, infotainment systems and vehicle safety systems with products that include:

- Inverters
- Isolation and Digital Optocouplers
- Optical Encoders
- Polymer Optical Fiber
- PLCC-2/4 LEDs, 0.5W LEDs

**Consumer and Computing** peripherals for printers, white goods, DVD players, netbooks, Tablet PCs and laptops with over 100 patents and products that include:

- Motion Control Optical Encoders
- Paper Level/Edge Proximity Sensors
- Display LEDs
- Status Indicator and Backlighting LEDs
- Ambient Light Photo Sensors
- Auto Focus Auxiliary Flash LED



For product information and a complete list of distributors, please go to our web site and select "Find a Distributor" at:

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