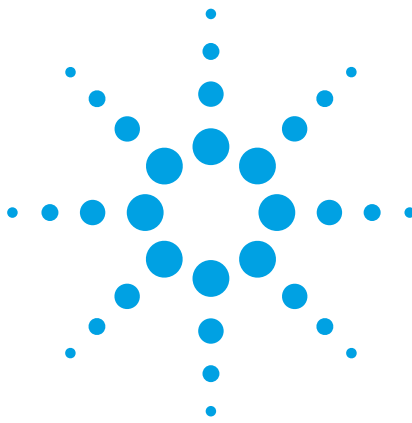




Agilent Surface Mount LED ChipLED Products

Product Selection



ChipLED Background

An industry leader in high brightness LED technology, Agilent Technologies offers a wide range of high quality ChipLED products to meet customer demands for various surface mount lighting requirements.

High brightness LED technology offers better efficiency, lower driving current and lower number of LEDs required. Agilent's ChipLED products have the lowest profile in the industry, and are positioned to support high volume, cost effective solutions.

About the Products

Agilent manufactures AlInGaP, AlGaAs and InGaN ChipLEDs. AlInGaP ChipLEDs are available in amber, orange and red for high brightness applications. Standard brightness colors include green, red, AlGaAs red, orange, and yellow in addition to several bi-color variations.

Also available now are Agilent InGaN ChipLEDs in blue and green. Agilent has all the colors you need!

The ChipLED footprint is industry standard with top mount, reverse mount and right angle mount packaging options. Our low profile products integrate well into designs where space is limited.

ChipLED products are used in a variety of applications including LCD and push button backlighting for cellular phones, white goods and appliances, industrial measurement and control systems, and for symbol lighting and status indication in computer peripherals and consumer goods.

Low power consumption, small size and easy assembly make the ChipLED ideal for backlighting handsets as well as backlighting industrial displays.

Features and Benefits

- Small size
 - Saves PC board space
- Wide viewing angle
 - Well-suited for backlighting applications
- Intensity and color bin uniformity
 - Can be closely mounted without any intensity variations

- Available in multiple colors
 - Broad range of colors: Red, AlGaAs Red, Green, Orange, Yellow, and InGaN Blue and InGaN Green
- Variety of packages and mounting options
 - Top, reverse, and right angle auto mountable
- Industry standard footprint
 - No change in existing board layout
- High volume, high reliability
 - Cost effective solution

Typical Applications

- Telecommunications
 - Keypad and LCD backlighting for mobile phones, pagers and cordless phones
- Industrial
 - Status and symbol indicator
 - Keypad and LCD backlighting
- Consumer
 - White goods and appliances
- Computer Peripherals
 - Status indicator
- Indoor Full/Mono Color Sign



Agilent Technologies

Agilent Surface Mount LED ChipLED Products

Part Number	Color	Dominant Wavelength (nm)	Viewing Angle	Lens	Intensity		Vf Typ (V)	Test Current (mA)
					Min (mcd)	Typ (mcd)		

Top Mount (C150)

3.2 x 1.6 x 1.1 mm (L x W x H)

HSMH-C150	 AS AlGaAs Red	639	170°	Diffused	7.2	17	1.8	20
HSMD-C150	 GaP Orange	604	170°	Diffused	2.8	8	2.2	20
HSMG-C150	 GaP Green	572	170°	Diffused	4.5	15	2.2	20
HSMS-C150	 GaP Red	626	170°	Diffused	2.8	10	2.1	20
HSMY-C150	 GaP Yellow	586	170°	Diffused	2.8	8	2.1	20
HSMQ-C150	 InGaN Green	527	140°	Diffused	45	145	3.4	20
HSMR-C150	 InGaN Blue	473	140°	Diffused	18	55	3.4	20

Quantity: 3,000 per 7 inch reel

Top Mount Low Profile (C170)

2.0 x 1.25 x 0.8 mm (L x W x H)

HSMH-C170	 AS AlGaAs Red	639	170°	Diffused	7.2	17	1.8	20
HSMD-C170	 GaP Orange	604	170°	Diffused	2.8	8	2.2	20
HSMG-C170	 GaP Green	572	170°	Diffused	4.5	15	2.2	20
HSMS-C170	 GaP Red	626	170°	Diffused	2.8	10	2.1	20
HSMY-C170	 GaP Yellow	586	170°	Diffused	2.8	8	2.1	20
HSMA-C170	 AS AlInGaP Amber	592	170°	Diffused	28.5	90	1.9	20
HSMC-C170	 AS AlInGaP Red	626	170°	Diffused	28.5	90	1.9	20
HSMML-C170	 AS AlInGaP Orange	605	170°	Diffused	28.5	90	1.9	20
HSMB-C170	 GaN Blue	466	170°	Diffused	1.8	6	3.8	20
HSMZ-C170	 TS Red	631	170°	Diffused	45	165	2.2	20
HSMML-C170	 InGaN Green	525	170°	Diffused	45	120	3.3	20
HSMN-C170	 InGaN Blue	470	170°	Diffused	11.2	35	3.3	20
HSMQ-C170	 InGaN Green	527	140°	Diffused	45	145	3.4	20
HSMR-C170	 InGaN Blue	473	140°	Diffused	18	55	3.4	20

Quantity: 4,000 per 7 inch reel

Top Mount Low Profile (C190)

1.6 x 0.8 x 0.8 mm (L x W x H)

HSMH-C190	 AS AlGaAs Red	639	170°	Diffused	7.2	17	1.8	20
HSMD-C190	 GaP Orange	604	170°	Diffused	2.8	8	2.2	20
HSMG-C190	 GaP Green	572	170°	Diffused	4.5	5	2.2	20
HSMS-C190	 GaP Red	626	170°	Diffused	2.8	10	2.1	20
HSMY-C190	 GaP Yellow	586	170°	Diffused	2.8	8	2.1	20
HSMA-C190	 AS AlInGaP Amber	592	170°	Diffused	28.5	90	1.9	20
HSMC-C190	 AS AlInGaP Red	626	170°	Diffused	28.5	90	1.9	20
HSMML-C190	 AS AlInGaP Orange	605	170°	Diffused	28.5	90	1.9	20
HSMZ-C190	 TS Red	631	170°	Diffused	45	165	2.2	20
HSMB-C190	 GaN Blue	466	170°	Diffused	1.8	6	3.8	20
HSMML-C190	 InGaN Green	525	170°	Diffused	45	120	3.3	20
HSMN-C190	 InGaN Blue	470	170°	Diffused	11.2	35	3.3	20
HSMQ-C190	 InGaN Green	527	140°	Diffused	45	145	3.4	20
HSMR-C190	 InGaN Blue	473	140°	Diffused	18	55	3.4	20

Quantity: 4,000 per 7 inch reel

Agilent Surface Mount LED ChipLED Products

Part Number	Color	Dominant Wavelength (nm)	Viewing Angle	Lens	Intensity		Vf Typ (V)	Test Current (mA)
					Min (mcd)	Typ (mcd)		

Top Mount Very Low Profile (C191)

1.6 x 0.8 x 0.6 mm (L x W x H)

HSMH-C191	AS AlGaAs Red	639	170°	Diffused	7.2	17	1.8	20
HSMD-C191	GaP Orange	604	170°	Diffused	2.8	8	2.2	20
HSMG-C191	GaP Green	572	170°	Diffused	4.5	5	2.2	20
HSMS-C191	GaP Red	626	170°	Diffused	2.8	10	2.1	20
HSMY-C191	GaP Yellow	586	170°	Diffused	2.8	8	2.1	20
HSMA-C191	AS AllnGaP Amber	592	170°	Diffused	28.5	90	1.9	20
HSMC-C191	AS AllnGaP Red	626	170°	Diffused	28.5	90	1.9	20
HSMML-C191	AS AllnGaP Orange	605	170°	Diffused	28.5	90	1.9	20
HSMN-C191	InGaN Blue	470	170°	Diffused	11.2	35	3.3	20
HSMQ-C191	InGaN Green	527	140°	Diffused	45	145	3.4	20
HSMR-C191	InGaN Blue	473	140°	Diffused	18	55	3.4	20

Quantity: 4,000 per 7 inch reel

Right Angle (C110)

3.2 x 1.0 x 1.5 mm (L x W x H)

HSMH-C110	AS AlGaAs Red	639	130°	Non-diffused	7.2	17	1.8	20
HSMD-C110	GaP Orange	604	130°	Non-diffused	2.8	8	2.2	20
HSMG-C110	GaP Green	572	130°	Non-diffused	4.5	15	2.2	20
HSMS-C110	GaP Red	626	130°	Non-diffused	2.8	10	2.1	20
HSMY-C110	GaP Yellow	586	130°	Non-diffused	2.8	8	2.1	20
HSMA-C110	AS AllnGaP Amber	592	130°	Non-diffused	28.5	95	1.9	20
HSMC-C110	AS AllnGaP Red	626	130°	Non-diffused	28.5	95	1.9	20
HSMML-C110	AS AllnGaP Orange	605	130°	Non-diffused	28.5	95	1.9	20
HSMB-C110	GaN Blue	466	130°	Non-diffused	1.8	6.5	3.8	20
HSMZ-C110	TS Red	631	130°	Non-diffused	45	170	2.2	20
HSMML-C110	InGaN Green	525	130°	Non-diffused	45	126	3.3	20
HSMN-C110	InGaN Blue	470	130°	Non-diffused	11.2	39	3.3	20
HSMQ-C110	InGaN Green	527	130°	Non-diffused	45	150	3.4	20
HSMR-C110	InGaN Blue	473	130°	Non-diffused	18	60	3.4	20

Quantity: 3,000 per 7 inch reel

Reverse Mount (C265)

3.4 x 1.25 x 1.1 mm (L x W x H)

HSMA-C265	AS AllnGaP Amber	592	150°	Non-diffused	28.5	75	1.9	20
HSMC-C265	AS AllnGaP Red	626	150°	Non-diffused	28.5	75	1.9	20
HSME-C265	AS AllnGaP Green	572	170°	Non-diffused	18	50	2.1	20
HSMML-C265	AS AllnGaP Orange	605	150°	Non-diffused	28.5	75	1.9	20
HSMG-C265	GaP Green	572	170°	Non-diffused	4.5	15	2.2	20
HSMH-C265	AS AlGaAs	639	170°	Non-diffused	7.2	17	1.8	20

Quantity: 3,000 per 7 inch reel

Agilent Surface Mount LED ChipLED Products

Part Number	Color	Dominant Wavelength (nm)	Viewing Angle	Lens	Intensity		Vf Typ (V)	Test Current (mA)
					Min (mcd)	Typ (mcd)		

Bi-Color (C15x)

3.2 x 2.7 x 1.1 mm (L x W x H)

HSMF-C155	 GaP Green	572	170°	Diffused	4.5	15	2.2	20
	 GaP Red	626	170°	Diffused	2.8	10	2.1	20
HSMF-C156	 GaP Green	572	170°	Diffused	4.5	15	2.2	20
	 GaP Yellow	586	170°	Diffused	2.8	8	2.1	20
HSMF-C157	 GaP Green	572	170°	Diffused	4.5	15	2.2	20
	 GaP Orange	604	170°	Diffused	2.8	8	2.2	20

Quantity: 3,000 per 7 inch reel

Tri-Color (C118)

3.2 x 2.7 x 1.1 mm (L x W x H)

HSMF-C118	 GaP Green	525	130	Diffused	45	120	3.5	20
	 AlInGaP Red	626	135	Diffused	28.5	90	1.9	20
	 InGaN Blue	470	125	Diffused	11.2	40	3.5	20

Quantity: 3,000 per 7 inch reel

The SIZE DOES MATTER Series

World's Smallest Top Mount (C280)

1.0 x 0.5 x 0.4 mm

HSMC-C280	 AS AlInGaP Amber	592	130°	Diffused	28.5	90	1.9	20
HSMC-C280	 AS AlInGaP Red	626	130°	Diffused	28.5	90	1.9	20
HSMG-C280	 GaP Green	572	130°	Diffused	4.5	15	2.2	20
HSMS-C280	 GaP Red	626	130°	Diffused	2.8	10	2.1	20
HSMY-C280	 GaP Yellow	586	130°	Diffused	2.8	8	2.1	20

Quantity: 4,000 per 7 inch reel

Top Mount Very Low Profile (C177)

2.0 x 1.25 x 0.4 mm

HSMD-C177	 GaP Orange	604	130°	Diffused	2.8	8	2.2	20
HSMG-C177	 GaP Green	572	130°	Diffused	4.5	5	2.2	20
HSMS-C177	 GaP Red	626	130°	Diffused	2.8	10	2.1	20
HSMA-C177	 AS AlInGaP Amber	592	130°	Diffused	28.5	90	1.9	20
HSMC-C177	 AS AlInGaP Red	626	130°	Diffused	28.5	90	1.9	20
HSML-C177	 AS AlInGaP Orange	605	130°	Diffused	28.5	90	1.9	20

Quantity: 4,000 per 7 inch reel

Agilent Surface Mount LED ChipLED Products

Part Number	Color	Dominant Wavelength (nm)	Viewing Angle	Lens	Intensity		Vf Typ (V)	Test Current (mA)
					Min (mcd)	Typ (mcd)		

Top Mount Very Low Profile (C197)

1.6 x 0.8 x 0.4 mm (L x W x H)

HSMC-C197	 GaP Orange	604	130°	Diffused	2.8	8	2.2	20
HSMG-C197	 GaP Green	572	130°	Diffused	4.5	5	2.2	20
HSMS-C197	 GaP Red	626	130°	Diffused	2.8	10	2.1	20
HSMY-C197	 GaP Yellow	586	130°	Diffused	2.8	8	2.1	20
HSMA-C197	 AS AllnGaP Amber	592	130°	Diffused	28.5	90	1.9	20
HSMC-C197	 AS AllnGaP Red	626	130°	Diffused	28.5	90	1.9	20
HSML-C197	 AS AllnGaP Orange	605	130°	Diffused	28.5	90	1.9	20

Quantity: 4,000 per 7 inch reel

World's Smallest Right Angle (C120)

1.6 x 0.6 x 1.0 mm (L x W x H)

HSMH-C120	 AS AlGaAs	639	155°	Non-diffused	7.2	17	1.8	20
HSMC-C120	 GaP Orange	604	155°	Non-diffused	2.8	8	2.2	20
HSMG-C120	 GaP Green	572	155°	Non-diffused	4.5	15	2.2	20
HSMA-C120	 AS AllnGaP Amber	592	155°	Non-diffused	28.5	90	1.9	20
HSMC-C120	 AS AllnGaP Red	626	155°	Non-diffused	28.5	90	1.9	20
HSML-C120	 AS AllnGaP Orange	605	155°	Non-diffused	28.5	90	1.9	20
HSMH-C120	 InGaN Green	525	155°	Non-diffused	45	120	3.4	20
HSMN-C120	 InGaN Blue	470	155°	Non-diffused	11.2	30	3.4	20
HSMQ-C120	 InGaN Green	527	155°	Non-diffused	45	145	3.4	20
HSMR-C120	 InGaN Blue	473	155°	Non-diffused	18	55	3.4	20

Quantity: 4,000 per 7 inch reel

World's Smallest Bicolor (C16x)

1.6 x 0.8 x 0.5 mm

HSMF-C165	 GaP Green	572	120°	Diffused	4.5	15	2.2	20
	 GaP Red	626	120°	Diffused	2.8	10	2.1	20
HSMF-C166	 GaP Green	572	120°	Diffused	4.5	15	2.2	20
	 GaP Yellow	586	120°	Diffused	2.8	8	2.1	20
HSMF-C167	 GaP Green	572	120°	Diffused	4.5	15	2.2	20
	 GaP Orange	604	120°	Diffused	2.8	8	2.2	20

Quantity: 4,000 per 7 inch reel

Agilent Surface Mount LED ChipLED Products

Surface Mount Chip LEDs
Standard Intensity Categories

Bin ID	Intensity (mcd)	
	min	max
A	0.11	0.18
B	0.18	0.29
C	0.29	0.45
D	0.45	0.72
E	0.72	1.10
F	1.10	1.80
G	1.80	2.80
H	2.80	4.50
J	4.50	7.20
K	7.20	11.20
L	11.20	18.00
M	18.00	28.50
N	28.50	45.00
P	45.00	71.50
Q	71.50	112.50
R	112.50	180.00
S	180.00	285.00
T	285.00	450.00
U	450.00	715.00
V	715.00	1125.00
W	1125.00	1800.00
X	1800.00	2850.00
Y	2850.00	4500.00

Tolerance: ±15%

Color Binnings

Package	Color Bin	Wavelength (nm)	
		min	max
GaN/InGaN Blue	A	460.0	465.0
	B	465.0	470.0
	C	470.0	475.0
	D	475.0	480.0
InGaN Green	A	515.0	520.0
	B	520.0	525.0
	C	525.0	530.0
	D	530.0	535.0
Orange	A	597.0	600.0
	B	600.0	603.0
	C	603.0	606.0
	D	606.0	609.0
	E	609.0	612.0
	F	612.0	615.0
Red	Full Distribution		
AlGaAs Red	Full Distribution		

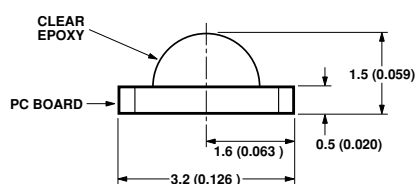
Tolerance: ±1.0 nm

Package	Color Bin	Wavelength (nm)	
		min	max
Green	A	561.5	564.5
	B	564.5	567.5
	C	567.5	570.5
	D	570.5	573.5
	E	573.5	576.5
Yellow	A	582.0	584.5
	B	584.5	587.0
	C	587.0	589.5
	D	589.5	592.0
	E	592.0	594.5
	F	594.5	597.0
Amber	A	582.0	584.5
	B	584.5	587.0
	C	587.0	589.5
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	F	594.5	597.0

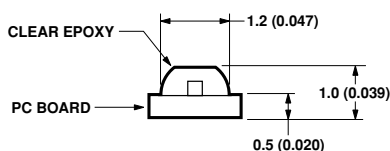
Tolerance: ±0.5 nm

Agilent Surface Mount LED ChipLED Products

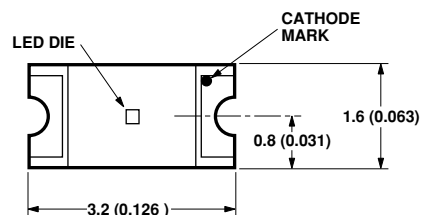
Surface Mount Chip LEDs Package Dimensions



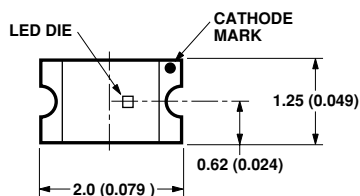
HSMx-C110



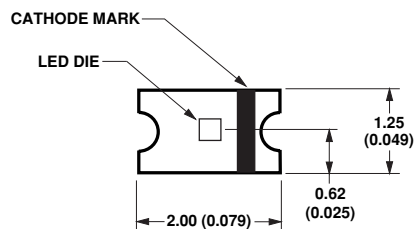
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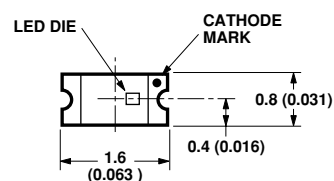
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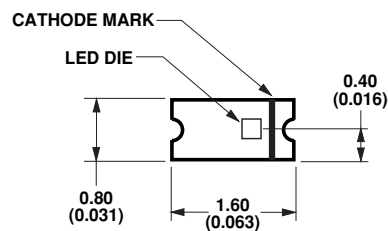
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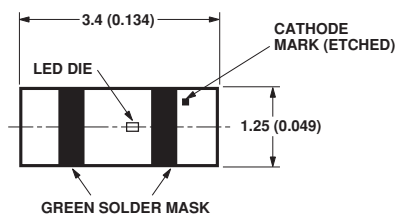
HSMx-C177



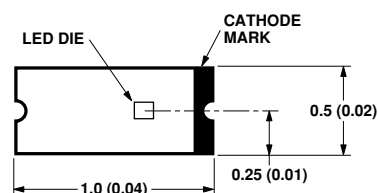
HSMx-C190/C191



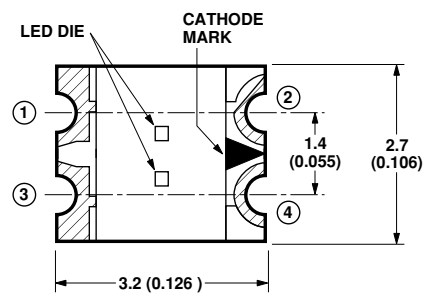
HSMx-C197



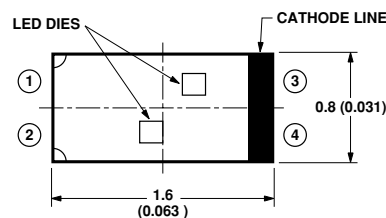
HSMx-C265



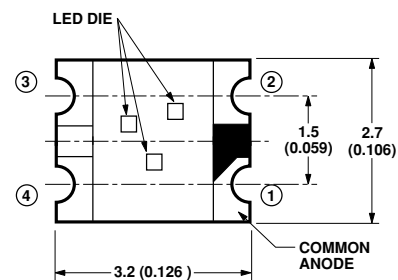
HSMx-C280



HSMF-C15x



HSMF-C16x



HSMF-C118

Dimensions are in millimeters (Inches).

Tolerance is ± 0.1 mm (± 0.004 in.)
unless otherwise specified.

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www.semiconductor.agilent.com

For product information and a complete list of Agilent contacts and distributors, please go to our web site.

www.agilent.com/semiconductors

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