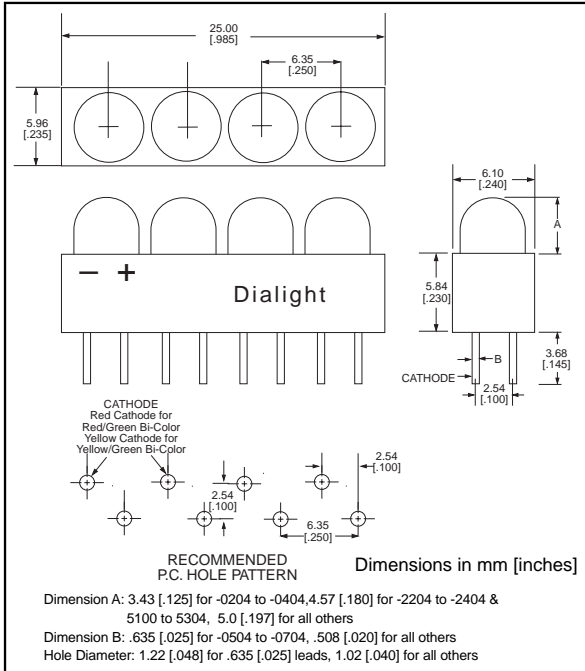


5mm

LED CBI® Circuit Board Indicator Top View, Quad Block



550-xx04-004



Standard Polarity shown in drawing: Cathode left

Features

- Multiple CBIs form horizontal LED arrays on 6.35mm (0.250") center-lines.
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 32%
- Polymer content: PBT, 0.755 g
- Housing stand-offs facilitate PCB cleaning
- Solderability per MIL-STD-202F, method 208F
- LEDs are safe for direct viewing per IEC 825-1, EN-60825-1
- Compatible with 550-xx04 Single-Block

Custom Combinations

- Contact factory for information on custom color combinations

Tolerance note: As noted, otherwise:

- LED Protrusion: ±0.04 mm [±0.016]
- CBI Housing: ±0.02mm[±0.008]

PART NO.

GENERAL PURPOSE

- 550-0204-004
- 550-0304-004
- 550-0404-004

INTEGRAL RESISTOR

- 550-0504-004 Red, 5V
- 550-0704-004 Green, 5V
- 550-0804-004 Yellow, 5V

LOW CURRENT

- 550-1104-004 Red
- 550-1204-004 Yellow
- 550-1304-004 Green

HIGH EFFICIENCY

- 550-2204-004 Green
- 550-2304-004 Yellow
- 550-2404-004 Red
- 550-2504-004 Orange

BI-COLOR

- 550-3004-004 Red/Green
- 550-3104-004 Yellow/Green



SUPER BRIGHT, DIFFUSED

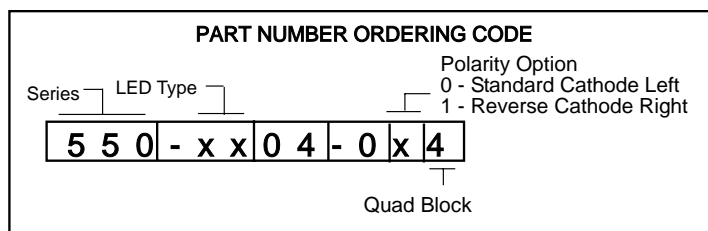
- 550-5104-004 Red
- 550-5204-004 Green
- 550-5304-004 Yellow

SUPER BRIGHT, WATER CLEAR (Non-tinted, Non-diffused)

- 550-5504-004 Red
- 550-5604-004 Green
- 550-5704-004 Yellow

* LED 1, LED 2, LED 3, LED 4

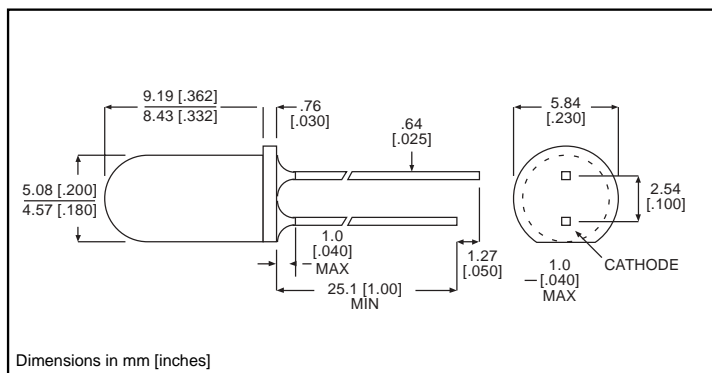
Reverse Polarity (Cathode Right) option available. See Part Number Ordering Code.



5mm Discrete LED Integral Resistor, 5 Volts Diffused

Dialight

521-9183, -9284



<u>PART NO.</u>	<u>LED COLOR</u>
521-9183	Red
521-9284	Yellow

MOUNTING CLIP: 515-0004
located on page 6-48

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)	Red -9183	Yellow -9284
Forward Voltage (V)	7.5	7.5
Derating (V/°C) From 50°C	.071	.071
Operating Temperature (°C)	-40/+85	-40/+85
Storage Temperature (°C)	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case	

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)		Red -9183	Yellow -9284
Luminous Intensity (mcd)	Min.	2	2
	Typical	8	8
Peak Wavelength (nm)	Typical	635	583
Viewing Angle ($2\theta^{\circ}$)	Typical	60°	60°
Forward Current (I)	Typical	10	10
	Max	15	15
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5

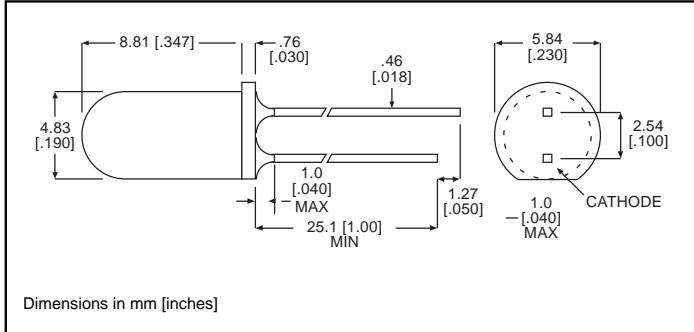
θ° is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

5mm Discrete LED
Low Current, 2mA
Diffused

Dialight

521-9320, -9321, -9327



<u>PART NO.</u>	<u>COLOR</u>
521-9320	Red
521-9321	Yellow
521-9327	Green

MOUNTING CLIP: 515-0004
 located on page 6-48

ABSOLUTE MAXIMUM RATINGS (TA=25°C)

	Red -9320	Yellow -9321	Green -9327
Power Dissipation (mW)	27	36	24
Derating (mA/°C) From 92°C	1	1	1
Forward Current (mA)	7	7	7
Peak Current (mA) Pulse width = 10 μs	500	500	500
Operating Temperature (°C)	-55/+100	-55/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case		

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS (TA=25°C)

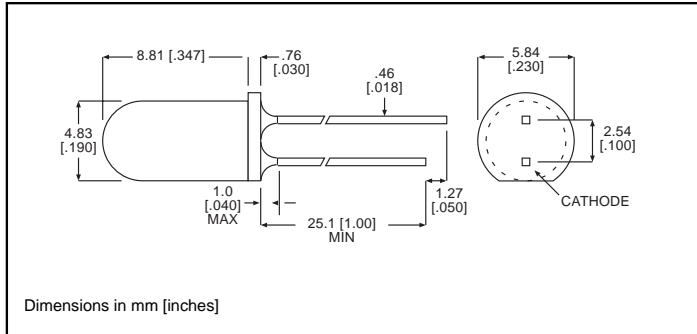
		Red -9320	Yellow -9321	Green -9327
Luminous Intensity (mcd)	Min.	1.2	1.2	1.2
	Typical	2	1.8	1.8
Peak Wavelength (nm) λ Peak	Typical	635	583	565
Viewing Angle (2θ ½)	Typical	50°	50°	50°
Forward Voltage (V) IF=2mA	Typical	1.8	1.9	1.8
	Max.	2.2	2.7	2.2
Reverse Voltage (V), IR=50μA	Min.	5	5	5

θ ½ is the off axis angle at which the luminous intensity is half the axial luminous intensity

5mm Discrete LED
High Efficiency
Diffused

Dialight

521-9246, -9248, -9250, -9704



PART NO.	COLOR
521-9246	Red
521-9248	Yellow
521-9250	Green
521-9704	Orange

MOUNTING CLIP: 515-0004
 located on page 6-48

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)	Red -9246	Yellow -9248	Green -9250	Orange -9704
Power Dissipation (mW)	135	85	135	135
Derating (mW/ $^\circ\text{C}$) From 25 $^\circ\text{C}$ 1. (mA/ $^\circ\text{C}$) From 50 $^\circ\text{C}$	1.8	1.6	1.8	.5'
Forward Current (mA)	25	20	25	30
Peak Current (mA) Pulse width = 10 μs	500	500	500	500
Operating Temperature ($^\circ\text{C}$)	-55/+100	-55/+100	-20/+100	-55/+100
Storage Temperature ($^\circ\text{C}$)	-55/+100	-55/+100	-55/+100	-55/+100
Soldering Temperature	260 $^\circ\text{C}$, 5 seconds, 1.6 mm from case			

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)		Red -9246	Yellow -9248	Green -9250	Orange -9704
Luminous Intensity (mcd)	Min.	4	4	4.2	4
	Typical	7	8	5.2	7
Peak Wavelength (nm) λ Peak	Typical	635	583	565	600
Viewing Angle (2θ °)	Typical	60°	60°	60°	60°
Forward Voltage (V)	Typical	2.2	2.2	2.3	1.9
	Max.	3	3	3	2.4
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5	5	5

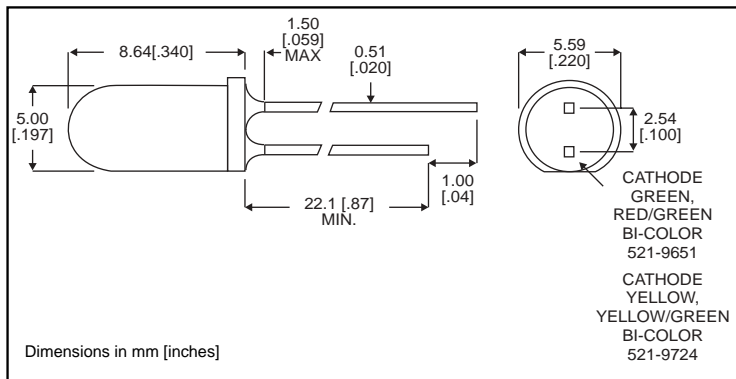
θ is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

**5mm Discrete LED
Bi-Color
Non-Tinted, Diffused**

Dialight

521-9651, -9724



PART NO.	LED COLOR
521-9651	Red/Green
521-9724	Yellow/Green

MOUNTING CLIP: 515-0005
located on page 6-48

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	Red/Green -9651	Yellow/Green -9724
Power Dissipation (mW)	100/100	60/100
Forward Current (mA)	40/30	20/30
Derating (mA/°C) From 50°C	.5/.4	.25/.40
Peak Current (mA) <i>Pulse width = 100 μs</i>	200/120	80/120
Operating Temperature (°C)	-55/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case	

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)

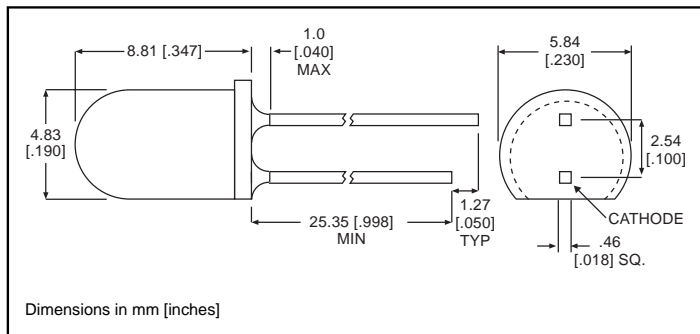
		Red/Green -9651	Yellow/Green -9724
Luminous Intensity (mcd)	Min.	29/12.6	2.5/2.5
	Typical	90/40	8.7/8.7
Peak Wavelength (nm) λ_{Peak}	Typical	660/565	585/565
Viewing Angle ($2\theta^{\circ}$)	Typical	60°	50°
Forward Voltage (V)	Typical	1.8/2.1	2.1/2.1
	Max.	2.4/2.8	2.8/2.8

θ° is the off axis angle at which the luminous intensity is half the axial luminous intensity

5mm Discrete LED
Super Bright, Water Clear
Non-Tinted, Non-Diffused

Dialight

521-9464,-9465,-9466



PART NO. COLOR

521-9464	Red
521-9465	Green
521-9466	Yellow

MOUNTING CLIP: 515-0004
 located on page 6-48

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	Red -9464	Green -9465	Yellow -9466
Power Dissipation (mW)	135	135	85
Derating (mW/°C) <i>From 25°C 1. From 50 °C</i>	1.8	1.8	1.6 ¹
Forward Current (mA)	30	30	20
Peak Current (mA) <i>Pulse width = 10 μs</i>	500	500	500
Operating Temperature (°C)	-55/+100	-20/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100
Soldering Temperature	260 °C, 5 seconds, 1.6 mm from case		

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)

		Red -9464	Green -9465	Yellow -9466
Luminous Intensity (mcd)	Min.	80	80	80
	Typical	125	120	140
Peak Wavelength (nm)	Typical	635	565	583
Viewing Angle (2θ °)	Typical	24°	24°	24°
Forward Voltage (V)	Typical	2.2	2.3	2.2
	Max.	3	3	3
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5	5

¹ θ is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

5mm
High Efficiency
Diffused

Dialight

5HD-xxxx

*** NOT A VALID PART
NUMBER. THIS SHEET IS FOR
REFERENCE ONLY.**

TYPE	COLOR
*5HD-9269	Red
*5HD-9270-2	Green
*5HD-9270-5	Green
*5HD-9271-2	Yellow
*5HD-9271-5	Yellow

ABSOLUTE MAXIMUM RATINGS

(T _A =25°C)	Red -9269	Green -9270-2	Green -9270-5	Yellow -9271-2	Yellow -9271-5
Power Dissipation (mW) Derating (mW/°C) From 50°C 1. From 40°C	60 .66 ¹	140	75 .66 ¹	200	60 .66 ¹
Forward Current (mA) Derating (mA/°C) From 25°C	20	40 .6	25	60 .8	20
Peak Current (mA) Pulse width = 1μs	60	500	60	1000	60
Operating Temperature (°C)	-25/+85	-55/+100	-25/+85	-55/+100	-25/+85
Storage Temperature (°C)	-30/+100	-55/+100	-30/+100	-55/+100	-30/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case				

Solder Adherence per MIL-STD-202E, Method 208C

6

OPERATING CHARACTERISTICS

(T _A =25°C)		Red -9269	Green -9270-2	Green -9270-5	Yellow -9271-2	Yellow -9271-5
Luminous Intensity (mcd)	Min.	2.2	4	3.6	4	2.2
	Typical	7	32	10	10	6.3
Peak Wavelength (nm)	Typical	650	565	563	590	585
	λ Peak					
Viewing Angle (2Θ °)	Typical	50°	50°	65°	70°	50°
Forward Voltage (V)	Typical	2.2	2*	2.1	2.4*	2.1
	Max.	2.5	2.6*	3	3*	3
Reverse Voltage (V),	Min.	5	5*	3*	5*	3
	I _R =100μA *I _R =10μA					

Θ is the off axis angle at which the luminous intensity is half the axial luminous intensity

5mm
General Purpose
Diffused

Dialight

5ND-xxxx

*** NOT A VALID PART
NUMBER. THIS SHEET IS FOR
REFERENCE ONLY.**

TYPE

COLOR

*5ND-9672

Red

*5ND-9673

Yellow

*5ND-9674

Green

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

	Red -9672	Yellow -9673	Green -9674
Power Dissipation (mW)	80	60	100
Forward Current (mA)	40	20	30
Derating (mA/°C) <i>From 25°C</i>	.5	.25	.4
Peak Current (mA) <i>Pulse width = 10 μs</i>	200	80	120
Operating Temperature (°C)	-55/+100	-55/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case		

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)

		Red -9672	Yellow -9673	Green -9674
Luminous Intensity (mcd) $I_F=20\text{mA}$	Min.	3.5	3.5	3.5
	Typical	12.3	12.3	12.3
Peak Wavelength (nm) λ_{Peak}	Typical	635	585	565
Viewing Angle ($2\theta^{\circ}$)	Typical	60°	60°	60°
Forward Voltage (V) $I_F=20\text{mA}$	Typical	2	2.1	2.1
	Max.	2.8	2.8	2.8
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5	5

θ° is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

5mm
Integral Resistor
Diffused

Dialight
5RD-xxxx

*** NOT A VALID PART
NUMBER. THIS SHEET IS FOR
REFERENCE ONLY.**

TYPE	COLOR	VOLTS
*5RD-9378	Green	12
*5RD-9379	Yellow	12
*5RD-9422	Red	5
*5RD-9423	Green	5

ABSOLUTE MAXIMUM RATINGS

(T _A =25°C)	Green 12V -9378	Yellow 12V -9379	Red 5V -9422	Green 5V -9423
Forward Voltage (V) *(T _A =70°C)	15 *	15	7.5	7.5
Operating Temperature (°C)	-20/+85	-40/+85	-40/+85	-20/+85
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case			

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS

(T _A =25°C)		Green 12V -9378	Yellow 12V -9379	Red 5V -9422	Green 5V -9423
Luminous Intensity (mcd)	Min.	1.5*	1.5*	1	2
	Typical	4*	4*	2	8
V _F =5V, *V _F =12V					
Peak Wavelength (nm)	Typical	565	583	655	565
λ Peak					
Viewing Angle (2θ *)	Typical	60°	60°	60°	60°
Forward Current (mA), V _F =5V	Typical	13*	13*	13	12
V _F =12V	Max.	20	20*	20	15
Reverse Voltage (V), I _R =100μA	Typical	5	5	5	5

θ¹ is the off axis angle at which the luminous intensity is half the axial luminous intensity

5mm
Super Bright LED
Diffused

Dialight

5SD-XXXX

*** NOT A VALID PART
NUMBER. THIS SHEET IS FOR
REFERENCE ONLY.**

TYPE	COLOR
*5SD-9441	Red
*5SD-9455	Yellow
*5SD-9456	Green

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)	Red -9441	Yellow -9455	Green -9456
Power Dissipation (mW)	75	75	75
Forward Current (mA)	25	25	25
Derating (mA/°C) <i>From 50°C</i> *(mW/°C) <i>From 40°C</i>	.66*	.5	.5
Peak Current (mA) <i>Pulse width = 1 ms</i>	60	60	60
Operating Temperature (°C)	-55/+100	-55/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from case		

Solder Adherence per MIL-STD-202E, Method 208C

OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)		Red -9441	Yellow -9455	Green -9456
Luminous Intensity (mcd)	Min.	17	17	17
	Typical	34	34	34
Peak Wavelength (nm)	Typical	650	585	563
Viewing Angle ($2\theta_{\frac{1}{2}}$)	Typical	50°	50°	50°
Forward Voltage (V)	Typical	2.1	2.2	2.2
	Max.	2.55	3	3
Reverse Voltage (V), $I_R=10\mu\text{A}$	Min.	3	3	3

$\theta_{\frac{1}{2}}$ is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

Typical Operating Characteristics (T_A=25°C)

See LED data sheet for additional information

GENERAL PURPOSE See page 6-55 and 6-56 for Reference Only LED Drive Circuit Examples. See page 6-58 for Pin Out

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-0204-004	Green	565	12.3	2.1	20	60°	5ND-9674	6-51
550-0304-004	Yellow	585	12.3	2.1	20	60°	5ND-9673	6-51
550-0404-004	Red	635	12.3	2	20	60°	5ND-9672	6-51

INTEGRAL RESISTOR

Part Number	Color	Peak Wavelength nm	I _v mcd	Test Voltage	Forward Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-0504-004	Red	655	2	5	13	60°	5RD-9422	6-52
550-0704-004	Green	565	8	5	12	60°	5RD-9423	6-52
550-0804-004	Yellow	583	8	5	10	60°	521-9284	6-41

LOW CURRENT

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-1104-004	Red	635	2	1.8	2	50°	521-9320	6-42
550-1204-004	Yellow	583	1.8	1.9	2	50°	521-9321	6-42
550-1304-004	Green	565	1.8	1.8	2	50°	521-9327	6-42

HIGH EFFICIENCY

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-2204-004	Green	563	10	2.1	10	65°	5HD-9270-5	6-49
550-2304-004	Yellow	585	6.3	2.1	10	50°	5HD-9271-5	6-49
550-2404-004	Red	650	7	2.2	10	50°	5HD-9269	6-49
550-2504-004	Orange	600	7	1.9	10	60°	521-9704	6-43

BI-COLOR

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-3004-004	Red/Green	660/565	90/40	1.8/2.1	20	60°	521-9651	6-46
550-3104-004	Yellow/Green	585/565	8.7/8.7	2.1/2.1	20	50°	521-9724	6-46

SUPER BRIGHT, DIFFUSED

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-5104-004	Red	650	34	2.1	20	50°	5SD-9441	6-53
550-5204-004	Green	563	34	2.2	20	50°	5SD-9456	6-53
550-5304-004	Yellow	585	34	2.2	20	50°	5SD-9455	6-53

SUPER BRIGHT, WATER CLEAR (NON-TINTED, NON-DIFFUSED)

Part Number	Color	Peak Wavelength nm	I _v mcd	V _F Volts	Test Current (mA)	Viewing Angle 2Θ _½	LED Data sheet	Page #
550-5504-004	Red	635	125	2.2	20	24°	521-9464	6-47
550-5604-004	Green	565	120	2.3	20	24°	521-9465	6-47
550-5704-004	Yellow	583	140	2.2	20	24°	521-9466	6-47

