

**5mm**  
**LED CBI® Circuit Board Indicator**  
**Vertical, Various Heights**

**Dialight**

**561-xx0x-xxx**



**Features**

- Multiple CBIs form horizontal LED arrays on 7.24mm (0.285") center-lines.
- 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
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 29%(all sizes)

**Custom Devices**

- Contact factory for other LED types or alternate heights

**Tolerance note: As noted, otherwise:**

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

**PART NO.**

**INTEGRAL RESISTOR, 5 VOLTS**

561-0104-xxx

**COLOR**

Red

**LOW CURRENT**

561-1101-xxx

Red

561-1201-xxx

Yellow

561-1301-xxx

Green

**HIGH EFFICIENCY**

561-0901-xxx

Orange

561-2101-xxx

Red

561-2201-xxx

Green

561-2301-xxx

Yellow

**HIGH EFFICIENCY, TINTED, NON DIFFUSED**

561-2401-xxx

Red

561-2501-xxx

Green

561-2601-xxx

Yellow

**SUPER BRIGHT, DIFFUSED**

561-5101-xxx

Red

561-5201-xxx

Green

561-5301-xxx

Yellow

**SUPER BRIGHT, WATER CLEAR (Non-Tinted, Non-Diffused)**

561-5501-xxx

Red

561-5601-xxx

Green

561-5701-xxx

Yellow

**BI-COLOR**

561-3001-xxx

Red/Green

561-3101-xxx

Yellow/Green

**6**

**NEW**  
**NEW**



# 561-xx0x-xxx

## Typical Operating Characteristics ( $T_A=25^{\circ}\text{C}$ )

See LED data sheet for additional information

### INTEGRAL RESISTOR, 5 VOLTS *See page 6-55 and 6-56 for Reference Only LED Drive Circuit Examples. See page 6-57 for Pin Out*

Part Number	Color	Peak Wavelength nm	$I_V$ mcd	Test Voltage	Forward Current (mA)	Viewing Angle $2\Theta_{\%}$	LED Data sheet	Page #
561-0104-xxx	Red	635	8	5	10	60°	521-9183	6-41

### LOW CURRENT

Part Number	Color	Peak Wavelength nm	$I_V$ mcd	$V_F$ Volts	Test Current (mA)	Viewing Angle $2\Theta_{\%}$	LED Data sheet	Page #
561-1101-xxx	Red	635	2	1.8	2	50°	521-9320	6-42
561-1201-xxx	Yellow	583	1.8	1.9	2	50°	521-9321	6-42
561-1301-xxx	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 $2\Theta_{\%}$	LED Data sheet	Page #
561-0901-xxx	Orange	600	7	1.9	10	60°	521-9704	6-43
561-2101-xxx	Red	635	7	2.2	10	60°	521-9246	6-43
561-2201-xxx	Green	565	32	2*	10	50°	5HD-9270-2	6-49
561-2301-xxx	Yellow	590	10	2.4*	10	70°	5HD-9271-2	6-49

\*  $I_F = 20\text{mA}$

### HIGH EFFICIENCY, TINTED, NON-DIFFUSED

Part Number	Color	Peak Wavelength nm	$I_V$ mcd	$V_F$ Volts	Test Current (mA)	Viewing Angle $2\Theta_{\%}$	LED Data sheet	Page #
561-2401-xxx	Red	635	60	2.2	10	35°	521-9247	6-44
561-2501-xxx	Green	565	70	2.3	10	24°	521-9251	6-44
561-2601-xxx	Yellow	583	50	2.2	10	35°	521-9249	6-44

### SUPER BRIGHT, DIFFUSED

Part Number	Color	Peak Wavelength nm	$I_V$ mcd	$V_F$ Volts	Test Current (mA)	Viewing Angle $2\Theta_{\%}$	LED Data sheet	Page #
561-5101-xxx	Red	650	34	2.1	20	50°	5SD-9441	6-53
561-5201-xxx	Green	563	34	2.2	20	50°	5SD-9456	6-53
561-5301-xxx	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 $2\Theta_{\%}$	LED Data sheet	Page #
561-5501-xxx	Red	635	125	2.2	20	24°	521-9464	6-47
561-5601-xxx	Green	565	120	2.3	20	24°	521-9465	6-47
561-5701-xxx	Yellow	583	140	2.2	20	24°	521-9466	6-47

### BI-COLOR

Part Number	Color	Peak Wavelength nm	$I_V$ mcd	$V_F$ Volts	Test Current (mA)	Viewing Angle $2\Theta_{\%}$	LED Data sheet	Page #
561-3001-xxx	Red/Green	660/565	90/40	1.8/2.1	20	60°	521-9651	6-46
561-3101-xxx	Yellow/Green	585/565	8.7/8.7	2.1/2.1	20	50°	521-9724	6-46



# 5mm Discrete LED Integral Resistor, 5 Volts Diffused

# Dialight

## 521-9183, -9284



PART NO.	LED COLOR
521-9183	Red
521-9284	Yellow

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

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> =25°C)	Red	Yellow
	-9183	-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 <sub>A</sub> =25°C)		Red	Yellow
		-9183	-9284
Luminous Intensity (mcd)	Min.	2	2
	Typical	8	8
Peak Wavelength (nm)	Typical	635	583
Viewing Angle (2θ <sup>1/2</sup> )	Typical	60°	60°
Forward Current (I)	Typical	10	10
	Max	15	15
Reverse Voltage (V), I <sub>R</sub> =100μA	Min.	5	5

θ<sup>1/2</sup> is the off axis angle at which the luminous intensity is half the axial luminous intensity

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**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 <b>-9320</b>	Yellow <b>-9321</b>	Green <b>-9327</b>
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 <b>-9320</b>	Yellow <b>-9321</b>	Green <b>-9327</b>
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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ )	Red <b>-9246</b>	Yellow <b>-9248</b>	Green <b>-9250</b>	Orange <b>-9704</b>
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 $\mu\text{s}$	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

<b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ )		Red <b>-9246</b>	Yellow <b>-9248</b>	Green <b>-9250</b>	Orange <b>-9704</b>
Luminous Intensity (mcd)	Min.	4	4	4.2	4
	Typical	7	8	5.2	7
Peak Wavelength (nm) $\lambda$ Peak	Typical	635	583	565	600
Viewing Angle ( $2\theta$ °)	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

$\theta$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

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**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 <b>-9651</b>	Yellow/Green <b>-9724</b>
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 <math>\mu\text{s}</math></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 <b>-9651</b>	Yellow/Green <b>-9724</b>
Luminous Intensity (mcd)	Min.	29/12.6	2.5/2.5
	Typical	90/40	8.7/8.7
Peak Wavelength (nm) $\lambda_{\text{Peak}}$	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

$\theta^{\circ}$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

**5mm Discrete LED**  
**High Brightness**  
**Non-Diffused**

**Dialight**

**521-9247, -9249, -9251**



PART NO.	COLOR
521-9247	Red
521-9249	Yellow
521-9251	Green

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

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

	Red -9247	Yellow -9249	Green -9251
Power Dissipation (mW)	135	85	135
Derating (mW/°C) <i>From 25°C 1. From 50°C</i>	1.8	1.6 <sup>1</sup>	1.8
Forward Current (mA)	30	20	30
Peak Current (mA) <i>Pulse width = 10μs</i>	500	500	500
Operating Temperature (°C)	-55/+100	-55/+100	-20/+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 -9247	Yellow -9249	Green -9251
Luminous Intensity (mcd) $I_F=10\text{mA}$	Min.	25	25	25
	Typical	60	50	70
Peak Wavelength (nm) $\lambda_{\text{Peak}}$	Typical	635	583	565
Viewing Angle ( $2\theta^{\circ}$ )	Typical	35°	35°	24°
Forward Voltage (V) $I_F=10\text{mA}$	Typical	2.2	2.2	2.3
	Max.	3	3	3
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5	5

$\theta^{\circ}$  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 <b>-9464</b>	Green <b>-9465</b>	Yellow <b>-9466</b>
Power Dissipation (mW)	135	135	85
Derating (mW/°C) <i>From 25°C 1. From 50 °C</i>	1.8	1.8	1.6 <sup>1</sup>
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 <b>-9464</b>	Green <b>-9465</b>	Yellow <b>-9466</b>
Luminous Intensity (mcd)	Min.	80	80	80
	Typical	125	120	140
Peak Wavelength (nm)	Typical	635	565	583
Viewing Angle ( $2\theta$ °)	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

<sup>1</sup>  $\theta$  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 <sub>A</sub> =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 <sup>1</sup>	140	75 .66 <sup>1</sup>	200	60 .66 <sup>1</sup>
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

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**OPERATING CHARACTERISTICS**

(T <sub>A</sub> =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 <sub>R</sub> =100μA *I <sub>R</sub> =10μA					

Θ<sup>1</sup> 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 <b>-9672</b>	Yellow <b>-9673</b>	Green <b>-9674</b>
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 <b>-9672</b>	Yellow <b>-9673</b>	Green <b>-9674</b>
Luminous Intensity (mcd)	Min.	3.5	3.5	3.5
	Typical	12.3	12.3	12.3
Peak Wavelength (nm)	Typical	635	585	565
Viewing Angle ( $2\theta^{\circ}$ )	Typical	60°	60°	60°
Forward Voltage (V)	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

$\theta^{\circ}$  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  
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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 <sub>A</sub> =25°C)	Green 12V -9378	Yellow 12V -9379	Red 5V -9422	Green 5V -9423
Forward Voltage (V) *(T <sub>A</sub> =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 <sub>A</sub> =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 <sub>F</sub> =5V, *V <sub>F</sub> =12V					
Peak Wavelength (nm)	Typical	565	583	655	565
λ Peak					
Viewing Angle (2θ *)	Typical	60°	60°	60°	60°
Forward Current (mA), V <sub>F</sub> =5V	Typical	13*	13*	13	12
*V <sub>F</sub> =12V	Max.	20*	20*	20	15
Reverse Voltage (V), I <sub>R</sub> =100μA	Typical	5	5	5	5

θ<sup>1</sup> 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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ )	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*

<b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ )		Red -9441	Yellow -9455	Green -9456
Luminous Intensity (mcd) $I_F=20\text{mA}$	Min.	17	17	17
	Typical	34	34	34
Peak Wavelength (nm) $\lambda$ Peak	Typical	650	585	563
Viewing Angle ( $2\theta_{\frac{1}{2}}$ )	Typical	50°	50°	50°
Forward Voltage (V) $I_F=20\text{mA}$	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