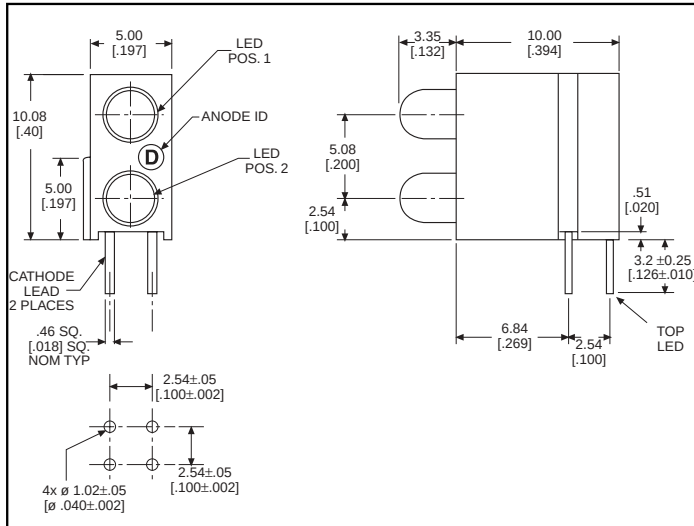


3mm LED CBI® Circuit Board Indicator DIN 41494 Bi-Level

Dialight
553-xxxx-400



Standard Polarity shown in drawing: Cathode left

Features

- Designed to accommodate DIN 41494
- Multiple CBIs form horizontal LED arrays on 5.0mm (0.197") center-lines.
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 32%
- Polymer content: PBT, 0.542 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

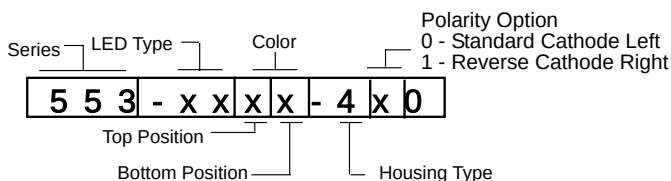
Tolerance note: As noted, otherwise:

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

Custom Combinations

- Contact factory for information on custom bi-level arrays and color combinations.

PART NUMBER ORDERING CODE



Color = 0) Blank 1) Red or Red/Green Bi color 2) Green 3) Yellow 4) Yellow/Green Bi-color
7) Orange 8) Blue

PART NO.

HIGH EFFICIENCY - LED TYPE 01

553-0111-400
553-0122-400
553-0133-400
553-0188-400

COLOR*

Red
Green
Yellow
Blue³

NEW

LOW CURRENT - LED TYPE 02

553-0211-400
553-0222-400
553-0233-400

Red
Green
Yellow

RESISTOR 5 VOLTS - LED TYPE 03

553-0311-400
553-0322-400
553-0333-400

Red
Green
Yellow

BI-COLOR - LED TYPE 07

553-0711-400
553-0744-400

Red/Green
Yellow/Green

NON-DIFFUSED - LED TYPE 22

553-2211-400
553-2222-400
553-2233-400

Red
Green
Yellow

* Top-Bottom LED

REVERSE POLARITY OPTION AVAILABLE

See Part Number Ordering Code below.



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE
DEVICES

553-xxxx-400

(DIN 41494 compatible)

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

See LED data sheet for additional information
See page 4-70 and 4-71 for Reference Only LED Drive Circuit Examples. See page 4-72 for Pin Out

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 #
553-0111-400	Red	635	10	2*	10	60°	521-9216	4-58
553-0122-400	Green	565	12.6	2.1*	10	60°	521-9210	4-58
553-0133-400	Yellow	585	10	2.1*	10	60°	521-9211	4-58
553-0177-400	Orange	600	7	2.2	10	60°	521-9498	4-58
553-0188-400	Blue	428	12	3.5	10	70°	521-9831	4-57

* $I_F=20\text{mA}$

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 #
553-0211-400	Red	635	1.6	1.7	2	60°	521-9324	4-60
553-0222-400	Green	565	1.6	1.9	2	60°	521-9326	4-60
553-0233-400	Yellow	585	1.6	1.8	2	60°	521-9325	4-60

INTEGRAL RESISTOR, 5 VOLTS

Part Number	Color	Peak Wavelength nm	I_V mcd	Test Voltage	Forward Current (mA)	Viewing Angle $2\theta_{\%}$	LED Data sheet	Page #
553-0311-400	Red	635	29	5	10	60°	521-9215	4-59
553-0322-400	Green	565	19	5	10	60°	521-9323	4-59
553-0333-400	Yellow	585	12.6	5	10	60°	521-9322	4-59

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 #
553-0711-400	Red/Green	635/565	4.7/10	2/2.1	10	50°	521-9459	4-63
553-0744-400	Yellow/Green	585/565	4.3/6.3	2.1*/2.1*	10	80°	521-9478	4-62

* $I_F = 20\text{mA}$

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 #
553-2211-400	Red	635	29	2	10	45°	521-9432	4-61
553-2222-400	Green	565	50	2.1	10	45°	521-9430	4-61
553-2233-200	Yellow	585	20	2.1	10	45°	521-9431	4-61

* $I_F = 20\text{mA}$

CBI ARRAYS .200 PITCH

Dialight offers its Multiarray to reduce insertions and to assure indicator alignment. Multiarrays mount indicators on .200 centers. These assemblies are available in arrays of 2 to 6. See pages 4-41 and 4-42 for information. Call factory for information on .185 pitched arrays.

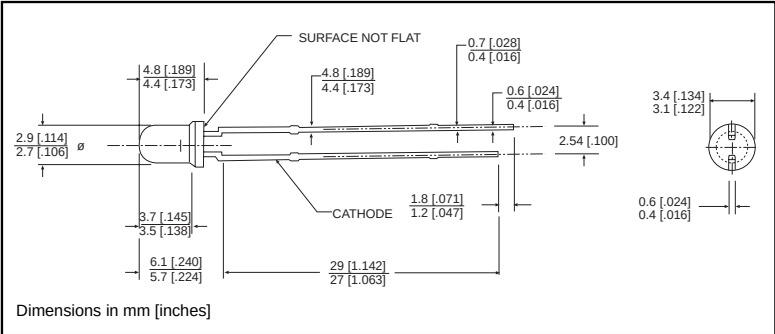
Dialight



3mm Discrete LED
Tinted, Diffused



521-9831



PART NO. 521-9831
COLOR Blue³

MOUNTING CLIP: 515-0006
located on page 4-65



4

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

	Blue
	-9831
Power Dissipation (mW)	100
Forward Current (mA)	20
Derating (mA/°C) From 55°C	.44
Operating Temperature (°C)	-40/+100
Storage Temperature (°C)	-40/+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)

	Blue
	-9831
Luminous Intensity (mcd)	Min. 6.3
I _F =10mA	Typical 12
Peak Wavelength (nm)	Typical 428
λ Peak	
Viewing Angle (2Θ½)	Typical 70°
Forward Voltage (V)	Typical 3.5
I _F =10mA	Max. 4.2
Reverse Voltage (V) I _R =10μA	Min. 3

Θ½ is the off axis angle at which the luminous intensity is half the axial luminous intensity

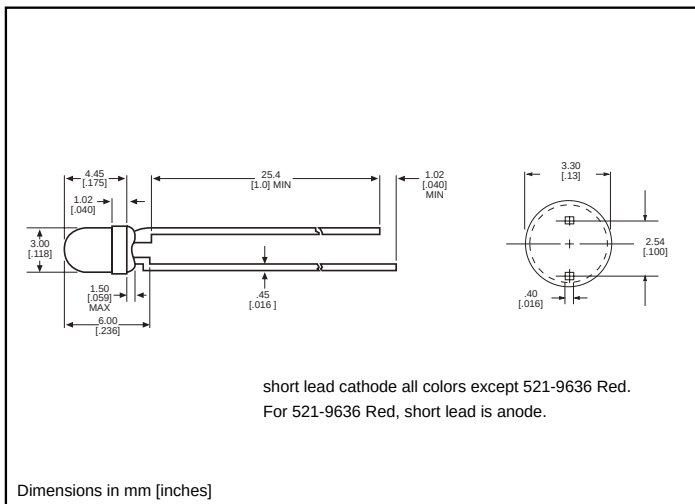
3mm Discrete LED

High Efficiency

Diffused

Dialight

521-9210, -9211, -9216, -9498, -9636



PART NO. COLOR

521-9210 Green

521-9211 Yellow

521-9216 Red

521-9498 Orange

521-9636 Red



MOUNTING CLIP: 515-0006
located on page 4-65

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)	Green -9210	Yellow -9211	Red -9216	Orange -9498	Red -9636
Power Dissipation (mW)	100	60	100	135	100
Forward Current (mA)	30	20	30	25	40
Derating (mA/°C) From 50°C ¹ from 25°C	.4	.25	.4	.5	.5 ¹
Operating Temperature (°C)	-55/+100	-55/+100	-55/+100	-55/+100	-55/+100
Storage Temperature (°C)	-55/+100	-55/+100	-55/+100	-55/+100	-55/+100
Soldering Temperature	260°C, 5 seconds, 1.6 mm from body				

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

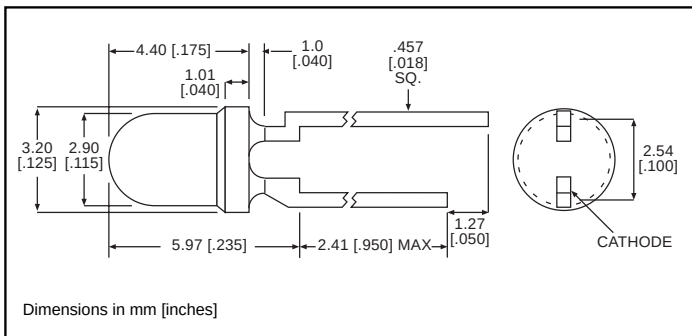
OPERATING CHARACTERISTICS ($T_A=25^\circ\text{C}$)		Green -9210	Yellow -9211	Red -9216	Orange -9498	Red -9636
Luminous Intensity (mcd)	Min.	4.7	7.4	7.4	3.4	8.7 ¹
	Typical	12.6	10	10	7	48 ¹
Peak Wavelength (nm)	Typical	565	585	635	600	660
	λ_{Peak}					
Viewing Angle ($2\theta^\circ$)	Typical	60°	60°	60°	60°	60°
Forward Voltage (V)	Typical	2.1 ¹	2.1 ¹	2 ¹	2.2	1.8 ¹
	Max.	2.8 ¹	2.8 ¹	2.8 ¹	3	2.4 ¹
Reverse Voltage (V), $I_R=100\mu\text{A}$	Max.	5	5	5	5	4

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

3mm Discrete LED Integral Resistor, 5V Diffused

Dialight

521-9215, -9322, -9323



PART NO.

COLOR

521-9215

Red

521-9322

Yellow

521-9323

Green

MOUNTING CLIP: 515-0006

located on page 4-65

4

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

	Red -9215	Yellow -9322	Green -9323
Forward Voltage (V) Derating (V/°C) From 50°C	7.5 .086	7.5 .086	7.5 .071
Operating Temperature (°C)	-40/+85	-40/+85	-20/+85
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°C)

		Red -9215	Yellow -9322	Green -9323
Luminous Intensity (mcd) V _F =5V	Min. Typical	8.7 29	3.7 12.6	5.6 19
Peak Wavelength (nm) λ Peak	Typical	635	585	565
Viewing Angle (2Θ _{1/2})	Typical	60°	60°	60°
Forward Current (mA) V _F =5V	Typical Max.	10 20	10 20	10 20
Reverse Voltage (V), I _R =100μA	Min.	5	5	5

Θ_{1/2} is the off axis angle at which the luminous intensity is half the axial luminous intensity

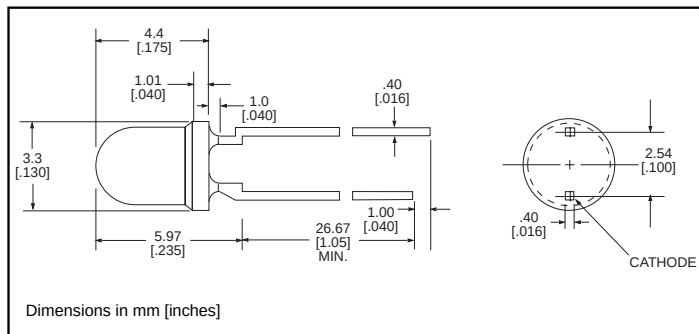
3mm Discrete LED

Low Current

Diffused

Dialight

521-9324, -9325, -9326



PART NO.

COLOR

521-9324

Red

521-9325

Yellow

521-9326

Green

MOUNTING CLIP: 515-0006
located on page 4-65

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

	Red -9324	Yellow -9325	Green -9326
Power Dissipation (mW)	20	20	20
Forward Current (mA)	7	7	7
Derating (mA/ $^\circ\text{C}$) From 90°C	.7	.7	.7
Peak Current (mA) Pulse width = 10 μs	500	500	500
Operating Temperature ($^\circ\text{C}$)	-55/+100	-55/+100	-55/+100
Storage Temperature ($^\circ\text{C}$)	-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 -9324	Yellow -9325	Green -9326
Luminous Intensity (mcd)	Min.	1	1	1
	Typical	1.6	1.6	1.6
Peak Wavelength (nm)	Typical	635	585	565
λ Peak				
Viewing Angle (2θ $^\circ$)	Typical	60 $^\circ$	60 $^\circ$	60 $^\circ$
Forward Voltage (V)	Typical	1.7	1.8	1.9
	Max.	2.2	2.7	2.2
Reverse Voltage (V), $I_R=50\mu\text{A}$	Min.	5	5	5

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

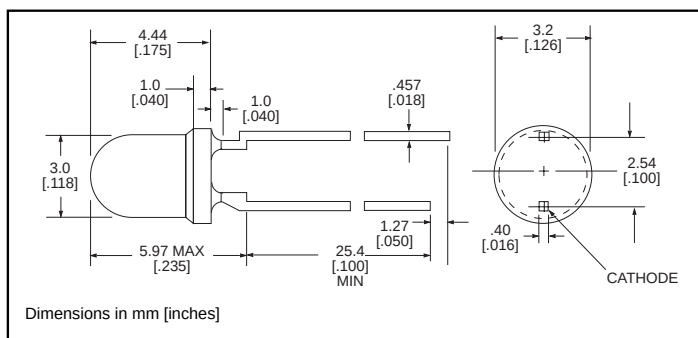
3mm Discrete LED

High Efficiency

Tinted, Non-Diffused

Dialight

521-9430, -9431, -9432



PART NO.

521-9430
521-9431
521-9432

COLOR

Green
Yellow
Red

MOUNTING CLIP: 515-0006
located on page 4-65

4

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

	Green -9430	Yellow -9431	Red -9432
Power Dissipation (mW)	100	60	100
Forward Current (mA)	30	20	30
Derating (mA/°C) From 50°C	.4	.25	.4
Peak Current (mA) Pulse width = 100μs	120	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°C)

		Green -9430	Yellow -9431	Red -9432
Luminous Intensity (mcd)	Min.	32	10	8.7
I _F =10mA	Typical	50	20	29
Peak Wavelength (nm)	Typical	565	585	635
λ Peak				
Viewing Angle (2θ _{1/2})	Typical	45°	45°	45°
Forward Voltage (V)	Typical	2.1	2.1	2
I _F =20mA	Max.	2.8	2.8	2.8

θ_{1/2} is the off axis angle at which the luminous intensity is half the axial luminous intensity

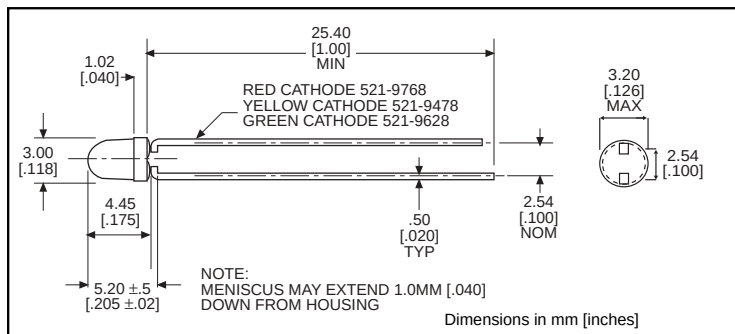
3mm Discrete LED

Bi-Color

Non-Tinted, Diffused

Dialight

521-9478, -9628, -9768



PART NO.	COLOR
521-9478	Yellow/Green
521-9628	Red/Green
521-9768	Red/Yellow

MOUNTING CLIP: 515-0006
located on page 4-65

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)	Yellow/Green -9478	Red/Green -9628	Red/Yellow -9768
Power Dissipation (mW)	60/100	140/100	100/60
Forward Current (mA)	20/30	40/30	30/20
Derating (mA/ $^{\circ}\text{C}$) From 25°C ¹ From 50°C	.25 ¹ /.40 ¹	.5/.4	.4 ¹ /.25 ¹
Peak Current (mA) Pulse width = 10 μs	80/120	200/120	120/80
Operating Temperature ($^{\circ}\text{C}$)	-55/+100	-55/+100	-55/+100
Storage Temperature ($^{\circ}\text{C}$)	-55/+100	-55/+100	-55/+100
Soldering Temperature	260 $^{\circ}\text{C}$, 5 seconds, 1.66 mm from case		

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

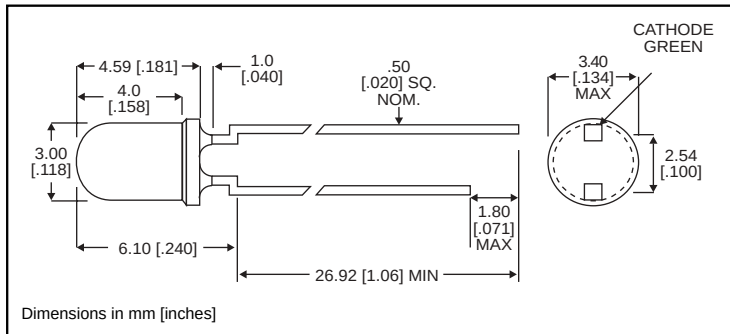
OPERATING CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)		Yellow/Green -9478	Red/Green -9628	Red/Yellow -9768
Luminous Intensity (mcd)	Min.	2.5/2.5	3.7*/1.1*	1.7*/1.7*
	Typical	4.3/6.3	12.6*/3.7*	5.6*/5.6*
Peak Wavelength (nm) λ Peak	Typical	585/565	660/565	630/585
Viewing Angle ($2\theta^{\circ}$)	Typical	80 $^{\circ}$	200 $^{\circ}$	80 $^{\circ}$
Forward Voltage (V) $I_F=20\text{mA}$	Typical Max.	2.1/2.1 2.8/2.8	1.8/2.1 2.4/2.8	2/2.1 2.8/2.8
Reverse Voltage (V) $I_R=100\text{ua}$	Min.	5	5	5

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

3mm Discrete LED
Bi-Color
Non-Tinted, Diffused

Dialight

521-9459



PART NO.

521-9459

COLOR

Red/Green

MOUNTING CLIP: 515-0006
located on page 4-65

4

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

Red/Green
-9459

Power Dissipation (mW)	140
Forward Current (mA)	45
Derating (mA/°C) <i>From 25°C</i>	.6
Peak Current (mA) <i>Pulse width = 10μs</i>	1000
Operating Temperature (°C)	-55/+100
Storage Temperature (°C)	-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
-9459

Luminous Intensity (mcd) $I_F=10\text{mA}$	Min. Typical	2.5/3.7 4.7/10
Peak Wavelength (nm) λ_{Peak}	Typical	635/565
Viewing Angle ($2\theta_{1/2}$)	Typical	50°
Forward Voltage (V) $I_F=10\text{mA}$	Typical Max.	2/2.1 2.8/2.8

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