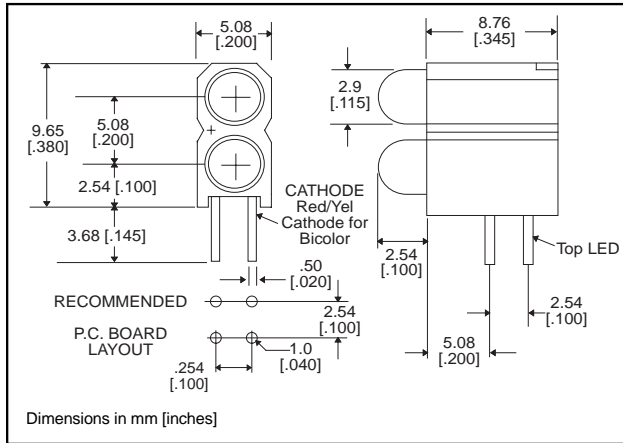


3mm

**LED CBI® Circuit Board Indicator  
Bi-level**



Standard Polarity shown in drawing: Cathode right

**Features**

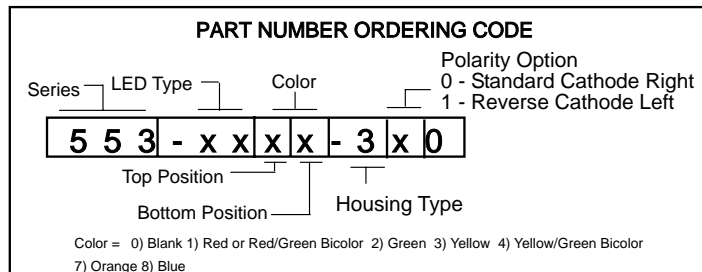
- Multiple CBIs form horizontal LED arrays on 5.08mm (0.200") center-lines.
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 32%
- Polymer content: PBT, 0.405 g
- Housing stand-offs facilitate PCB cleaning
- Solderability per MIL-STD-202F, method 208F
- LEDs are safe for direct viewing per IEC 825-1, EN-60825-1
- Compatible with:  
553-xxxx-306 Bi-Level Array

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

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

**Custom Combinations**

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



**PART NO.**

**COLOR\***

**HIGH EFFICIENCY - LED TYPE 01**

- 553-0111-300 Red
- 553-0122-300 Green
- 553-0133-300 Yellow
- 553-0177-300 Orange
- 553-0188-300 Blue<sup>3</sup> ← **NEW**

**LOW CURRENT - LED TYPE 02**

- 553-0211-300 Red
- 553-0222-300 Green
- 553-0233-300 Yellow

**RESISTOR 5 VOLTS - LED TYPE 03**

- 553-0311-300 Red
- 553-0322-300 Green
- 553-0333-300 Yellow

**BI-COLOR - LED TYPE 07**

- 553-0711-300 Red/Green
- 553-0744-300 Yellow/Green

**NON-DIFFUSED - LED TYPE 22**

- 553-2211-300 Red
- 553-2222-300 Green
- 553-2233-300 Yellow

\* Top-Bottom LED

**REVERSE POLARITY OPTION AVAILABLE**

See Part Number Ordering Code below.



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE  
DEVICES

## 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 #
553-0111-300	Red	650	10	2	10	45°	521-9427	4-64
553-0122-300	Green	563	16	2.1	10	45°	521-9408	4-64
553-0133-300	Yellow	585	6.3	2.1	10	45°	521-9428	4-64
553-0177-300	Orange	600	7	2.2	10	60°	521-9498	4-58
553-0188-300	Blue	428	12	3.5	10	70°	521-9831	4-57

### 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 #
553-0211-300	Red	635	1.6	1.7	2	60°	521-9324	4-60
553-0222-300	Green	565	1.6	1.9	2	60°	521-9326	4-60
553-0233-300	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 #
553-0311-300	Red	635	29	5	10	60°	521-9215	4-59
553-0322-300	Green	565	19	5	10	60°	521-9323	4-59
553-0333-300	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 #
553-0711-300	Red/Green	635/565	4.7/10	2/2.1	10	50°	521-9459	4-63
553-0744-300	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 #
553-2211-300	Red	635	29	2	10	45°	521-9432	4-61
553-2222-300	Green	565	50	2.1	10	45°	521-9430	4-61
553-2233-300	Yellow	585	20	2.1	10	45°	521-9431	4-61

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





# 3mm Discrete LED Tinted, Diffused

# Dialight

## 521-9831



**PART NO.** 521-9831  
**COLOR** Blue<sup>3</sup>

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



3

**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE  
DEVICES

4

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=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<sub>A</sub>=25°C)

Blue  
-9831

Luminous Intensity (mcd)	Min.	6.3
I <sub>F</sub> =10mA	Typical	12
Peak Wavelength (nm)	Typical	428
λ Peak		
Viewing Angle (2Θ <sub>1/2</sub> )	Typical	70°
Forward Voltage (V)	Typical	3.5
I <sub>F</sub> =10mA	Max.	4.2
Reverse Voltage (V) IR=10μA	Min.	3

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

# 3mm Discrete LED

## High Efficiency

### Diffused

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

# Dialight



#### 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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ )	Green <b>-9210</b>	Yellow <b>-9211</b>	Red <b>-9216</b>	Orange <b>-9498</b>	Red <b>-9636</b>
Power Dissipation (mW)	100	60	100	135	100
Forward Current (mA)	30	20	30	25	40
Derating (mA/°C) From 50°C <sup>1</sup> from 25°C	.4	.25	.4	.5	.5 <sup>1</sup>
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

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

<sup>1</sup>  $\theta$  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

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ )	Red	Yellow	Green
	<b>-9215</b>	<b>-9322</b>	<b>-9323</b>
Forward Voltage (V)	7.5	7.5	7.5
Derating ( $V/^\circ\text{C}$ ) From $50^\circ\text{C}$	.086	.086	.071
Operating Temperature ( $^\circ\text{C}$ )	-40/+85	-40/+85	-20/+85
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

<b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ )		Red	Yellow	Green
		<b>-9215</b>	<b>-9322</b>	<b>-9323</b>
Luminous Intensity (mcd)	Min.	8.7	3.7	5.6
	Typical	29	12.6	19
Peak Wavelength (nm)	Typical	635	585	565
$\lambda$ Peak				
Viewing Angle ( $2\theta_{1/2}$ )	Typical	60 $^\circ$	60 $^\circ$	60 $^\circ$
Forward Current (mA)	Typical	10	10	10
	Max.	20	20	20
Reverse Voltage (V), $I_R=100\mu\text{A}$	Min.	5	5	5

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

**4**

**3mm Discrete LED**  
**Low Current**  
**Diffused**



**521-9324, -9325, -9326**



<u>PART NO.</u>	<u>COLOR</u>
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 <b>-9324</b>	Yellow <b>-9325</b>	Green <b>-9326</b>
Power Dissipation (mW)	20	20	20
Forward Current (mA)	7	7	7
Derating (mA/°C) From 90°C	.7	.7	.7
Peak Current (mA) Pulse width = 10 $\mu\text{s}$	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** ( $T_A=25^\circ\text{C}$ )

		Red <b>-9324</b>	Yellow <b>-9325</b>	Green <b>-9326</b>
Luminous Intensity (mcd) $I_F=2\text{mA}$	Min.	1	1	1
	Typical	1.6	1.6	1.6
Peak Wavelength (nm) $\lambda_{\text{Peak}}$	Typical	635	585	565
Viewing Angle ( $2\theta_{\text{1/2}}$ )	Typical	60°	60°	60°
Forward Voltage (V) $I_F=2\text{mA}$	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

$\theta_{\text{1/2}}$  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**



<u>PART NO.</u>	<u>COLOR</u>
521-9430	Green
521-9431	Yellow
521-9432	Red

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

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

	Green <b>-9430</b>	Yellow <b>-9431</b>	Red <b>-9432</b>
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** ( $T_A=25^\circ\text{C}$ )

		Green <b>-9430</b>	Yellow <b>-9431</b>	Red <b>-9432</b>
Luminous Intensity (mcd) $I_F=10\text{mA}$	Min.	32	10	8.7
	Typical	50	20	29
Peak Wavelength (nm) $\lambda$ Peak	Typical	565	585	635
Viewing Angle ( $2\theta_{1/2}$ )	Typical	45°	45°	45°
Forward Voltage (V) $I_F=20\text{mA}$	Typical	2.1	2.1	2
	Max.	2.8	2.8	2.8

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

**4**

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



**521-9478, -9628, -9768**



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

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

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

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

<b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ )		Yellow/Green <b>-9478</b>	Red/Green <b>-9628</b>	Red/Yellow <b>-9768</b>
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)	Typical	585/565	660/565	630/585
$\lambda$ Peak				
Viewing Angle ( $2\theta$ °)	Typical	80°	200°	80°
Forward Voltage (V)	Typical	2.1/2.1	1.8/2.1	2/2.1
	Max.	2.8/2.8	2.4/2.8	2.8/2.8
Reverse Voltage (V) $I_R=100\text{ua}$	Min.	5	5	5

° 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) From 25°C	.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) $\lambda$ 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

# 3mm Discrete LED High Efficiency Diffused

# Dialight

## 521-94xx



**TYPE**  
521-9408  
521-9427  
521-9428

**COLOR**  
Green  
Red  
Yellow

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

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

	Green <b>-9408</b>	Red <b>-9427</b>	Yellow <b>-9428</b>
Power Dissipation (mW)	75	60	60
Forward Current (mA)	25	20	20
Derating (mA/°C) From 50°C	.5	.5	.5
Peak Current (mA)	60	60	60
Operating Temperature (°C)	-25/+85	-25/+85	-25/+85
Storage Temperature (°C)	-30/+100	-30/+100	-30/+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 <b>-9408</b>	Red <b>-9427</b>	Yellow <b>-9428</b>
Luminous Intensity (mcd)	Min.	5.6	3.6	2.2
	Typical	16	10	6.3
Peak Wavelength (nm)	Typical	563	650	585
Viewing Angle (2θ <sup>1/2</sup> )	Typical	45°	45°	45°
Forward Voltage (V)	Typical	2.1	2	2.1
	Max.	3	3	3
Reverse Voltage (V), I <sub>R</sub> =10μA	Min.	3	3	3

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

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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