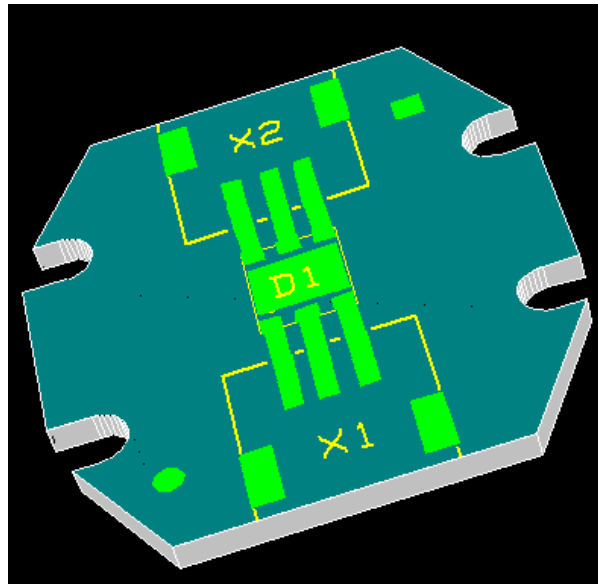


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## Super high Flux output and high Luminance RGB LED Module



### ***Background***

This LED Module is for daisy chain application where it can be used with external driver. No end harness is necessary please look into wiring diagram guide.

### ***Description***

Optodrive Felicia RGB series is designed for high current operation and high flux output applications. Optodrive thermal management performance is excellent in its solution. It is incorporates state of the art SMD design and Thermal emission material. Full color Optodrive LED Module is the first full color package, using 3 RGB power chips and rendering 7colors. In case of the full color product used in architectural lighting or decoration, it emits 7colors in one package so that it can render a clear mixed color when it is mixed with other colors.

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### **Mechanical Characteristics:**

Board dimensions:	30.3 x 27 mm diameter
Assembly holes:	2 x x mm
Connector:	PHR-3 or similar
Height PCB	1.6 +/- 0,16 mm
LED	1.0 mm
Connector	5.5 mm
Total	7.1 mm

### **Electrical characteristics:**

Number of LED's:	1 ea
Connector	2 ea
Voltage Vf:	See separate page
LED current:	400 mA maximum pro chip
Total LED Voltage	50 VDC over all LEDs in the chain
Led Type	F50360
Connector	PH

### ***Wiring diagram:***

TBD



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## Characteristics for Optodrive Felicia 2C RGB

### 1. Electro-Optical characteristics at (Red, Green, and Blue All Color in use)

1-1 Electro-Optical characteristics at TA=25°C

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux		-	105 (78) [3]	-	lm
Forward Voltage	VF	-	R: 2.5 G: 3.5 B: 3.2	-	V
Forward Current	IF	R,G,B:350			mA
View Angle	2 x 1/2	120			deg.

### 2. Blue

2-1 Electro-Optical characteristics at IF=350mA, TA=25°C

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux		-	13	-	lm
Dominant Wavelength	$\lambda_D$	455	460	475	nm
Forward Voltage	VF	-	3.2	-	V
View Angle	2 $\Theta$ 1/2	120			deg.
Thermal Resistance		14			°C / W

### 3. Green

3-1 Electro-Optical characteristics at IF=350mA, TA=25°C

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux		-	57	-	lm
Dominant Wavelength	$\lambda_D$	520	525	535	nm
Forward Voltage	VF	-	3.5	-	V
View Angle	2 $\Theta$ 1/2	120			deg.
Thermal Resistance		16			°C / W

### 4. Red

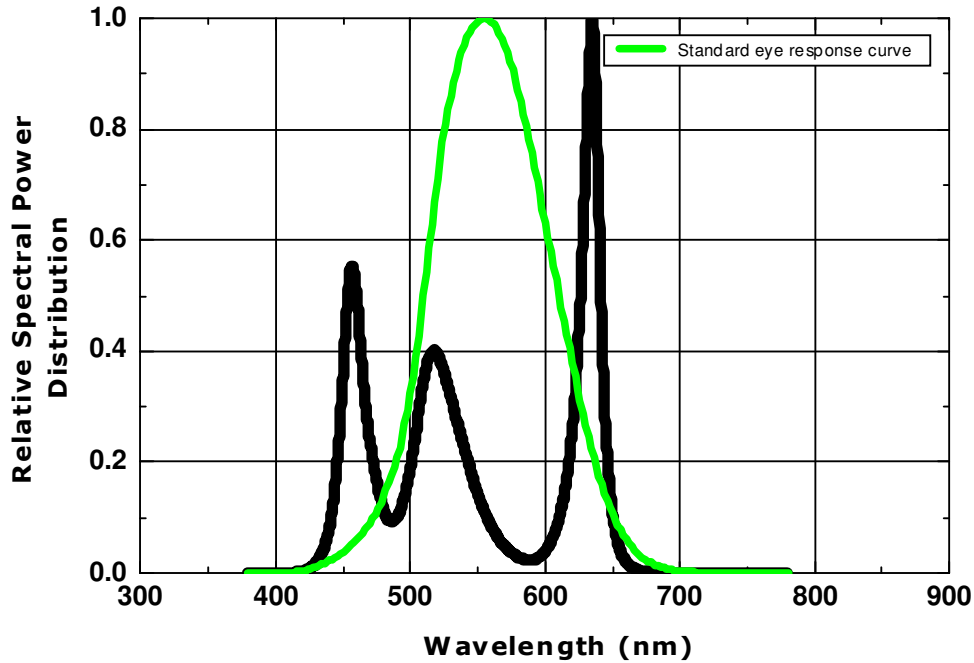
4-1 Electro-Optical characteristics at IF=350mA, TA=25°C

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Luminous Flux		-	35	-	lm
Dominant Wavelength	$\lambda_D$	618	625	630	nm
Forward Voltage	VF	-	2.5	-	V
View Angle	2 $\Theta$ 1/2	120			deg.
Thermal Resistance		16			°C / W

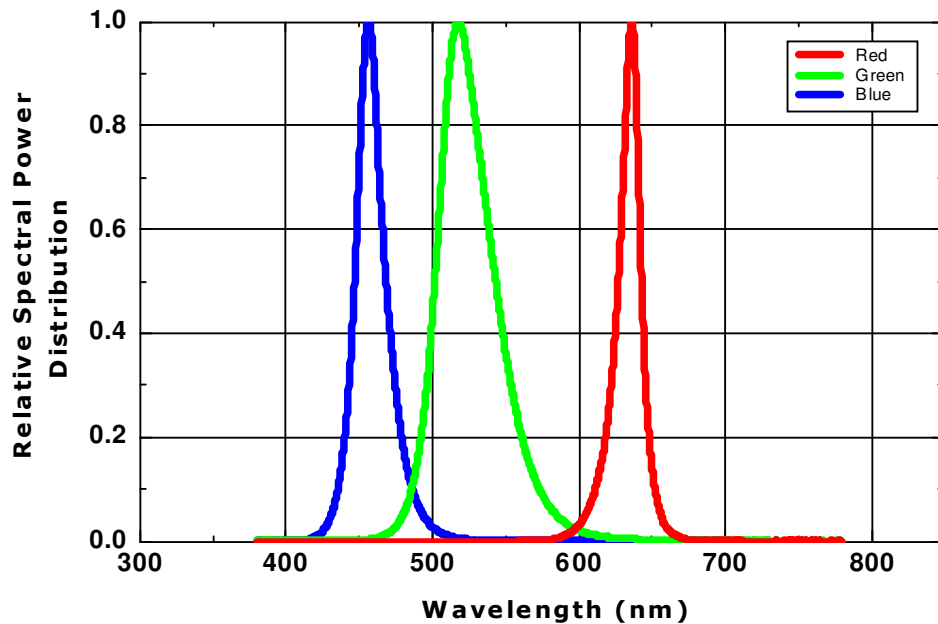
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### Colour Spectrum

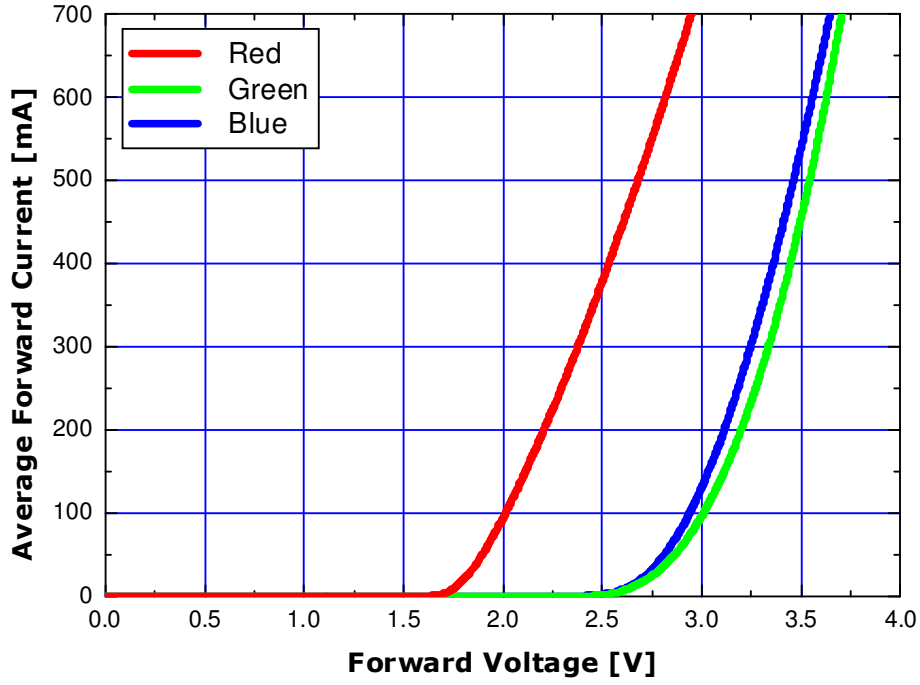
1. Pure White (IF = R:220, G:350, B:100 mA for the reference condition)



2. Blue, Green, Red (IF= 350mA)

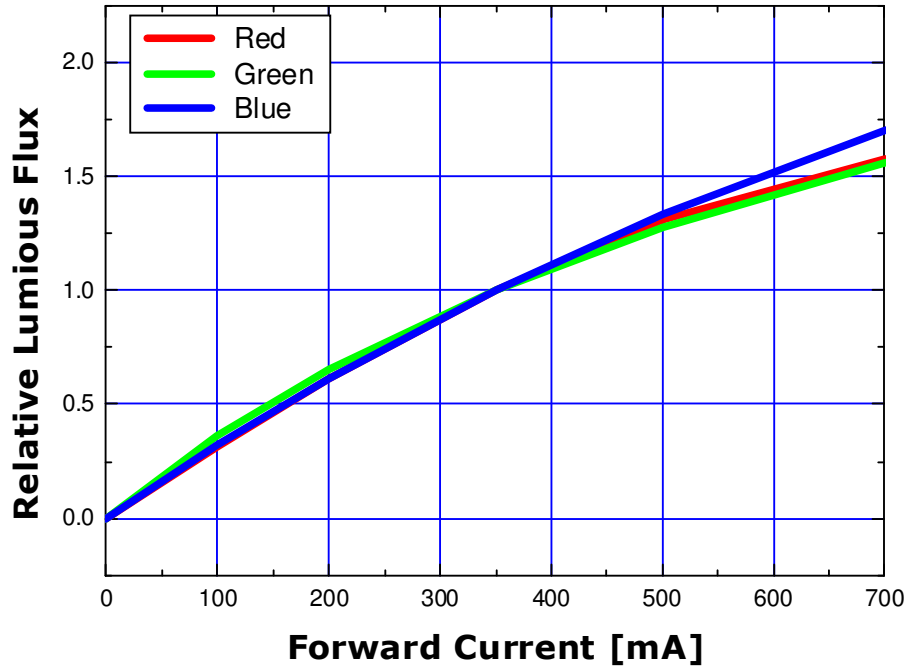


**1. Forward Voltage vs. Forward Current, TA=25°C**

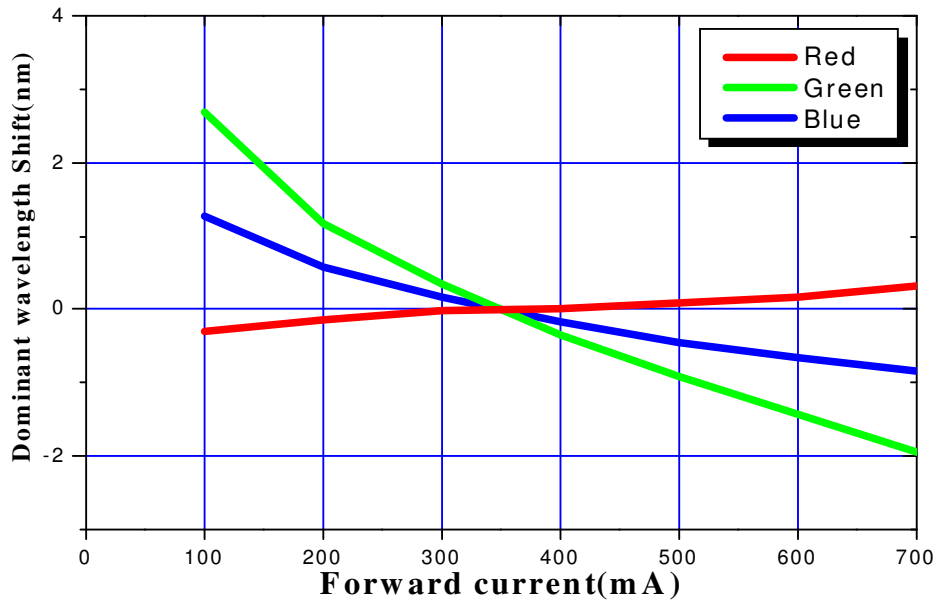


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2. Forward Current vs. Normalized Relative Luminous Flux,  $T_A=25^{\circ}\text{C}$

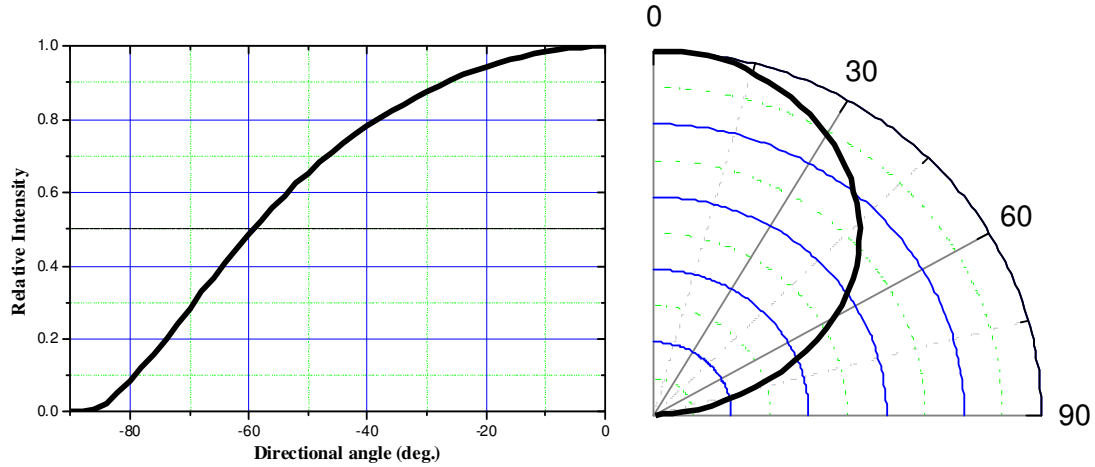


3. Forward Current vs Wavelength shift  $T_A=25^{\circ}\text{C}$

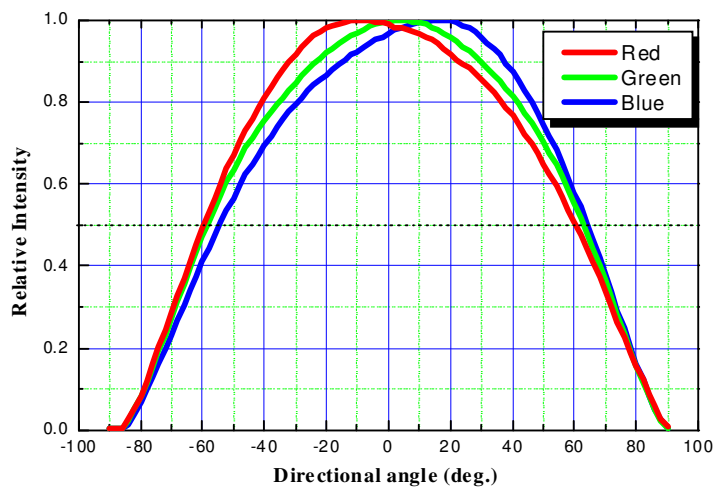


## Typical Dome Type Radiation pattern

### 1. Pure White



### 2. Red, Green, Blue



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## Part number structure

Full code of Optodrive Felicia 2C RGB version.

X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub> X<sub>5</sub> – X<sub>6</sub> X<sub>7</sub> X<sub>8</sub> X<sub>9</sub> X<sub>10</sub> X<sub>11</sub> – X<sub>12</sub> X<sub>13</sub> X<sub>14</sub> – X<sub>15</sub> X<sub>16</sub>

### Part Number:

Felicia2C	ODF	X <sub>1</sub>	(Se more under chapter: Dimension PCB)
Colour	X <sub>(x2)</sub>	X <sub>2</sub>	(Se more under chapter: See more about short form letters)
Type of PCB	2C	X <sub>3</sub>	(Se more under chapter: Dimension PCB)
Type of LED	P4	X <sub>4</sub>	(Se more under chapter: Characteristics for Optodrive)
Type of connector	PH	X <sub>5</sub>	(Se more under chapter: Mechanical Characteristics)

### Code and Labeling:

Luminous flux	RED	X <sub>6</sub>
Luminous flux	BLUE	X <sub>7</sub>
Luminous flux	GREEN	X <sub>8</sub>
Dominant Wavelength	RED	X <sub>9</sub>
Dominant Wavelength	BLUE	X <sub>10</sub>
Dominant Wavelength	GREEN	X <sub>11</sub>
Internal Code		X <sub>14</sub> X <sub>15</sub>

*The RGB have its own structure for binning and labeling*

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### Luminous Flux

#### RED

Bin Code	Luminous Flux (lm)
P	24.5 – 32.0
Q	32.0 – 41.5

#### BLUE

Bin Code	Luminous Flux (lm)
K	8.5 – 11.0
L	11.0 – 18.0

#### GREEN

Bin Code	Luminous Flux (lm)
R	41.5 – 54.0
S	54.0 – 70.0

Tolerance :  $\pm 10\%$  of Luminous flux value

### Dominant Wavelength

#### RED

Bin Code	Dominant Wavelength (nm)
R	618 – 629

#### BLUE

Bin Code	Dominant Wavelength (nm)
B	455 - 462

#### GREEN

Bin Code	Dominant Wavelength (nm)
F	518 – 525
G	525 – 530
H	530 – 535

Tolerance Dominant wavelength:  $\pm 0.5$  nm

### Forward Voltage

Colour	Forward Voltage (Vf)
Red	2.00 – 3.00
Blue	3.00 – 4.20
Green	3.00 – 4.10

Tolerance:  $\pm 0.06$ V

No further forward voltage binning available

**Test condition is  $I_F = 350$ mA at room temperature ( $T_A = 25^\circ\text{C}$ ).**

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#### Precaution for use

- This device should not be used in any type of fluid such as water, oil, organic solvent and etc.
- When washing is required, IPA(Isopropyl Alcohol) should be used.
- When the LEDs are illuminating, operating current should be decided after considering the package maximum temperature.
- The appearance and specifications of the product may be modified for improvement without notice.
- Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.

#### ROHS Compliant

All our LED modules are meeting the Restriction of Hazardous Substances (RoHS)!

There has been a growing consensus that Lead Free Systems should increase for the safety of our environment. It is very serious problem that lead and other harmful materials are being used in commercial and industrial products, causing more and more environmental problems. This has lead to regulations such as RoHS (Restriction of the use of certain Hazardous Substances) from the EU and the Japan Ministry of Trade and Industry (MITI). All LED makers providing products to these countries should comply with these restrictions. In order to meet RoHS regulation, Optoga is strictly implementing a ban on lead and other hazardous materials in its products. This is in compliance with our responsibilities as good corporate citizens.