



# GRP161504-CTC2

## Dual Wavelength SMD Type Emitter

### Features

- Top view 1615 package
- Viewing Angle =  $\pm 65^\circ$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- Dual dominant wavelength (G=527nm , R=621nm)
- RoHS compliance

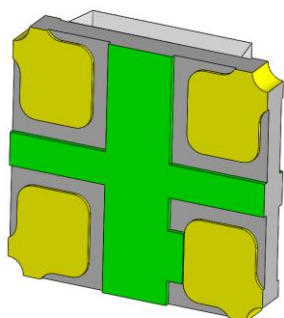
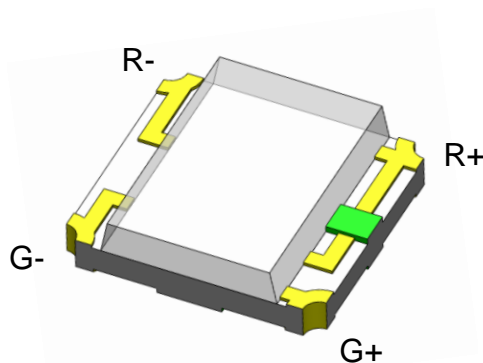
### Applications

- Optical indicator.
- Switch and Symbol Display.

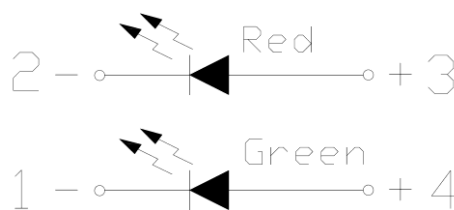
### Description

The GRP161504-CTC2 is a double LED housed in a miniature SMD package. The device has a dominant wavelength of 527nm and 621nm LED.

### Package Outline



### Schematic





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### Absolute Maximum Rating at 25°C

Symbol	Parameters		Ratings	Units	Notes
I <sub>F</sub>	Continuous Forward Current	G	25	mA	
		R	25		
I <sub>FP</sub>	Peak Forward Current	G	100	mA	1
		R	60		
V <sub>R</sub>	Reverse Voltage		5	V	
T <sub>opr</sub>	Operating Temperature		-40 ~ +85	°C	
T <sub>stg</sub>	Storage Temperature		-40 ~ +100	°C	
T <sub>sol</sub>	Soldering Temperature		260	°C	2
P <sub>D</sub>	Power Dissipation at(or below) 25°C Free Air Temperature	G	95	mW	
		R	60		

### Electro-Optical Characteristics *TA = 25°C (unless otherwise specified)*

#### Optical Characteristics (Green)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	180	-	450	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	520	527	535	nm	4
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

#### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	2.5	-	3.1	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	



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## Dual Wavelength SMD Type Emitter

### Optical Characteristics (Red)

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	28.5	-	72.0	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	616	621	626	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	1.6	-	2.1	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	

#### Notes:

1. I<sub>FP</sub> Conditions--Pulse Width ≤ 100μs and Duty ≤ 10%.
2. Soldering time ≤ 10 seconds.
3. Bin Range of Luminous Intensity

Green				
Bin Code	Min	Max	Unit	Condition
S	180	285	mcd	I <sub>F</sub> =5mA
T	285	450		
Red				
N	28.5	45.0	mcd	I <sub>F</sub> =5mA
P	45.0	72.0		

Tolerance of: Luminous Intensity ±10%

4. Bin Range of Dominant Wavelength

Green				
Bin Code	Min	Max	Unit	Condition
A5	520	525	nm	I <sub>F</sub> =5mA
A6	525	530		
A7	530	535		

Tolerance of Dominant Wavelength: ±1nm.

Tolerance of Forward Voltage ±0.1V.



## Typical Characteristic Curves

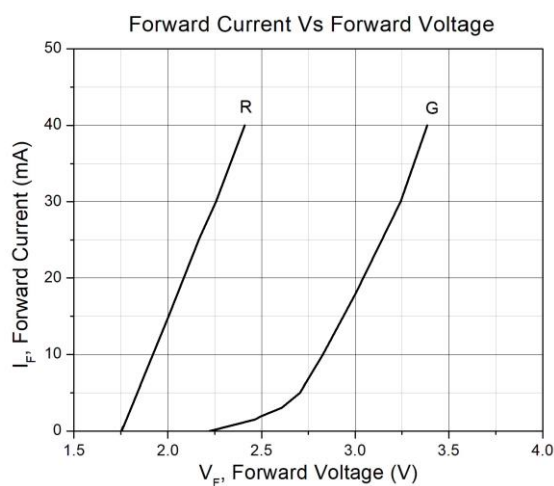


Figure 1

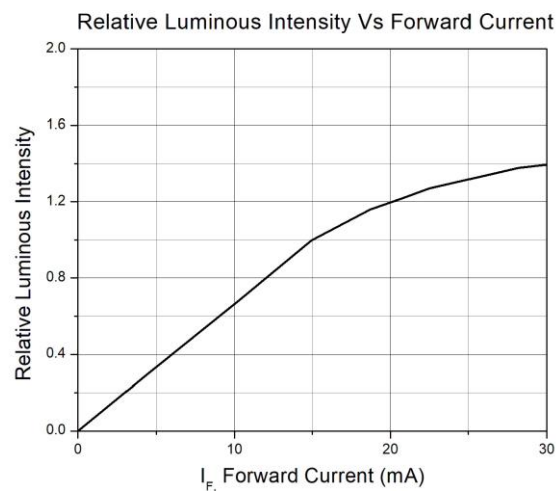


Figure 2

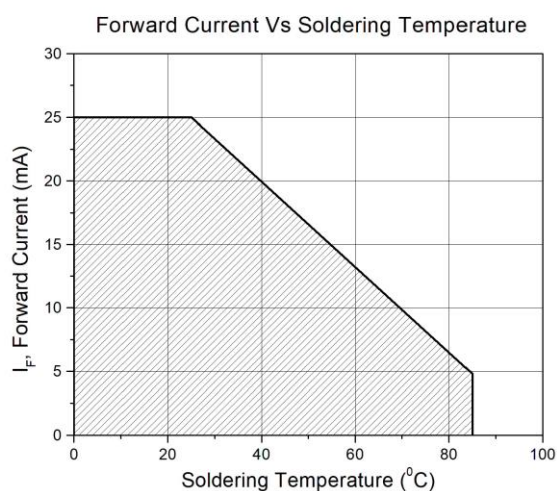


Figure 3

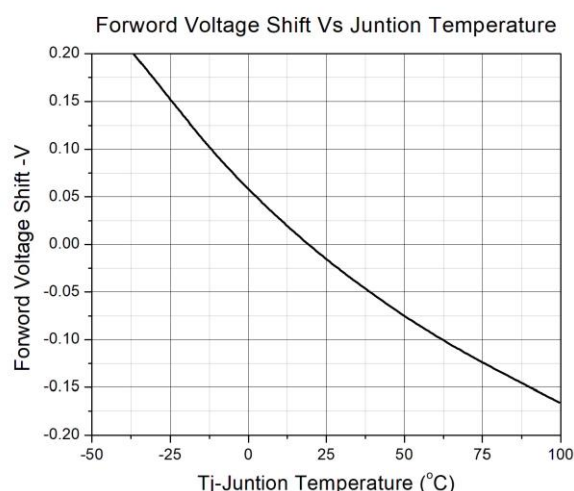


Figure 4

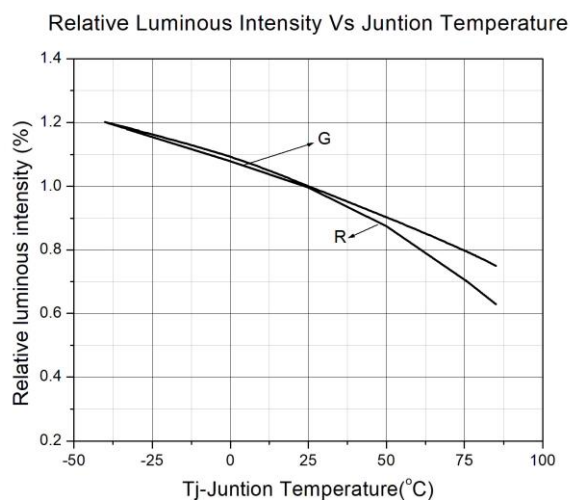


Figure 5

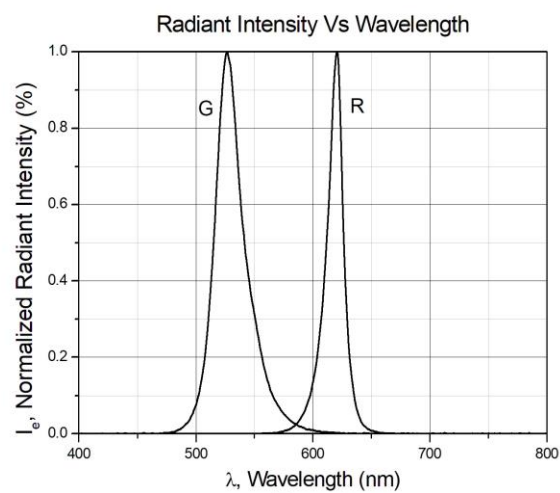


Figure 6



## Typical Characteristic Curves

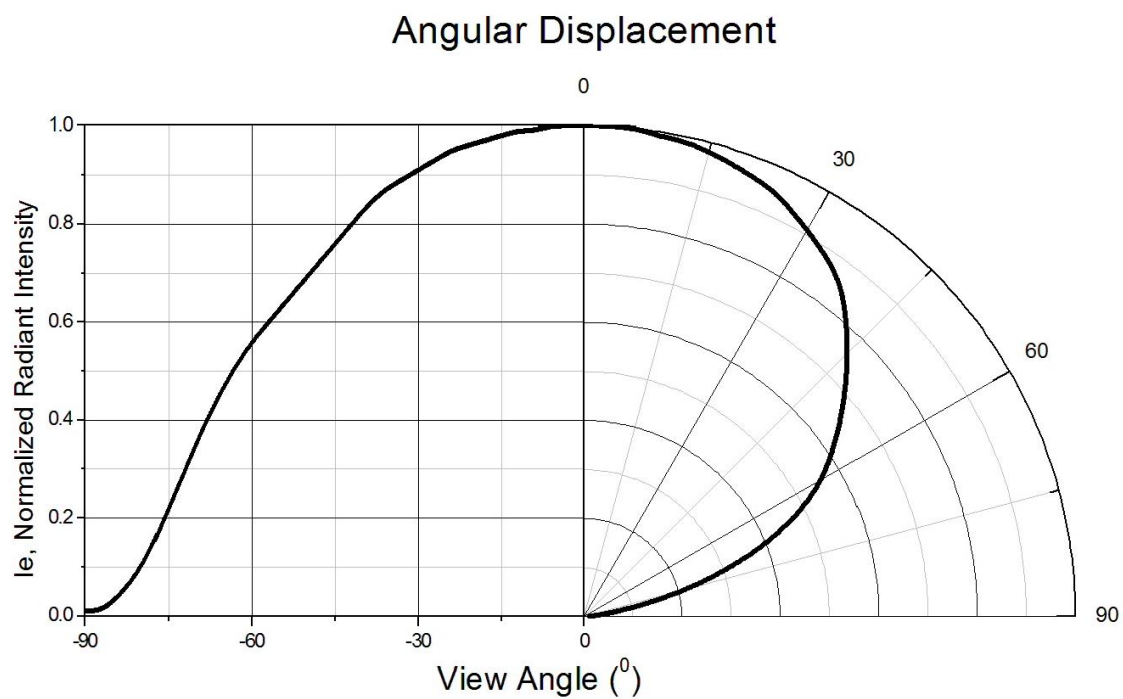
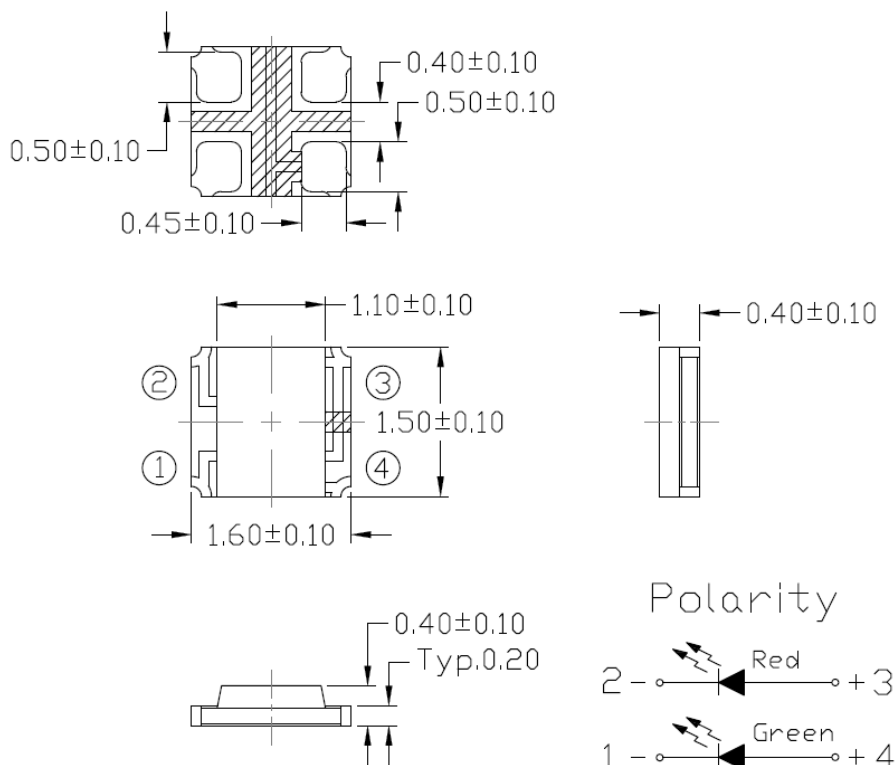


Figure 7

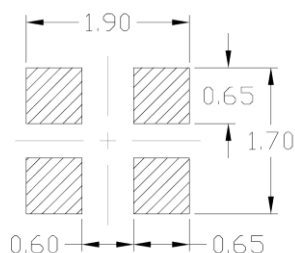


**Package Dimension** *All dimensions are in mm, unless otherwise stated*



Note: Tolerance unless mentioned is  $\pm 0.1$ mm.

**Recommended Soldering Mask** *All dimensions are in mm, unless otherwise stated*



Note: Tolerance unless mentioned is  $\pm 0.1$ mm.

**Ordering Information**

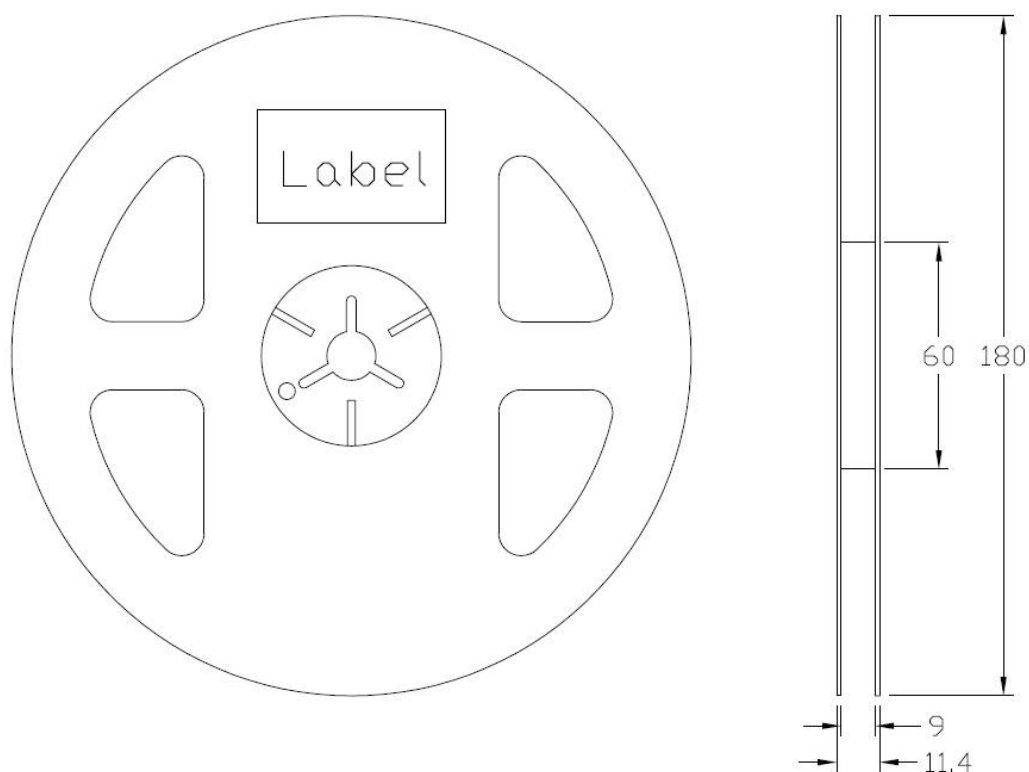
Part Number	Description	Quantity
GRP161504-CTC2	Tape & Reel	2000 pcs



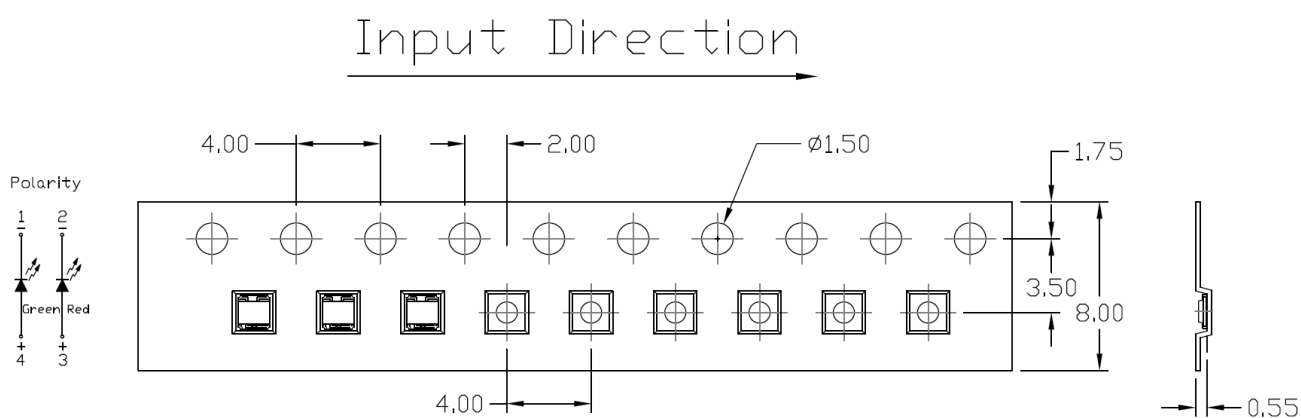
GRP161504-CTC2

## Dual Wavelength SMD Type Emitter

### Reel Dimension *All dimensions are in mm, unless otherwise stated*



### Tape Dimension *All dimensions are in mm, unless otherwise stated*



Note: Tolerance unless mentioned is  $\pm 0.1$ mm.



GRP161504-CTC2

## Dual Wavelength SMD Type Emitter

### Label Form Specification

CT Micro  
International Corporation

MSL-X  
MADE IN CHINA

CPN: XXXXXXXXXXXXXXXXX  
|||||

Part no: XXXXXXXXXXXXXXXX  
|||||

Serial no: XXXXXXXX  
|||||

Lot no: XXXXXXXX  
|||||

Qty: XXXXXX      Date Code: YWWJ  
|||||      |||||

IV: XX      WD:XX      VF:XX  
|||||      |||||      |||||

QR Code

Pb  
RoHS

CPN : Customer Part Number

Part no: CTM Production Number

Serial no: Production Number

Lot no: Lot number

Q'ty: Packing Quantity

Date Code: Manufacture Date

IV : Bin Code of Luminous Intensity

WD : Bin Code of Dominant Wavelength

VF : Bin Code of Forward Voltage

MADE IN CHINA: Production Place

### Storage Condition

1. Do not open moisture proof bag before the products are ready to use.
2. The moisture barrier bag should be stored at 30°C and 90%R.H. max. before opening.  
Shelf life of non-opened bag is 12 months after the bag sealing date.
3. After opening the moisture barrier bag floor life is 1 year at 30°C/60%RH. max. Unused LEDs should be resealed into moisture barrier bag. (Refer to J-STD-020 Standard)
4. If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the J-STD-033 Standard conditions.





## Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	150°C
Temperature Max. ( $T_{smax}$ )	200°C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds
Ramp-up Rate ( $t_L$ to $t_P$ )	3°C/second max.
Liquidous Temperature ( $T_L$ )	217°C
Time ( $t_L$ ) Maintained Above ( $T_L$ )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time ( $t_P$ ) within 5°C of 260°C	30 seconds
Ramp-down Rate ( $T_P$ to $T_L$ )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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