



## WAP160803-CTC3

### Dual Wavelength SMD Type Emitter

#### Features

- Top view 0603 package
- Viewing Angle =  $\pm 65^\circ$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- RoHS compliance

#### Applications

- Optical indicator.
- Switch and Symbol Display.

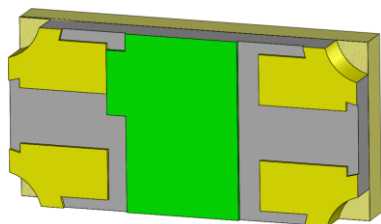
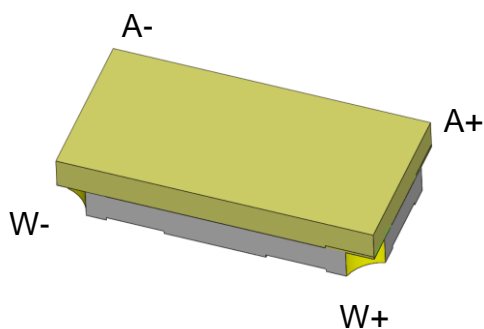
#### Description

The WAP160803-CTC3 is a double LED housed in a miniature SMD package. The device has a White and Amber LED.

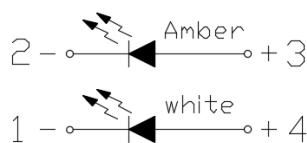
Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

#### Package Outline



#### Schematic



**WAP160803-CTC3****Dual Wavelength SMD Type Emitter****Absolute Maximum Rating at 25°C**

<b>Symbol</b>	<b>Parameters</b>		<b>Ratings</b>	<b>Units</b>	<b>Notes</b>
I <sub>F</sub>	Continuous Forward Current	W	25	mA	
		A	25		
I <sub>FP</sub>	Peak Forward Current	W	60	mA	1
		A	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	W	95	mW	
		A	60		

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

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	140	-	285	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	-	-	-	nm	4
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =5mA	-	±65	-	deg	

**Electrical Characteristics**

<b>Symbol</b>	<b>Parameters</b>	<b>Test Conditions</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>	<b>Notes</b>
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =5mA	2.6	-	3.2	V	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	1	μA	

**Optical Characteristics (Amber)**

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =5mA	22.5	-	45.0	mcd	3
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =5mA	-	603	-	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	1.6	-	2.2	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

White				
Bin Code	Min	Max	Unit	Condition
R2	140	180	mcd	I <sub>F</sub> =5mA
S1	180	225		
S2	225	285		
Amber				
M2	22.5	28.5	mcd	I <sub>F</sub> =5mA
N1	28.5	36.0		
N2	36.0	45.0		

Tolerance of: Luminous Intensity ±10%

Tolerance of Dominant Wavelength: ±1nm.

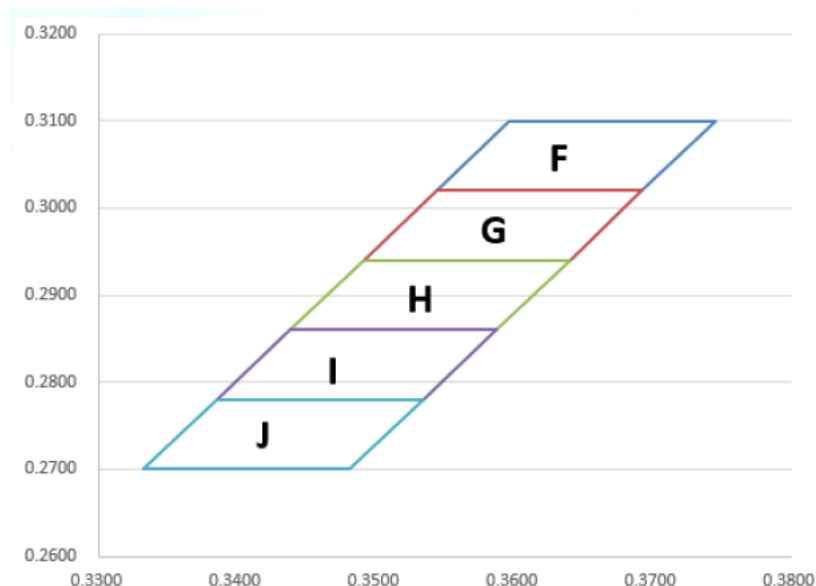
Tolerance of Forward Voltage ±0.1V.



#### 4. Bin Range of Chromaticity Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
F	0.3544	0.3020	G	0.3491	0.2940
	0.3597	0.3100		0.3544	0.3020
	0.3746	0.3100		0.3693	0.3020
	0.3693	0.3020		0.3640	0.2940
H	0.3438	0.2860	I	0.3385	0.2780
	0.3491	0.2940		0.3438	0.2860
	0.3640	0.2940		0.3587	0.2860
	0.3587	0.2860		0.3534	0.2780
J	0.3332	0.2700			
	0.3385	0.2780			
	0.3534	0.2780			
	0.3481	0.2700			

#### The C.I.E. 1931 Chromaticity Diagram



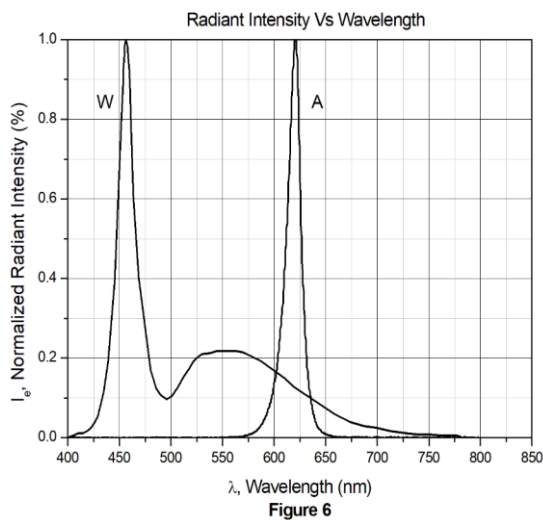
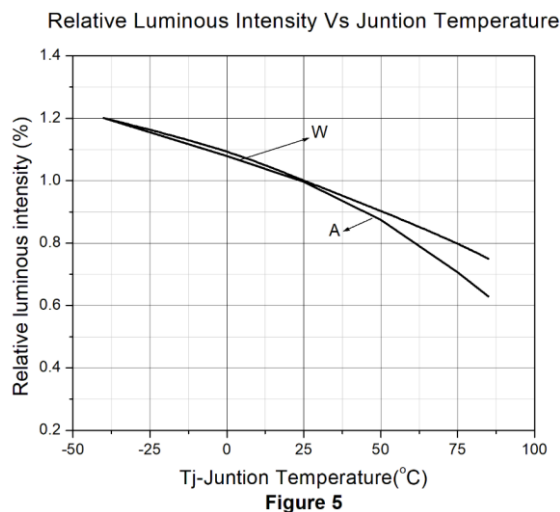
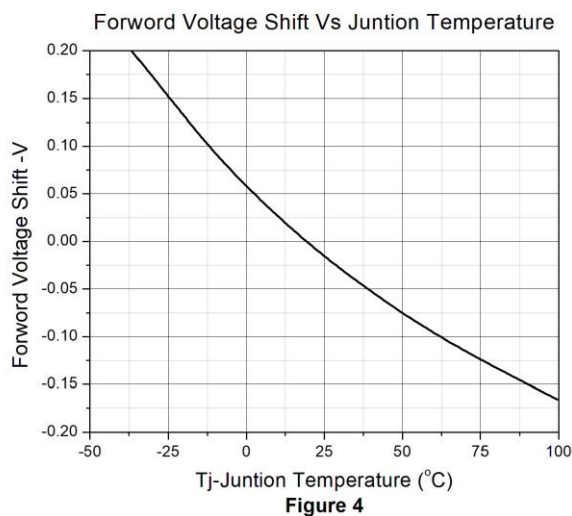
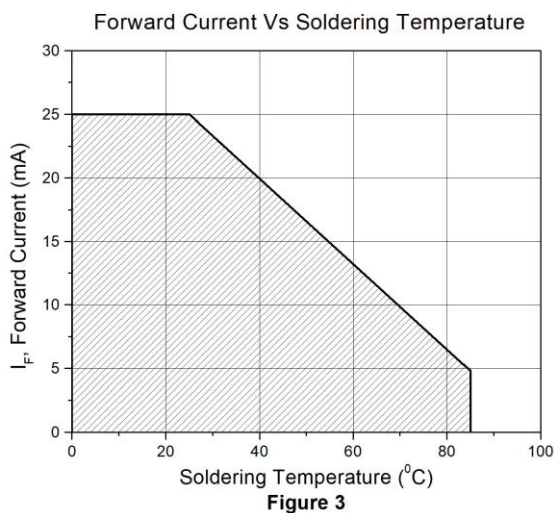
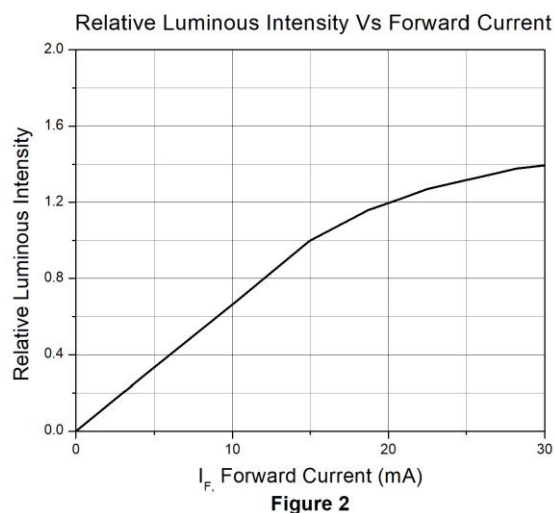
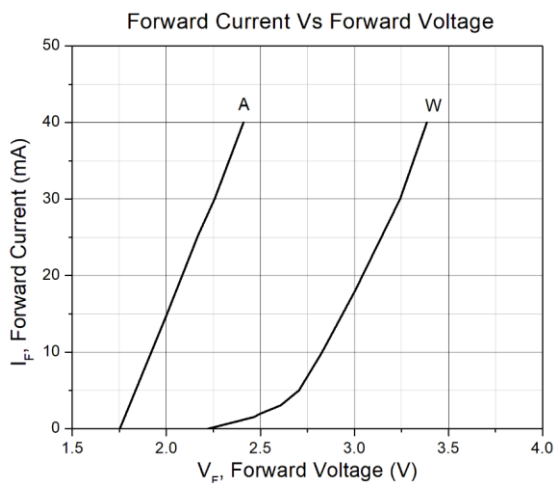
#### Notes:

The value is based on driving current by 5 mA

Tolerance of Chromaticity Coordinates:  $\pm 0.01$



## Typical Characteristic Curves





## Typical Characteristic Curves

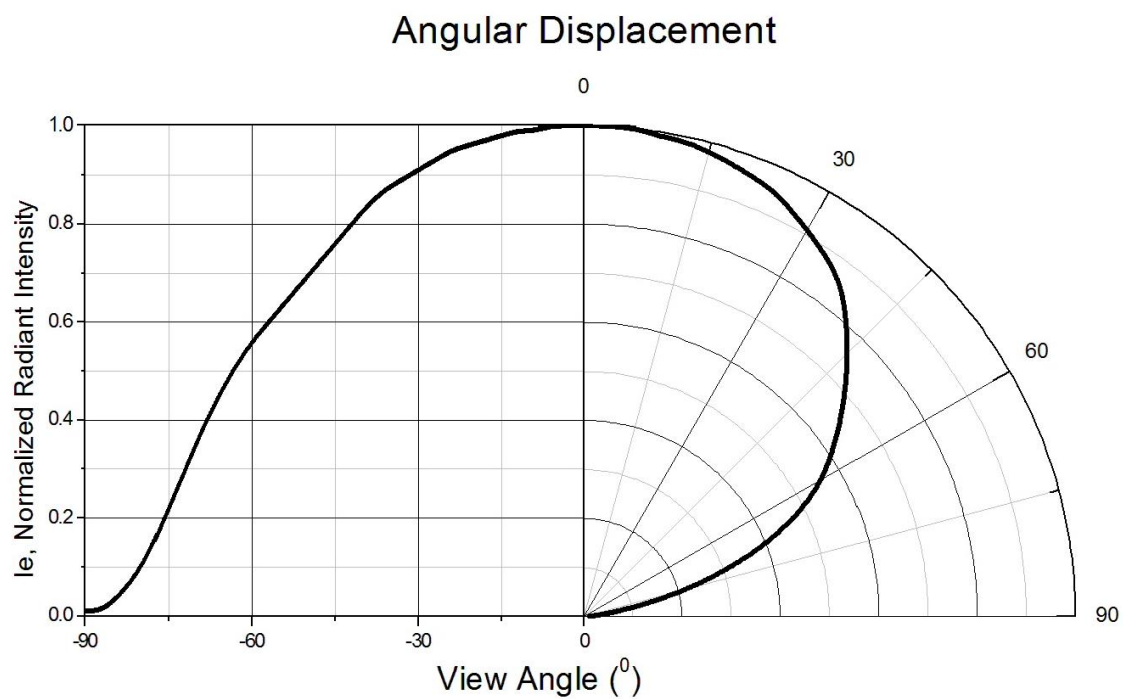
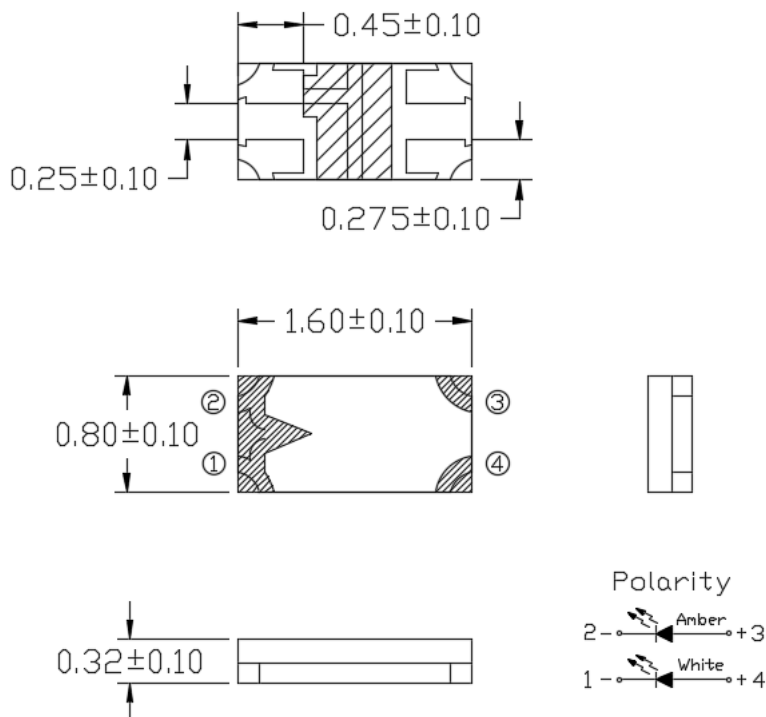


Figure 7

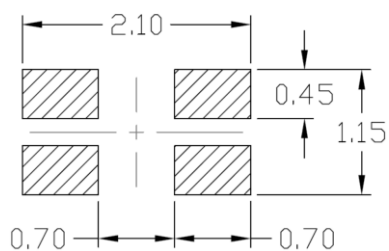


**Package Dimension** *All dimensions are in mm, unless otherwise stated*



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

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



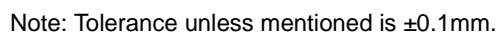
Note: Tolerance unless mentioned is  $\pm 0.1$ mm.

**Ordering Information**

Part Number	Description	Quantity
WAP160803-CTC3	Tape & Reel	3000 pcs



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







WAP160803-CTC3

## Dual Wavelength SMD Type Emitter

### Label Form Specification

CT Micro  
International Corporation

MSL-X  
MADE IN CHINA

CPN: XXXXXXXXXXXXXXXXX  
|||||

Part no: XXXXXXXXXXXXXXX  
|||||

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

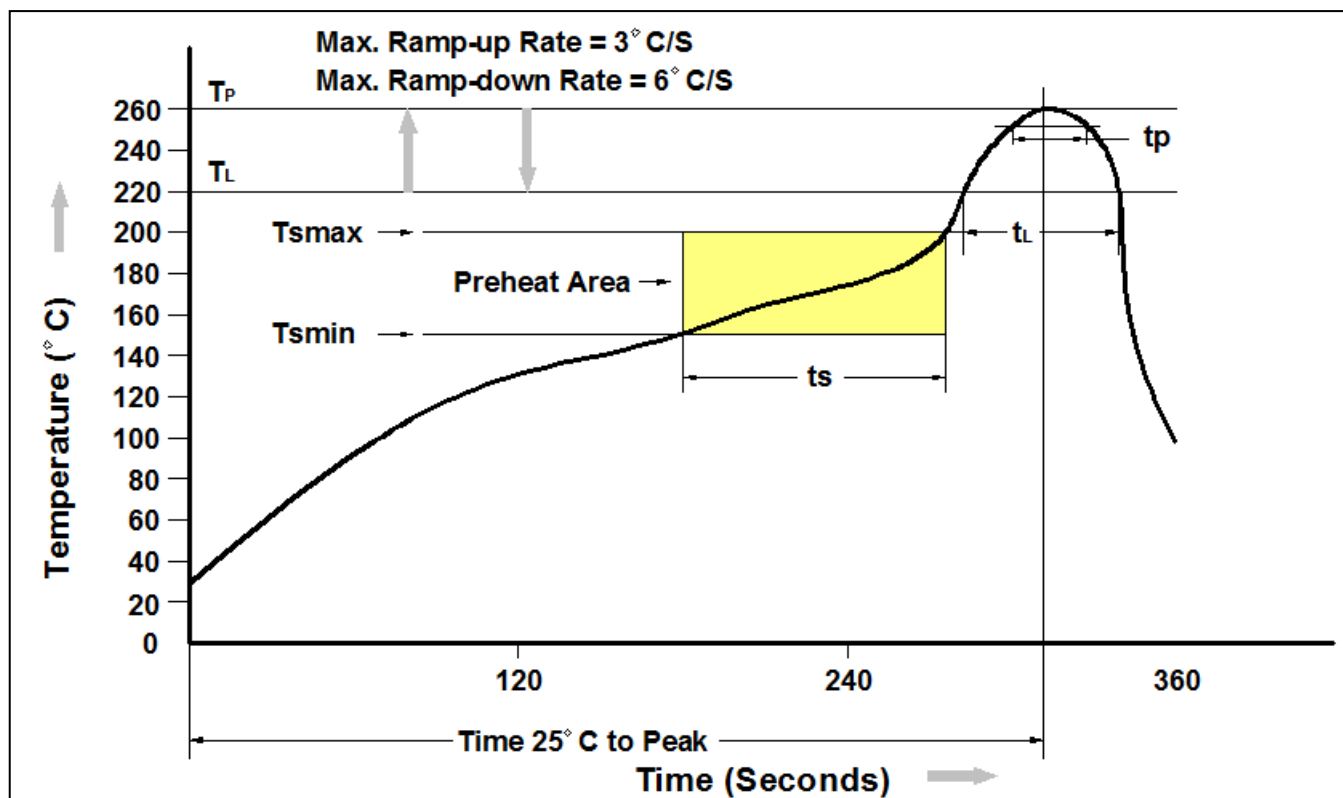
MADE IN CHINA: Production Place

### 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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