



# AP160804-ATC4

## SMD Type Amber Emitter

### Features

- Top view 0603 package
- Viewing Angle =  $\pm 60^\circ$
- Compatible with infrared and vapor phase reflow solder process
- High reliability
- Ultra bright Amber
- RoHS compliance

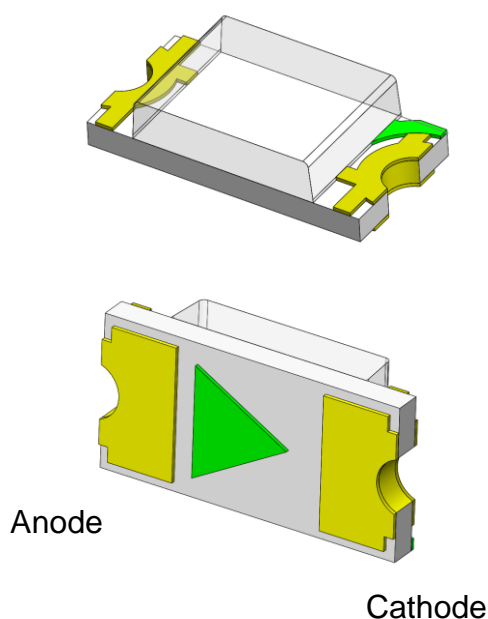
### Applications

- Optical indicator.
- Switch and Symbol Display.

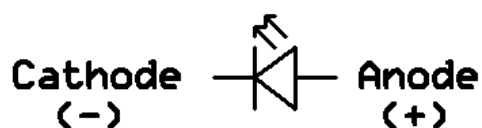
### Description

The AP160804-ATC4 is an AlInGaP Amber LED housed in a miniature SMD package. The device has a dominant wavelength of 609nm 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	25	mA	
I <sub>FP</sub>	Peak Forward Current	60	mA	1
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	60	mW	

### Electro-Optical Characteristics *T<sub>A</sub> = 25°C (unless otherwise specified)*

#### Optical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
I <sub>v</sub>	Luminous Intensity	I <sub>F</sub> =20mA	45	-	180	mcd	3
λ <sub>p</sub>	Peak Wavelength	I <sub>F</sub> =20mA		611		nm	
λ <sub>d</sub>	Dominant Wavelength	I <sub>F</sub> =20mA	600.5	-	612.5	nm	4
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =20mA	-	±60	-	deg	

#### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =20mA	1.75	-	2.35	V	5
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.



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#### 3. Bin Range of Luminous Intensity

Bin Code	Min	Max	Unit	Condition
P1	45	57	mcd	$I_F=20\text{mA}$
P2	57	72		
Q1	72	90		
Q2	90	112		
R1	112	140		
R2	140	180		

Tolerance of Luminous Intensity  $\pm 10\%$

#### 4. Bin Range of Dominant Wavelength

Bin Code	Min	Max	Unit	Condition
S8	600.5	603.5	nm	$I_F=20\text{mA}$
S9	603.5	606.5		
S10	606.5	609.5		
S11	609.5	612.5		

Tolerance of Dominant Wavelength:  $\pm 1\text{nm}$ .

#### 5. Bin Range of Forward Voltage

Bin Code	Min	Max	Unit	Condition
0	1.75	1.95	V	$I_F=20\text{mA}$
1	1.95	2.15		
2	2.15	2.35		

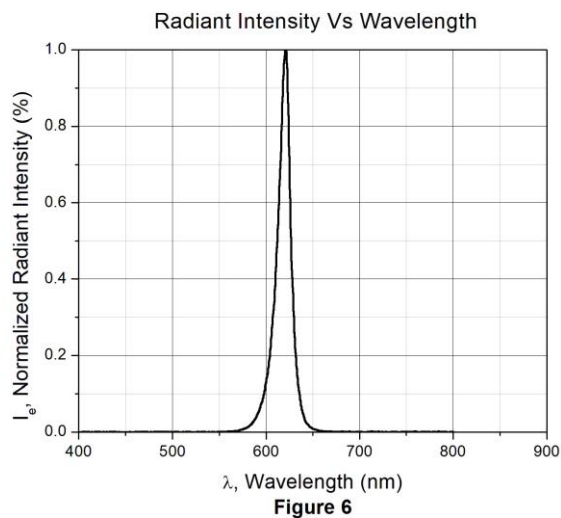
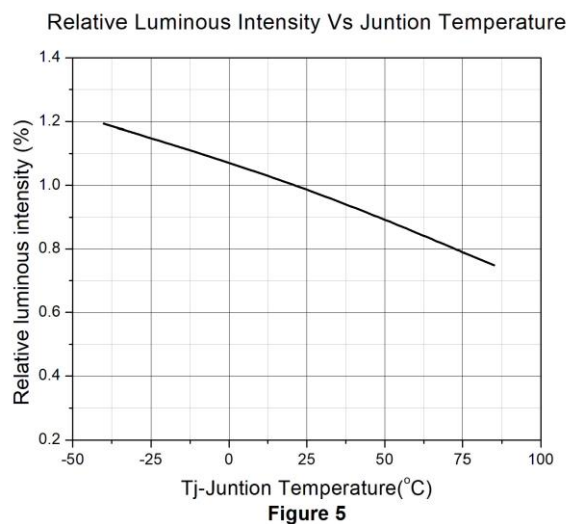
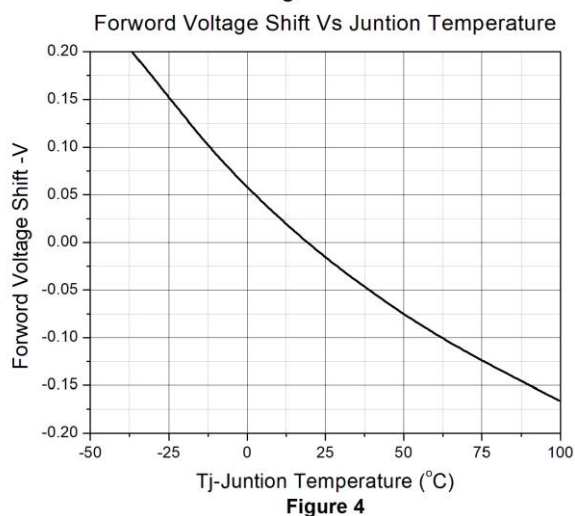
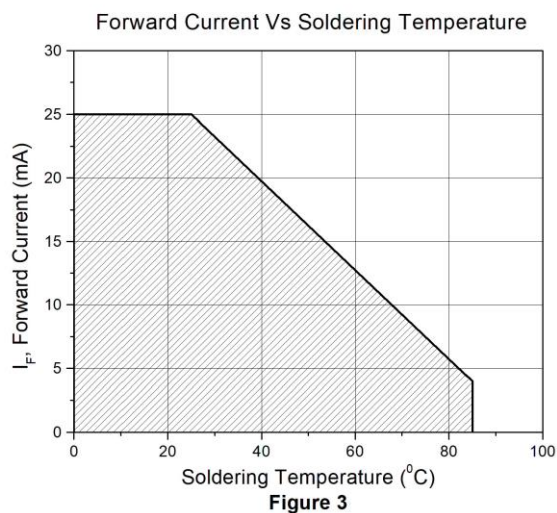
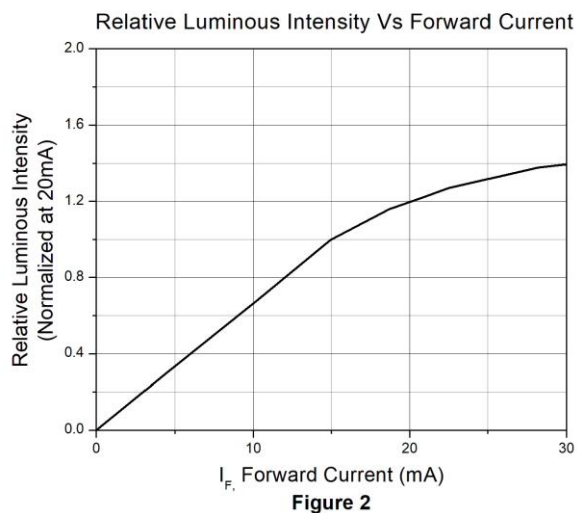
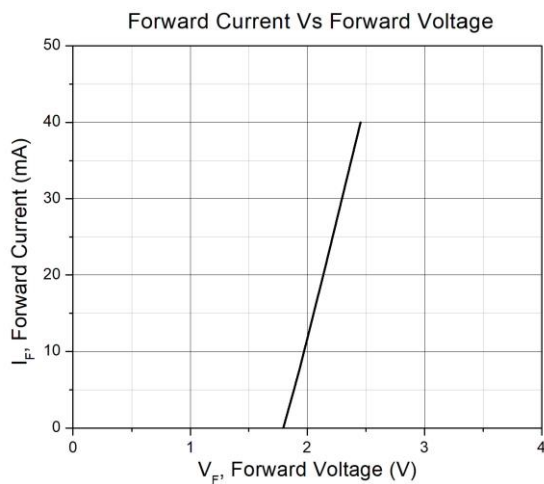
Tolerance of Forward Voltage  $\pm 0.1\text{V}$ .



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## SMD Type Amber Emitter

### Typical Characteristic Curves





## Typical Characteristic Curves

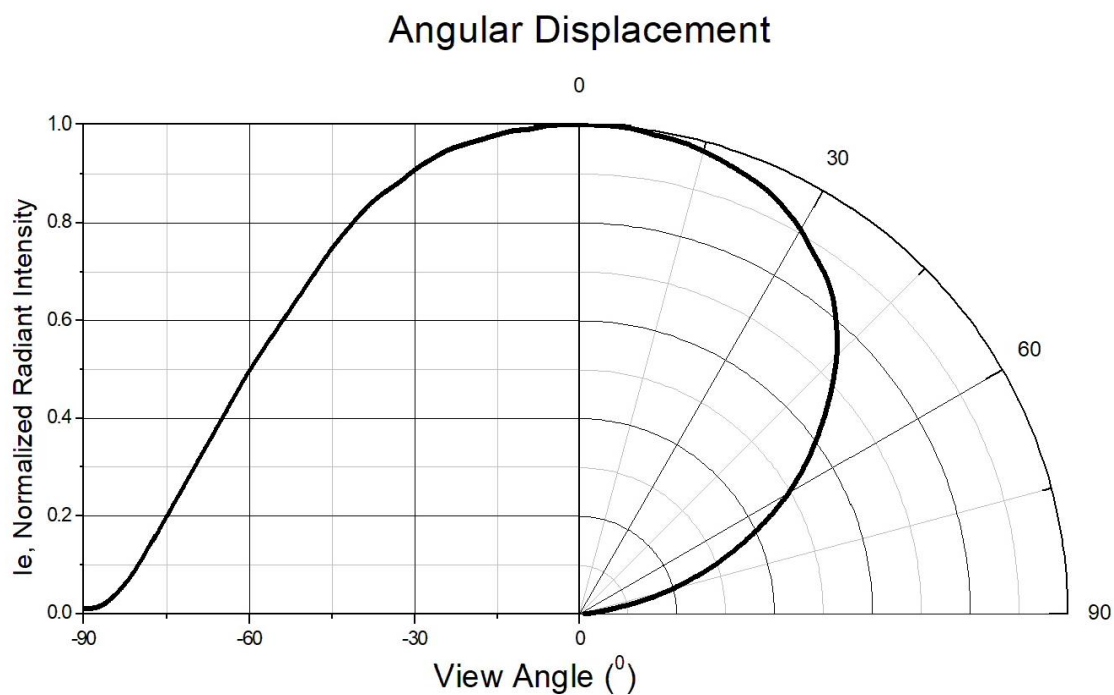


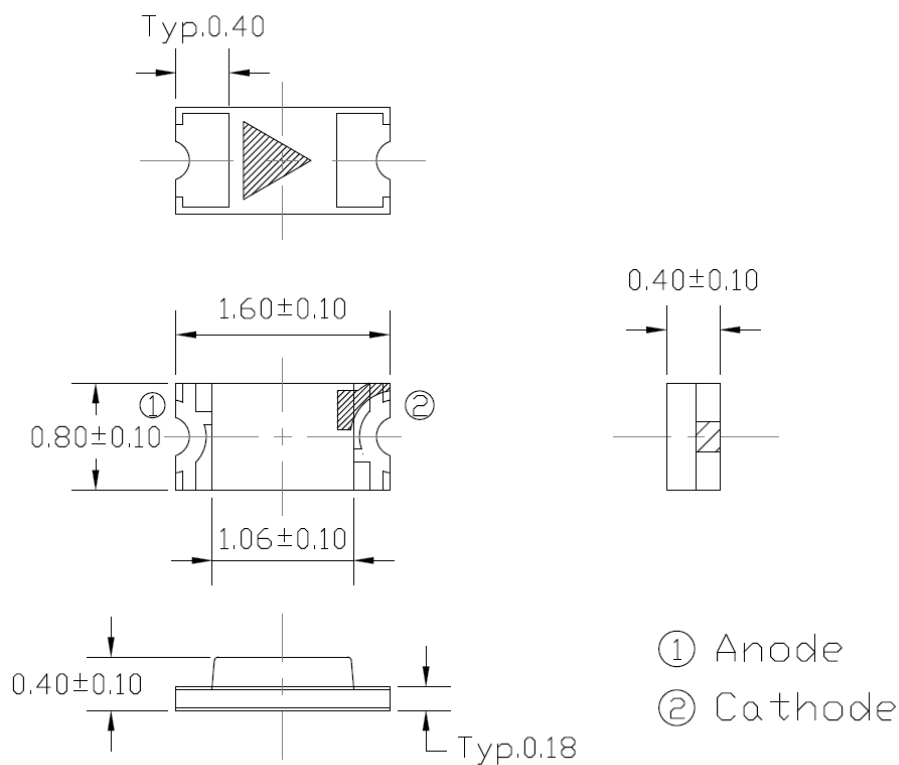
Figure 7



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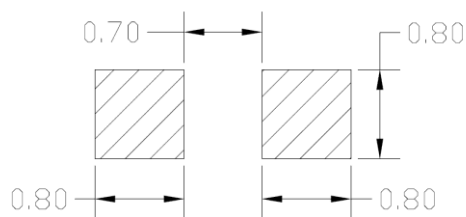
## SMD Type Amber Emitter

### 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
AP160804-ATC4	Tape & Reel	4000 pcs

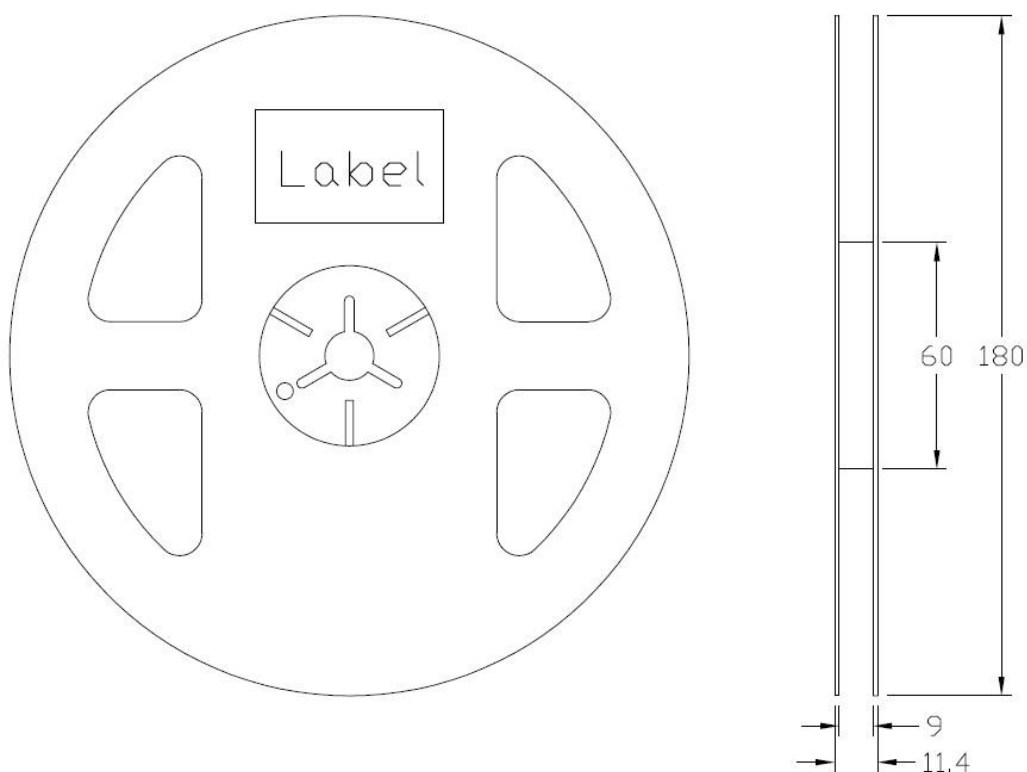


# AP160804-ATC4

## SMD Type Amber Emitter

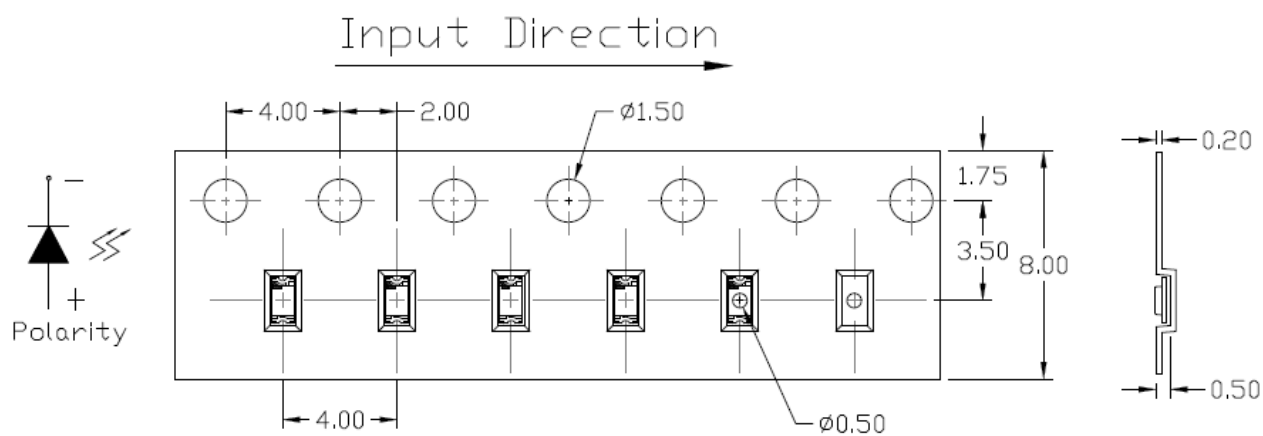
### Reel Dimension

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.



AP160804-ATC4

SMD Type Amber Emitter

## Label Form Specification

CT Micro  
International Corporation

MSL-X  
MADE IN CHINA

CPN: XXXXXXXXXXXXXXXXXX  
|||||

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.





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## SMD Type Amber Emitter

### Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of 260°C	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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