



Weight: 0.31 g Unit: mm

# AND113(P) Series

## Standard LED

### T-1 3/4 Package (5 mm)

#### Features

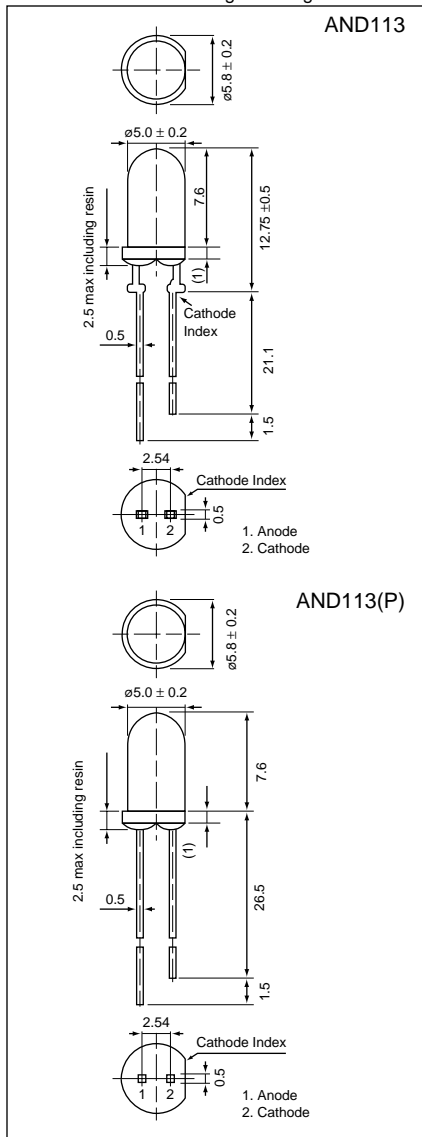
- Low power requirement
- Stand-off or flush-mount
- All plastic molded lens
- Choice of 3 colors: GaP-Red; GaP-Green; GaAsP-Yellow

#### Optical Characteristics (T = 25°C)

Part Number	Color		Lens Desc.	Axial Luminous Intensity (mcd)		Test Condition (I <sub>F</sub> -mA)	Viewing Angle 2θ1/2 (deg)
	LED	Lens		Min.	Typ.		
AND113G/GP	Green	Green	Clear	20	50	10	30
AND113R/RP	Red	Red	Clear	5	18	10	30
AND113S	Red	Red	Clear	50	150	10	30
AND113Y/YP	Yellow	Yellow	Clear	20	50	10	30

#### Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Characteristics	Symbol	Rating			Unit	
		Red	Green	Yellow		
Forward Current	AND113(P) AND113S	I <sub>F</sub>	25 30	25 -	30 -	mA
Reverse Voltage		V <sub>R</sub>	5	5	5	V
Power Dissipation	AND113(P) AND113S	P <sub>D</sub>	120 105	105 -	105 -	mW
Operating Temperature		T <sub>Opr</sub>	-40 to +85			°C
Storage Temperature Range		T <sub>Stg</sub>	-40 to +85			°C



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

Characteristics	Symbol	Test Condition	Red			Green			Yellow			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	2.0	2.5	-	2.1	2.5	-	2.1	2.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	-	-	10	-	-	10	-	-	10	μA
Peak Emission Wavelength	λ <sub>p</sub>	I <sub>F</sub> = 15mA	-	700	-	-	565	-	-	590	-	nm
Spectral Line Half Width	λ	I <sub>F</sub> = 15mA	-	45	-	-	30	-	-	35	-	nm

#### Precaution

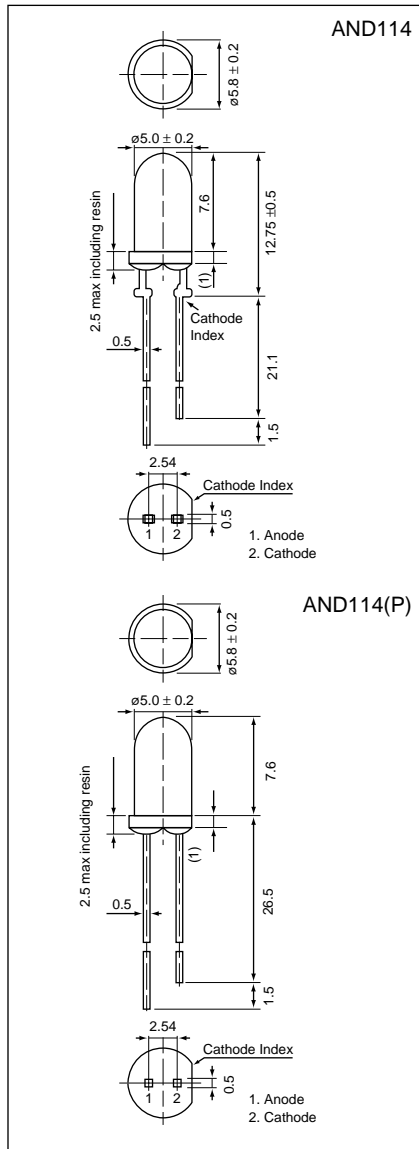
Please be careful of the following:

1. Soldering temperature: 260°C max; Soldering time: 3 sec. max; Soldering portion of lead: up to 2 mm from the body of the device.
2. The lead can be formed up to 5 mm from the body of the device without forming stress. Soldering should be performed after the lead forming.



Weight: 0.31 g Unit: mm

# AND114(P) Series Standard LED T-1 3/4 Package (5 mm)



## Features

- Low power requirement
- Stand-off or flush-mount
- All plastic molded lens
- Choice of 3 colors: GaP–Red; GaP–Green; GaAsP–Yellow

## Optical Characteristics (T = 25°C)

Part Number	Color		Lens Desc.	Axial Luminous Intensity (mcd)		Test Condition (I <sub>F</sub> –mA)	Viewing Angle 2θ1/2 (deg)
	LED	Lens		Min.	Typ.		
AND114G/GP	Green	Green	Diffused	5	18	10	60
AND114R/RP	Red	Red	Diffused	2	5	10	60
AND114S	Red	Red	Diffused	20	50	10	60
AND114Y/YP	Yellow	Yellow	Diffused	5	18	10	60

## Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Characteristics	Symbol	Rating			Unit
		Red	Green	Yellow	
Forward Current AND114(P) AND114S	I <sub>F</sub>	25 30	25 –	30 –	mA
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Power Dissipation AND114(P) AND114S	P <sub>D</sub>	120 105	105 –	105 –	mW
Operating Temperature	T <sub>Opr</sub>	–40 to +85			°C
Storage Temperature Range	T <sub>Stg</sub>	–40 to +85			°C

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

Characteristics	Symbol	Test Condition	Red			Green			Yellow			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	–	2.0	2.5	–	2.1	2.5	–	2.1	2.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	–	–	10	–	–	10	–	–	10	μA
Peak Emission Wavelength AND114(P) AND114S	λ <sub>p</sub>	I <sub>F</sub> = 20mA	–	700 625	–	–	565 –	–	–	590 –	–	nm
Spectral Line Half Width AND114(P) AND114S	λ	I <sub>F</sub> = 20mA	–	45 45	–	–	30 –	–	–	35 –	–	nm

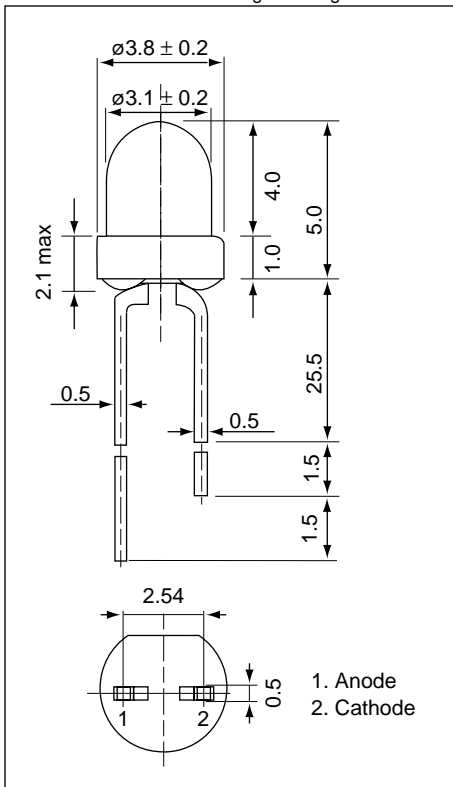
## Precaution

Please be careful of the following:

1. Soldering temperature: 260°C max; Soldering time: 3 sec. max; Soldering portion of lead: up to 2 mm from the body of the device.
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Weight: 0.14 g Unit: mm



# AND123 Series

## Standard LED

### T-1 Package (3 mm)

#### Features

- Low power requirement
- Stand-off or flush-mount
- All plastic molded lens
- Choice of 3 colors: GaP-Red; GaP-Green; GaAsP-Yellow

#### Optical Characteristics (T = 25°C)

Part Number	Color		Lens Desc.	Axial Luminous Intensity (mcd)		Test Condition (I <sub>F</sub> -mA)	Viewing Angle 2θ1/2 (deg)
	LED	Lens		Min.	Typ.		
AND123G	Green	Green	Clear	20	50	10	50
AND123R	Red	Red	Clear	5	12	10	50
AND123Y	Yellow	Yellow	Clear	10	45	10	50

#### Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Characteristics	Symbol	Rating			Unit
		Red	Green	Yellow	
Forward Current	I <sub>F</sub>	25	25	30	mA
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Power Dissipation	P <sub>D</sub>	120	105	105	mW
Operating Temperature Range	T <sub>Opr</sub>	-40 to +85			°C
Storage Temperature Range	T <sub>Stg</sub>	-40 to +85			°C

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

Characteristics	Symbol	Test Condition	Red			Green			Yellow			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	-	2.0	2.5	-	2.1	2.5	-	2.1	2.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	-	-	10	-	-	10	-	-	10	μA
Peak Emission Wavelength	λ <sub>p</sub>	I <sub>F</sub> = 15mA	-	700	-	-	565	-	-	590	-	nm
Spectral Line Half Width	λ	I <sub>F</sub> = 15mA	-	45	-	-	30	-	-	35	-	nm

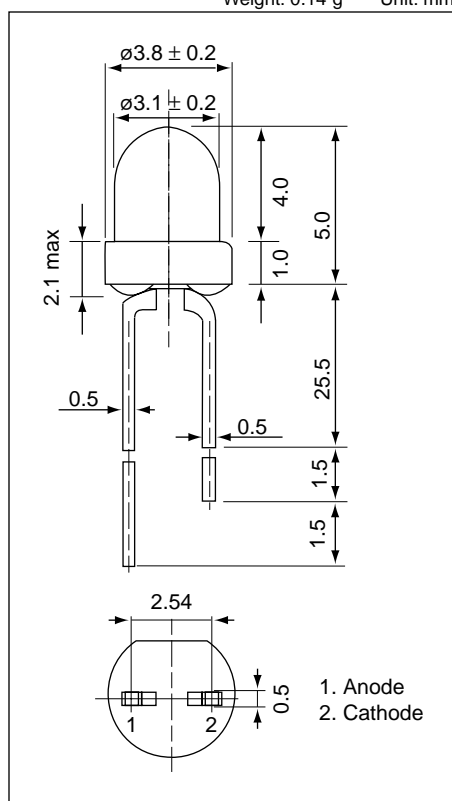
#### Precaution

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2. The lead can be formed up to 5 mm from the body of the device without forming stress. Soldering should be performed after the lead forming.



Weight: 0.14 g Unit: mm



# AND124 Series

## Standard LED

### T-1 Package (3 mm)

#### Features

- Low power requirement
- Stand-off or flush-mount
- All plastic molded lens
- Choice of 3 colors: GaP – Red; GaP – Green; GaAsP – Yellow

#### Optical Characteristics (T = 25°C)

Part Number	Color		Lens Desc.	Axial Luminous Intensity (mcd)		Test Condition (I <sub>F</sub> -mA)	Viewing Angle 2θ1/2 (deg)
	LED	Lens		Min.	Typ.		
AND124G	Green	Green	Diffused	8	20	10	60
AND124R	Red	Red	Diffused	1.3	3.0	10	60
AND124Y	Yellow	Yellow	Diffused	8	20	10	60

#### Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Characteristics	Symbol	Rating			Unit
		Red	Green	Yellow	
Forward Current	I <sub>F</sub>	25	32	30	60
Reverse Voltage	V <sub>R</sub>	5	5	5	V
Power Dissipation	P <sub>D</sub>	120	105	105	mW
Operating Temperature Range	T <sub>Opr</sub>	-40 to +85			°C
Storage Temperature Range	T <sub>Stg</sub>	-40 to +85			°C

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

Characteristics	Symbol	Test Condition	Red			Green			Yellow			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	–	2.0	2.5	–	2.1	2.5	–	2.1	2.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	–	–	10	–	–	10	–	–	10	μA
Peak Emission Wavelength	λ <sub>p</sub>	I <sub>F</sub> = 20mA	–	700	–	–	565	–	–	590	–	nm
Spectral Line Half Width	λ	I <sub>F</sub> = 15mA	–	45	–	–	30	–	–	35	–	nm

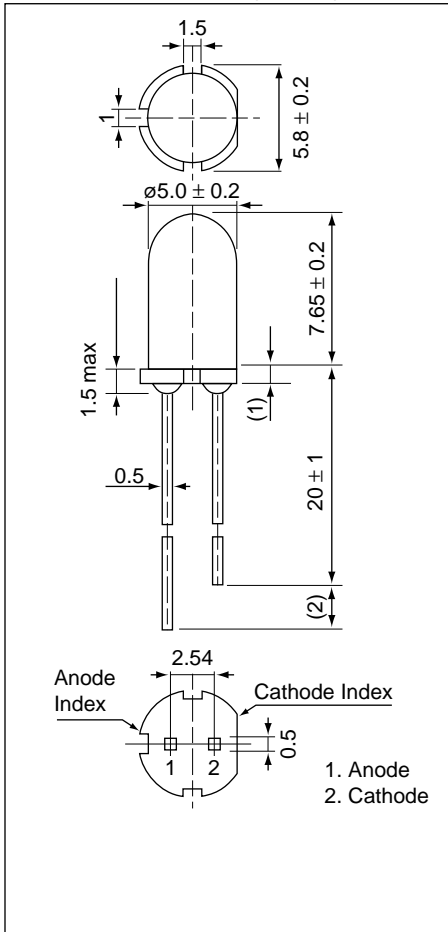
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Weight: 0.30 g Unit: mm



# AND181YP

## Standard LED

### T-1 3/4 Package (5 mm)

#### Features

- Low power requirement
- Stand-off or flush-mount
- All plastic molded lens
- Color: GaAsP–Yellow

#### Optical Characteristics (T = 25°C)

Color		Lens Desc.	Axial Luminous Intensity (mcd)		Test Condition (I <sub>F</sub> –mA)	Viewing Angle 2θ1/2 (deg)
LED	Lens		Min.	Typ.		
Yellow	Lt Yellow	Clear	75	150	20	15

#### Absolute Maximum Ratings (T<sub>A</sub> = 25°C)

Characteristics	Symbol	Rating (Yellow)	Unit
Forward Current (DC)	I <sub>F</sub>	25	mA
Reverse Voltage	V <sub>R</sub>	4	V
Power Dissipation	P <sub>D</sub>	70	mW
Operating Temperature	T <sub>Opr</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>Stg</sub>	-30 to +100	°C

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

Characteristics	Symbol	Test Condition	Yellow			Unit
			Min.	Typ.	Max.	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20mA	–	2.1	2.8	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 4 V	–	–	100	μA
Peak Emission Wavelength	λ <sub>p</sub>	I <sub>F</sub> = 15mA	–	585	–	nm
Spectral Line Half Width	λ	I <sub>F</sub> = 15mA	–	32	–	nm

#### Precaution

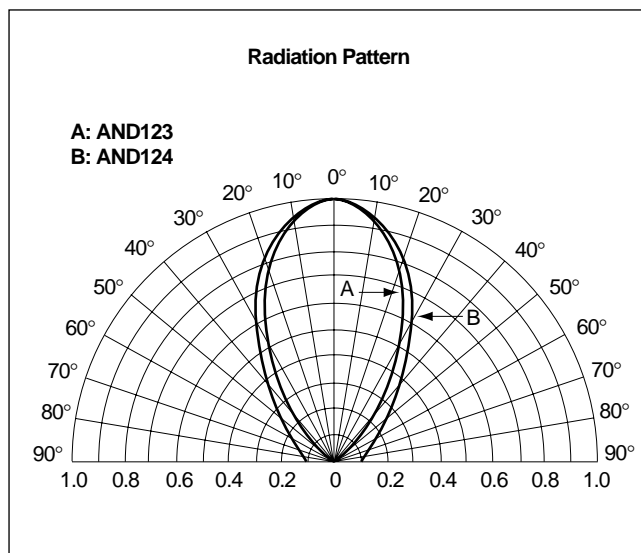
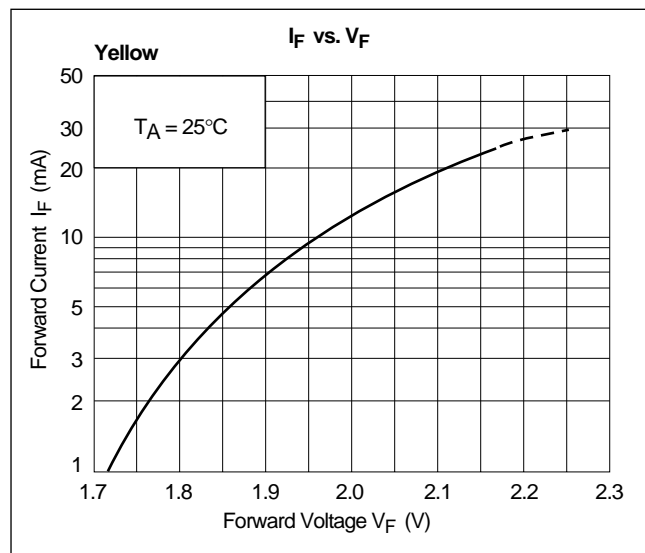
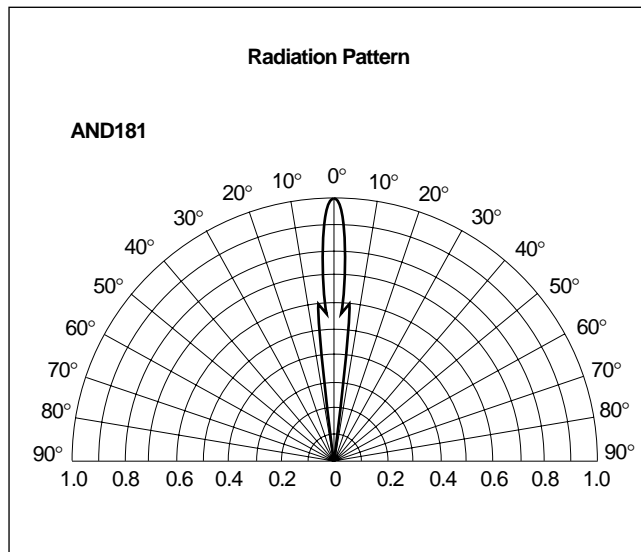
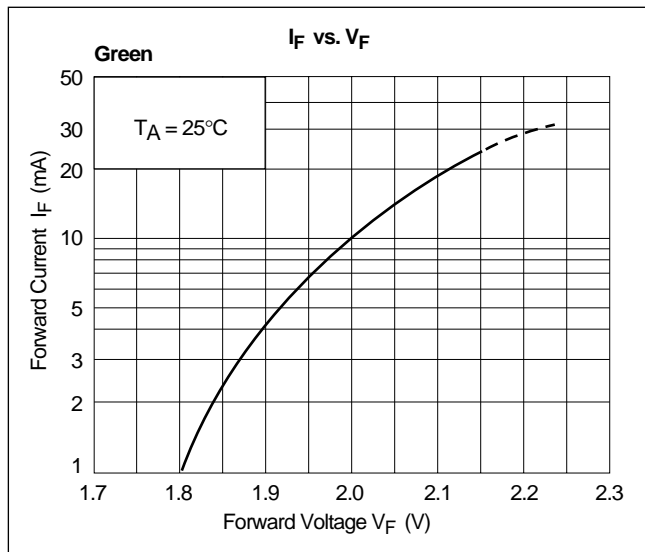
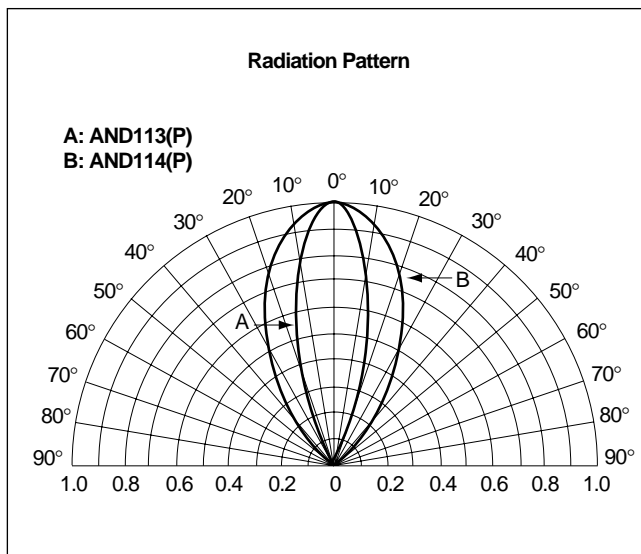
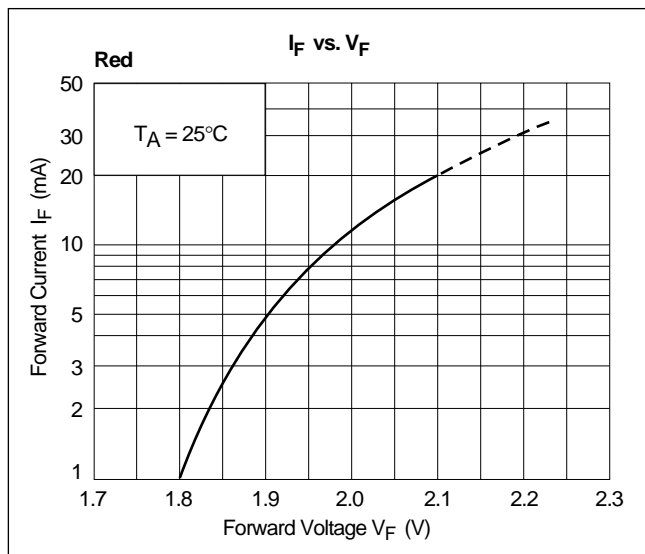
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# AND113 (P), 114(P), 123, 124, 181

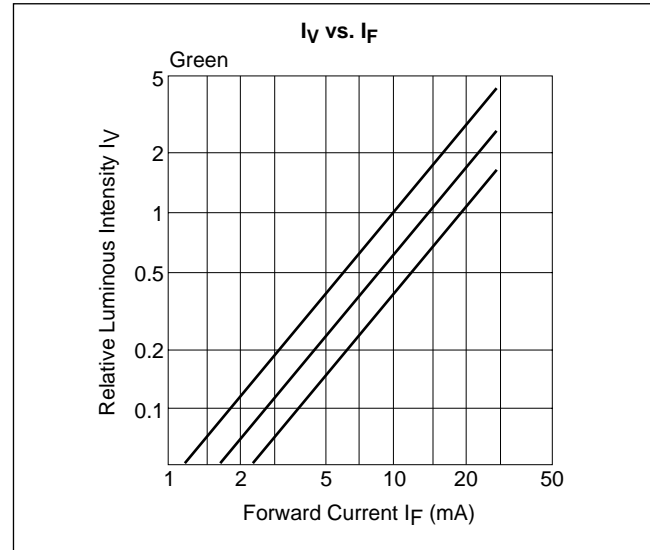
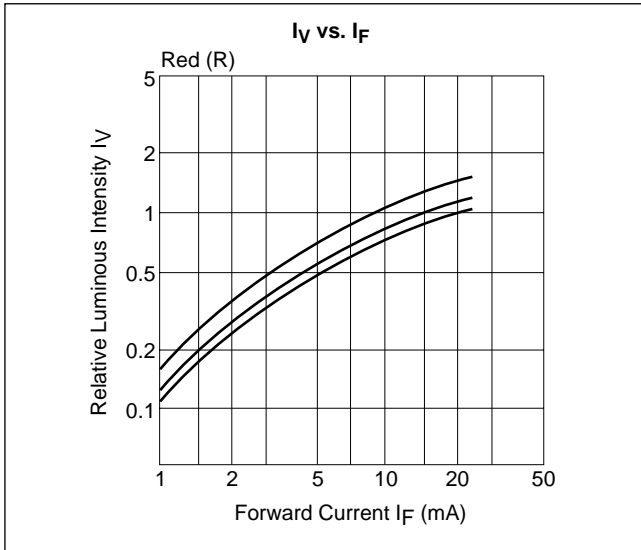
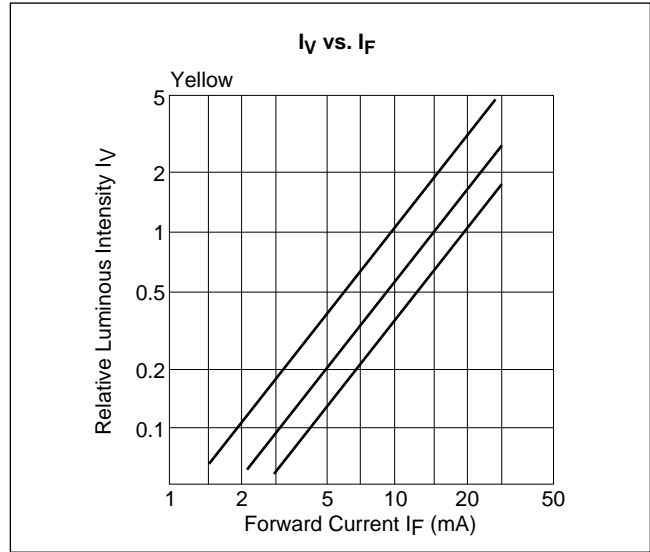
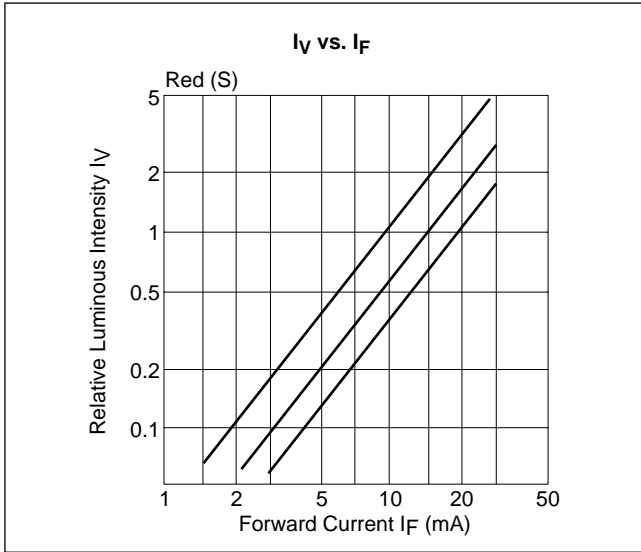
Standard Bright LED Lamps





# AND113 (P), 114(P), 123, 124, 181

## Standard Bright LED Lamps



This graph shows relative luminous vs. forward current.  
At three points ( $I_F = 10, 15, 20\text{mA}$ ) each relation is normalized.)



# AND113 (P), 114(P), 123, 124, 181

## Standard Bright LED Lamps

