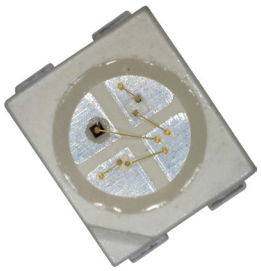
RGB LED
3.2mm × 2.8mm SMD Type

multicomp PRO

RoHS Compliant



Description

Material	Emitting Colour	Lens Colour
AlGaInP / GaAs	Hyper Red	Water Clear
InGaN / Sapphire	True Red	
InGaN / Sapphire	Blue	

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	72	mW
Reverse Voltage	V_R	5	V
D.C. Forward Current	If	30	mA
Peak Current (1/10Duty Cycle, 0.1ms Pulse Width.)	If (Peak)	100	mA
Operating Temperature Range	Topr.	-40 to +100	°C
Storage Temperature Range	Tstg.	-40 to +100	°C
Soldering Temperature	Tsld.	Reflow Soldering: 260°C for 10sec. Hand Soldering: 350°C for 3sec.	

Electrical and Optical Characteristics

Hyper Red

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	Iv	If = 20mA	110	220		mcd
Forward Voltage	Vf	If = 20mA		1.9	2.4	V
Peak Wavelength	λp	If = 20mA		632		nm
Dominant Wavelength	λd	If = 20mA		625		nm
Reverse Current	Ir	Vr = 5V			100	μA
Viewing Angle	2θ ½	If = 20mA		120		deg
Spectrum Line Halfwidth	Δλ	If = 20mA		20		nm

Note: 1. Tolerance of Luminous Intensity is ±15%
2. Tolerance of Forward Voltage is ±0.1V
3. Tolerance of Dominant Wavelength is ±1nm

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	120	mW
Reverse Voltage	V_R	5	V
D.C. Forward Current	If	30	mA
Peak Current (1/10Duty Cycle, 0.1ms Pulse Width.)	If (Peak)	100	mA
Operating Temperature Range	Topr.	-40 to +100	°C

Parameter	Symbol	Rating	Unit
Storage Temperature Range	Tstg.	-40 to +100	°C
Soldering Temperature	Tsld.	Reflow Soldering: 260°C for 10sec. Hand Soldering: 350°C for 3sec.	
Electric Static Discharge Threshold (HBM)	ESD	300	V

Electrical and Optical Characteristics

True Green

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	Iv	If = 20mA	500	1000		mcd
Forward Voltage	Vf	If = 20mA		3.2	4	V
Peak Wavelength	λp	If = 20mA				nm
Dominant Wavelength	λd	If = 20mA		520		nm
Reverse Current	Ir	Vr = 5V			50	μA
Viewing Angle	2θ ½	If = 20mA		120		deg
Spectrum Line Halfwidth	Δλ	If = 20mA		35		nm

Note: 1. Tolerance of Luminous Intensity is ±15%
2. Tolerance of Forward Voltage is ±0.1V
3. Tolerance of Dominant Wavelength is ±1nm

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	120	mW
Reverse Voltage	V_R	5	V
D.C. Forward Current	If	30	mA
Peak Current (1/10Duty Cycle Pulse Width.)	If (Peak)	100	mA
Operating Temperature Range	Topr.	-40 to +100	°C
Storage Temperature Range	Tstg.	-40 to +100	°C
Soldering Temperature	Tsld.	Reflow Soldering: 260°C for 10sec. Hand Soldering: 350°C for 3sec.	
Electric Static Discharge Threshold (HBM)	ESD	300	V

Electrical and Optical Characteristics

Blue

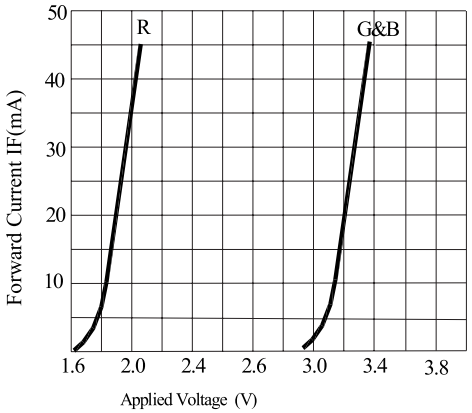
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous Intensity	Iv	If = 20mA	110	230		mcd
Forward Voltage	Vf	If = 20mA		3.2	4	V
Peak Wavelength	λp	If = 20mA				nm
Dominant Wavelength	λd	If = 20mA		465		nm
Reverse Current	Ir	Vr = 5V			50	μA

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Viewing Angle	2θ ½	If = 20mA		120		deg
Spectrum Line Halfwidth	Δλ	If = 20mA		26		nm

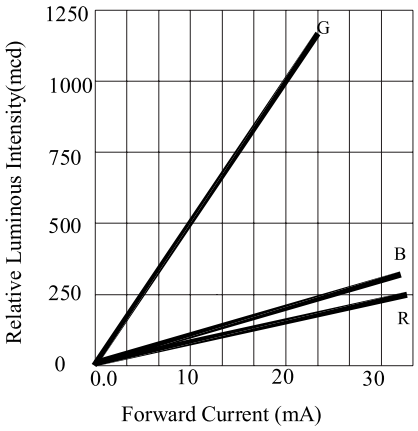
Note: 1. Tolerance of Luminous Intensity is ±15%
2. Tolerance of Forward Voltage is ±0.1V
3. Tolerance of Dominant Wavelength is ±1nm

Typical Electrical/Optical Characteristic Curves

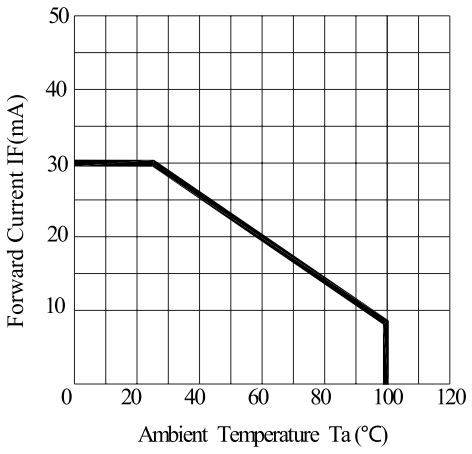
(25°C Ambient Temperature Unless Otherwise Noted)



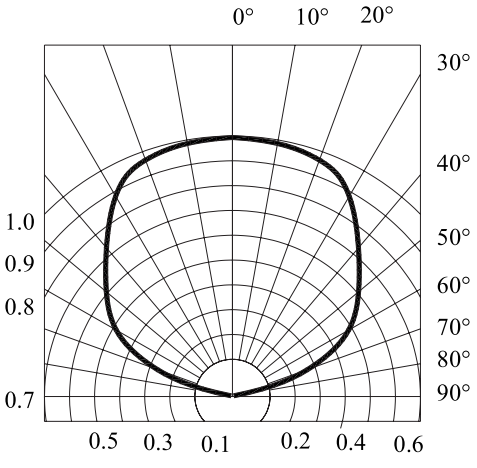
Forward Current VS. Applied Voltage



Forward Current VS. Luminous Intensity



Ambient Temperature VS. Forward Current



Radiation Diagram

Recommended Storage Environment

- Temperature: 5°C to 30°C (41°F to 86°F)
- Humidity: 60% RH Max.
- Moisture measures: Please refer to Moisture-sensitive label on reels package bags.

If unused LEDs remain, they should be stored in moisture proof packages, such as sealed container with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

Fold the opened bag firmly and keep in dry environment.

Soldering

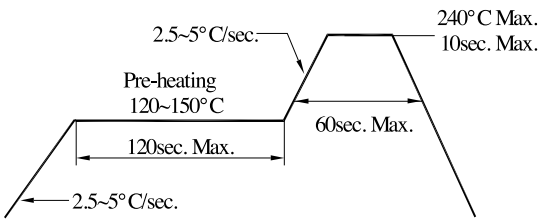
Reflow Soldering			Hand Soldering	
	Lead Solder	Lead-free Solder		
Pre-heat	12°C ~ 150°C	180°C ~ 200°C	Temperature	350°C Max.
Pre-heat Time	120sec. Max.	120sec. Max	Soldering Time	3sec. Max (one time only)
Peak Temperature	240°C Max.	260°C Max.		
Soldering Time	10sec Max.	10sec. Max		
Condition	Refer to Temperature Profile 1	Refer to Temperature Profile 2		

*After reflow soldering rapid cooling should be avoided.

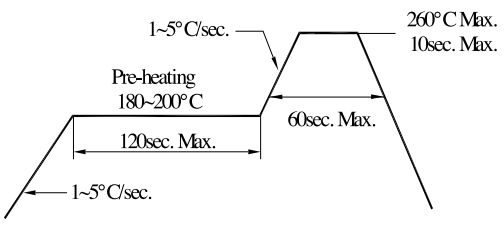
Temperature-profile (Surface of circuit board)

Use the conditions shown under figure.

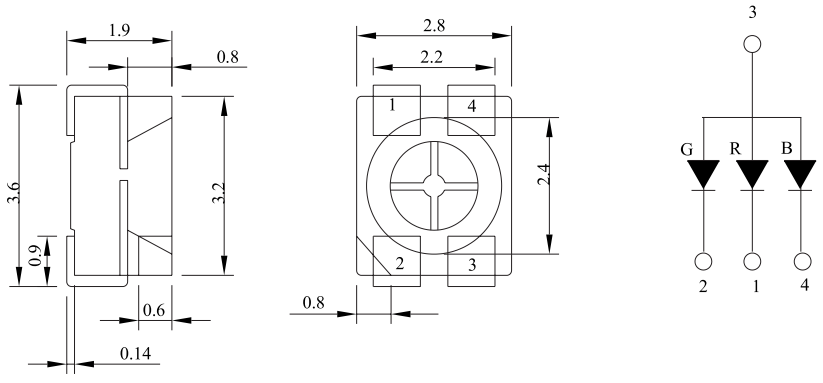
＜1 : Lead Solder＞



＜2 : Lead-free Solder＞



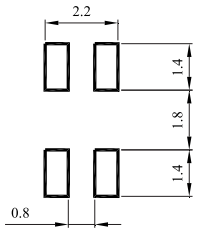
Package Dimensions



Dimensions : Millimetres
Tolerance: ±0.25mm

Recommended soldering pad design

Use the following conditions shown in the figure.



Dimensions : Millimetres

Sulfur-sensitive

- There is silver-plated metal part on the inner/outer side of the outer package. If exposed to the condition with corrosive gas, the silver plating surface may go bad, which will affect soldering strength and optical properties. Therefore, after opening it must be kept in a sealed container, etc.
- Materials contain sulfur component (gasket, adhesive, etc.) may have bad effects on the surface of the coating, so please do not use such materials in the product.
- In cardboard boxes and rubber, even in the atmosphere may contain minute amount of corrosive gases; In addition, the resin material may also contain halogen which has a bad effect on the surface of the coating.
- Even if the soldering installation and product assembly finished, by the effect of corrosive gas generated by relative materials of LED and external injected, the coating surface may go bad, so it is necessary to design the product taking into account the above factors.
- If requires, it is best to use a silicone washer, but be aware that low molecular silicone may cause the product poor contact.
- Keep the product in location where has less temperature change, because moisture condensation would be generated under a condition of strong temperature change.

Part Number Table

Description	Part Number
LED, RGB, 3.2mm × 2.8mm, SMD, 120°	MC703-1051