



LIGITEK ELECTRONICS CO.,LTD.
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LED SMD



LG-3535FRGB-BD-T12-ML2

DATA SHEET

DOC. NO : QW0905-LG-3535FRGB-BD-T12-ML2

REV. : C

DATE : 02 - Aug. - 2024



Features:

1. Meet RoHS.
- 2.Full Color SMD Chip LED With IC Control.
- 3.Top view Package in 12.0mm carrier tape on 7" diameter reel.
- 4.Each RGB chip is 8 bit control, total of 16M color can be displayed.

Descriptions:

The LG-3535 SMD has wide viewing angle and optimized light coupling by inter reflector, The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

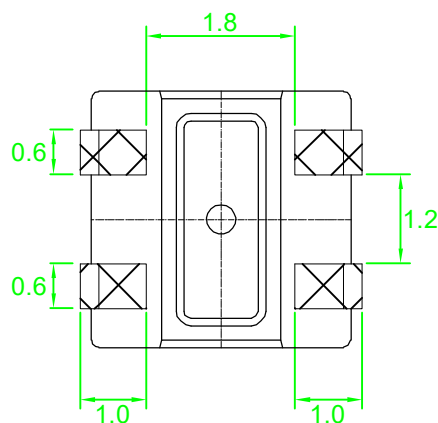
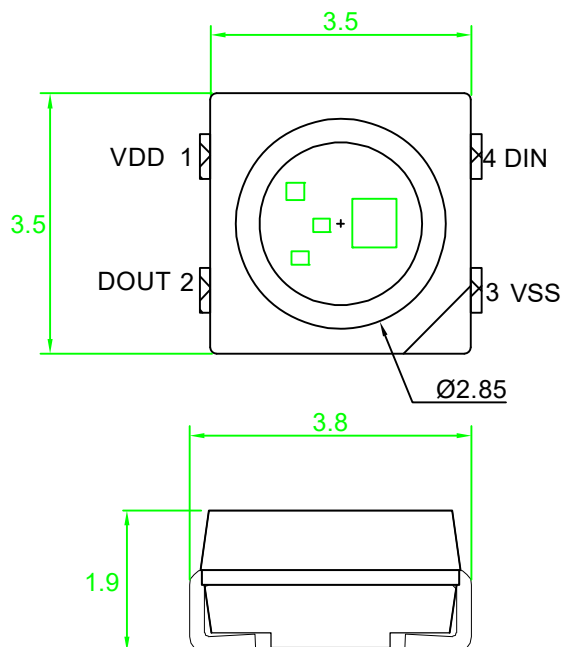
Applications:

1. Consumer product, Home appliances, Telecommunication, light bar.
2. Toy lights, Christmas lights, Decorative lights.

Device Selection Guide:

PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-3535FRGB-BD-T12-ML2	AlGaInP	Red	Water Clear
	InGaN	Blue	
	InGaN	Green	

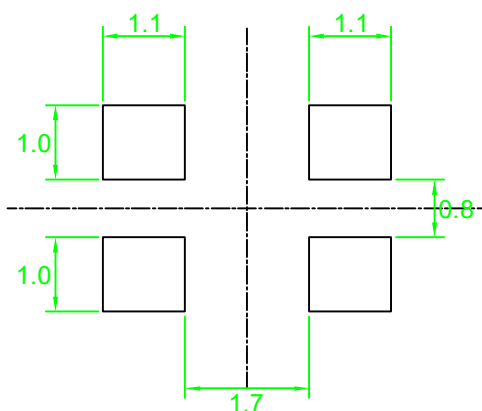
Package Dimensions



NO.	Symbol	Function Description
1	VDD	DC power input
2	DOUT	Control date signal output
3	VSS	Ground
4	DIN	Control date signal input

Note : 1.All dimension are in millimeter tolerance is $\pm 0.2\text{mm}$ unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$. Unit=mm.

Absolute Maximum Ratings

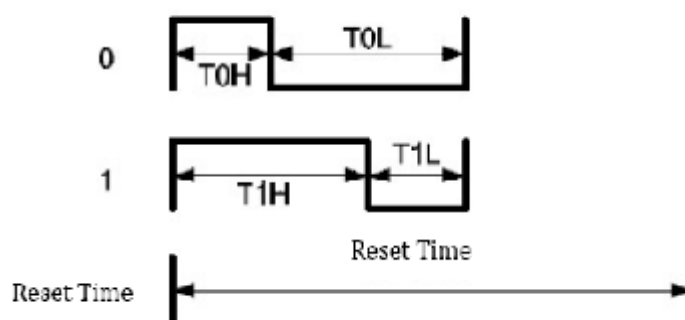
(Ta=25°C, VDD=5V, VSS=0)

Parameter	Symbol	Ratings	UNIT
Supply Voltage	VDD	3.7 ~ 6.0	V
LED Output Current	I _{OUT}	20	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C

Typical Electrical & Optical Characteristics (Ta=25°C)

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Supply Voltage	VDD	3.7	5	5.3	V	
Each R/G/B Current	IOL		12		mA	VDD=5V
Input High Voltage	VIH	2.7		VDD	V	DI,
Input Low Voltage	VIL	-0.4		0.7	V	DI,

Timing Wave Form

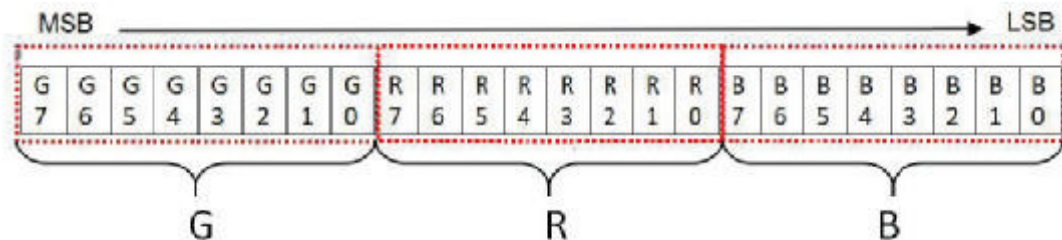


High Speed mode

Item	Description	min	max	unit
T0H	0 code, High-level time	0.22	0.38	us
T0L	0 code, Low-level time	0.58	1	us
T1H	1 code, High-level time	0.58	1	us
T1L	1 code, Low-level time	0.22	1	us
Trst	Reset code, Low-level time	280	----	us

Note: $T_H + T_L > 1.2\mu s$

Single Data in 24bit for RGB



Data Communication

LED1		1st 24bits	2nd 24bits	3rd 24bits	4th 24bits	Trst
LED2			2nd 24bits	3rd 24bits	4th 24bits	Trst
LED3				3rd 24bits	4th 24bits	Trst
LED4					4th 24bits	Trst

Electrical Optical Characteristics at Ta=25°C

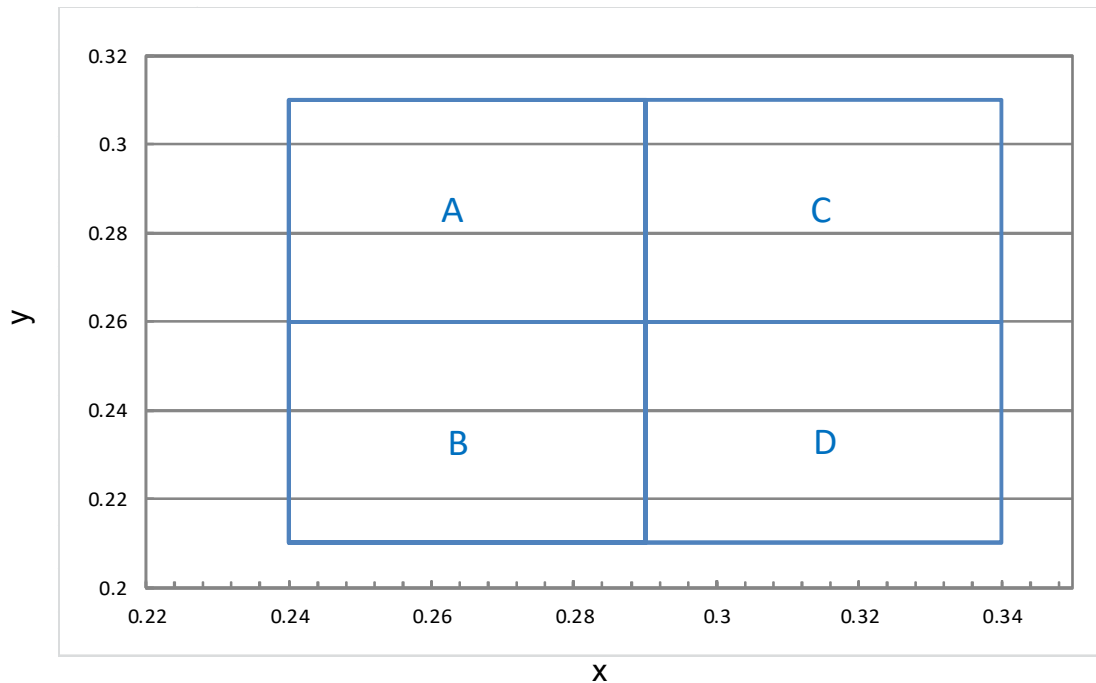
Items	Symbol		Min.	Typ.	Max.	UNIT	CONDITION
Luminous Intensity	Iv		1240	----	3050	mcd	VDD = 5V
Dominant Wavelength	λD	R	----	623	----	nm	
		G	----	524	----		
		B	----	468	----		
Viewing Angle	2θ 1/2		----	120	----	deg	

- 1.The luminous intensity data did not including $\pm 15\%$ testing tolerance.
- 2.The dominant wavelength data did not including $\pm 1\text{nm}$ testing tolerance

Luminous Intensity Classification

BIN CODE	Iv(mcd)	
	Min.	Max.
TT1	1240	1550
TT2	1550	1950
TT3	1950	2450
TT4	2450	3050

Chromaticity Coordinates Specifications For Bin Grading

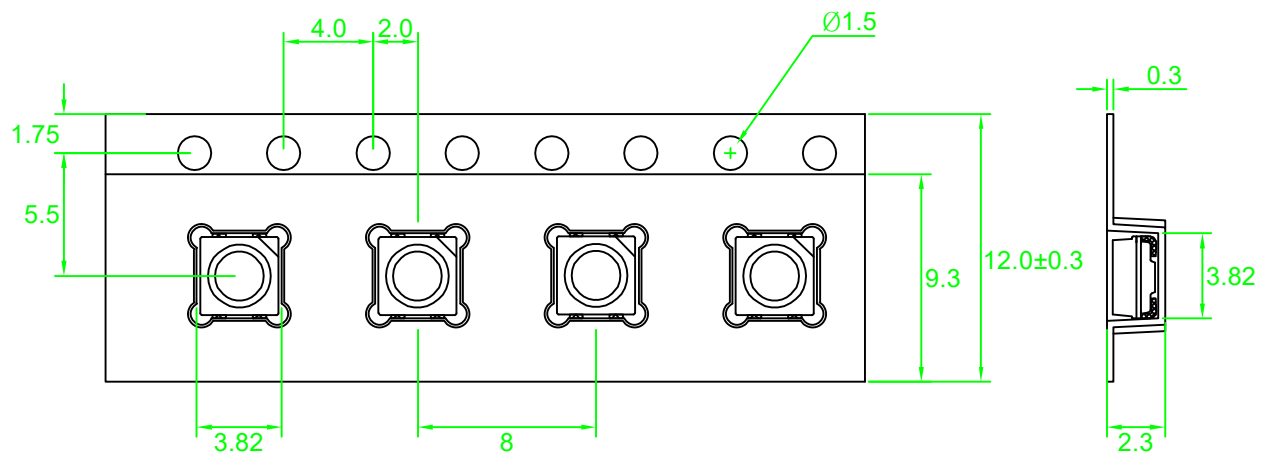


Color Coordinantes								
BIN CODE	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
A	0.240	0.310	0.290	0.310	0.290	0.260	0.240	0.260
B	0.240	0.260	0.290	0.260	0.290	0.210	0.240	0.210
C	0.290	0.310	0.340	0.310	0.340	0.260	0.290	0.260
D	0.290	0.260	0.340	0.260	0.340	0.210	0.290	0.210

PART NO. LG-3535FRGB-BD-T12-ML2

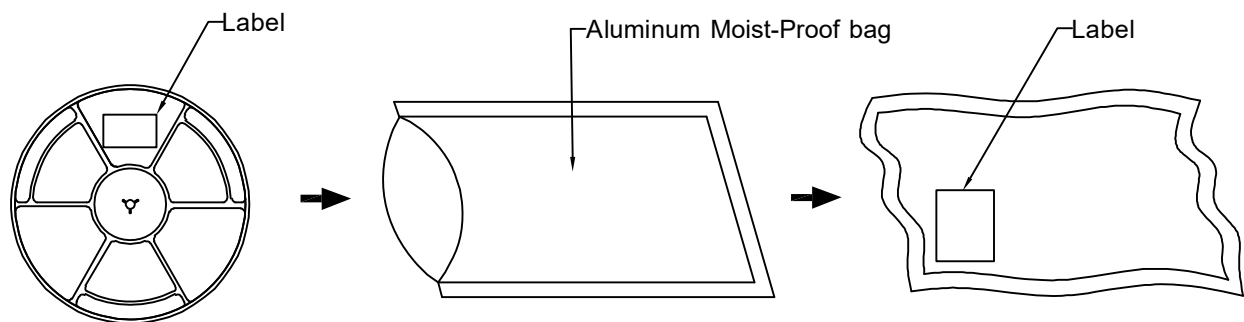
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Carrier Type Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$. Unit=mm.

• Packing Specifications



Part No.	Description	Quantity/Reel
LG-3535FRGB-BD-T12-ML2	12.0mm tape, 13" reel	2000 PCS

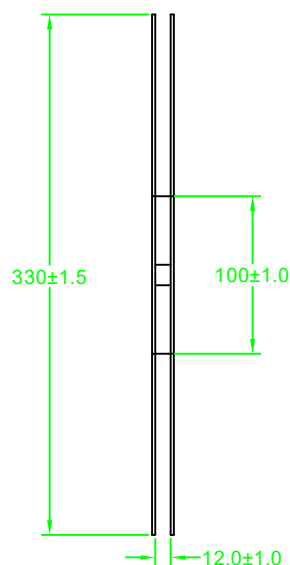
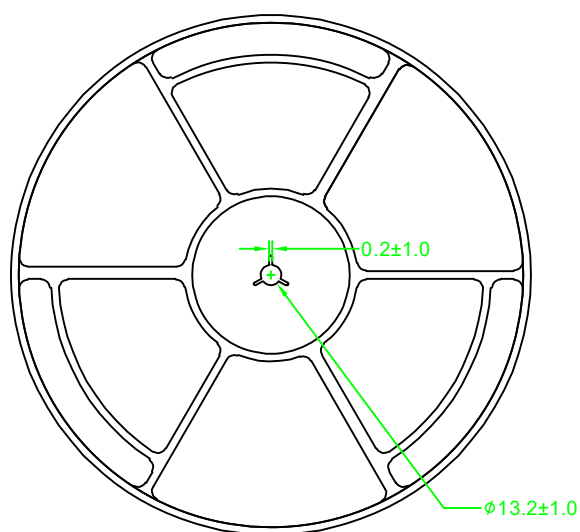
Label Explanation

	LIGITEK ELECTRONICS CO., LTD.
PART :	 LG-3535FRGB-BD-T12-ML2
LOT :	 GS11730168
QTY(PCS):	 2000
BIN/HUE :	 TT1/A

BIN : Luminous Intensity

HUE :Chromaticity Coordinates

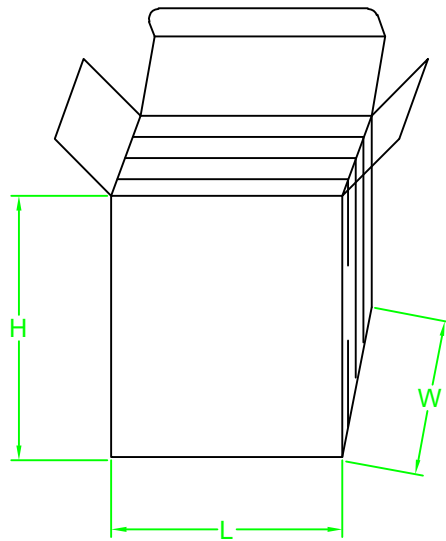
Reel Dimensions



Box Explanation

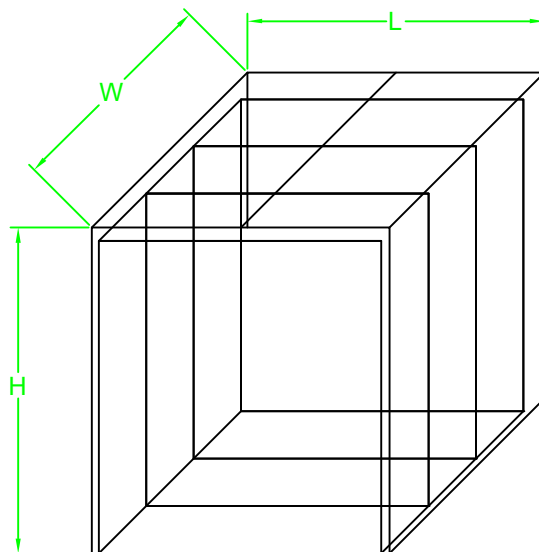
1. 4 BAG / INNER BOX

2. INNER BOX SIZE : L X W X H 38cm X 9 cm x 42cm



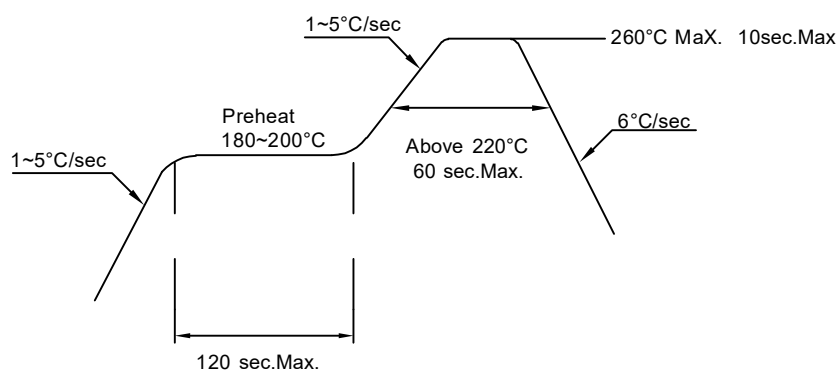
3. 3 INNER BOXES / CARTON

4. CARTON SIZE : L X W X H 40cm X 29.5cm x 43.8cm



Recommended Soldering Conditions**1. Hand Solder**

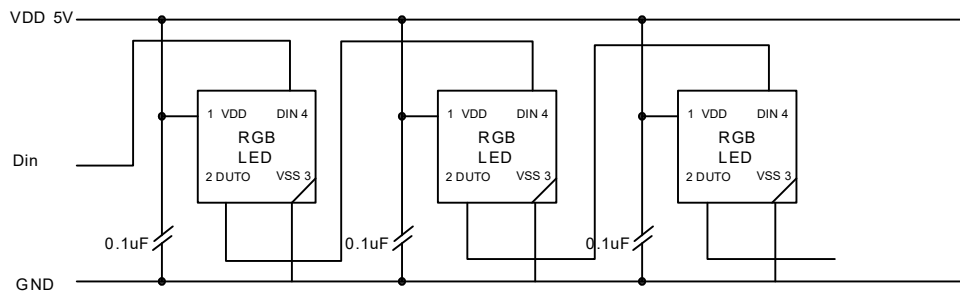
Basic spec is $\leq 280^{\circ}\text{C}$ 3 sec one time only.

2. PB-Free Reflow Solder**Note:**

- 1.Reflow soldering should not be done more than two times.
- 2.When soldering,do not put stress on the LEDs during heating.
- 3.After soldering,do not warp the circuit board.

Precautions For Use:**Storage time:**

1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within 72 hours in an environment of $\leq 30^{\circ}\text{C} / 60\%$ RH, or
 - b) Stored at ambient of 10% RH or less
3. Devices are required baking before assembly if:
 - a) Humidity Indicator Card reads $>10\%$ (for level 2a -5a) or $>60\%$ (for level 2) at ambient temperature $23\pm 5^{\circ}\text{C}$
 - b) 2.a) or 2.b) doesn't meet
4. If baking is required, devices should be baked for >24 hours at $60\pm 5^{\circ}\text{C} / 5\%$ RH. Performing baking only once, and using the baked devices within 8 hours.

Recommended route**Cleaning:**

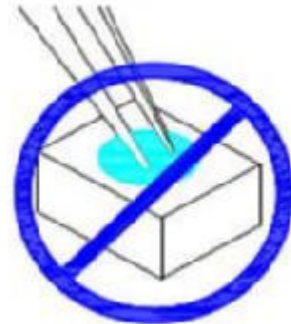
Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.

Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.



1. Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

2. The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

