

SURFACE MOUNT CHIP LED LAMPS

DATA SHEET

MODEL NO: GT3528-5W14AZ

REV. : 1.0

DATE : 01-Apr.-2008

Features

- P-LCC-2 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Pb-free.
- Wide viewing angle.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- The product itself will remain within RoHS compliant version



Descriptions

The GT3528 series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

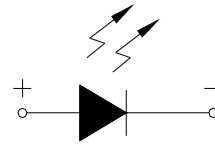
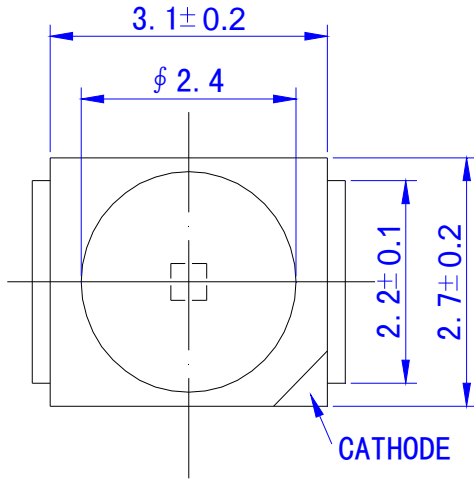
Applications

- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- Light pipe application.
- General use.

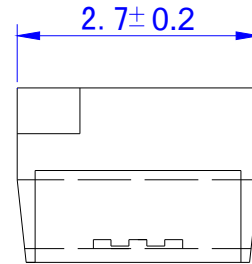
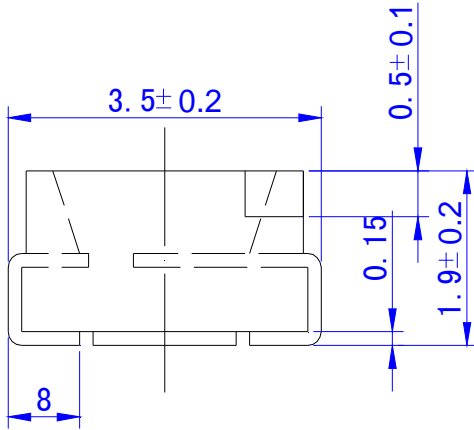
Device Selection Guide

Material	Resin (mold)	Emitted Color
InGaN	Epoxy	White

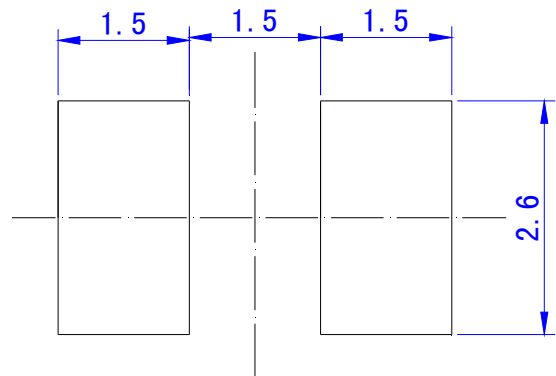
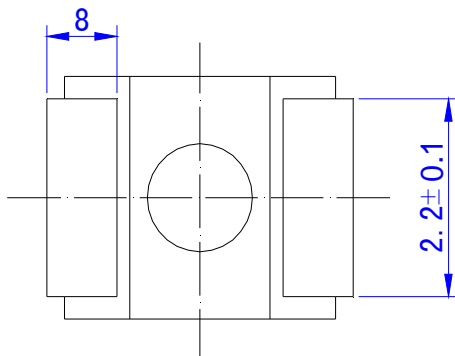
Package Dimensions



Polarity



For reflow soldering (Proposal)



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Absolute Maximum Rating (Ta=25°C)

Item	Symbol	Condition	Absolute Maximum Rating	Unit
Forward Current	I _F		30	mA
Peak Forward Current	I _{FP}	Duty1/10 @1Khz)	100	mA
Reverse Voltage	V _R		5	V
Power Dissipation	P _D		105	mW
Operating Temperature	T _{opr}		-40~+85	°C
Storage Temperature	T _{stg}		-55~+100	°C
Electrostatic Discharge	ESD		2000 (HBM)	V
Lead Soldering Temperature	T _{sol}		260°C for 10 seconds	

Electrical and Optical Characteristics at (Ta=25°C)

Item	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V _F	I _F =20mA	2.8	---	3.6	V
50%Power angle	2θ _{1/2}		--	120	--	Deg
Luminous Intensity	I _v		1200	----	2600	Mcd
Chromaticity Coordinates	CIE-X		0.2560	--	0.3300	--
	CIE-Y		0.2350	--	0.3530	--
Reverse Current	I _R	V _r =5V			10	μA

Luminous Intensity Combination(mcd at 20mA)

Rank	Min (mcd)	Max (mcd)
H	1200	1400
I	1400	1600
J	1600	1800
K	1800	2000
L	2000	2200
M	2200	2400
N	2400	2600

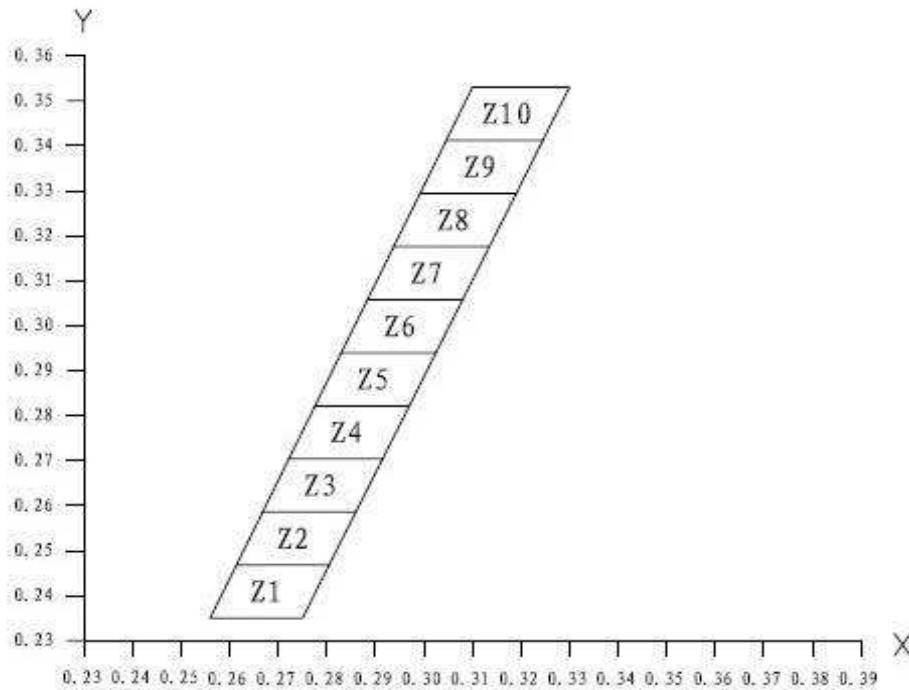
***Measurement Uncertainty of Luminous Intensity: $\pm 10\%$.**

Forward Voltage Combination(V at 20mA)

Rank T	0	1	2	3
Forward Voltage	2.8~2.9	2.9~3.0	3.0~3.1	3.1~3.2
Rank R	0	1	2	3
Forward Voltage	3.2~3.3	3.3~3.4	3.4~3.5	3.5~3.6

***Measurement Uncertainty of Forward Voltage: $\pm 0.1V$.**

Color Combination(at 20mA)



Color Ranks(IF=20mA,Ta=25°C)

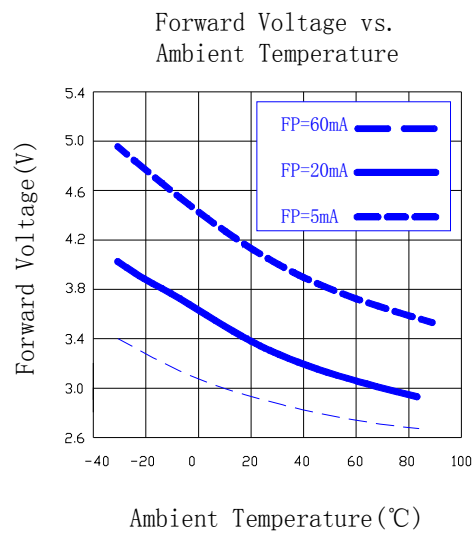
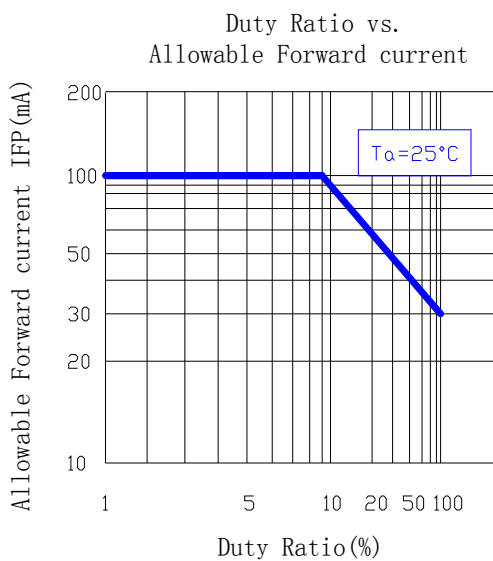
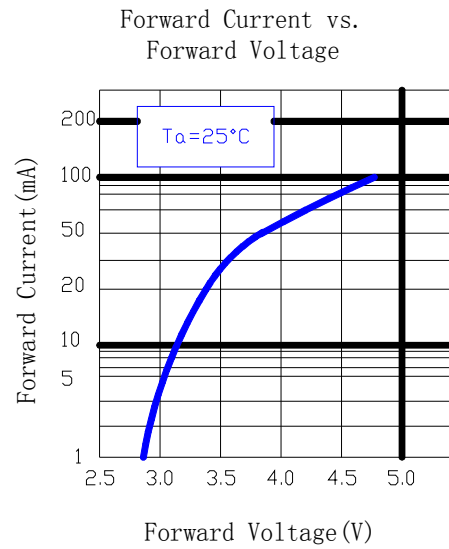
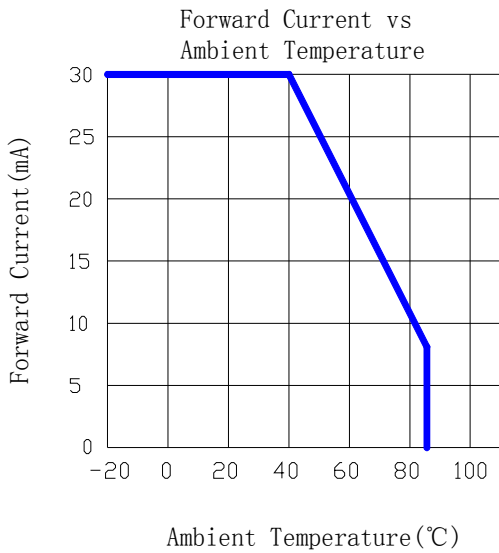
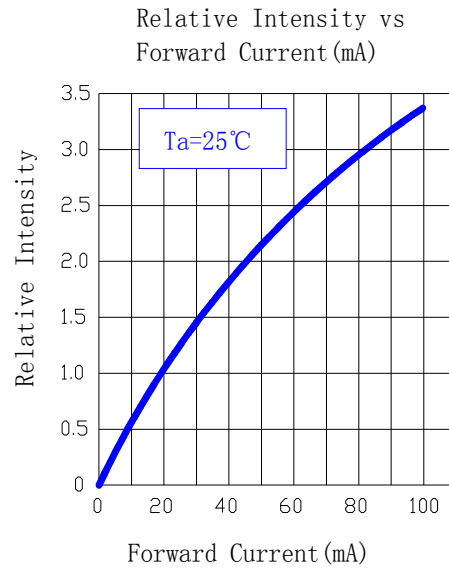
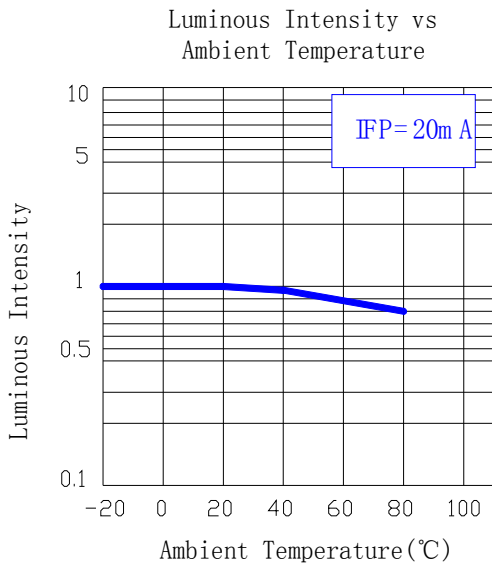
Color Ranks		CIE				CCT
Z1	X	0.2750	0.2560	0.2614	0.2805	20000K
	Y	0.2350	0.2350	0.246	0.2468	
Z2	X	0.2805	0.2614	0.2668	0.2860	14000K
	Y	0.2468	0.2468	0.2568	0.2568	
Z3	X	0.2860	0.2668	0.2722	0.2915	11000K
	Y	0.2586	0.2586	0.2704	0.2704	
Z4	X	0.2915	0.2722	0.2776	0.2970	9500K
	Y	0.2704	0.2704	0.2822	0.2822	
Z5	X	0.2970	0.2776	0.2830	0.3025	8500K
	Y	0.2822	0.2822	0.2940	0.2940	
Z6	X	0.3025	0.2803	0.2884	0.3080	7800K
	Y	0.2940	0.2940	0.3058	0.3058	
Z7	X	0.3080	0.2884	0.2938	0.3135	7200K
	Y	0.3058	0.3058	0.3176	0.3176	
Z8	X	0.3135	0.2938	0.2992	0.3190	6500K
	Y	0.3176	0.3176	0.3294	0.3294	
Z9	X	0.3190	0.2992	0.3046	0.3245	6000K
	Y	0.3294	0.3294	0.3412	0.3412	
Z10	X	0.3245	0.3046	0.3100	0.3300	5800K
	Y	0.3412	0.3412	0.3530	0.3530	

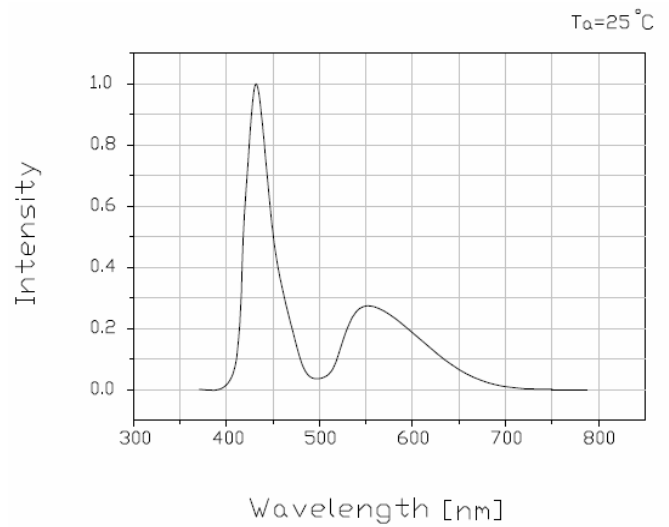
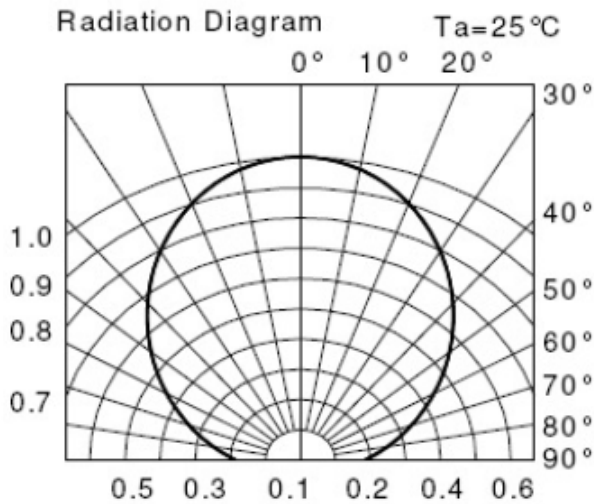
Measurement uncertainty of the color coordinates ± 0.01

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Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



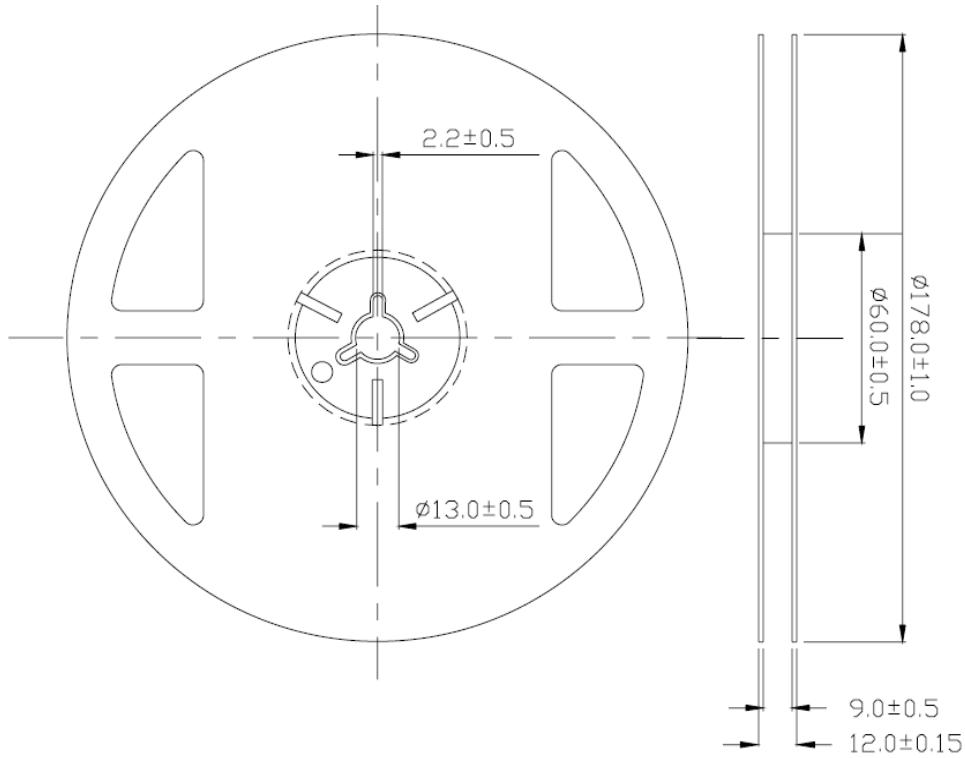


Test items and results of reliability

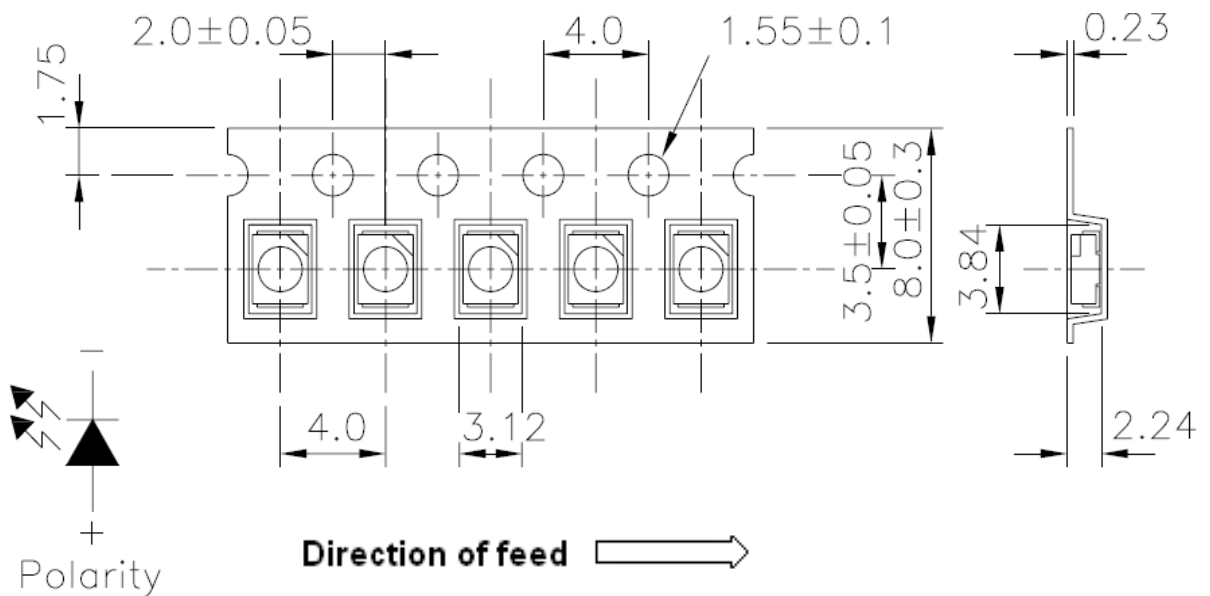
NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Reflow	TEMP: $260\pm 5^\circ\text{C}$ Min. 5sec.	6 MIN.	22 PCS	0/1
2	Temperature Cycle	H: $+100^\circ\text{C}$ 15min 5 min L: -40°C 15min	300 CYCLES	22 PCS	0/1
3	Thermal Shock	H: $+100^\circ\text{C}$ 5min 10 sec L: -10°C 5min	300 CYCLES	22 PCS	0/1
4	High Temperature Storage	TEMP: 100°C	1000 HRS	22 PCS	0/1
5	Low Temperature Storage	TEMP: -55°C	1000 HRS	22 PCS	0/1
6	DC Operating Life	$I_F = 20\text{ mA} / 25^\circ\text{C}$	1000 HRS	22 PCS	0/1
7	High Temperature / High Humidity	$85^\circ\text{C} / 85\%\text{RH}$	1000 HRS	22 PCS	0/1

Taping Specification

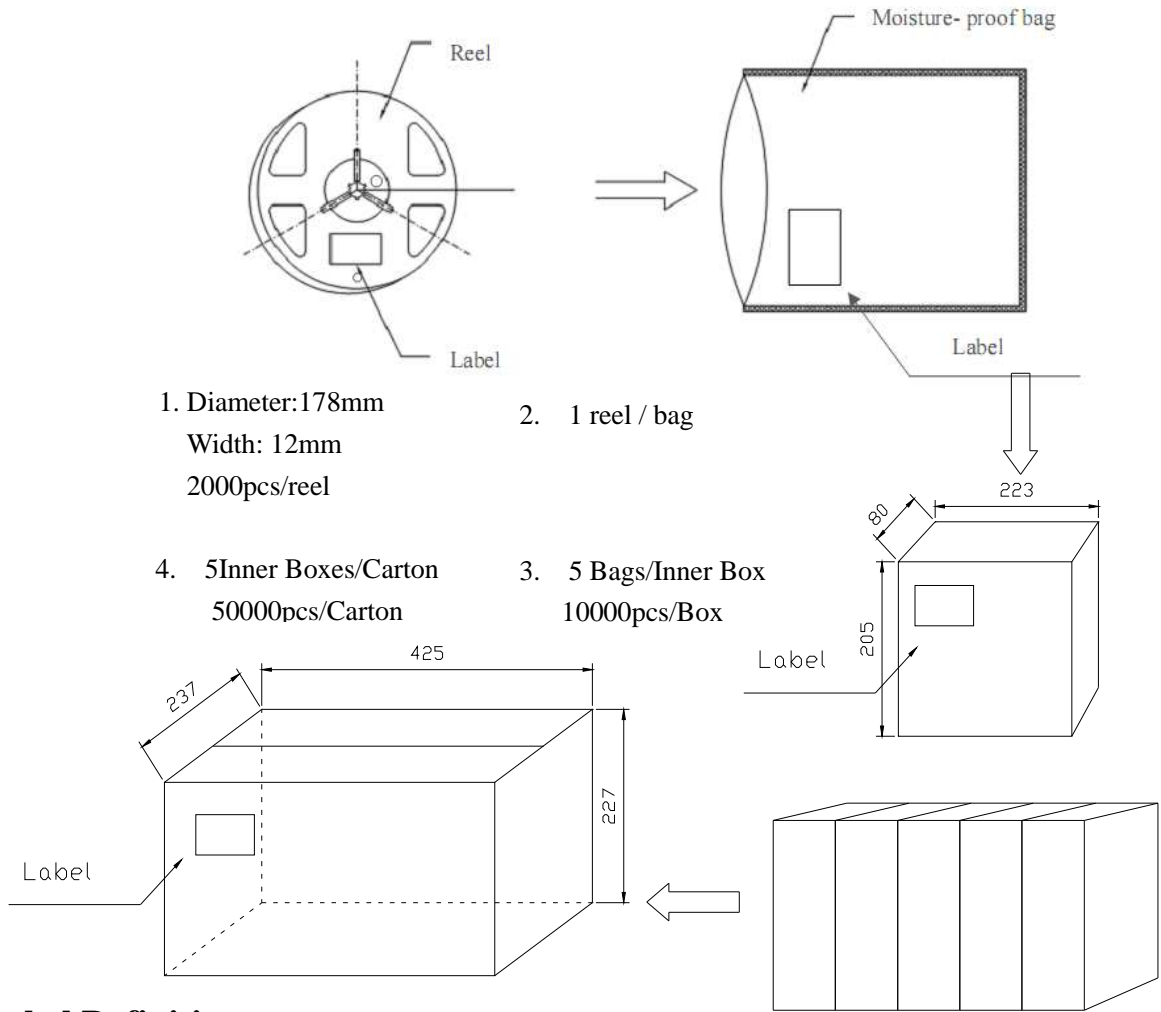
(1) Shape and dimensions of reels: unit in mm



(2) Dimensions of tape



Packing Information



- 1. Diameter: 178mm
Width: 12mm
2000pcs/reel
- 2. 1 reel / bag
- 3. 5 Bags/Inner Box
10000pcs/Box
- 4. 5 Inner Boxes/Carton
50000pcs/Carton

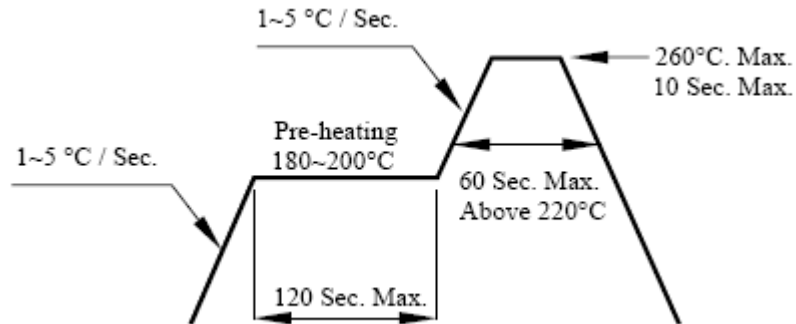
Reel Label Definition

GOODTAKE		
PART NO. GT3528-5W14AZ		
IV: a-b	VF: c-d	CIE: e
BIN: f/g/e	QTY: h	
DATE: 20xx-xx-xx	LOT NO. 10050901	

- a-b: brightness range
- c-d: forward voltage range
- e-f: CIE range
- BIN: bright/voltage/CIE
- h : quantity of LED

Soldering Condition

1. Pb-free solder temperature profile



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

Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.