

PRODUCT SPECIFICATION

Part Number PL00133-YDW01

Details

- 0603 Package Thin Surface Mount LED
- 1.6mm x 0.8mm x 0.4mm
- Emitting color: White
- InGaN chip material
- 4,000 Piece Reels

Mechanical Dimensions

Features

- RoHS Compliant
- Compatible with automatic placement equipment
- Compatible with reflow solder process



1. Soldering terminal may shift in x, y direction.

Recommended Soldering Pad Dimensions



Notes:

1. Dimensions in millimeters unless otherwise noted

2. Specifications subject to change without notice





Device Selection Guide

Model Number		Chip				
Model Number	Material	Emitting Color	Vallow Diffused			
PL00133-YDW01	InGaN	White	Tenow Diffused			

Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Maximum	Unit
Power Dissipation	PD	108	mW
Continuous Forward Current	IFmax	30	mA
Peak Forward Current	Ied	100	mΛ
(duty cycle 1/10, 0.1ms Pulse Width)	IFP	100	IIIA
Derating Liner from 25°C		0.4	mA/°C
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+85	°C

Electrical and Optical Characteristics at Ta=25 °C

Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit	
Forward Valtaga	VE	IF=5mA	2.6	3.0	3.4	V	
Folward voltage	۷ſ	IF=20mA	2.8	3.1	3.6	v	
Luminous Intensity	In	IF=5mA	57.0	145.		mcd	
Lummous Intensity	IV	IF=20mA	225.0	360.0			
Peak Emission Wavelength	λΡ	IF=20mA		455		nm	
CIE	v	IF=5mA	x: 0.26	x: 0.31	x: 0.32	nm	
CIE	Λ	IF=20mA	x: 0.25	x: 0.30	x: 0.31		
Reverse Current	IR	VR=5V			10	μĀ	
Viewing Angle	2 0 1/2			130°		deg	

Notes: Tolerance Luminous intensity $\pm 15\%$ and x y ± 0.01



Optical / Electrical Characterization



Forward Voltage Bins

Test Condition: @5mA					
Bin Code	Min. VF (V)	Max. VF (V)			
C D	2.6	2.8			
EF	2.8	3.0			
G H	3.0	3.2			







Tape Specifications

Packing Size													
Item	W	P1	E	F	Do	D1	Po	10Po	P2	Ao	Bo	Ko	t
Spec.	8.00	4.00	1.75	3.50	1.50	0.5	4.00	40.00	2.00	0.95	1.80	0.96	0.22
Tolerance	±0.20	±0.10	±0.10	±0.05	+0.1D 0.DD	±0.05	±0.05	±0.20	±0.05	±0.10	±0.10	±0.10	± 0.05



Packing and Shipping Specifications









Precautions for Use

- The Chip-LED Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature application, etc.

Item	Test Conditions	Test hr/cycle/time	Sample Q'ty	Ac / Re			
Solder Heat	TEMP $: 260^{\circ}C \pm 5^{\circ}C : 10 \pm 1$ sec	2 times	30 pcs	0/1			
Solderbility Test 💥	TEMP : $235^{\circ}C \pm 5^{\circ}C$: 3 ± 1 sec	1 time	5 pcs	0/1			
Temperature Cycle	$H : +85^{\circ}C 30min.$	100 cvcles	20 pcs	0/1			
	$L : -40^{\circ}C$ 30min.			0/1			
	$H : +85^{\circ}C$ 5min.						
Thermal Shock	ſ	50 cycles	20 pcs	0/1			
	L : -40°C 5min.						
High Temperature Storage	TEMP : 85°C	1000 hrs	20 pcs	0/1			
Low Temperature Storage	ТЕ М Р : -40°С	1000 hrs	20 pcs	0/1			
DC Operating Life	$I_F = I_{Fmax}$	1000 hrs	20 pcs	0/1			
High Temperature High Humidity	85°C ∕ 90∼95%R.H.	1000 hrs	20 pcs	0 / 1			
Shocking test	$100 \sim 2000 \text{Hz} \Rightarrow 98.1 \text{m/s}^2$ X,Y,Z direction	2 hrs	20 pcs	0 / 1			
Dropping test	Put on pallet ; height : 75cm	3 times	20 pcs	0/1			
Judgment Criteria							
Forward Voltage V _F	V	F Max-Increase	<1.1x				
Reverse Current I _R	IF	R Max-Increase <	< I _{Rmax}				
Luminous Intensity I	v	$I_V Decay < 40\%$	6				
	Item Solder Heat Solderbility Test ※ Temperature Cycle Thermal Shock High Temperature Storage Low Temperature Storage DC Operating Life High Temperature High Humidity Shocking test Dropping test Forward Voltage V _F Reverse Current I _R Luminous Intensity I	ItemTest ConditionsSolder Heat $TEMP : 260^{\circ}C \pm 5^{\circ}C : 10\pm 1$ secSolderbility Test \divideontimes $TEMP : 235^{\circ}C \pm 5^{\circ}C : 3\pm 1$ secSolderbility Test \divideontimes $TEMP : 235^{\circ}C \pm 5^{\circ}C : 3\pm 1$ secTemperature Cycle $\int 5min.$ Temperature Cycle $\int 5min.$ Thermal Shock \int Thermal Shock \int High Temperature Storage $TEMP : 85^{\circ}C$ Low Temperature Storage $TEMP : 40^{\circ}C$ DC Operating Life $I_F = I_{Fmax}$ High Temperature $85^{\circ}C / 90 \sim 95^{\circ}/6R.H.$ High Temperature $85^{\circ}C / 90 \sim 95^{\circ}/6R.H.$ Shocking test $100 \sim 2000Hz : 98.1m/s^2$ X,Y,Z directionJudgment CriteriaForward Voltage V_F VReverse Current I_R I_f Luminous Intensity I_V I_f	ItemTest ConditionsTest hr/cycle/timeSolder HeatTEMP : $260^{\circ}C \pm 5^{\circ}C$: 10 ± 1 sec2 timesSolderbility Test $\$ TEMP : $235^{\circ}C \pm 5^{\circ}C$: 3 ± 1 sec1 timeTemperature Cycle $\int 5min.$ 100 cyclesL : $-40^{\circ}C$ 30min.100 cyclesThermal Shock \int 50 cyclesL : $-40^{\circ}C$ 5min.50 cyclesL : $-40^{\circ}C$ 5min.50 cyclesL : $-40^{\circ}C$ 5min.50 cyclesL : $-40^{\circ}C$ 5min.50 cyclesLow Temperature StorageTEMP : $85^{\circ}C$ DC Operating Life $I_F = I_{Fmax}$ High Temperature $85^{\circ}C / 90 \sim 95^{\circ}/6R.H.$ High Temperature $85^{\circ}C / 90 \sim 95^{\circ}/6R.H.$ Shocking test100~2000Hz : $98.1m/s^2$ X,Y,Z directionDropping testPut on pallet : height : $75cm$ Dropping testPut on pallet : height : $75cm$ Termer Under Voltage V _F V _F Max-Increase Reverse Current I _R I _R Max-Increase Luminous Intensity I _V I _V Decay < 409	ItemTest ConditionsTest hr/cycle/timeSample Q'tySolder HeatTEMP : $260^{\circ}C \pm 5^{\circ}C : 10\pm 1 \sec$ 2 times30 pcsSolderbility Test \divideontimes TEMP : $235^{\circ}C \pm 5^{\circ}C : 3\pm 1 \sec$ 1 time5 pcsSolderbility Test \divideontimes TEMP : $235^{\circ}C \pm 5^{\circ}C : 3\pm 1 \sec$ 1 time5 pcsTemperature Cycle $\int 5min.$ 100 cycles20 pcsL : $-40^{\circ}C$ 30min. $\int 0 cycles$ 20 pcsThermal Shock $\int f$ 50 cycles20 pcsL : $-40^{\circ}C$ 5min. $\int 0 cycles$ 20 pcsL : $-40^{\circ}C$ 5min. $\int 0 cycles$ 20 pcsL : $-40^{\circ}C$ 5min. $\int 0 cycles$ 20 pcsLow Temperature StorageTEMP : $85^{\circ}C$ 1000 hrs20 pcsDC Operating Life $I_F = I_{Fmax}$ 1000 hrs20 pcsHigh Temperature $85^{\circ}C / 90 \sim 95\%$ R.H.1000 hrs20 pcsBiocking test $100\sim 2000$ Hz : 98.1 m/s² X,Y,Z direction2 hrs20 pcsDropping testPut on pallet : height : 75 cm3 times20 pcsJudgment CriteriaJudgment Criteria20 pcsForward Voltage V _F V _F Max-Increase < 1.1 x			

X Solderbility test criteria : coverage is not less than 95%

Note : Measurement shall be taken after the tested samples have been returned to normal ambient conditions (generally after two hours)

Test Circuit





• Overdrive current proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause current change with great deal. (Burn out will happen)

• Storage

1. The operation of temperature and R.H. are $: 5^{\circ}C \sim 30^{\circ}C, 60^{\circ}_{\circ}R.H.$ Max.

2. Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccant. Considering the tape life, we suggest our customers use our products within 1.5 years (from production date).

3. It is recommended to bake before soldering when the package is unsealed more than 72 hrs. The condition is: $60^{\circ}C \pm 5^{\circ}C$ for 15 hrs.

Reflow Temperature/Time



Hand Soldering Iron

Temperature at tip of iron: 400°C Max (35W Max) Soldering time: 3 +/-1 sec.



	Approved By	Checked By	Prepared By
PL00133-YDW01 Customer Approval Signatures			

	Record Of Revisions						
Rev.	Comments	Page	Date				
0	Released Spec		03/31/16				
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