



Customer Part No:

Brightek Part No: 5252-DP

- White: VZDP52AW37FCCPZ6
- Neutral White: VZDP52AW57FCCKZ6
- Warm White: VZDP52AW57FCCDZ6

Specification:

Documents No:

Prepared By: Kiwi Liao / Time: 2012/06/26

Checked By: Ethan Cheng / Time: 2012/06/26

Customer Confirmation:



FEATURES

- § Eutectic chip bonding process/ thermal resistance: 3° C/W
- § Forward maximum current 1,400mA
- § Wide viewing angle: Typ.125°
- § Operating temperature -30~80°C
- § Storage temperature-40~100°C
- § ROHS-compliant
- § Outline (L x W x H) of 5.2*5.2*3.1mm
- § Reverse voltage: 8V

CATALOG

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Substrate	Color	Emitter
ALN (4~12W)	Cool White CRI 80	VZDP52AW37FCCPZ6
	Neutral White CRI 80	VZDP52AW57FCCCKZ6
	Warm White CRI 80	VZDP52AW57FCCDZ6

➤ **COOL--WHITE**
VZDP52AW37FCCPZ6

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V _f	6.0	6.5	6.8	V	I _f =700mA
Reverse Current	I _r	---	---	10	μA	V _r =8V
Viewing angle	2θ _{1/2}	---	125	---	Deg	I _f =700mA
Chromaticity coordinate	X	---	0.3287	---	---	I _f =700mA
	Y	---	0.3417	---	---	I _f =700mA
Color Temperature	CCT	---	5700	---	K	I _f =700mA
Luminous Flux	Φ _v	---	430	---	Lm	I _f =700mA
Luminous Flux	Φ _v	---	600	---	Lm	I _f =1000mA
Luminous Flux	Φ _v	---	750	---	Lm	I _f =1400mA

1. Luminous intensity (I_v) ±5%, Forward Voltage (VF) ±0.1V, Viewing angle(2θ_{1/2}) ±5%
2. IS standard testing
3. Electrical-Optical Characteristics (T_a=25°C)

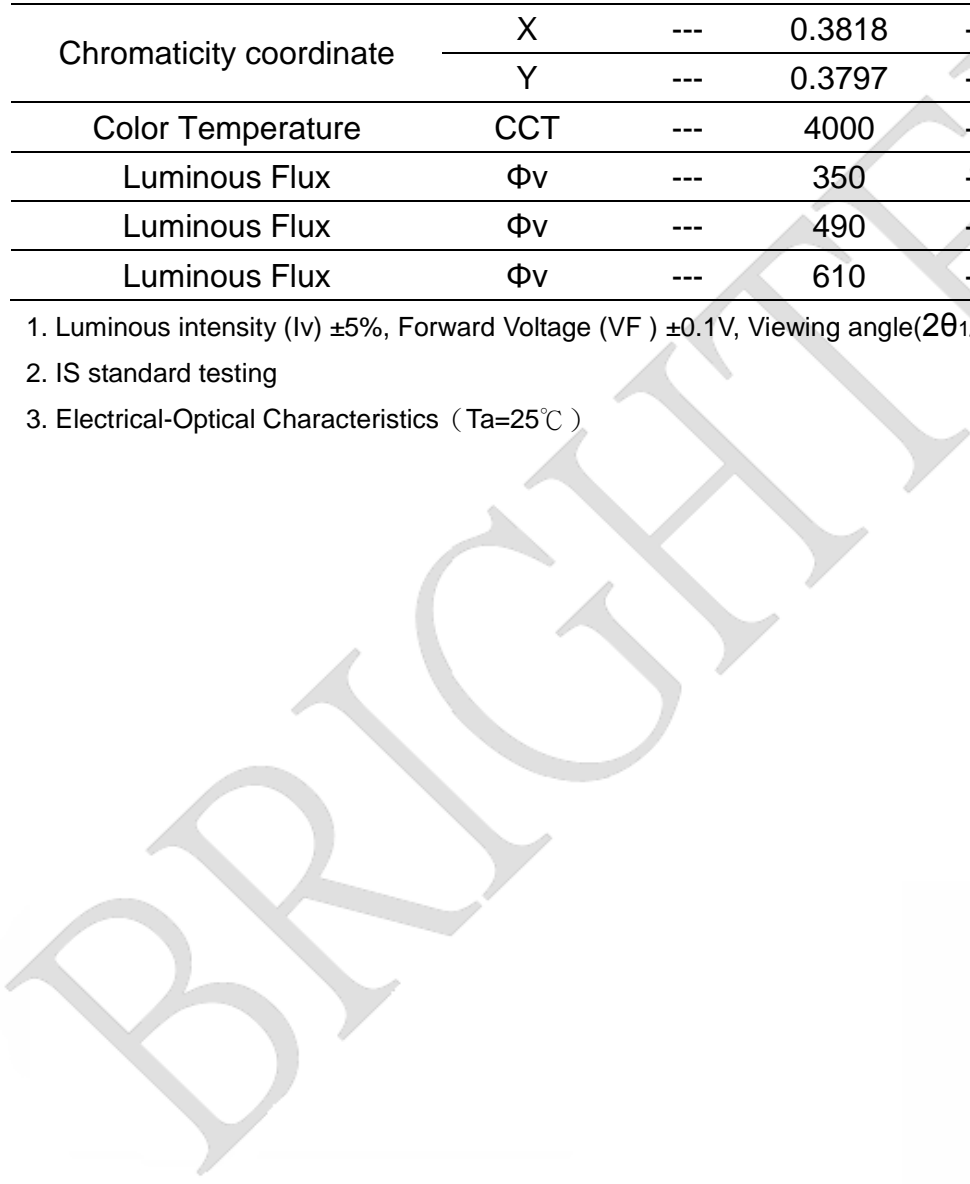


NEUTRAL --WHITE
VZDP52AW57FCCKZ6

SPECIFICATION FOR APPROVAL

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V _f	6.0	6.5	6.8	V	I _f =700mA
Reverse Current	I _r	---	---	10	μA	V _r =8V
Viewing angle	2θ _{1/2}	---	125	---	Deg	I _f =700mA
Chromaticity coordinate	X	---	0.3818	---	---	I _f =700mA
	Y	---	0.3797	---	---	I _f =700mA
Color Temperature	CCT	---	4000	---	K	I _f =700mA
Luminous Flux	Φ _v	---	350	---	Lm	I _f =700mA
Luminous Flux	Φ _v	---	490	---	Lm	I _f =1000mA
Luminous Flux	Φ _v	---	610	---	Lm	I _f =1400mA

1. Luminous intensity (I_v) ±5%, Forward Voltage (VF) ±0.1V, Viewing angle(2θ_{1/2}) ±5%
2. IS standard testing
3. Electrical-Optical Characteristics (Ta=25°C)



➤ **WARM -WHITE****VZDP52AW57FCCDZ6**

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V_f	6.0	6.5	6.8	V	$I_f=700\text{mA}$
Reverse Current	I_r	---	---	10	μA	$V_r=8\text{V}$
Viewing angle	$2\theta_{1/2}$	---	125	---	Deg	$I_f=700\text{mA}$
Chromaticity coordinate	X	---	0.4338	---	---	$I_f=700\text{mA}$
	Y	---	0.4030	---	---	$I_f=700\text{mA}$
Color Temperature	CCT	---	3000	---	K	$I_f=700\text{mA}$
Luminous Flux	Φ_v	---	330	---	Lm	$I_f=700\text{mA}$
Luminous Flux	Φ_v	---	460	---	Lm	$I_f=1000\text{mA}$
Luminous Flux	Φ_v	---	580	---	Lm	$I_f=1400\text{mA}$

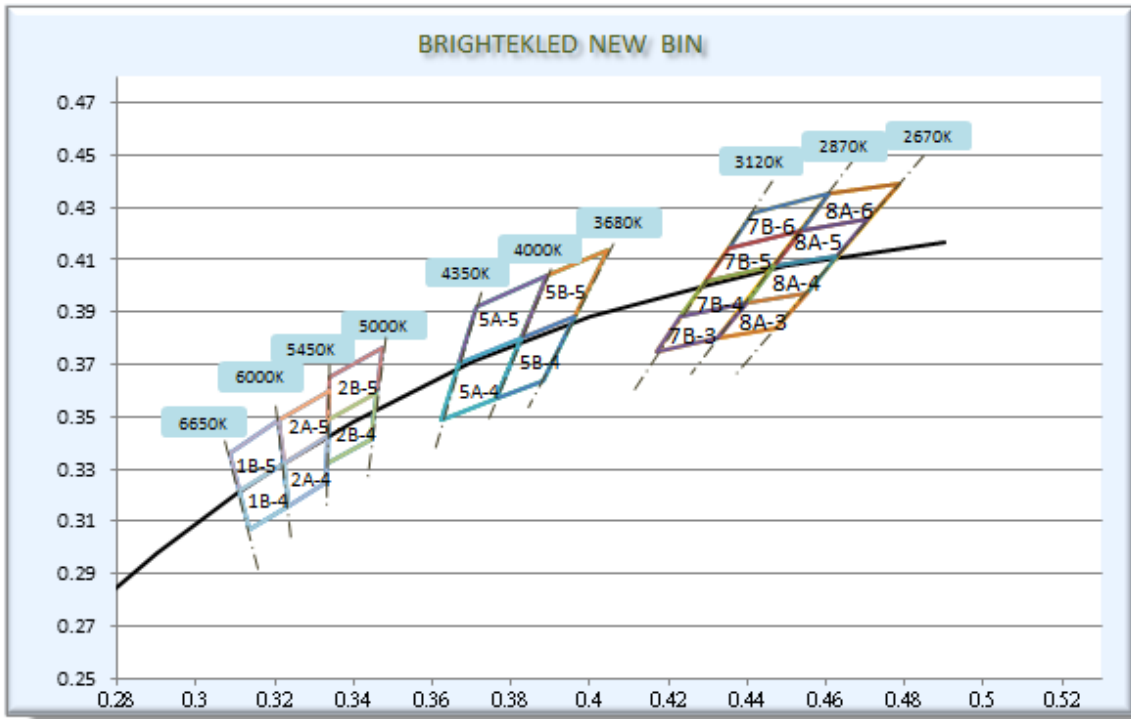
1. Luminous intensity (Iv) $\pm 5\%$, Forward Voltage (VF) $\pm 0.1\text{V}$, Viewing angle($2\theta_{1/2}$) $\pm 5\%$

2. IS standard testing

3. Electrical-Optical Characteristics (Ta=25°C)



➤ COLOR COORDINATE (CIE-1931)



SPECIFICATION FOR APPROVAL

BRIGHTTEK



PERFORMANCE GROUPS – CHROMATICITY

BIN	x	y	BIN	x	y	BIN	x	y
1B-5	0.3211	0.3485	2A-5	0.3340	0.3600	2B-5	0.3475	0.3763
	0.3088	0.3363		0.3211	0.3485		0.3341	0.3654
	0.3111	0.3216		0.3223	0.3322		0.3337	0.3489
	0.3223	0.3322		0.3335	0.3425		0.3459	0.3590
1B-4	0.3223	0.3322	2A-4	0.3335	0.3425	2B-4	0.3459	0.3590
	0.3111	0.3216		0.3223	0.3322		0.3337	0.3489
	0.3135	0.3070		0.3235	0.3160		0.3332	0.3323
	0.3235	0.3160		0.3330	0.3250		0.3443	0.3416

BIN	x	y	BIN	x	y
5A-5	0.3893	0.4037	5B-5	0.4046	0.4134
	0.3714	0.3924		0.3893	0.4037
	0.3669	0.3705		0.3828	0.3803
	0.3828	0.3803		0.3963	0.3887
5A-4	0.3828	0.3803	5B-4	0.3963	0.3887
	0.3669	0.3705		0.3828	0.3803
	0.3624	0.3486		0.3762	0.3569
	0.3762	0.3569		0.3881	0.3640

BIN	x	y	BIN	x	y
7B-6	0.4609	0.4352	8A-6	0.4788	0.4394
	0.4415	0.4281		0.4609	0.4352
	0.4354	0.4148		0.4538	0.4214
	0.4538	0.4214		0.4709	0.4254
7B-5	0.4538	0.4214	8A-5	0.4709	0.4254
	0.4354	0.4148		0.4538	0.4214
	0.4293	0.4014		0.4468	0.4077
	0.4468	0.4077		0.4630	0.4114
7B-4	0.4468	0.4077	8A-4	0.4630	0.4114
	0.4293	0.4014		0.4468	0.4077
	0.4232	0.3881		0.4397	0.3939
	0.4397	0.3939		0.4551	0.3975
7B-3	0.4397	0.3939	8A-3	0.4551	0.3975
	0.4232	0.3881		0.4397	0.3939
	0.4171	0.3748		0.4326	0.3801
	0.4326	0.3801		0.4472	0.3835



Bin	T	U	V					
VF(v)	5.6-6.0	6.0-6.4	6.4-6.8					
Bin	47	48	49	50	51	52		
Flux(lm)	300-320	320-340	340-360	360-380	380-410	410-440		

BRIGHTTEK

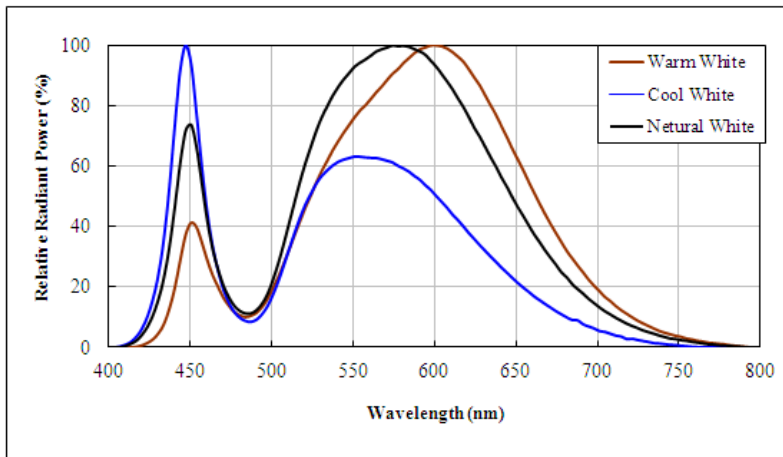
SPECIFICATION FOR APPROVAL



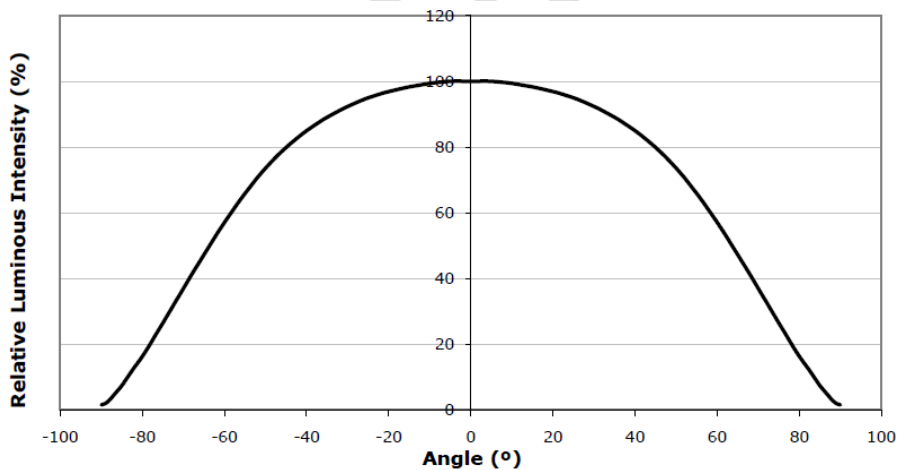
➤ OPTICAL CHARACTERISTICS

RELATIVE SPECTRAL POWER DISTRIBUTION

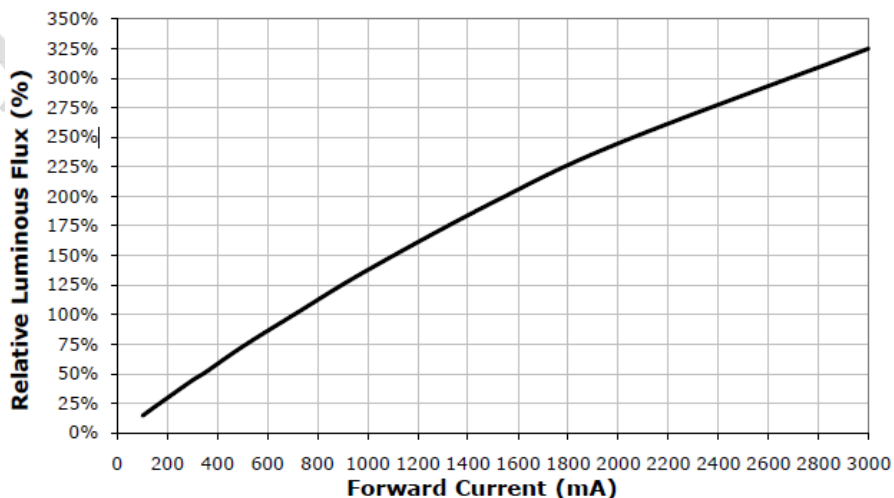
Figure 1. Relative Spectral Power VS Wavelength @ Tc=25°C



TYPICAL SPATIAL DISTRIBUTION

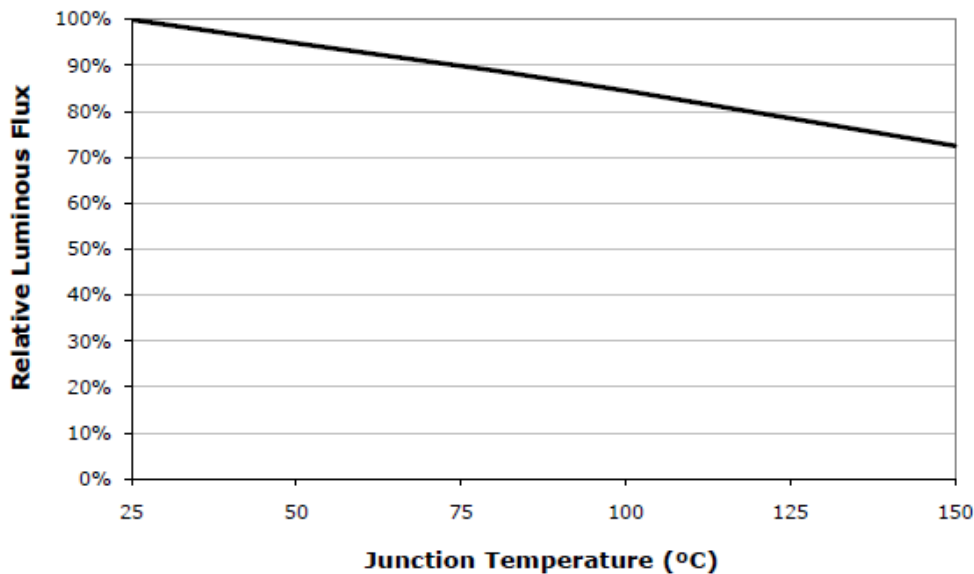


RELATIVE FLUX VS. CURRENT (TJ = 25°C)

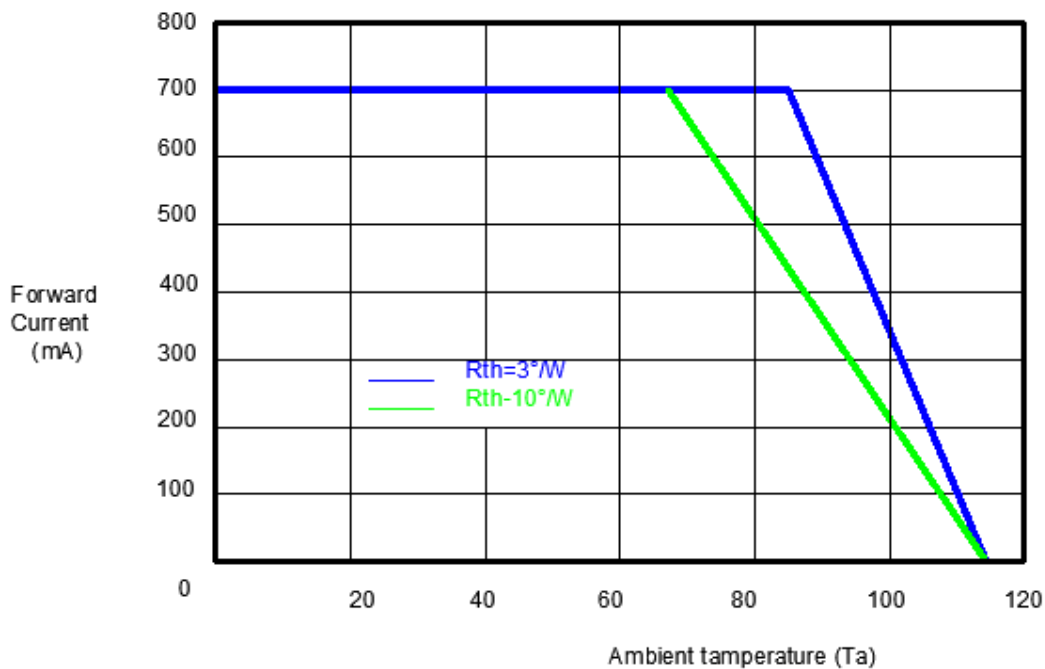




RELATIVE FLUX VS. JUNCTION TEMPERATURE (IF = 700 MA)

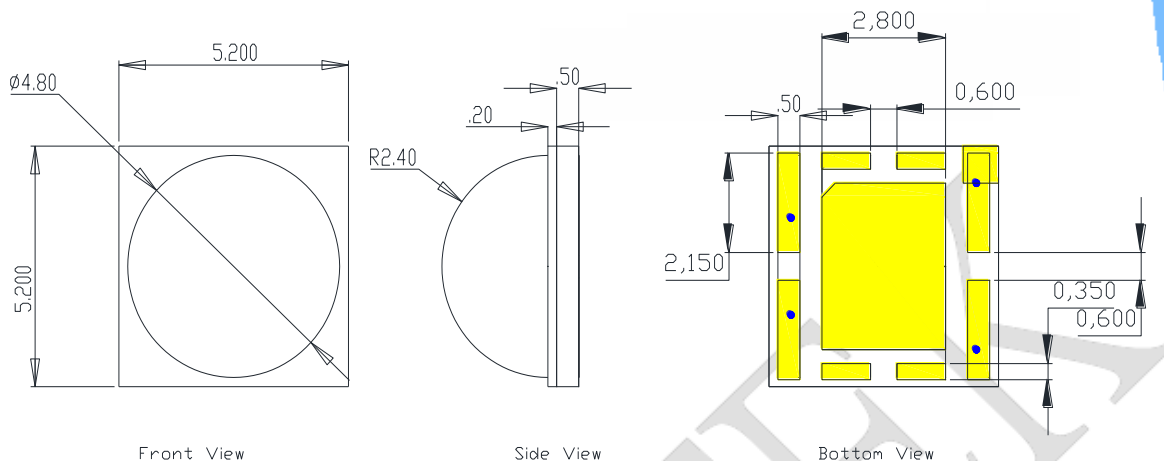


THERMAL DESIGN



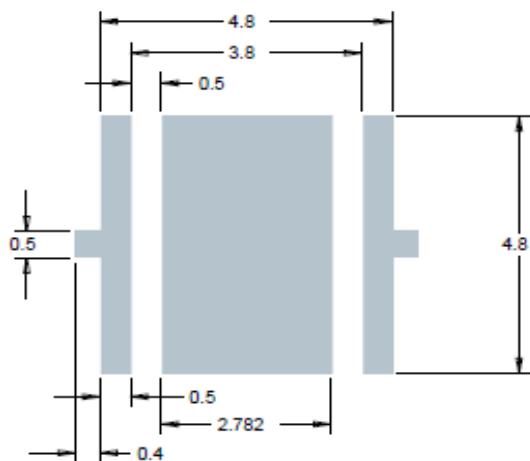


➤ **OUTLINE DIMENSIONS**

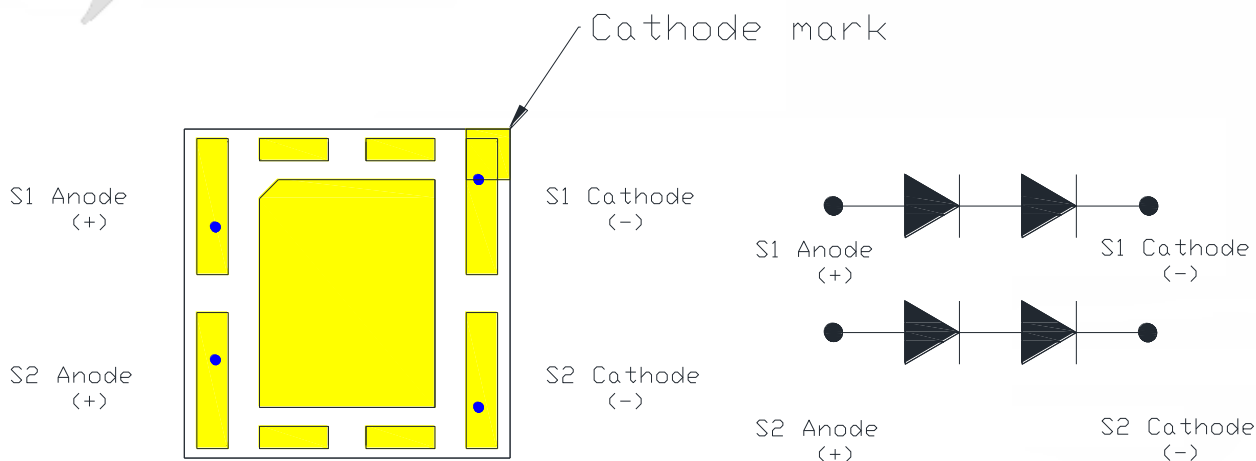


- § All dimensions are in millimeters.
- § Tolerance is ± 0.13 mm unless other specified

➤ **Recommended PCB Solder Pad**



➤ **Circuit**

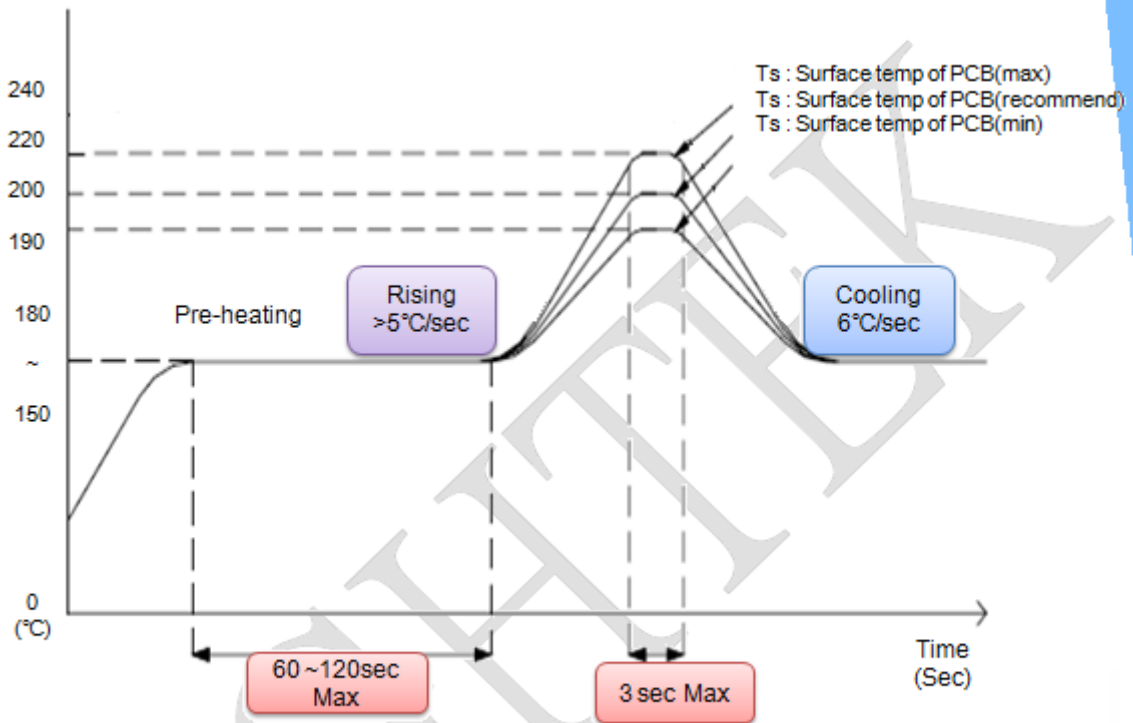




➤ Reflow Profile

IR reflow soldering Profile

Lead Free solder



NOTES:

1. We recommend the reflow temperature $200^{\circ}\text{C} (\pm 5^{\circ}\text{C})$. the maximum soldering temperature should be limited to 210°C .
2. Don't stress the silicone resin while it is exposed to high temperature.
3. Number of reflow process shall be 1 time.



➤ TEST ITEMS AND RESULTS OF RELIABILITY

Test Item	Test Conditions	Duration/ Cycle	Number of Damage	Reference
Temperature Cycle	-40°C 30min ↑↓25°C (5 min) 100°C 30min	100 cycles	0/22	JEITA ED-4701 300 303
Thermal Shock	-40°C 30min ↑↓5sec 110°C 30min	100 cycles	0/22	JEITA ED-4701 200 303
High Temperature Storage	T _a =85°C	1000 hrs	0/22	EIAJED-4701 200 201
Humidity Heat Storage	T _a =85°C RH=85%	1000 hrs	0/22	EIAJED-4701 100 103
Low Temperature Storage	T _a =-40°C	1000 hrs	0/22	EIAJED-4701 200 202
Life Test	T _a =25°C I _f =700mA	1000 hrs	0/22	Tested with Brighttek standard
High Humidity Heat Life Test	60°C RH=90% I _f =700mA	1000 hrs	0/22	Tested with Brighttek standard
Low Temperature Life Test	T _a =-40°C I _f =700mA	1000 hrs	0/22	Tested with Brighttek standard
ESD(HBM)	1KV at 1.5kΩ;100pf	3 Times	0/22	MIL-STD-883D

*Criteria for Judging the Damage

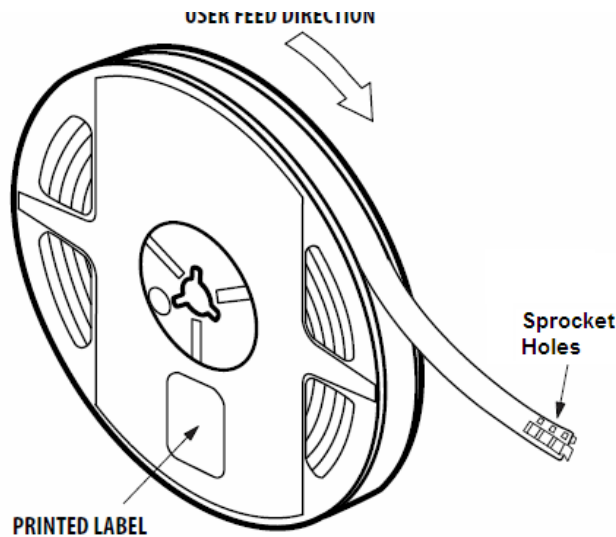
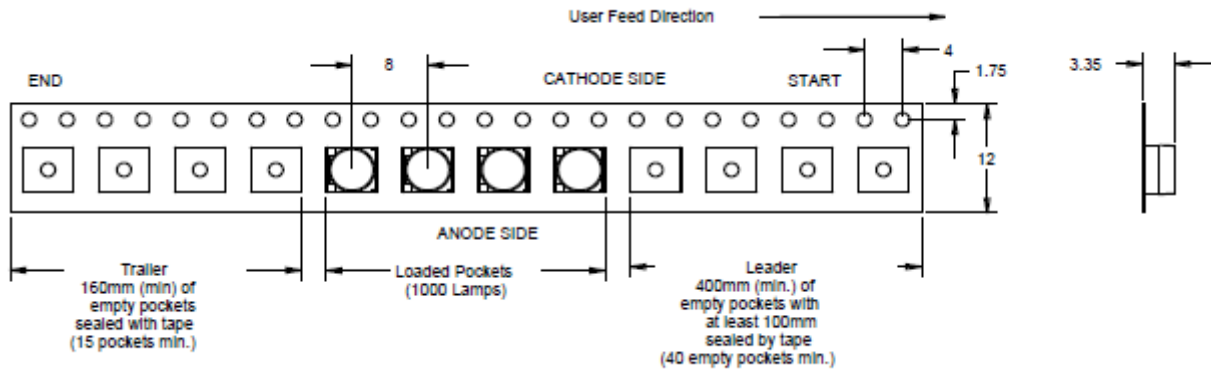
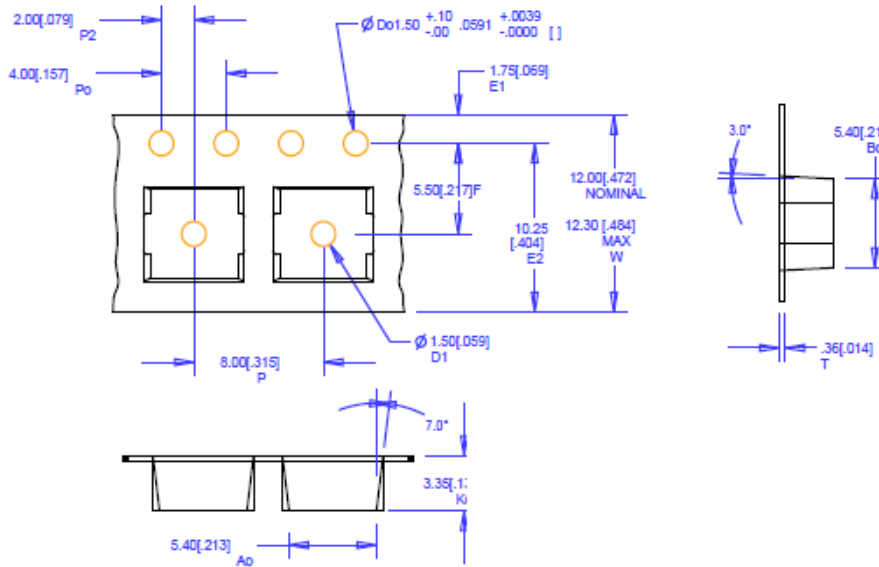
Item	Symbol	Condition	Criteria for Judgement	
			MIN	MAX
Forward Voltage	VF	I _f =700mA	—	USL* ¹ ×1.1
Reverse Current	IR	V _r =8V	—	100μA
Luminous Intensity	I _v	I _f =700mA	LSL* ² ×0.7	—

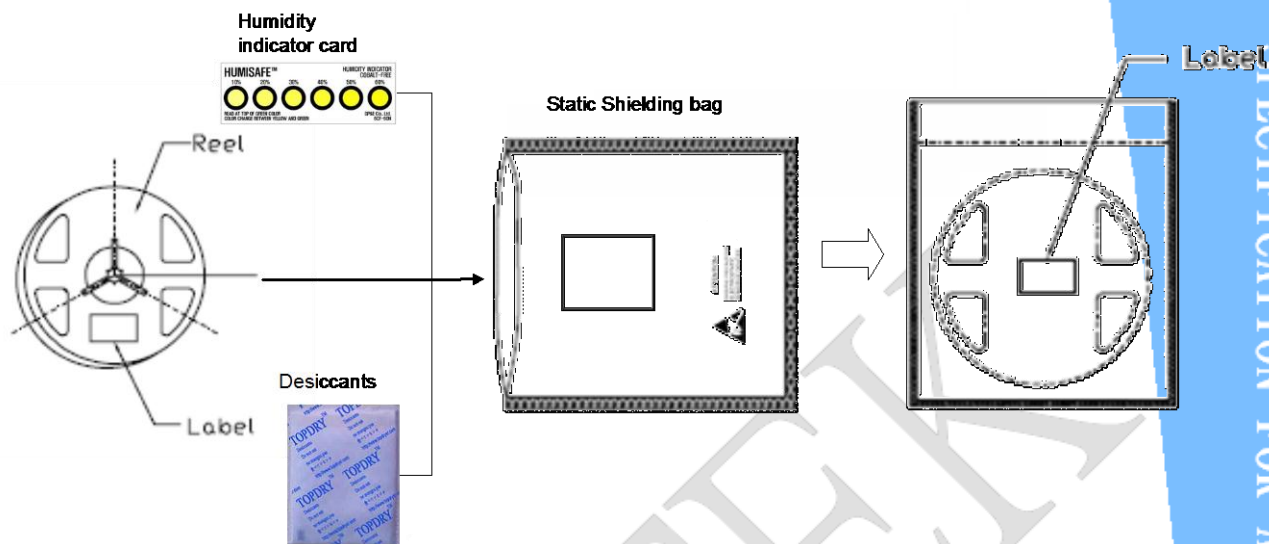
[Note]*¹USL: Upper Specification Level*²LSL: Lower Specification Level



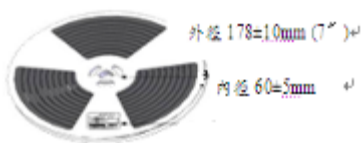
➤ **PACKING**

Tape and Reel





MFG Packing



FG in after OQC Packing



Ship out packing Step

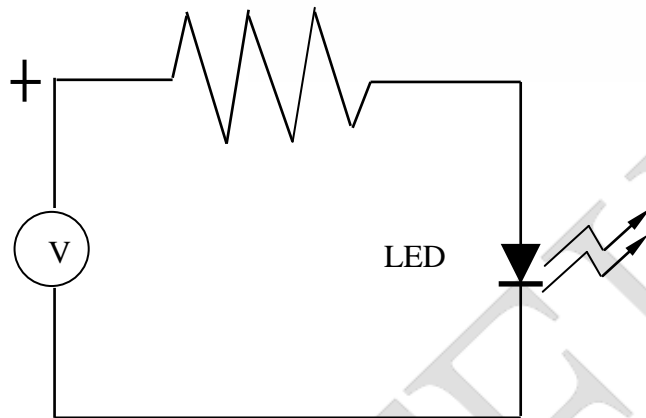


Small size: 5 inner box in an outer box = 5000 EA
Large size: 10 inner box in an outer box = 10000 EA



➤ **TEST CIRCUIT AND HANDLING PRECAUTIONS**

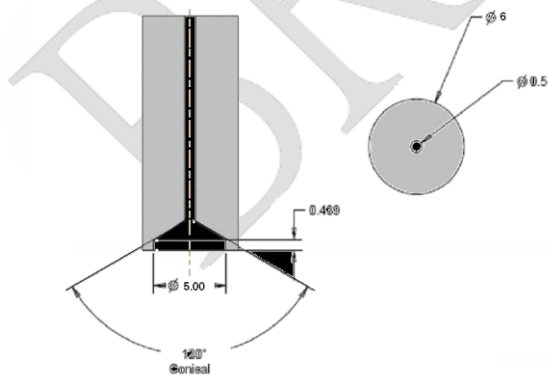
■ **Test circuit**



■ **Handling precautions**

- 1、 The following items are recommended when handling LEDs
 - 1.1 The lens of LEDs should not be exposed to dust and debris. Excessive dust and debris may cause a drastic decrease in light output.
 - 1.2 Avoid mechanical stress on LED lens
 - 1.3 Do not touch the LED lens surface. It would affect the optical performance of the LED due to the LED lens' damage
 - 1.4 Pick & place tool was recommended to use for the remove of LEDs from the factory tape & reel packaging
- 2、 Pick & Place Nozzle

The pickup tool was recommended and shown as below



Unit : mm

Tolerance : ± 0.1



3、 Lens handling

Please follow the guideline to grab LEDs

- 3.1 Use tweezers to grab LEDs
- 3.2 Do not touch lens with the tweezers
- 3.3 Do not touch lens with fingers
- 3.4 Do not apply more than 4N of lens (400g) directly onto the lens

4、 Lens cleaning

In the case where a minimal level of dirt and dust particles can't be guaranteed, a suitable cleaning solution can be applied to the lens surface

- 4.1 Try a gentle swabbing using a lint-free swab
- 4.2 If needed, the use of lint-free swab and isopropyl alcohol used gently removes dirt from the lens surface.
- 4.3 Do not use other solvents as they may directly react with the LED assembly
- 4.4 Do not use ultrasonic cleaning that the LED will be damaged

5、 Carrier Tape Handling

The following items are recommended when handling the Carrier tape of LEDs

- 5.1 Do not twist the carrier tape
- 5.2 The inward bending diameter should not smaller than 6cm for carrier tape.
- 5.3 Do not bend the tape outward.

