VaOpto
LED Manufacturer

SAMPLE APPROVAL SHEET

DESCRIPTIONS:

- 1.6x0.8x0.7mm SMD LED
- Emitting Color:White
- Lens Color:Yellow Fluorescent

CUSTOMER: _____

VAOPTO P/N: VO-FC-A1608WD-460M-A

CUSTOMER P/N: _____

CUSTOMER APPROVED PRODUCTION PARAMETER BIN

IV/LM	**CCT**
WL/XY	**Ra**
VF	**Other**

APPROVED BY	CHECKED BY

VaOpto
5178 West Patrick Lane
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PRELIMINARY SPEC

1.6x0.8mm SMD CHIP LED

PART NO: VO-FC-A1608WD-460M-A WHITE

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

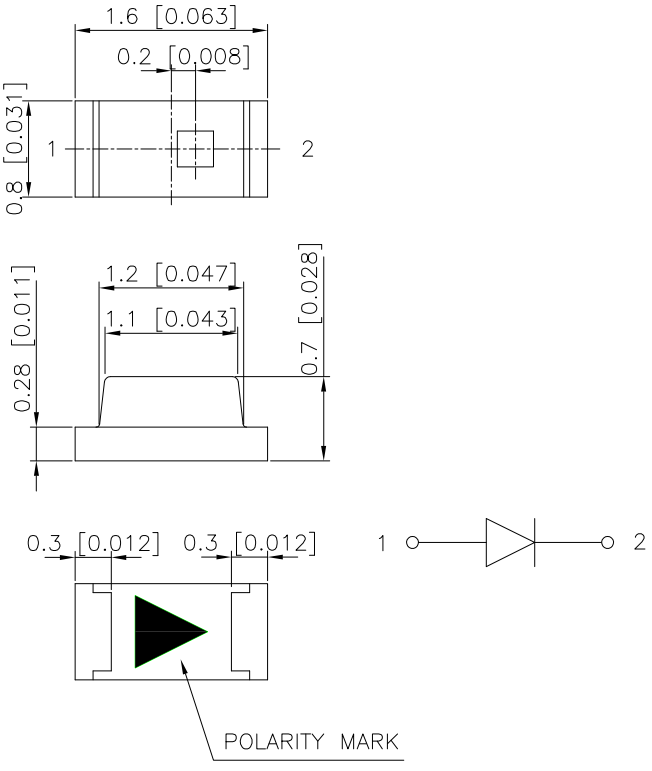
Features

- 1.6mmx0.8mm SMT LED, 0.7mm THICKNESS.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- PACKAGE : 5000PCS / REEL.
- RoHS COMPLIANT.

Applications

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and back-lighting in telephone and fax.
- Flat backlight for LCD switch and symbol.

Package Dimensions



Notes:
1. All dimensions are in millimeters.
2. Tolerance is ±0.15 unless otherwise noted.
3. Specifications are subject to change without notice.

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Device Selection Guide

Part No.	Chip		Lens color
VO-FC-A1608WD-460M-A	Material	Emitted color	Yellow Fluorescent
	(InGaN)	WHITE	

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	100	mW
Forward Current	I_F	25	mA
Peak Forward Current*1	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Operating Temperature	Topr	-40°C To +85°C	
Storage Temperature	Tstg	-40°C To +85°C	

Notes:
*1: Pulse width≤0.1ms, Duty cycle≤1/10

Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V_F	2.8	—	3.6	V	IF=20mA
Reverse Current	I_R	—	—	10	μA	VR=5V
Chromaticity Coordinates	X	—	0.282	—		IF=20mA
	Y	—	0.300	—		
Luminous Intensity	I_V	600	—	850	mcd	IF=20mA
Viewing Angle	2θ1/2	—	120	—	Deg.	IF=20mA

Remarks:
If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or chromaticity), the typical accuracy of the sorting process is as follows:
1. Chromaticity Coordinates: ±0.01
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

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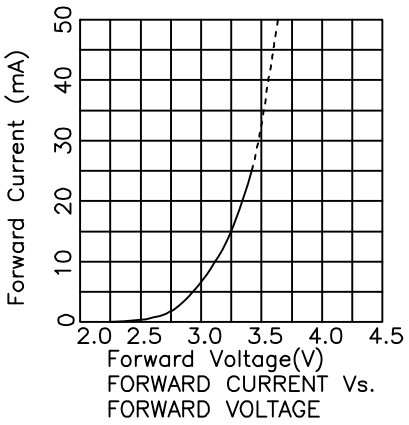
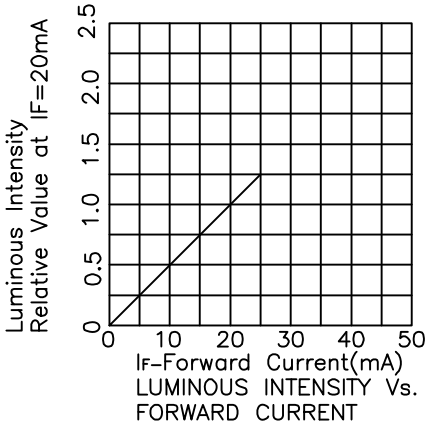
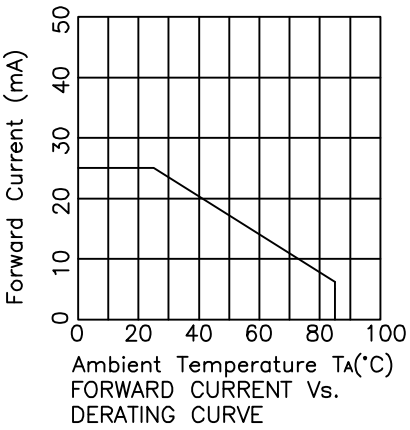
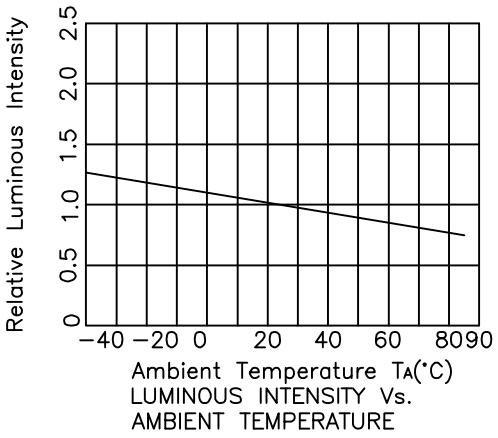
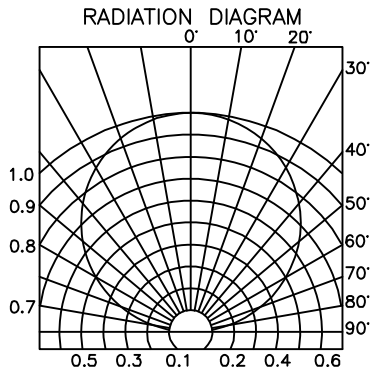
Typical Electrical/Optical Characteristics Curves











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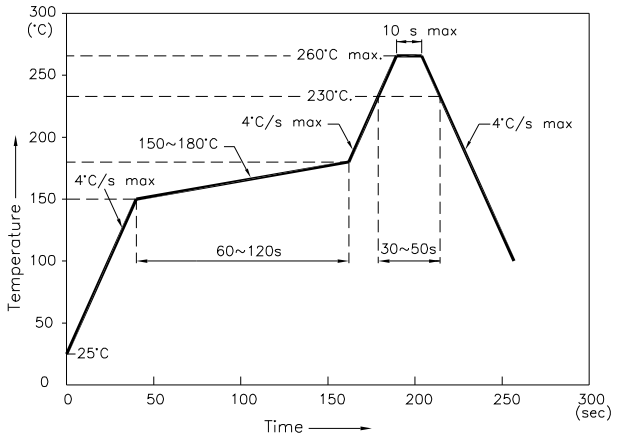
Soldering Profile

Reflow Soldering Profile For Lead-free SMT Process.

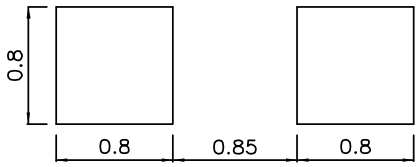


NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

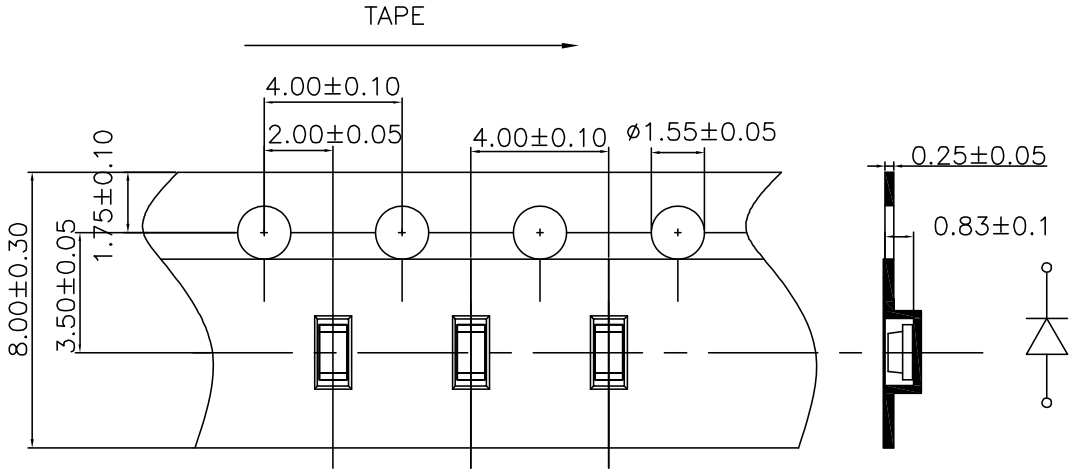
Recommended soldering pattern

(Units:mm)



Tape specifications

(Units:mm)



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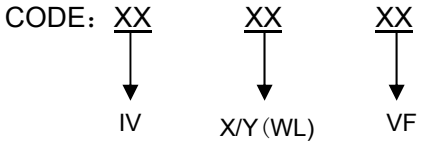
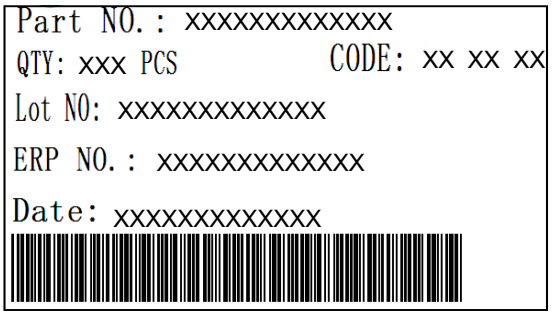
Label Explanation





VF Rank

Rank		VF (V)		Condition
		Min	Max	
G	G1	2.8	2.9	IF=20mA
	G2	2.9	3.0	
H	H1	3.0	3.1	
	H2	3.1	3.2	
J	J1	3.2	3.3	
	J2	3.3	3.4	
K	K1	3.4	3.5	
	K2	3.5	3.6	

Tolerance:±0.05V

IV Rank

Rank	IV(mcd)		Condition
	Min	Max	
U2	600	650	IF=20mA
V0	650	700	
V1	700	750	
V2	750	800	
V3	800	850	

Tolerance:±15%

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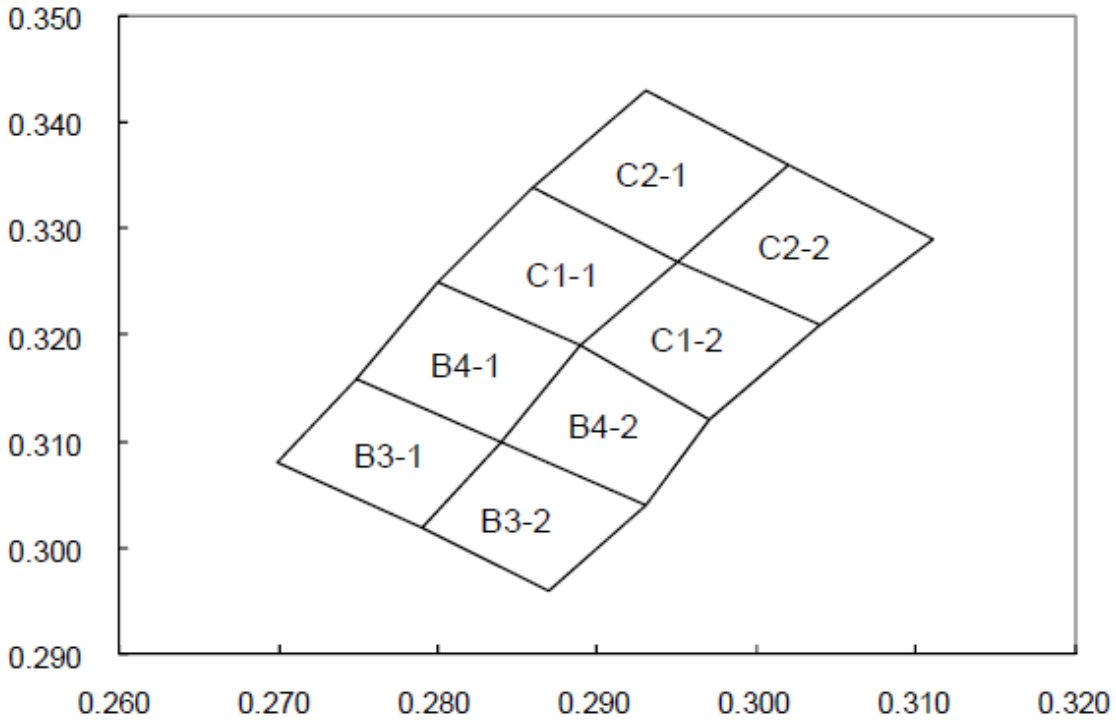
X/Y **Rank**



B3-1	X	0.275	0.284	0.279	0.27	B3-2	X	0.284	0.293	0.287	0.279
	Y	0.316	0.310	0.302	0.308		Y	0.310	0.304	0.296	0.302
B4-1	X	0.280	0.289	0.284	0.275	B4-2	X	0.289	0.297	0.293	0.284
	Y	0.325	0.319	0.310	0.316		Y	0.319	0.312	0.304	0.310
C1-1	X	0.286	0.295	0.289	0.280	C1-2	X	0.295	0.304	0.297	0.289
	Y	0.334	0.327	0.319	0.325		Y	0.327	0.321	0.312	0.319
C2-1	X	0.293	0.302	0.295	0.286	C2-2	X	0.302	0.311	0.304	0.295
	Y	0.343	0.336	0.327	0.334		Y	0.336	0.329	0.321	0.327

Tolerance:±0.005

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◆ CAUTIONS:

1.Storage

- Storage condition before opening the package: 5℃~30℃, the largest percentage relative humidity is 60% and the storage period is six month. The LEDs beyond the storge period just can be used after dealing as step 4.
- After opening the package, If the LEDs will be Infrared reflow soldering, Oxygen phase reflow soldering or any other welding.
  a. must be welding within 24 hours.
  b. the storage humidity must be below 30% .
- If the situation does not satisfy 2a or 2b, the LEDs must be roasted.
- If the LEDs need to be roasted, the roast temperature should be 60□+/-3 and the roast timeshould be 24 hours.

2.ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.
The following procedures may decrease the possibility of ESD damage.

- All production machinery and test instruments must be electrically grounded.
- Use a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- Maintain a humidity level of 50% or higher in production areas.
- Use anti-static packaging for transport and storage.

3.Cleaning

清洗

- Led should be cleaned in a normal temperature and the time for cleaning should be less than 3 minutes ; please use Alcohol as cleaner ,before you use other cleaning solvent ,please make sure that the cleaner will not make any damage to the LED performance or the appearance .
- Ultrasonic Cleaning is also commonly used for cleaning LED , please verify the Ultrasonic cleaning 's Power and time to avoid any damage to the LED .
- The recommended solvent for cleaning：

Common cleaning solvent	Disable cleaning solvent
Alcohol	Thinner、Acetone、Two fluorine resin 、Acetone b dilute

◆ Revision History:

Rev. No.	Change description	Date	Prepared by	Checked by	Approved by
A/0	New-made specification	2018/08/11			

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