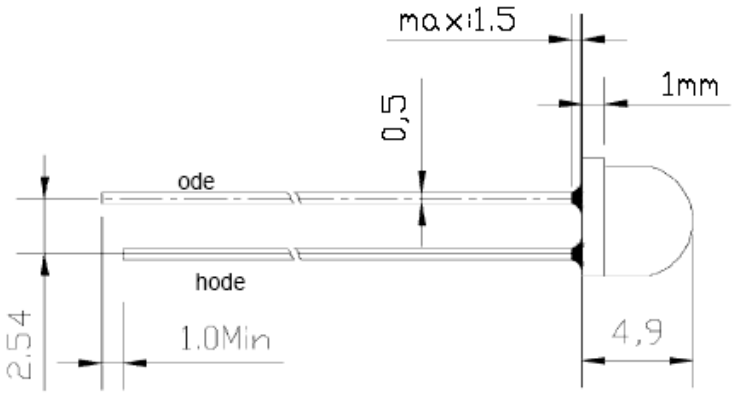
ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44, OFFICE@ROITHNER-LASER.COM

VLxxx-TH-45

Dimension:

Type ： 5mm TinHat cup lamp
Unit: mm
Tolerance:±0.25mm



FLAT DENOTES CATHODE

Notes:
1. Lead spacing is measured where the leads emerge from the package.
2. Specifications are subject to change without notice.

- High Power Intensity
- Low Voltage DC Operated
- Cool Beam, Safe to the Touch
- Instant Light (less than 100ns)

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Absolute Maximum Ratings

Item	Symbol	Maximum Value	Unit
DC Forward Current Per Chip	I_F	20	mA
Peak pulse forward current; (1/10 duty cycle, 0.1ms pulse width)	I_{FP}	100	mA
Allowable Reverse Current	I_R	50	mA
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{Stg}	-40 ~ +100	°C
Power Dissipation (at room temperature)	P_D	80	mW
Soldering Temperature	T_{sld}	260 ± 5 °C for 5sec, 2times	

Note: I_{FP} Conditions: Pulse Width ≦ 10msec, Duty ≦ 1/10

Zener Diode

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_{F1}	I_F=10uA	--	0.6	0.9	V
Forward Voltage	V_{F2}	I_F=20mA	--	1.0	1.2	V
Forward Leakage Current	I_F	V_F=0.3V	--	--	3	nA
Reverse Zener Voltage	V_Z	I_F=10mA	7	--	9	V
Reverse Leakage Current	I_R	V_R=5V	--	--	0.5	uA

Note: All of the items are following the specification

Optical Characteristics at Ta=25°C

Rank A (370nm)

Parameter	Symbol	Condition	Value	Unit
Forward Voltage	V_F	I_F = 20mA	3.4~4.2	V
Peak Emission Wavelength	λ^P	I^F = 20mA	370±5	nm
Output Power	Po(BinA-1)	I_F = 20mA	1.0~1.4	mW
	Po(BinA-2)	I_F = 20mA	1.4~2.0	
Viewing Angle	2θ1/2	I_F = 20mA	45±10	deg
Leakage current	I_R	5V	<50	uA

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Rank B(380nm)

Parameter	Symbol	Condition	Value	Unit
Forward Voltage	V_F	I_F = 20mA	3.4~4.2	V
Peak Emission Wavelength	λ^P	I^F = 20mA	380±5	nm
Po(BinB-1)	Po(BinB-1)	I_F = 20mA	2.0~2.8	mW
	Po(BinB-2)		2.8~4.0	
	Po(BinB-3)		4.0~5.7	
Viewing Angle	2θ1/2	I_F = 20mA	45±10	deg
Leakage current	I_R	5V	<50	uA

Note:

1. Optical output measurement allowance is ± 15%

2. Peak wavelength measurement allowance is ± 2nm

3. Forward voltage measurement allowance is ± 0.2V

Material

Item	Material
1. Lens	Silicon
2. Lead Frame	Ag Plating, Iron Alloy
3. Bonding Wire	Au

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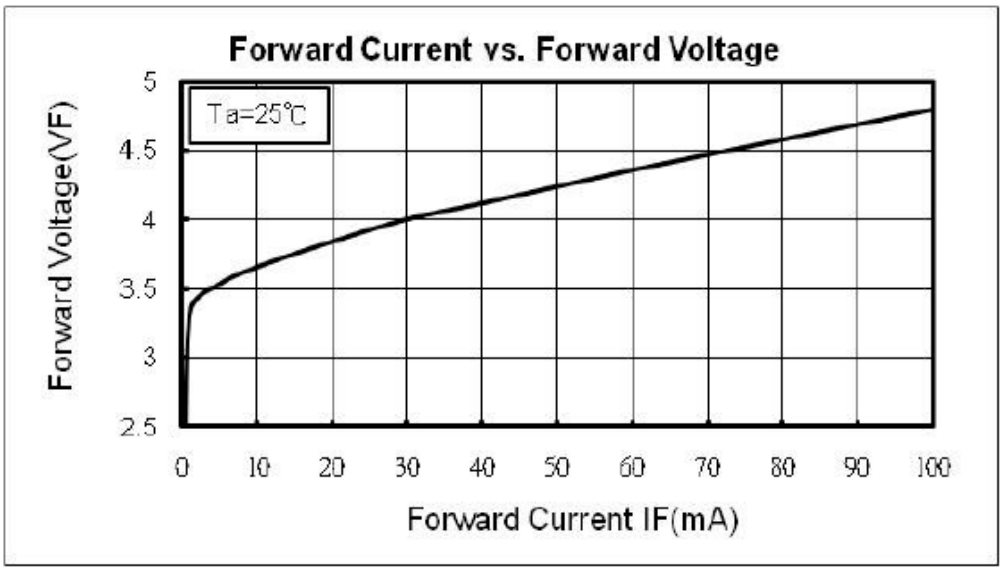
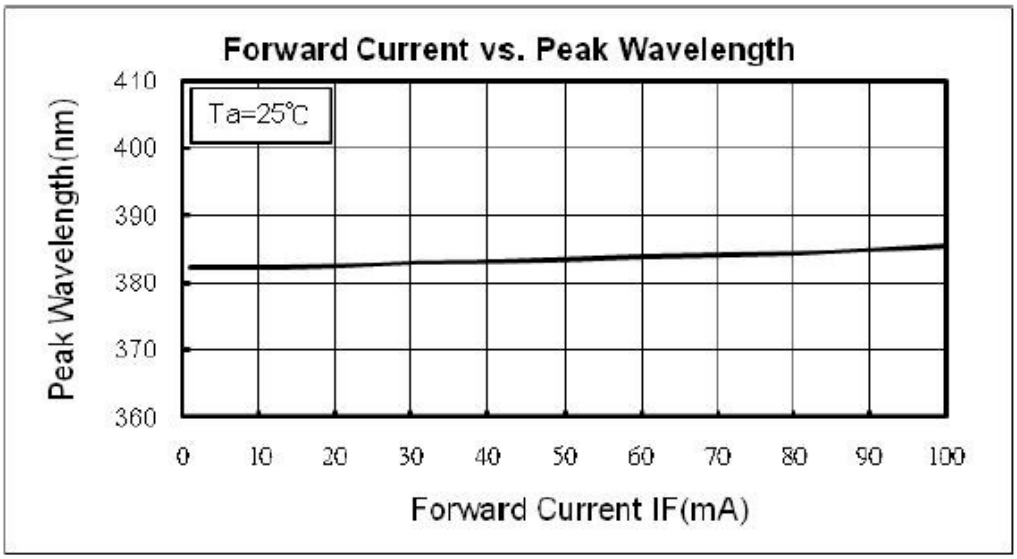
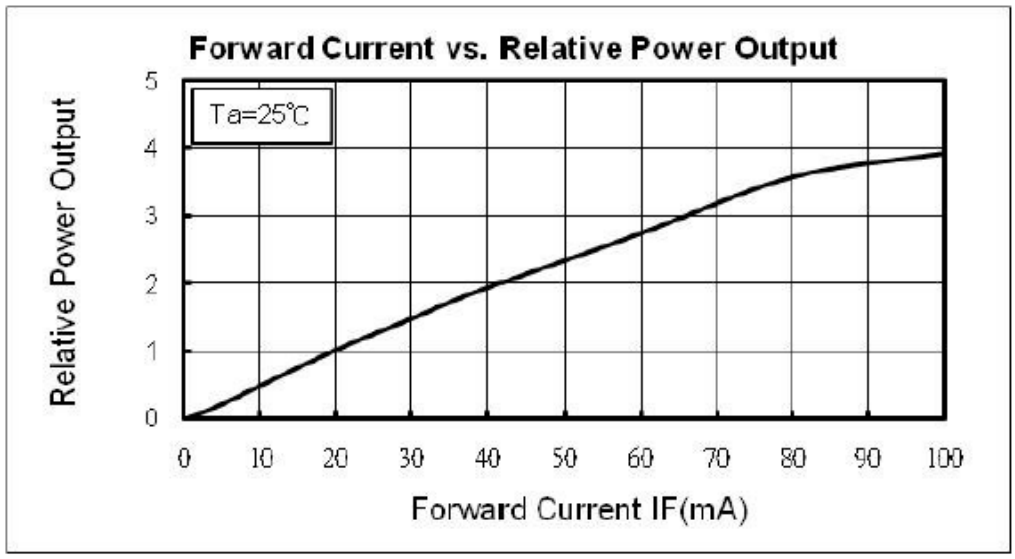
Typical Opto-Electrical Characteristics Curves







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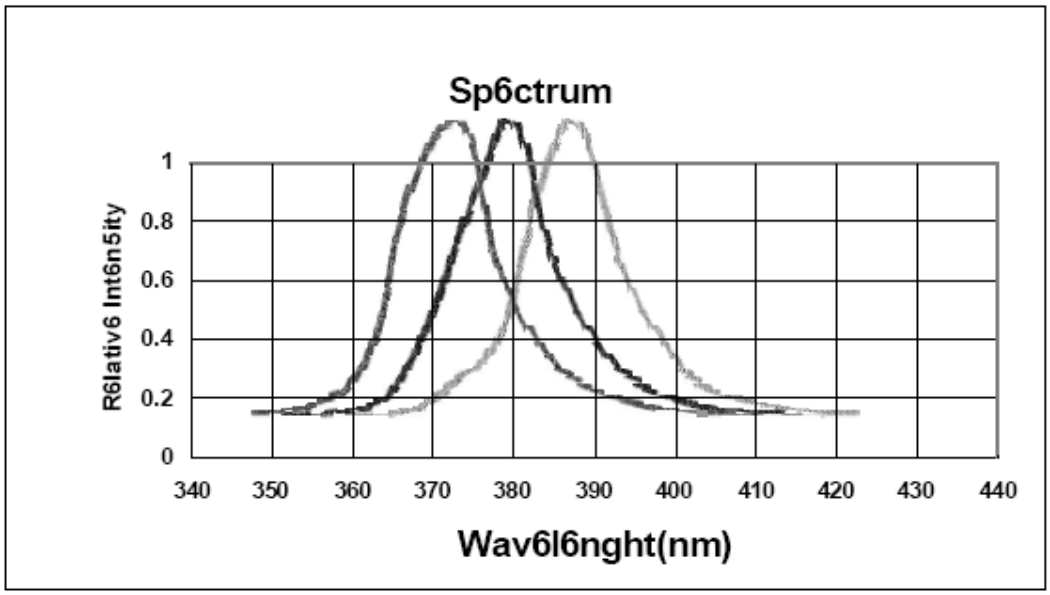

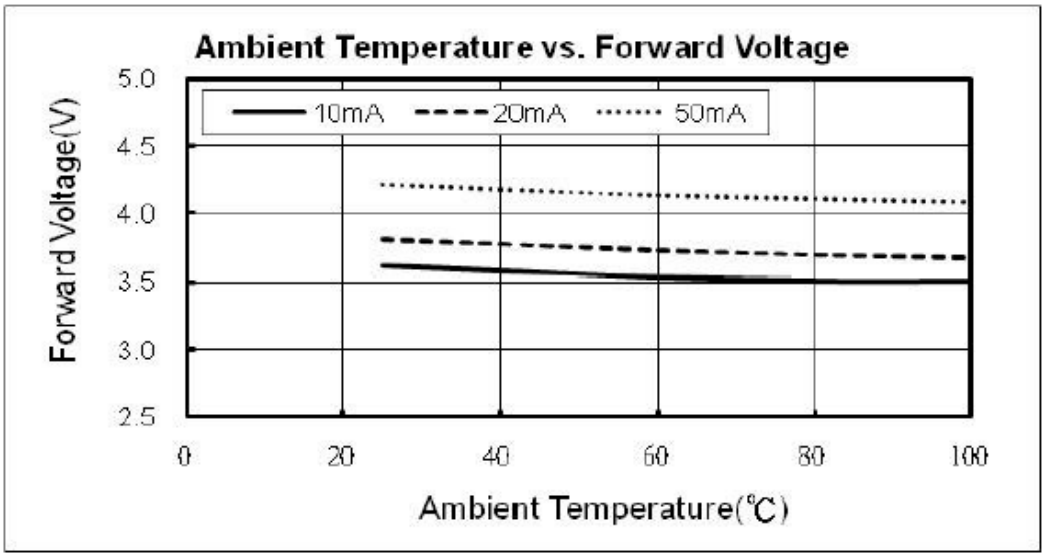

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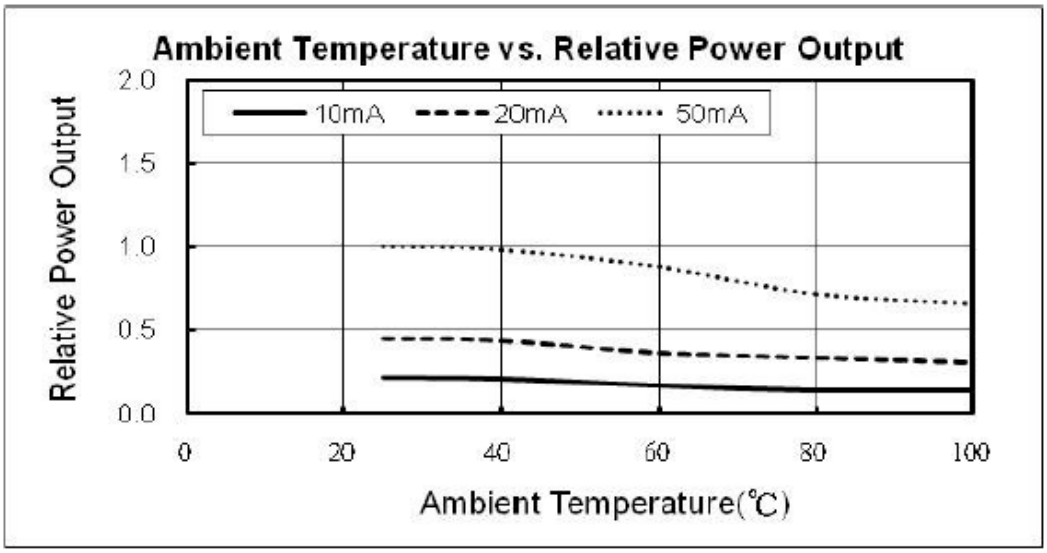

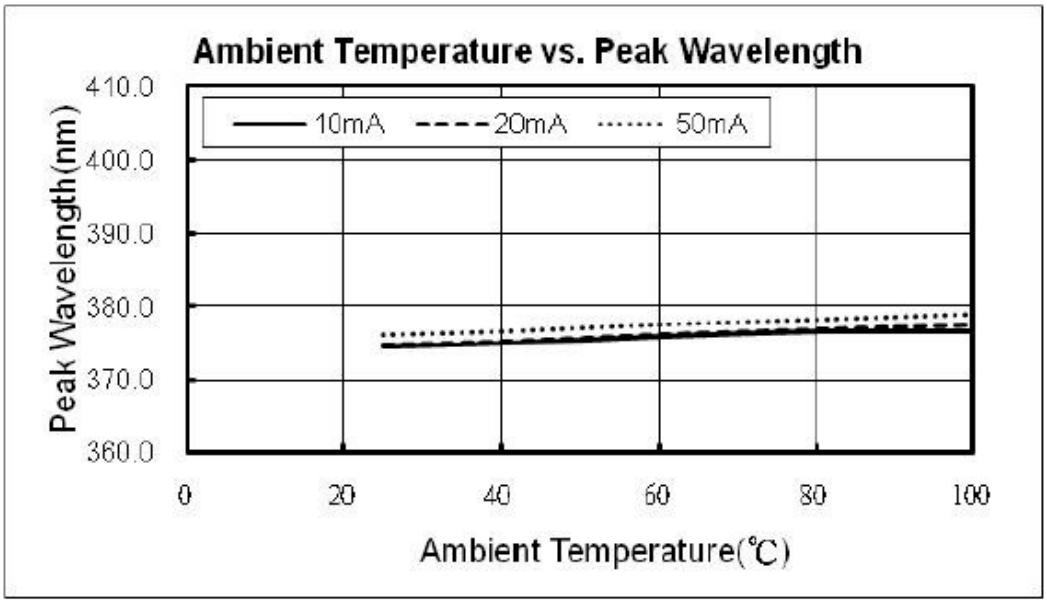

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Reliability Test

No.	Test Item	Standard Test Method	Test Conditions	Note	Sample Size	Pass
1	Steady State Operating Life	Internal Ref.	IF = 20mA, Ta = 25°C	1000 hrs	20	OK
2	Soldering Test	JEITA ED-4701 330 302	Tsld = 260 ± 5°C, 10sec 3mm from the base of the silicone blub	2 times	20	OK
3	Thermal Shock	JESD22-A106-A	-40°C ~ +85°C	84cycles	20	OK
4	Temperature Cycle	JESD22-A104-A	-35°C ~ +75°C	168cycles	20	OK
5	High Temperature Storage	JESD22-A103-A	Tstg = +100°C	1000 hrs	20	OK
6	Low Temperature Storage	Internal Ref.	Tstg = -40 C	1000 hrs	20	OK
7	High Temperature High Humidity	JESD22-A101-B	Ta = 85 C, RH = 85%	1000 hrs	20	OK
8	On-Off Test	Internal Ref.	ON 2sec, OFF 2sec IF = 20mA	100,000 cycles	20	OK

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Criteria for Judging the Damage

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF□20mA	--	U.S.L×1.1
Optical Power Output	PO	IF□20mA	L.S.L×0.7	--

Note:

1. U.S.L: Upper Standard Level

2. L.S.L: Lower Standard Level

Conclusions:

The reliability tests were designed to evaluate both package integrity as well as workability of product performance over time.

All samples have done well by competed test required and passed all the qualification criteria with ZERO failure. From design standpoint, this package is robust enough to meets its datasheet conditions.

Based on the good result shows on the above test, this product is qualified and re-eased for market.