

Sample Approval Sheet

Customer Name: ESC

Product Name: 5mm Round Red LED

Model: OS5RPM5C31A

Date: 15-July-2013

Optosupply			
Prepared by	Checked by	Approved by	Marketing Dept.

CUSTOMER CONFIRMATION		
Confirmed by	Checked by	Approved by

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Optosupply Limited

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Factory:

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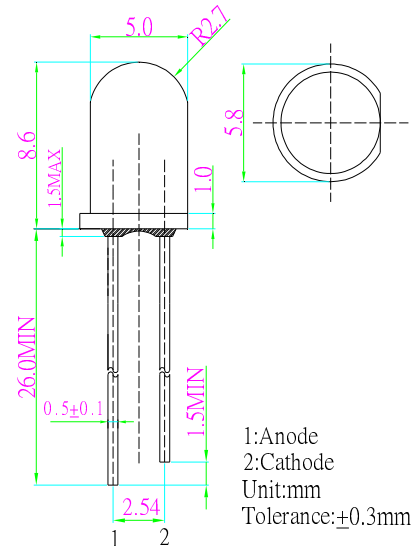
■ Features

- High Luminous LEDs
- 5mm Round Standard Directivity
- Superior Weather-resistance
- UV Resistant Epoxy
- Water Clear Type

■ Applications

- Traffic Signal
- Backlighting
- Signal and channel letter
- Other Lighting

■ Outline Dimension



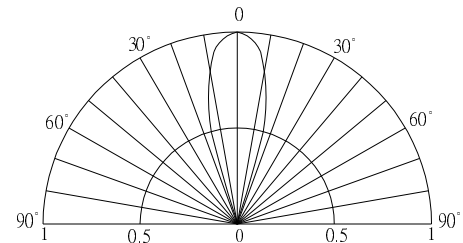
■ Absolute Maximum Rating

($T_a = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
DC Forward Current	I_F	50	mA
Pulse Forward Current*	I_{FP}	120	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	130	mW
Operating Temperature	T_{opr}	$-30 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40 \sim +100$	$^\circ\text{C}$
Lead Soldering Temperature	T_{sol}	$260^\circ\text{C} / 5\text{sec}$	-

*Pulse width Max.10ms , Duty ratio max 1/10

■ Directivity



■ Electrical -Optical Characteristics

($T_a = 25^\circ\text{C}$)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Forward Voltage	V_F	$I_F = 20\text{mA}$	1.8	2.1	2.6	V
DC Reverse Current	I_R	$V_R = 5\text{V}$	-	-	10	μA
Domi. Wavelength*	λ_D	$I_F = 20\text{mA}$	619	624	629	nm
Luminous Intensity*	I_v	$I_F = 20\text{mA}$	7000	8000	-	mcd
50% Power Angle	$2\theta_{1/2}$	$I_F = 20\text{mA}$	-	30	-	deg

*1 Tolerance of dominant wavelength is $\pm 1\text{nm}$

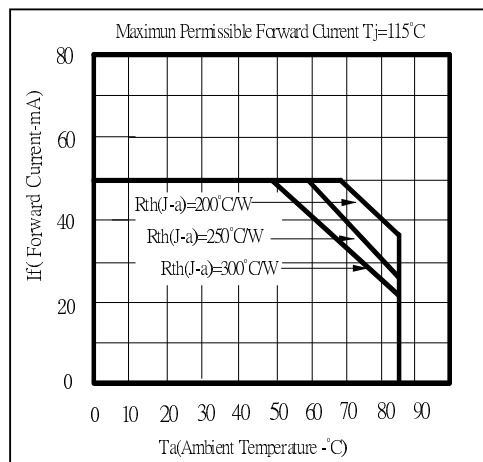
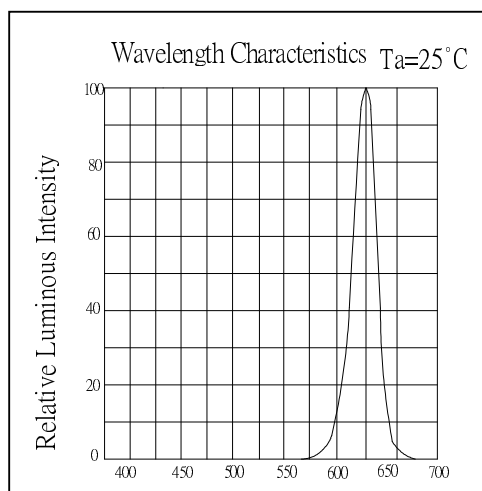
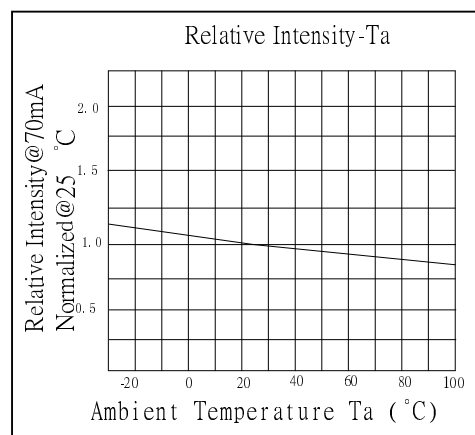
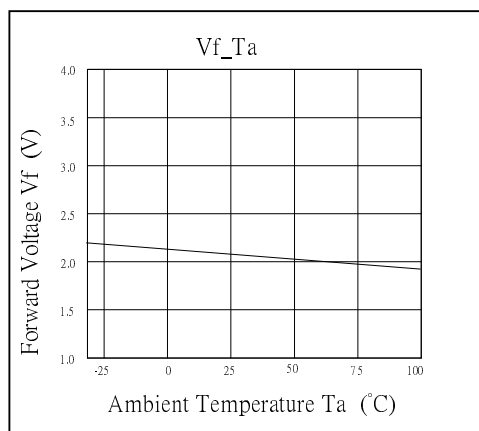
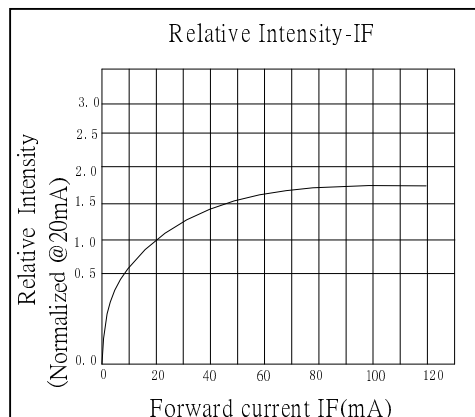
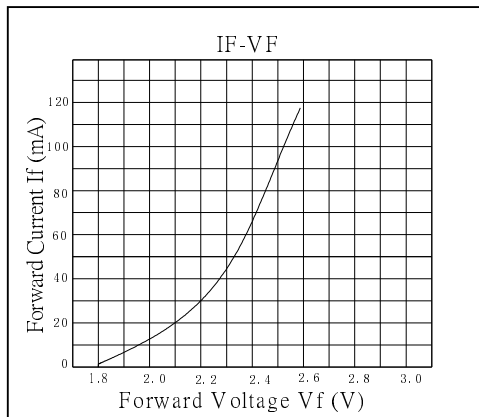
*2 Tolerance of luminous intensity is $\pm 15\%$

LED & Application Technologies



InGaAlP LED

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES



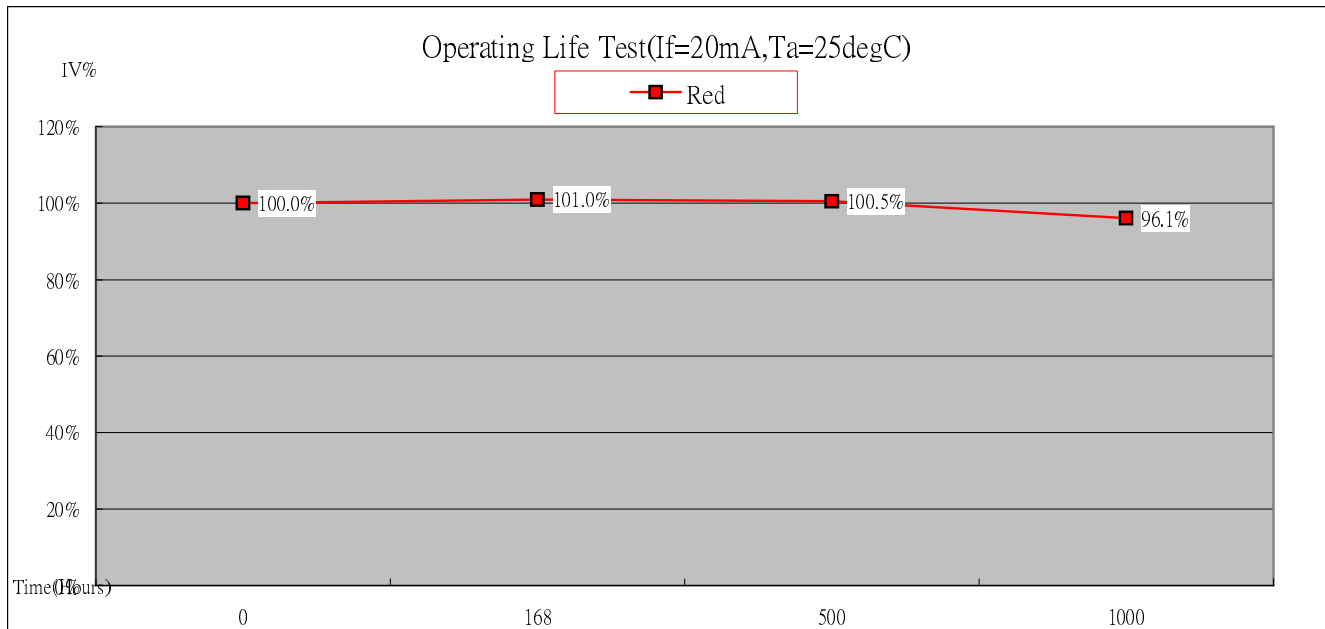
RELIABILITY TEST REPORT

CLASSIFICATION	TEST TIME	TEST CONDTION
ENDURANCE TEST	OPERATION LIFE	If: 20mA Ta:25±5 TEST TIME=1000HRS(-24HRS,+72HRS)
	HIGH TEMPERTURE HIGH HUMIDITY STORAGE	R.H:90~95% Ta:65±5℃ TEST TIME=240HRS(+2HRS)
	HIGH TEMPERTURE STORAGE	Ta:105±5℃ TEST TIME=500HRS(-24HRS,+48HRS)
	LOW TEMPERTURE STORAGE	Ta:-55±5℃ TEST TIME=500HRS(-24HRS,+48HRS)
ENVIRONMENTAL TEST	TEMPERTURE CYCLING	105℃~25℃~-55℃~25℃ 60min 10min 60min 10min 20cycles
	THERMAL SHOCK	105℃~-55℃ 10min 10min 10cycles
	SOLDER RESISTANCE	Ta:260±5℃ TEST TIME=10±1sec
	SOLDERABILITY	Ta:230±5℃ TEST TIME=5±1sec

JUDGMENT CRITERIA OF FALURE FOR THE RELIABILITY

MEASURING ITME	SYMBOL	CONDITIONS	FAILURE
LUMINOUS INTENSITY	IV	IF=20mA	IV<0.5*INITIAL VALUE
FORWARD VOLTAGE	VF	IF=20mA	VF>1.2*INITIAL VALUE
REVERSE CURRENT	IR	Vr=5V	IR>2*SPEC

OPERATION LIFE TEST LUMINANCE RATE CURVE



*Burn-in condition: 20mA

*Projection of Statistical Average Light Output Degradation Performance for LED Technology

Extrapolated from OptoSupply QA Dept. Test Data.

*According to OptoSupply outgoing Packaged Products Specification

*MTBF:53,319hrs, 90% Confidence (A Failure is Any LED Which is Open, shorted or fails to Emit Light)

*The Projected Data is Base on The Feature of LED Itself Under Normal Operation Conditions.

*Any Improper Circuit Design or External Factors Might Cause a Different Result.

LAMP APPLICATION (PB FREE SOLDERJING)

Apply to LAMP (DIP) SERIES.

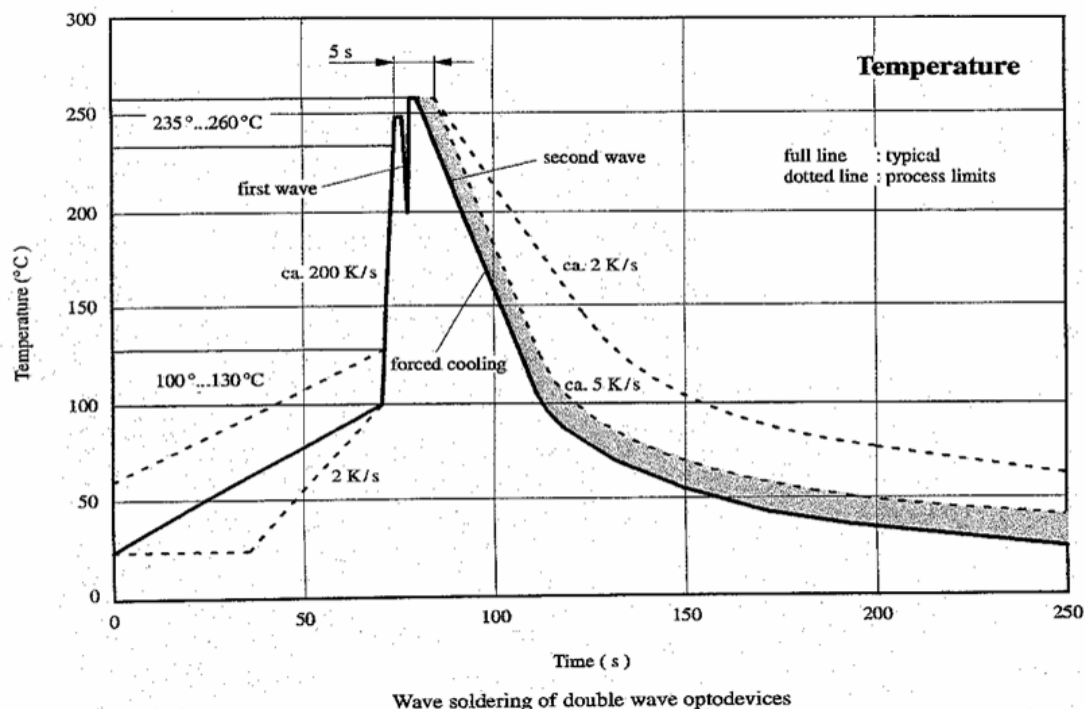
Description:

(1) Manual soldering (Solder Iron)

- (1.1) Temperature at tip of the iron: 300°C Max.
- (1.2) It's banned to load any stress on the resin during soldering.
- (1.3) Soldering time: 3sec. Max. (one time only.)
- (1.4) Leave 3mm of minimum distance from the base of the epoxy.

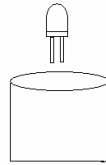
(2) Dip Soldering (Wave Soldering-Solder Bath)

- (2.1) Leave 3mm of minimum distance from the base of the epoxy.
Soldering beyond the base of the tie bar (stand off) is recommended.
- (2.2) When soldering, do not put stress on the LEDs during heating.
- (2.3) Cutting the lead frames at high temperatures may cause LED failure.
- (2.4) Never take next process until the component is cooled down to room temperature after reflow.
- (2.5) After soldering, do not warp the circuit board.
- (2.6) The recommended dip soldering profile is the following.



LAMP PACKING

500pcs/Bag



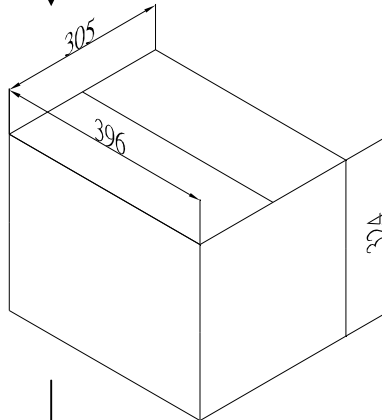
LED LAMPS
PART NO: _____
LOT NO: _____
IV: _____
VF: _____
COLOR: _____
QTY: _____
QC: _____

BOX

Dimension (mm)

396*305*324

40Bags/Box

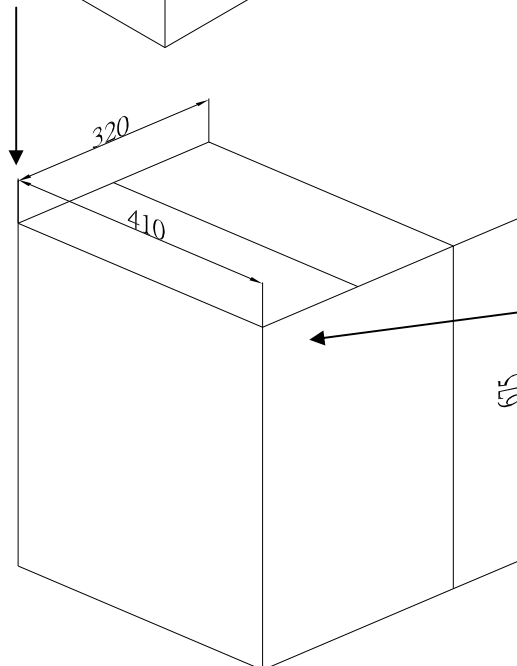


Carton

Dimension (mm)

675*410*320

2Boxes/Carton



LED LAMPS
PART NO: _____
LOT NO: _____
IV: _____
VF: _____
COLOR: _____
QTY: _____
QC: _____