

■Features

- Single chip
- Super high brightness of surface mount LED
- Sorting for I_v and V_f @ 5mA of I_f
- Compact package outline
(LxWxT) of 1.6mm x 0.8mm x 0.6mm
- Compatible to IR reflow soldering.

■Applications

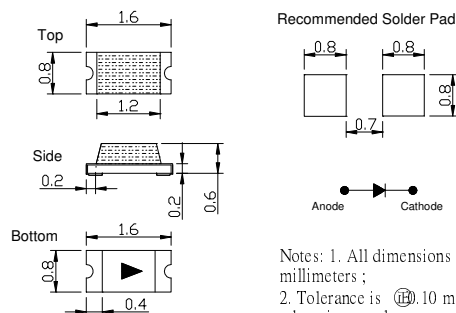
- Backlighting (switches, keys, etc.)
- Marker lights (e.g. steps, exit ways, etc.)

■Absolute Maximum Rating (Ta=25°C)

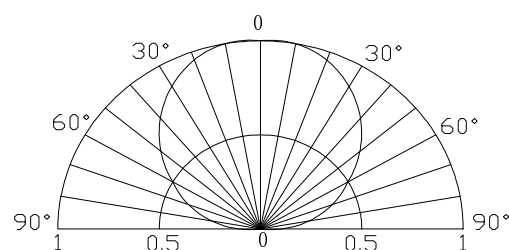
Item	Symbol	Value		Unit
		M/W/K4/VX/B5/B6/G5	G8/Y5/O5/R5	
DC Forward Current	I_F	20	20	mA
Pulse Forward Current#	I_{FP}	100	100	mA
Reverse Voltage	V_R	5	5	V
Power Dissipation	P_D	68	48	mW
Operating Temperature	T_{opr}	-40 ~ +85		°C
Storage Temperature	T_{stg}	-40 ~ +85		°C
Lead Soldering Temperature	T_{sol}	260°C/10sec		-

#Pulse width Max 0.1ms, Duty ratio max 1/10

■Outline Dimension



■Directivity



■Electrical -Optical Characteristics (Ta=25°C)

BN	Color		V_F (V)			I_F (μ A)	I_v (mcd)			λD (nm)			$2\theta_{1/2}$ (deg)
			Min.	Typ.	Max.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Typ.
			$I_F=5mA$			$V_F=5V$	$I_F=5mA$						
2377724	Red	R5	1.6	1.8	2.4	10	15	-	50	617	625	630	120
2377725	Yellow	Y5	1.6	1.8	2.4	10	15	-	50	585	590	595	120
2377726	Yellow Green	G8	1.6	1.8	2.4	10	5	-	15	565	570	575	120
2377727	Orange	O5	1.6	1.8	2.4	10	15	-	50	600	605	610	120
2377728	Warm White	M5	2.5	2.8	3.4	10	60	-	160	2700-3300K(X:0.44, Y:0.41)			120
2377729	Blue	B5	2.5	2.8	3.4	10	14	-	40	455	470	475	120
2377730	White	W5	2.5	2.8	3.4	10	100	-	200	8500-18000K(X:0.27, Y:0.28)			120
2377731	True Green	G5	2.5	2.8	3.4	10	120	-	220	520	525	530	120
2377732	Pink	K4	2.5	2.8	3.4	10	50	-	100	X=0.31, Y=0.20			120
2377733	Violet	VX	2.5	2.8	3.4	10	70	-	130	X=0.20, Y=0.09			120
2377734	Ice Blue	B6	2.5	2.8	3.4	10	80	-	200	X=0.18, Y=0.26			120

*1 Tolerance of measurements of chromaticity coordinate is $\pm 10\%$

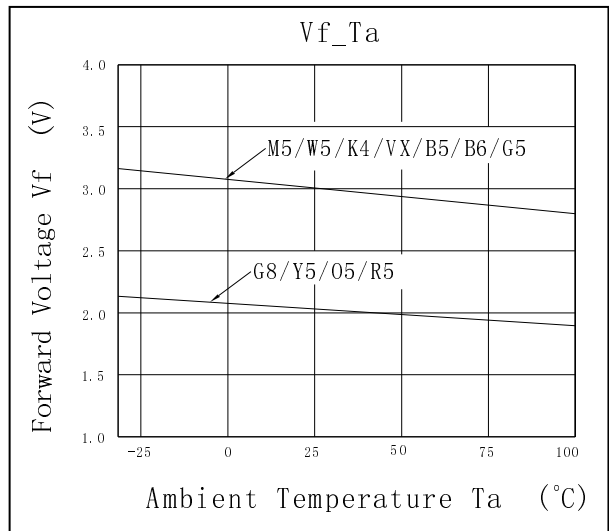
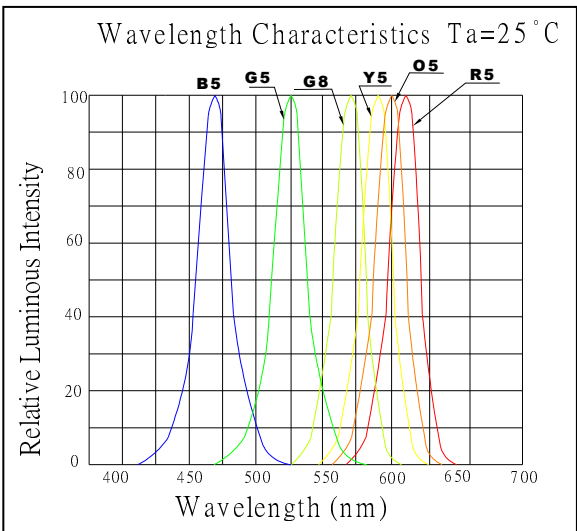
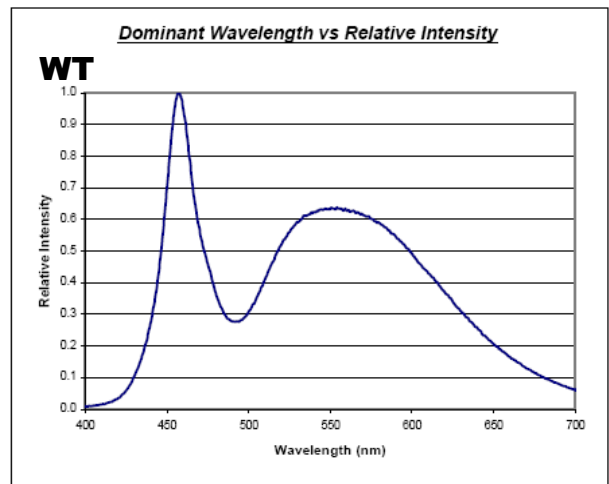
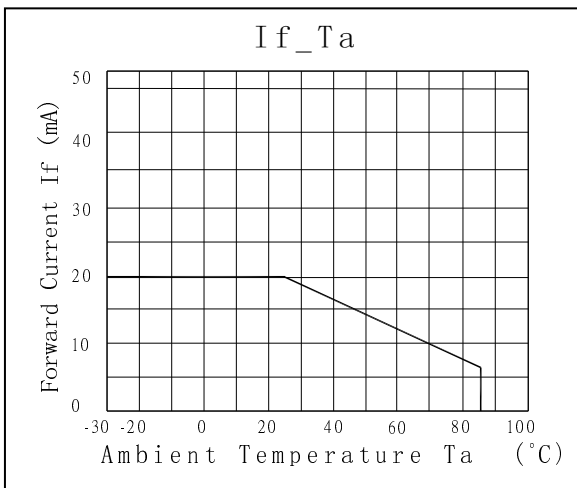
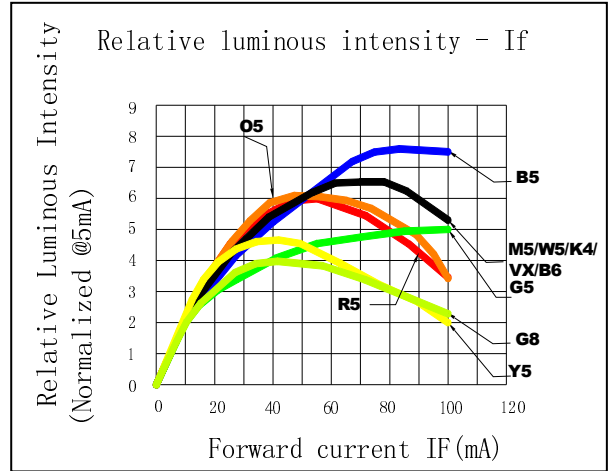
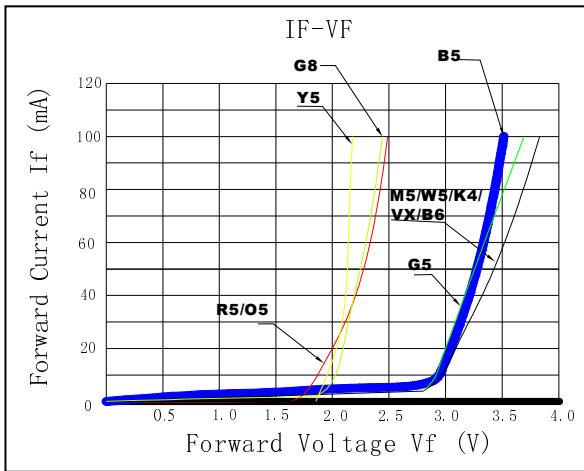
*3 Tolerance of measurements of luminous intensity is $\pm 15\%$

*2 Tolerance of measurements of dominant wavelength is ± 1 nm

*4 Tolerance of measurements of forward voltage is ± 0.1 V

■ Optical and electrical characteristics

TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES



RELIABILITY TEST REPORT

CLASSIFICATION	TEST ITEM	TEST CONDITON
ENDURANCE TEST	ROOM TEMPERATURE OPERATION LIFE	If: 5mA Ta:25±5 °C TEST TIME=1000HRS
	HIGH TEMPERTURE HIGH HUMIDITY STORAGE	R.H:90~95% Ta:65±5°C TEST TIME=240HRS(+2HRS)
	HIGH TEMPERTURE STORAGE	Ta:85°C TEST TIME=500HRS(-24HRS,+48HRS)
	LOW TEMPERTURE STORAGE	Ta:-40°C TEST TIME=500HRS(-24HRS,+48HRS)
ENVIRONMENTAL TEST	TEMPERTURE CYCLING	-40°C ~25°C ~85°C ~25°C 30min 5min 30min 5min 100cycles
	RESISTANCE TO SOLDERING HEAT	Ta:260±5°C TEST TIME=10±1sec
	SOLDERABILITY	Ta:245±5°C TEST TIME=5±1sec

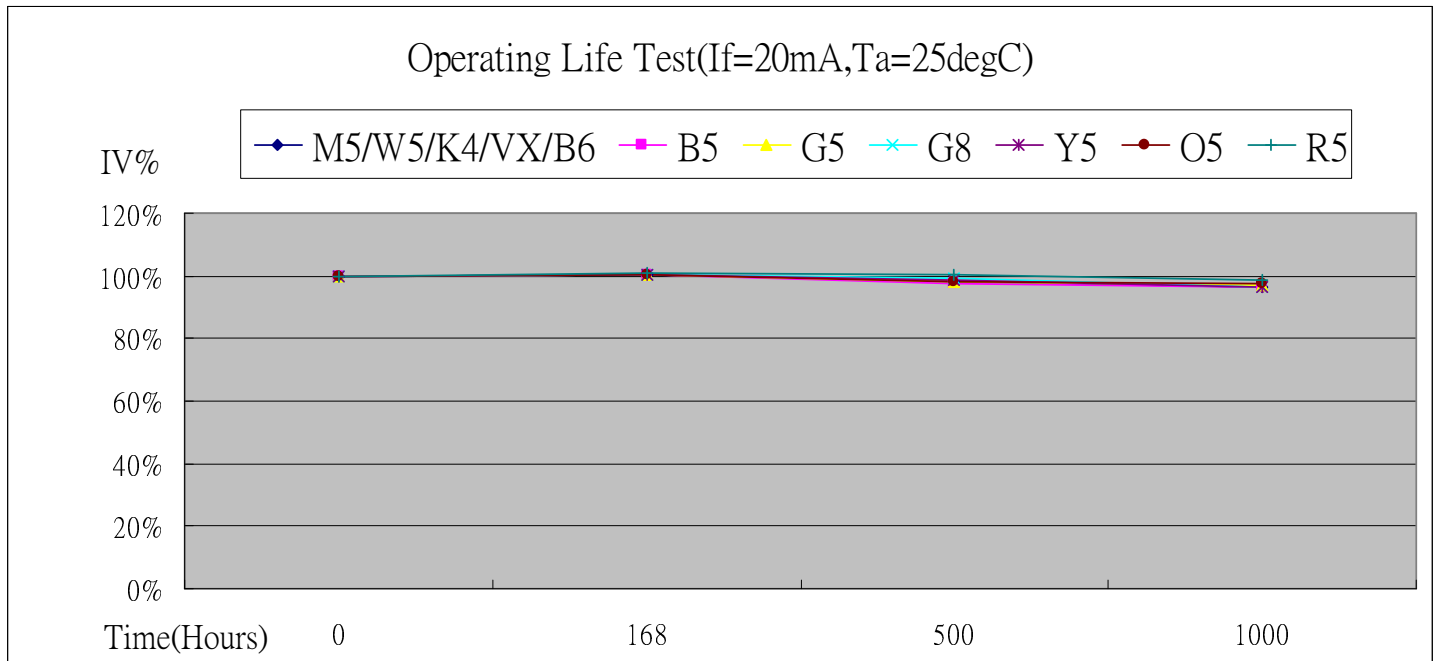
JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

MEASURING ITME	SYMBOL	CONDITIONS	FAILURE CRITERIA
LUMINOUS INTENSITY	IV	IF=5mA	IV<0.5*L.S.L
FORWARD VOLTAGE	VF	IF=5mA	VF>1.2*U.S.L
REVERSE CURRENT	IR	Vr=5V	IR>2*U.S.L
SOLDERABILITY	-	-	LESS THAN 95% SOLDER COVERAGE

U.S.L : Upper Specification Limit

L.S.L : Lower Specification Limit

OPERATION LIFE TEST LUMINANCE RATE CURVE



*Burn-in condition: 5mA

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

Extrapolated from supplier QA Dept. Test Data.

*According to supplier outgoing Packaged Products Specification

*MTBF:50,000hrs, 90% Confidence (A Failure is Any LED Which is Open, shorted or fails to Emit Light)

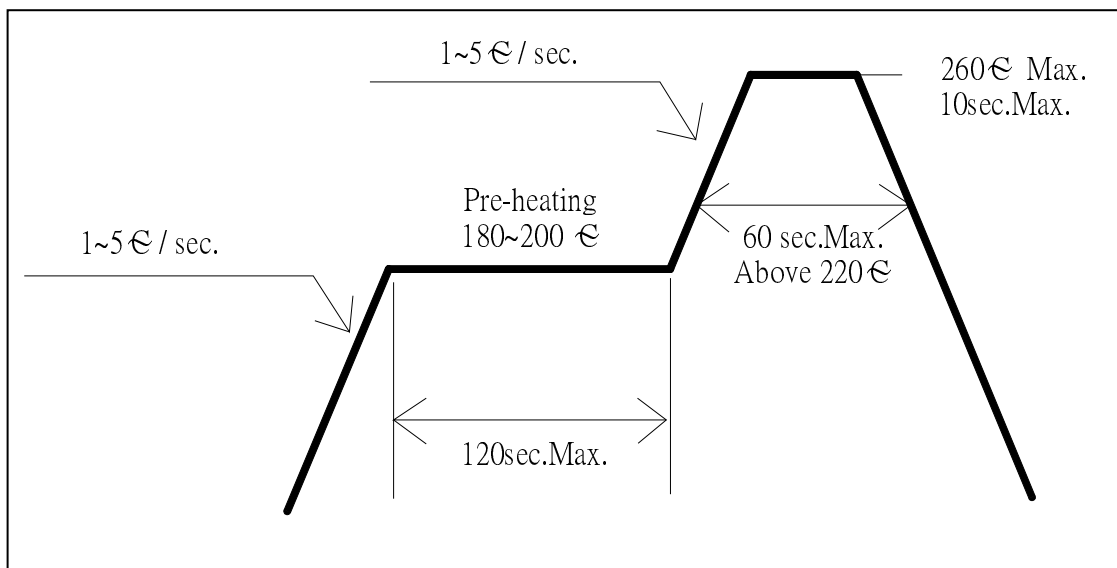
*The Projected Data is Base on The Feature of LED Itself Under Normal Operation Conditions.

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

■ **Soldering Conditions**

Reflow Soldering		Hand Soldering	
Pre-Heat	180 ~ 200°C	Temperature Soldering time	350°C Max. 3 sec. Max. (one time only)
Pre-Heat Time	120 sec. Max.		
Peak temperature	260°C Max.		
Dipping Time	10 sec. Max.		
Condition	Refer to Temperature-profile		

• **Reflow Soldering Condition(Lead-free Solder)**



*Recommended soldering conditions vary according to the type of LED

*Although the recommended soldering conditions are specified in the above table, reflow, or hand soldering at the lowest possible temperature is desirable for the LEDs.

*A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

• All SMD LED products are pb-free soldering available.

• Occasionally there is a brightness decrease caused by the influence of heat or ambient atmosphere during air reflow. It is recommended that the User use the nitrogen reflow method.

• Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

• Reflow soldering should not be done more than two times.

• When soldering, do not put stress on the LEDs during heating.

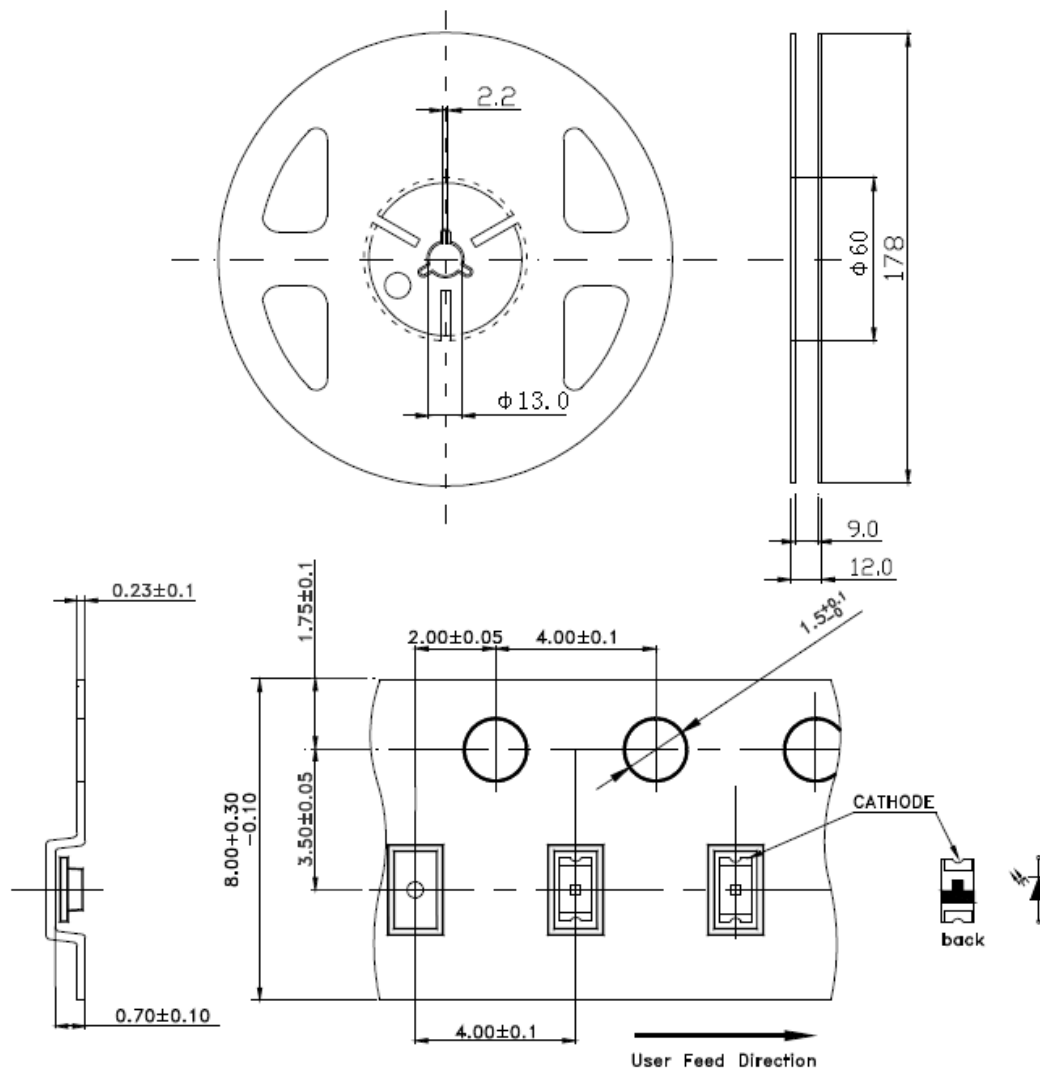
• After soldering, do not warp the circuit board.

1.6 x 0.8mm Chip LED

■ Reel & Tape Dimensions:

Quantity: 4,000 units/reel

Diameter: 178 mm



Notes: 1. All dimensions are in millimeters ;

■ **Cautions:**

1. After open the package, the LED's floor life is 4 Weeks under 30°C or less and 60%RH or less(MSL:2a).
2. Heat generation must be taken into design consideration when using the LED.
3. Power must be applied resistors for protection, over current would be caused the optic damage to the devices and wavelength shift.
4. Manual tip solder may cause the damage to Chip devices, so advised that heat of iron should be lower than 15W with temperature control under 5 seconds at 230-260 deg. C. (The device would be got damage in re working process, recommended under 5 seconds at 230-260 deg. C)
5. All equipment and machinery must be properly grounded. It is recommended to use a wristband or anti-electrostatic glove when handing the LED.
6. Use IPA as a solvent for cleaning the LED. The other solvent may dissolve the LED package and the epoxy, Ultrasonic cleaning should not be done.
7. Damaged LED will show unusual characteristics such as leak current remarkably increase, turn-on voltage becomes lower and the LED get unlight at low current.