

MCL0606FBL1RD1T DATASHEET

Multi Color LED, 0606, Flat Lens, Blue, Red

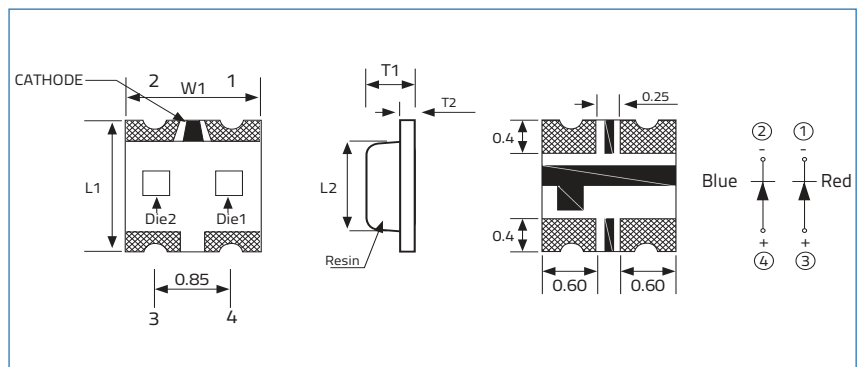


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Part Number	Size	Emitting Color	Emitting Material	Lens-Color	Luminous Intensity mcd	Wavelength nm λ_P	Viewing Angle (2θ 1/2)
MCL0606FBL1RD1T	0606	Blue, Red	InGaN/GaN, AlGaInP	Clear	Blue: 50mcd Min 100mcd Typ Red: 50mcd Min 100mcd Typ	Blue: 465nm typ Red: 642nm typ	130°

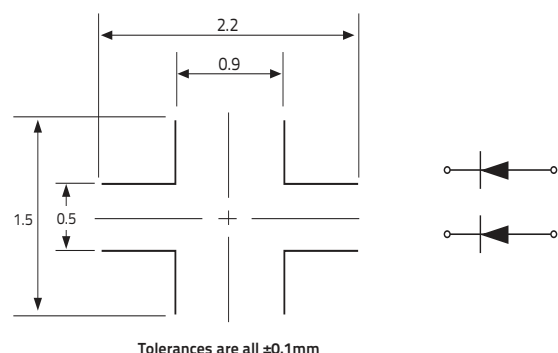
Electrical & Optical Specifications ($T_A=25^\circ\text{C}$)		Blue @20mA	Red @20mA	Unit
Forward Voltage Min.	V_F	2.8	1.5	V
Forward Voltage Max.	V_F	4.0	2.4	V
Reverse Current (Max) ($V_R=5V$)	I_R	50	10	μA
Peak Wavelength Typ.	λ_P	465	642	nm
Dominant Wavelength Typ.	λ_D	470	627	nm
Spectral Line Half Width Typ.	$\Delta\lambda$	30	20	nm

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)		Blue	Red	Unit
Reverse Voltage	V_R	5	5	V
DC Forward Current	I_F	20	30	mA
Peak Forward Current 1/10 Duty Cycle @ 10KHz	I_{FP}	100	60	mA
Power Dissipation	P_D	30	72	mW
Operating Temperature	T_A	-20 ~ +80		°C
Storage Temperature	T_{stg}	-30 ~ +100		



Dimensions		Units: Inches (mm)	
L_1	T_1	T_2	W_1
0.063±0.004 (1.6±0.1)	0.0216±0.004 (0.55±0.1)	0.0071±0.004 (0.18±0.1)	0.059±0.004 (1.5±0.1)

Soldering Pad Layout



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Graphs for Blue (InGaN/GaN)

Fig.1 Forward Current vs Forward Voltage

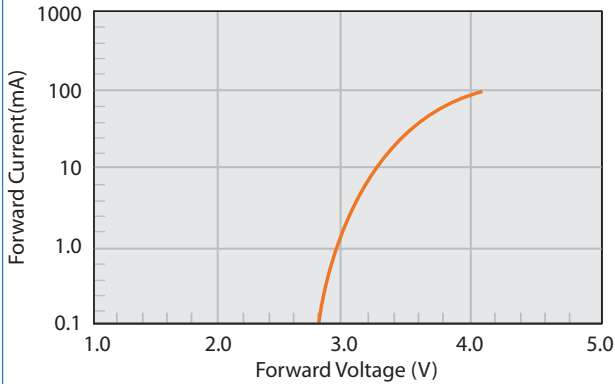


Fig.2 Relative Intensity vs Forward Current

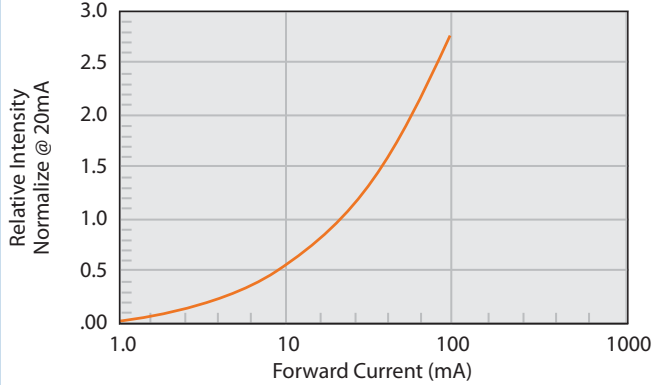


Fig.3 Current vs Temp

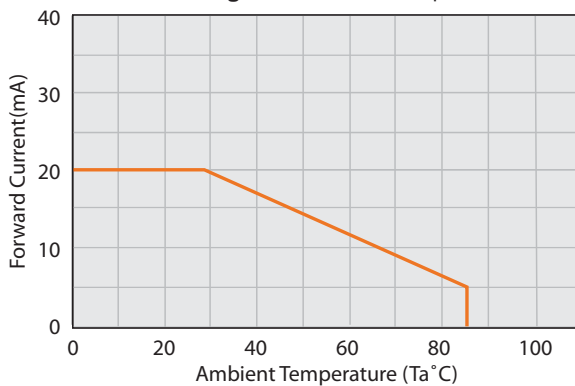


Fig.4 Relative Intensity vs Temperature

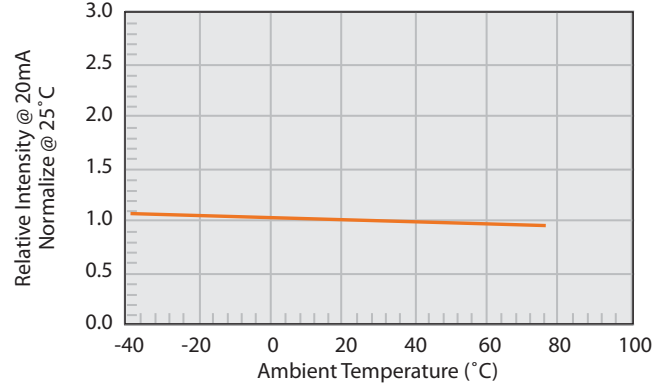


Fig.5 Relative Intensity vs Wavelength

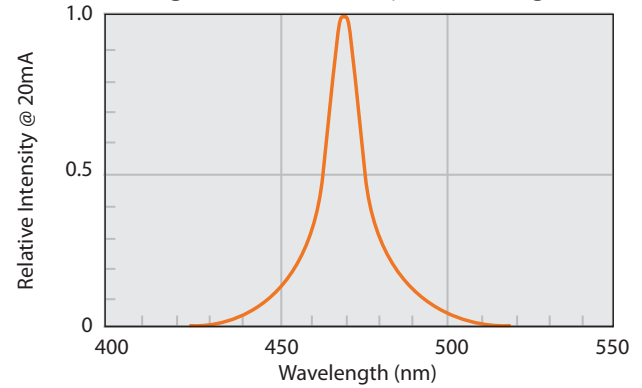
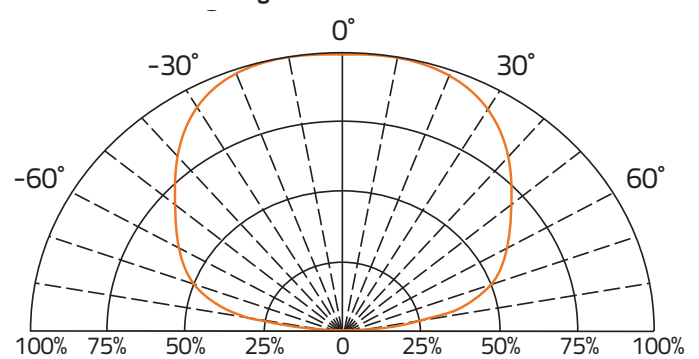


Fig. 6 Direct Radiation



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Graphs for Red (AlGaInP)

Fig.1 Forward Current vs Forward Voltage

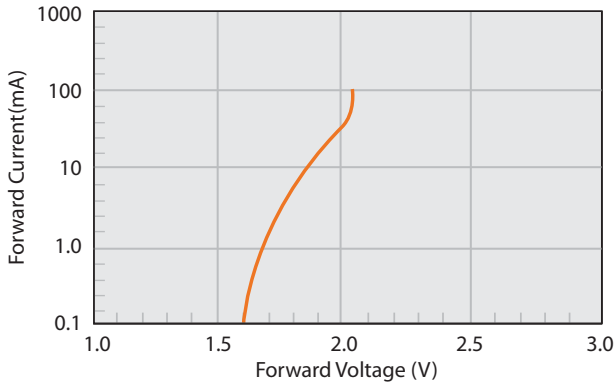


Fig.4 Relative Intensity vs Temperature

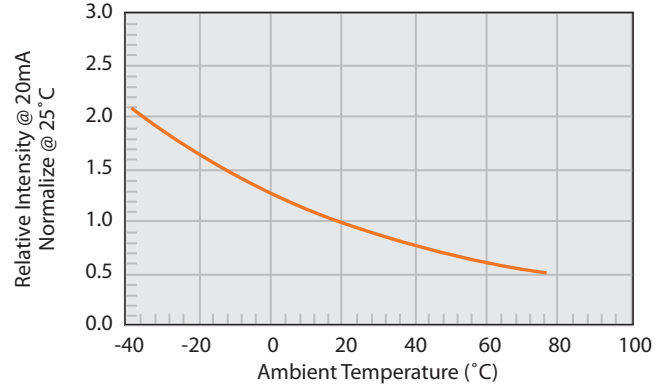


Fig.2 Relative Intensity vs Forward Current

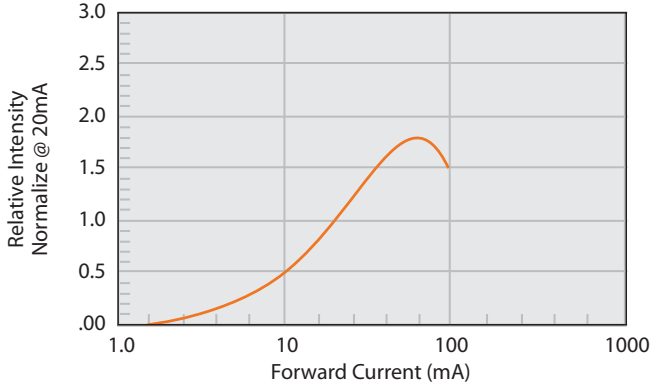


Fig.5 Relative Intensity vs Wavelength

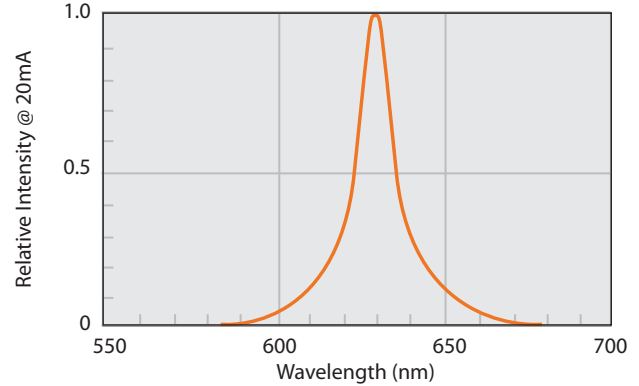


Fig.3 Current vs Temp

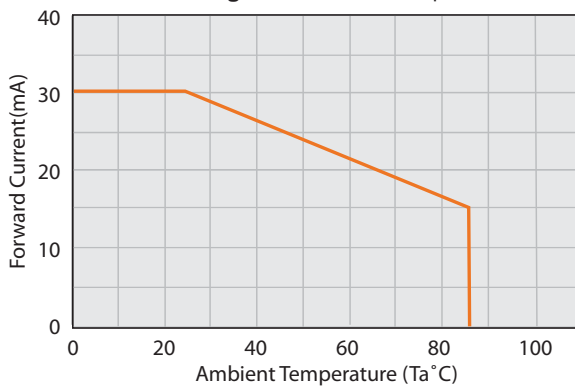
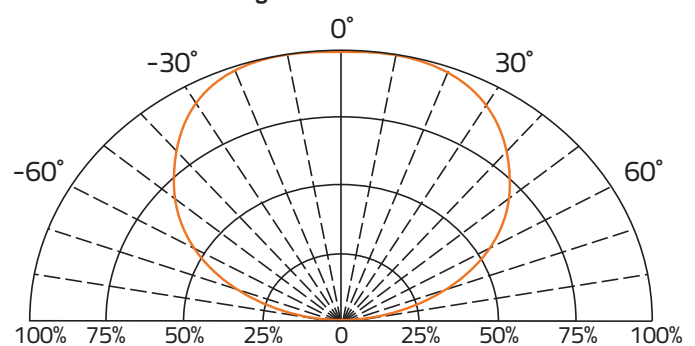


Fig. 6 Direct Radiation



Environmental information

RoHS Status	6 of 6 Compliant
REACH Status	Compliant
Halogen Status	Halogen Free
Conflict Mineral Status	Conflict Mineral Free
Moisture Sensitivity Level (MSL)	3

Reflow profile

Max Reflow Temperature	260°C
Number of Reflow Cycles	2

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Label Example

Item: MCL0606FBL1RD1T

Chip Type LED,0606,Flat Lens,Blue,Red

Qty: 4000 D/C: 1616

Lot: GS115A0168

VF: 2.8-4.0

BIN/HUE: Q/0C-Q/29 VF: 1.5-2.4

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YOUR SINGLE SOURCE FOR SURFACE MOUNT PASSIVES

Codes:

VF: Forward Voltage | BIN: Luminous Intensity | HUE: Dominant Wavelength

Luminous Intensity Classification (BIN Code)

Blue BIN Code	Iv(mcd) at 20mA		RED BIN Code	Iv(mcd) at 20mA	
	Min.	Max.		Min.	Max.
P	50	80	P	50	80
Q	80	125	Q	80	125
R	125	200	R	125	200

Dominant Wavelength Classification (HUE Code)

λ_D (nm) at 20mA					
Blue			Red		
Hue Code	Min.	Max.	Hue Code	Min.	Max.
0D	465	468	29	624	627
0C	468	471	30	627	630
0B	471	474	31	630	633
0A	474	477	32	633	636
			33	636	639

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Reel Specifications		Units: mm		
M	C	F	E	G
178±1.50	56.0±1.0	12.0±1.0	60.0±1.0	9.0±1.0

Packaging Specifications	
Reel Size:	7"
Quantity per Reel :	4,000

Storage Specifications
1. Storage temperature and RH: 5°C~35°C, RH60%
2. Once the package is opened, the LEDs should be used within a week. Otherwise, they should be kept in a moisture proof bag with desiccant. We suggest that you use this product within one year from date code.
3. If opened for more than one week in an atmosphere of 5°C~35°C, RH60%. The parts should be heat treated at 60°C±5°C for 15 hours.

Tape Specifications		Units: mm		
T	W	A	B	F
0.70±0.5	8.0±0.3	1.75±0.5	1.65±0.1	3.5±0.2
E	H	J	D	G
1.75±0.1	4.0±0.2	2.0±0.1	1.5±0.1	4.0±0.2

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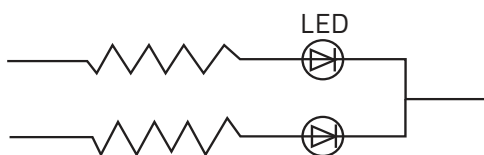
Environmental Test Criteria

Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life	1. Ta=25°C 2. If=20mA 3. t=1000hrs (-24hrs, +72hrs)	22
	High Temperature Storage	1. Ta=105°C±5°C 2. t=1000hrs (-24hrs, +72hrs)	22
	Low Temperature Storage	1. Ta=-40°C±5°C 2. t=1000hrs (-24hrs, +72hrs)	22
	High Temperature, High Humidity Storage	1. Ta=85°C 2. RH=85% 3. t=1000hrs(-24hrs, +72hrs)	22
Environmental Test	Thermal Shock	1. Ta=100°C±5°C & -40°C±5°C 20min / 10sec / 20min 3. Total: 100 cycles total	22
	Temperature Cycling	1. 100°C±5°C & -40°C±5°C 30mins / 5mins / 30mins 2. 100 Cycles	22
	IR Reflow	1. T=260°C Max. 10 seconds Max 2. 6 Min	22

Drive Method

LED is a current operated drive, and therefore it requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED. Consider worst case voltage variations that can occur across the current limiting resistor placed in series with the LED. The forward current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B

