MCL0805FRGB1T DATASHEET

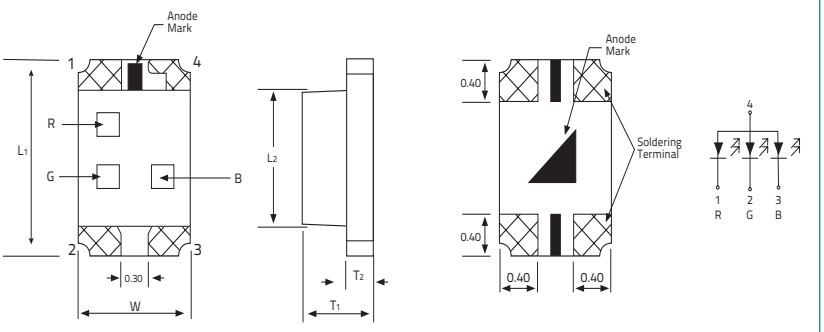
Multi Color LED, 0805, Flat Lens, RGB

VENKEL LTD.

Part Number	Size	Emitting Color	Emitting Material	Lens-Color	Luminous Intensity mcd	Wavelength nm λP	Vewing Angle (2θ 1/2)
MCL0805FRGB1T	0805	Red, Green, Blue (RGB)	AlGaInP, InGaN	Clear	Red: 100 mcd typ Green: 500 mcd typ Blue: 125 mcd typ	Red: 632 nm typ Green: 520 nm typ Blue: 468 nm typ	140°

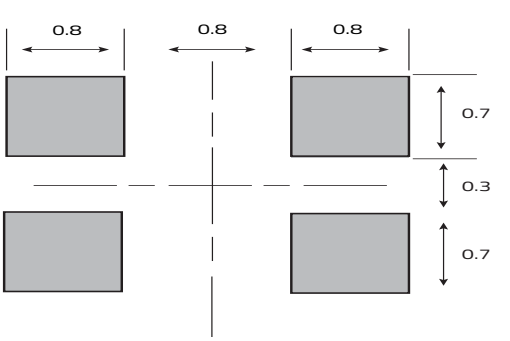
Electrical & Optical Specifactions (T_A=25°C)		Red @20mA	Green @20mA	Blue @20mA	Unit
Forward Voltage Typ.	V_F	1.5	2.8	2.8	V
Forward Voltage Max.	V_F	2.4	3.6	3.6	V
Reverse Current (Max) (V_R=5V)	I_R	10	50	50	uA
Peak Wavelength Typ.	λP	632	520	468	nm
Dominant Wave-length Typ.	λD	630	525	470	nm
Spectral Line Half Width Typ.	Δλ	20	36	30	nm

Absolute Maximum Ratings (T_A=25°C)		Red	Green/ Blue	Unit
Reverse Voltage	V_R	5	5	V
DC Forward Current	I_F	50	30	mA
Peak Forward Current 1/10 Duty Cycle @ 10KHz	1_{Fp}	130	100	mA
Power Dissipation	P_D	120	108	mW
Operating Temperature	T_A	-20 ~ +80		°C
Storage Temperature	Tstg	-30 ~ +100		



Dimensions			Units: Inches (mm)
L_1	L_2	T_1	T_2
0.0787±0.004 (2.0±0.1)	0.055±0.004 (1.40±0.1)	0.0310.004 (0.80±0.1)	0.012±0.004 (0.30±0.1)
W			
0.051±0.004 (1.3±0.1)			

Soldering Pad Layout



Tolerances are all ±0.1mm

(800) 950–8365
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Graphs

Fig.1 Forward Current vs Forward Voltage

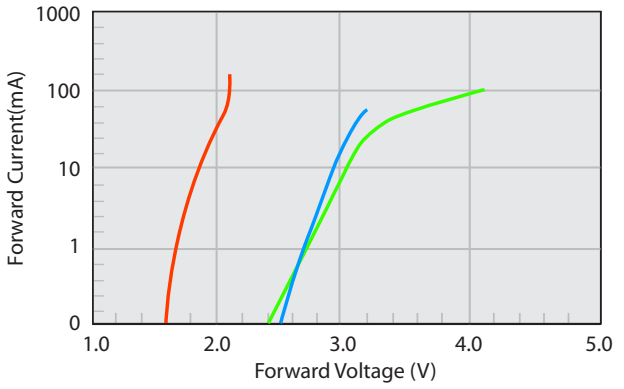


Fig.2 Relative Intensity vs Forward Current

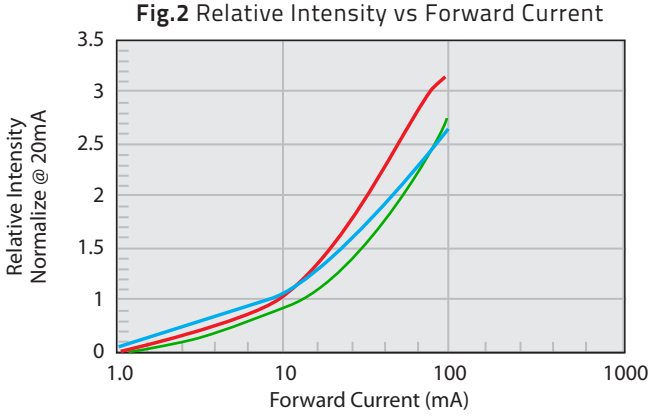


Fig.3 Current vs Temp

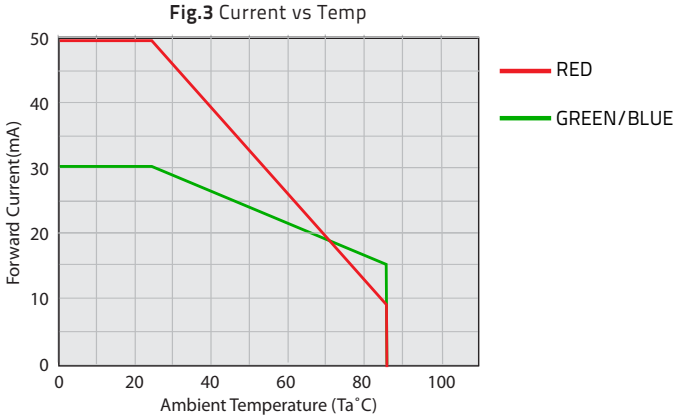


Fig.4 Relative Intensity vs Wavelength

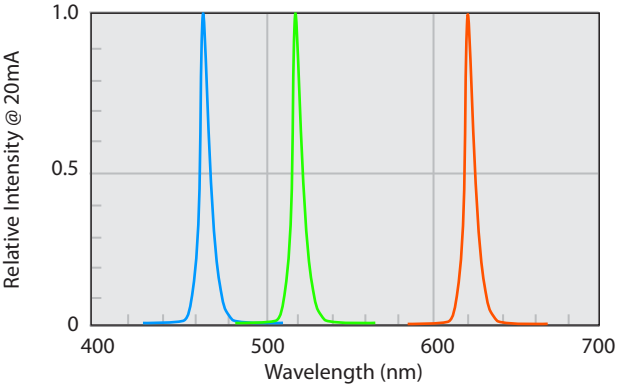
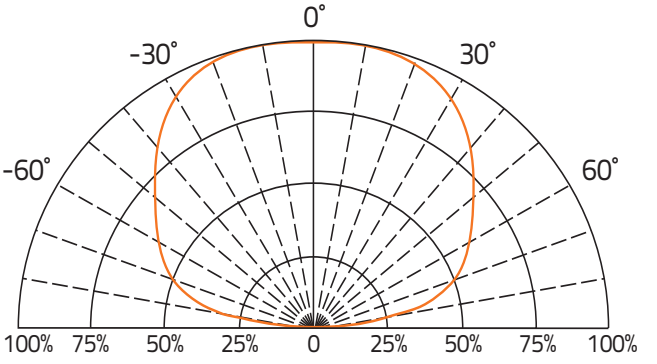


Fig. 6 Directive Radiation



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
Time at Max Reflow Temperature	10 seconds

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Label Example

Item: MCL0805FRGB1T
Chip Type LED,0805,Flat Lens,RGB
Qty: 4000 D/C: 1616

Lot: GS11470168 VF: 1.5-2.4
VF: 2.8-3.6
BIN/HUE: P/T/Q VF: 2.8-3.6

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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)

RED BIN Code	Iv(mcd) at 10mA	
	Min.	Max.
N	32	50
P	50	80
Q	80	125

Green BIN Code	Iv(mcd) at 5mA	
	Min.	Max.
S	200	320
T	320	500
U	500	800
V-1	800	1000
V-2	1000	1250

Blue BIN Code	Iv(mcd) at 5mA	
	Min.	Max.
P	50	80
Q	80	125
R	125	200

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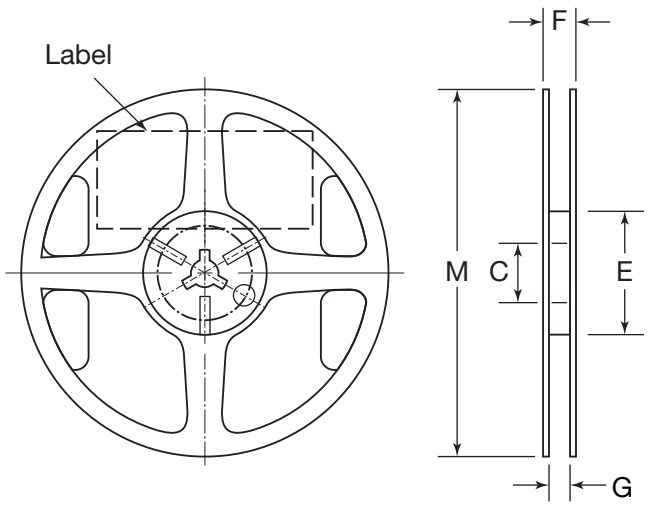
Reel Specifications

Units: mm



M	C	F	E	G
178±1.5	56.0±1.0	12.0±0.1	60.0±1.0	9.0±0.1

Packaging Specifications

Reel Size:	7″
Quantity per Reel :	4,000

Storage Specifications

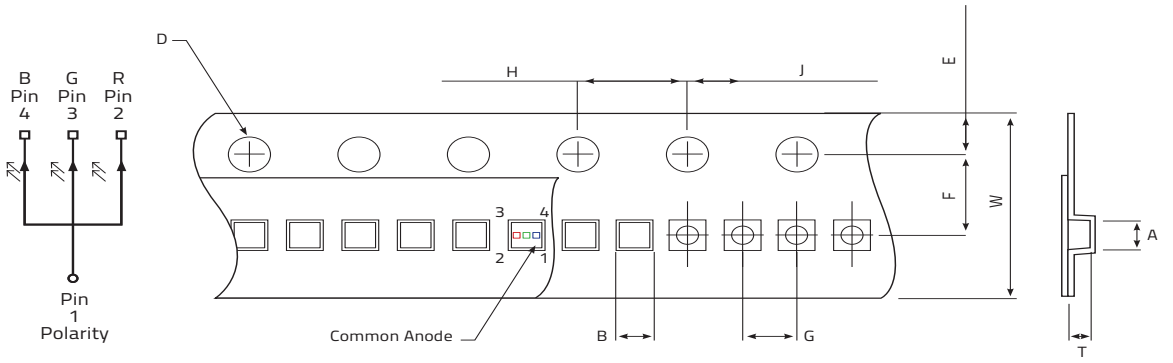
1. Storage temperature and RH: 5°C~35°C, RH60%

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
0.87±0.05	8.0±0.20	2.22±0.05	1.36±0.05	3.5±0.05
E	**H**	**J**	**D**	**G**
1.75±0.10	4.0±0.10	2.0±0.05	1.5±0.1	2.0±0.05

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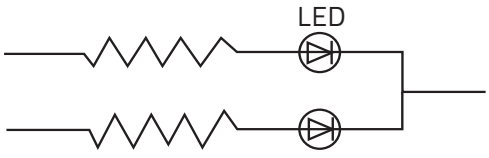
Environmental Test Criteria

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