

# MCL1210FRD1GR1T DATASHEET

Multi Color LED, 1210, Flat Lens, Red, Green

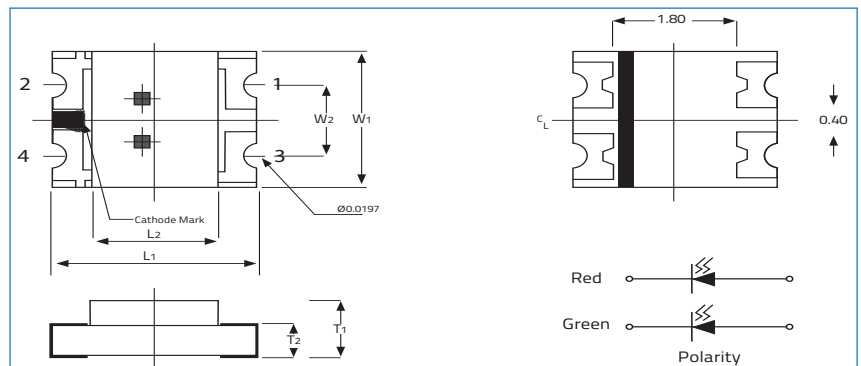


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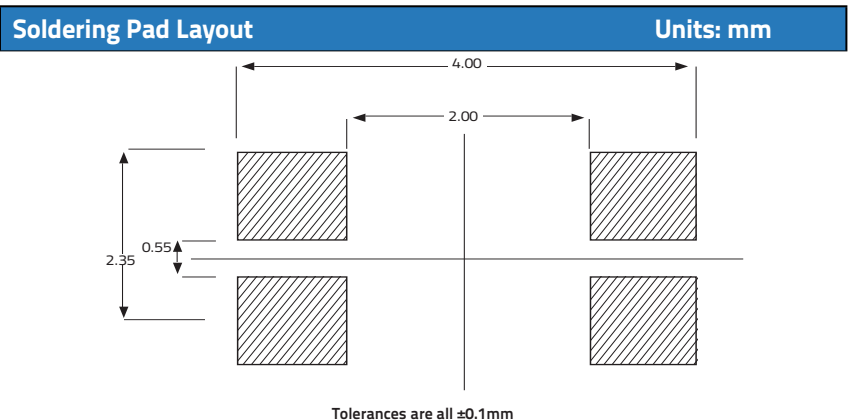
Part Number	Size	Emitting Color	Emitting Material	Lens-Color	Luminous Intensity mcd	Wavelength nm $\lambda_P$	Viewing Angle ( $2\theta$ 1/2)
MCL1210FRD1GR1T	1210	Red, Green	AlGaInP, AlGaInP	Clear	Red: 50mcd Min Green: 25mcd Min	Red: 625nm typ Green: 573nm typ	120°

Electrical & Optical Specifications ( $T_A=25^\circ\text{C}$ )		Red @20mA	Green @20mA	Unit
Forward Voltage Min.	$V_F$	1.8	1.8	V
Forward Voltage Max.	$V_F$	2.4	2.4	V
Reverse Current (Max) ( $V_R=5V$ )	$I_R$	10	10	$\mu\text{A}$
Peak Wavelength Typ.	$\lambda_P$	635	573	nm
Dominant Wavelength Min.	$\lambda_D$	625	570	nm
Spectral Line Half Width Typ.	$\Delta\lambda$	20	20	nm

Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ )		Red	Green	Unit
Reverse Voltage	$V_R$	5	5	V
DC Forward Current	$I_F$	30	30	mA
Peak Forward Current 1/10 Duty Cycle @ 10KHz	$1_{FP}$	125		mA
Power Dissipation	$P_D$	72	72	mW
Operating Temperature	$T_A$	-40 ~ +85		°C
Storage Temperature	$T_{stg}$	-40 ~ +85		



Dimensions				Units: Inches (mm)			
$L_1$	$L_2$	$T_1$	$T_2$	$W_1$	$W_1$		
0.1259±0.004 (3.20±0.1)	0.0788±0.004 (2.0±0.1)	0.0433±0.004 (1.10±0.1)	0.0197±0.004 (0.50±0.1)	0.106±0.004 (2.70±0.1)	0.0551±0.004 (1.40±0.1)		



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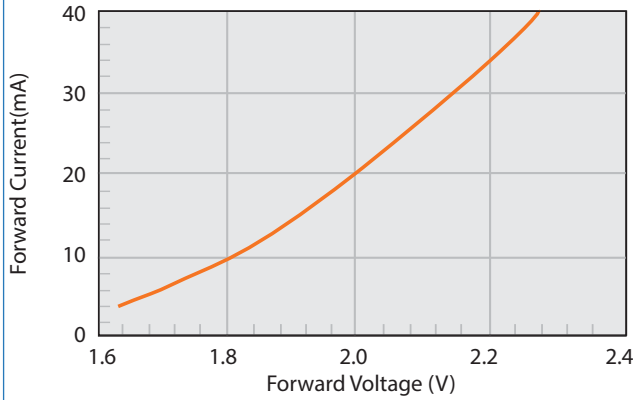
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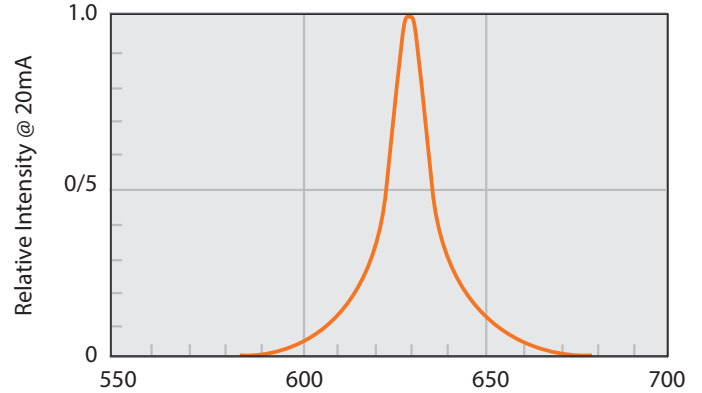
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## Graphs for Red (AlGaInP)

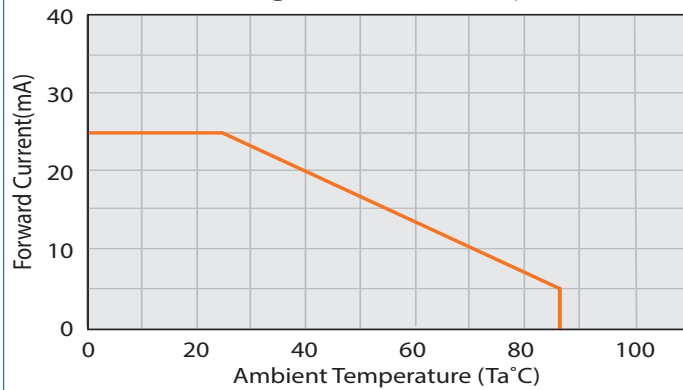
**Fig.1 Forward Current vs Forward Voltage**



**Fig.2 Relative Intensity vs Wavelength**



**Fig.3 Current vs Temp**



### 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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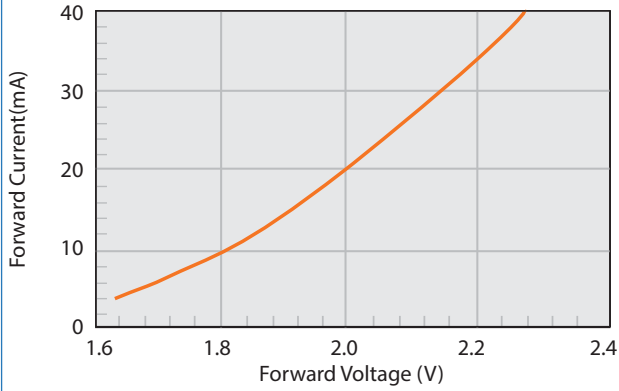
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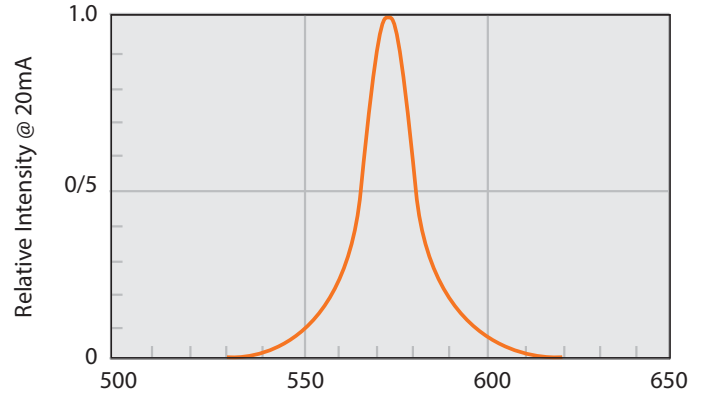
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## Graphs for Green (AlGaInP)

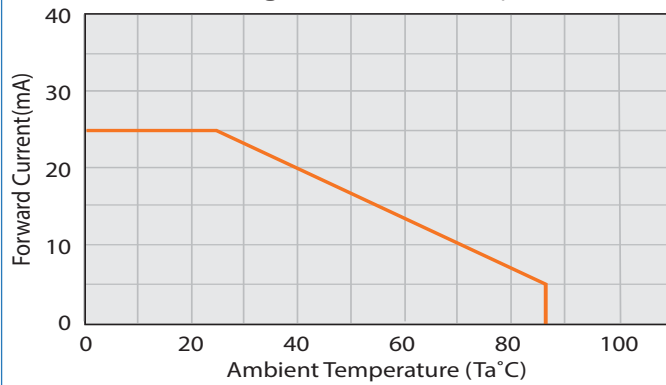
**Fig.1 Forward Current vs Forward Voltage**



**Fig.2 Relative Intensity vs Wavelength**



**Fig.3 Current vs Temp**



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## Label Example

Item: MCL1210FRD1GR1T

Chip Type LED,1210,Flat Lens,Red,Green

Qty: 3000

D/C: 1619

Lot: GS115A0168

VF: 1.8-2.4

BIN/HUE: I/t-E/i

VF: 1.8-2.4

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## Codes:

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

## Luminous Intensity Classification (BIN Code)

RED BIN Code	Iv(mcd) at 20mA	
	Min.	Max.
G	50	63
H	63	80
I	80	100
J	100	125
K	125	160

Green BIN Code	Iv(mcd) at 20mA	
	Min.	Max.
D	25	32
E	32	40
F	40	50
G	50	63

## Dominant Wavelength Classification (HUE Code)

$\lambda_D$ (nm) at 20mA					
Red			Green		
Hue Code	Min.	Max.	Hue Code	Min.	Max.
t	620	625	h	565	568
u	625	630	i	568	572
			j	572	576

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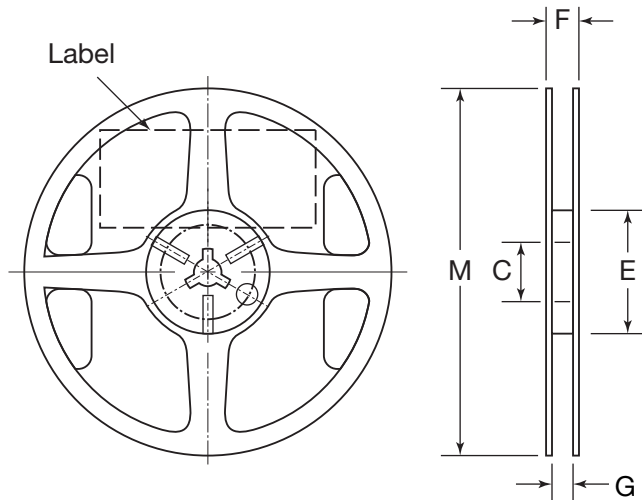
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## Reel Specifications

Units: mm



M	C	F	E	G
178±1.50	13.0±2.0	11.40±1.0	60.0±1.0	9.0±1.0

## Packaging Specifications

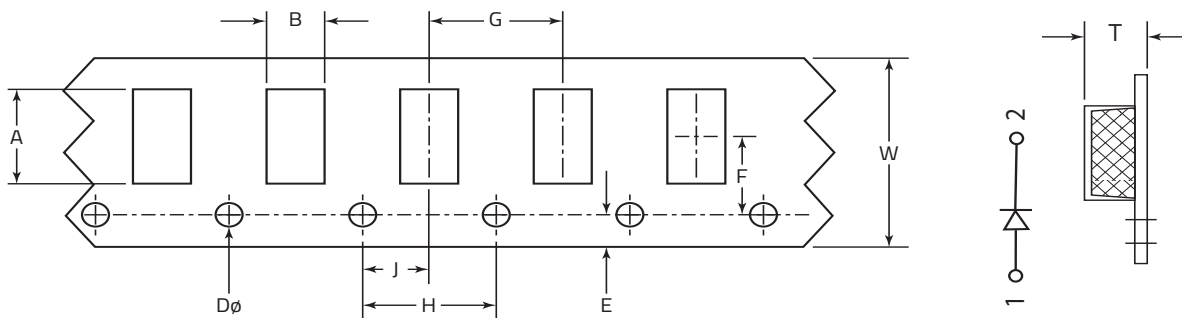
Reel Size:	7"
Quantity per Reel :	3,000

## 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
1.55±0.5	8.0±0.3	3.20±0.5	3.50±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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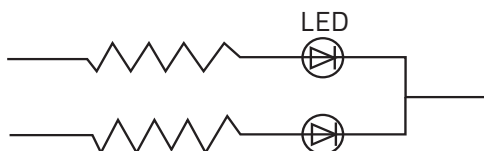
## Environmental Test Criteria

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

