

CTL0402FRD1T DATASHEET

Chip Type LED, 0402, Flat Lens, Red

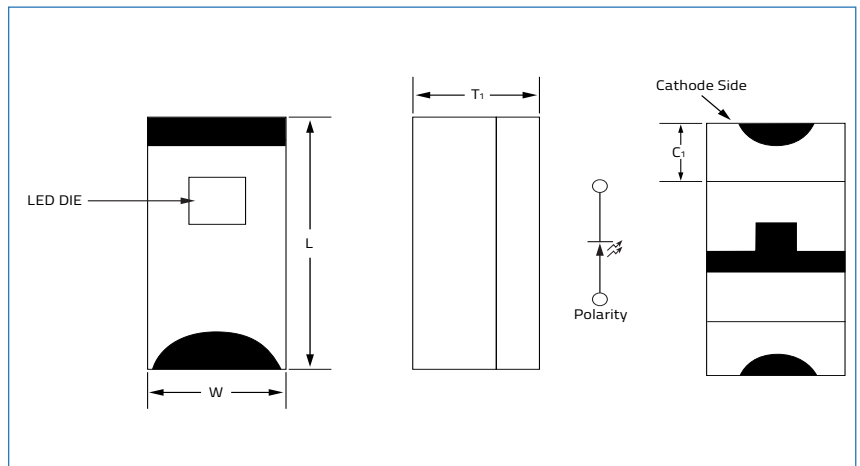


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Part Number	Size	Emitting Color	Emitting Material	Lens-Color	Luminous Intensity ($I_F=20\text{mA}$) mcd	Wavelength nm λ_P	Viewing Angle (2θ 1/2)
CTL0402FRD1T	0402	Red	AllnGaP	Water Clear	71.5 min 112.5 typ	632	130°

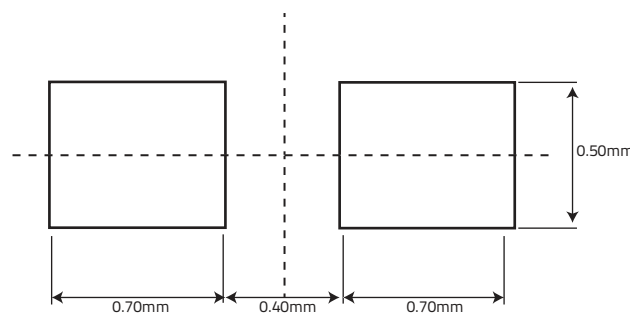
Electrical & Optical Specifications ($T_A=25^\circ\text{C}$)		RD1 (AllnGaP)	Unit
Forward Voltage (Min.) ($I_F=20\text{mA}$)	V_F	2.0	V
Forward Voltage (Max.) ($I_F=20\text{mA}$)	V_F	2.4	V
Reverse Current (Max) ($V_R=5\text{V}$)	I_R	10	μA
Peak Wavelength (Typ.) ($I_F=20\text{mA}$)	λ_P	632	nm
Dominant Wavelength (Typ.) ($I_F=20\text{mA}$)	λ_D	624	nm
Spectral Line Half Width (Typ.) ($I_F=20\text{mA}$)	$\Delta\lambda$	20	nm

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$)		RD1 (AlGaInP)	Unit
Reverse Voltage	V_R	5	V
DC Forward Current	I_F	20	mA
Peak Forward Current 1/10 Duty Cycle @ 10KHz	I_{FP}	40	mA
Power Dissipation	P_D	48	mW
Operating Temperature	T_A	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +100	



Dimensions		Units: Inches (mm)	
L_1	W	T_1	C_1
0.039±0.004 (1.0±0.1)	0.0196±0.004 (0.5±0.1)	0.0196±0.004 (0.50±0.1)	0.0118±0.004 (0.30±0.1)

Soldering Pad Layout



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Graphs

Fig.1 Forward Current vs Forward Voltage

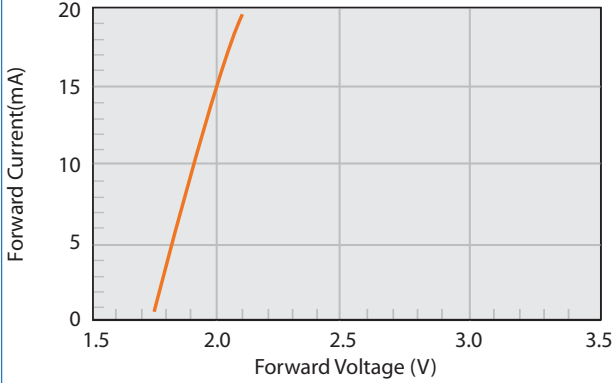


Fig.2 Relative Intensity vs Forward Current

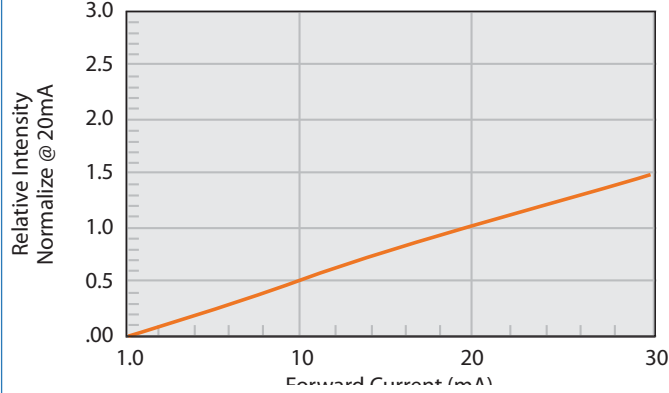
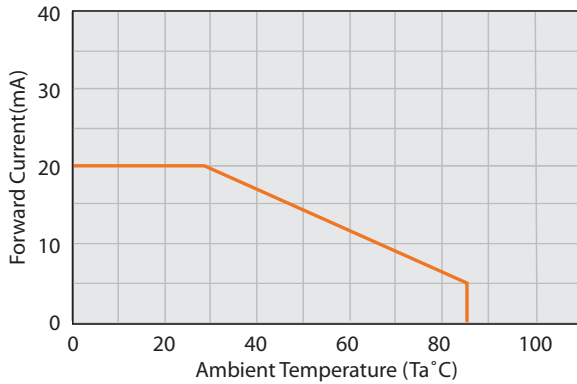


Fig.3 Current vs Temp



CTL0603FRD1T

Fig.5 Relative Intensity vs Wavelength

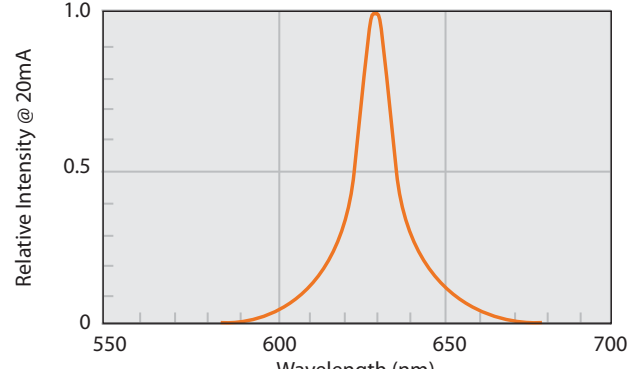
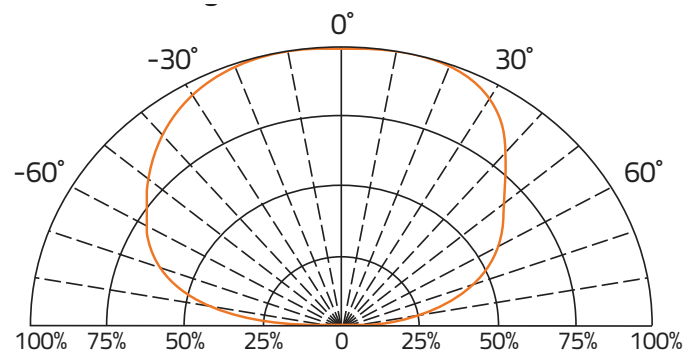


Fig. 5 Direct Radiation



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: CTL0402FRD1T

Chip Type LED,0402,Flat Lens,Red

Qty: 4000

D/C: 1616

Lot: E1A1A22L12

BIN/HUE: Q2/B

VF: 1.8-2.0

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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)

BIN Code	Iv(mcd) at 20mA	
	Min.	Max.
Q1	71.5	90
Q2	90	112.5
R1	112.5	140
R2	140	180

Dominant Wavelength Classification (HUE Code)

HUE Code	λ_D (nm) at 20mA	
	Min.	Max.
A	615	620
B	620	625
C	625	630
D	630	635

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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
0.66±0.03	8.0±0.3	1.11±0.03	0.60±0.03	3.5±0.05
E	H	J	D	G
1.75±0.1	4.0±0.1	2.0±0.05	1.5±0.1	4.0±0.1

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Environmental Test Criteria			
Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life	1. 25°C 2. 1000hrs	40
	High Temperature Storage	1. 85°C±5°C 2. 1000hrs	40
	Temperature, Humidity Bias	1. 40°C 2. 93% 3. 1000hrs	40
Environmental Test	Solderability	1. 245°C / 3±1 sec 2. 260°C / 10±1 sec	40