CTL0603FOG1T DATASHEET

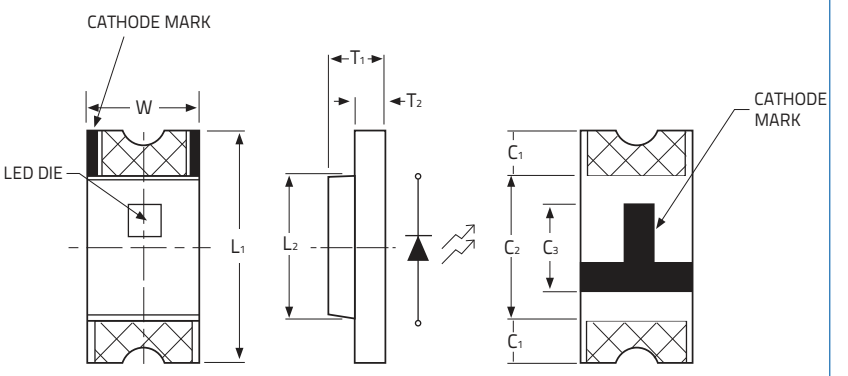
Chip Type LED, 0603, Flat Lens, Orange

VENKEL LTD.

Part Number	Size	Emitting Color	Emitting Material	Lens-Color	Luminous Intensity (I_f=20mA) mcd	Wavelength nm λP	Vewing Angle (2θ 1/2)
CTL0603FOG1T	0603	Orange	AlGaInP	Water Clear	50 min 150 typ	612	130°

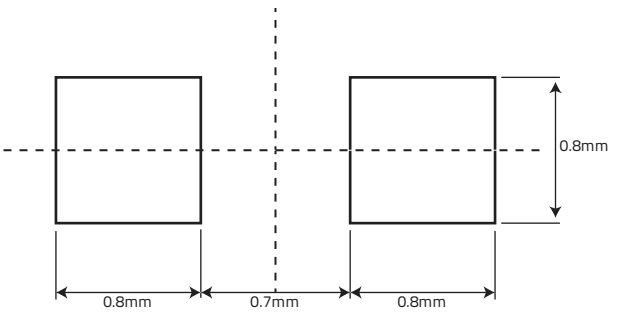
Electrical & Optical Specifactions (T_A=25°C)		OG1 (AlGaInP)	Unit
Forward Voltage (Min.) (I_F=20mA)	V_F	1.7	V
Forward Voltage (Max.) (I_F=20mA)	V_F	2.6	V
Reverse Current (Max) (V_R=5V)	I_R	10	uA
Peak Wavelength (Typ.) (I_F=20mA)	λP	612	nm
Dominant Wavelength (Typ.) (I_F=20mA)	λD	605	nm
Spectral Line Half Width (Typ.) (I_F=20mA)	Δλ	17	nm

Absolute Maximum Ratings (T_A=25°C)		OG1 (AlGaInP)	Unit
Reverse Voltage	V_R	5	V
DC Forward Current	I_F	30	mA
Peak Forward Current 1/10 Duty Cycle @ 10KHz	1_{Fp}	60	mA
Power Dissipation	P_D	78	mW
Operating Temperature	T_A	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	



Dimensions			Units: Inches (mm)
L_1	L_2	T_1	T_2
0.063±0.004 (1.6±0.1)	0.0394±0.004 (1.0±0.1)	0.0157±0.004 (0.4±0.1)	0.0079±0.004 (0.2±0.1)
W	C_1	C_2	C_3
0.031±0.004 (0.8±0.1)	0.012±0.004 (0.3±0.1)	0.0394±0.004 (1.0±0.1)	0.024±0.004 (0.60±0.1)

Soldering Pad Layout



Tolerances are all ±0.1mm

Graphs

Fig.1 Forward Current vs Forward Voltage

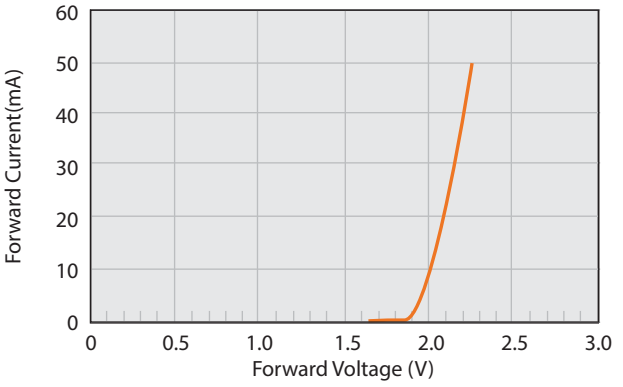


Fig.2 Relative Intensity vs Forward Current

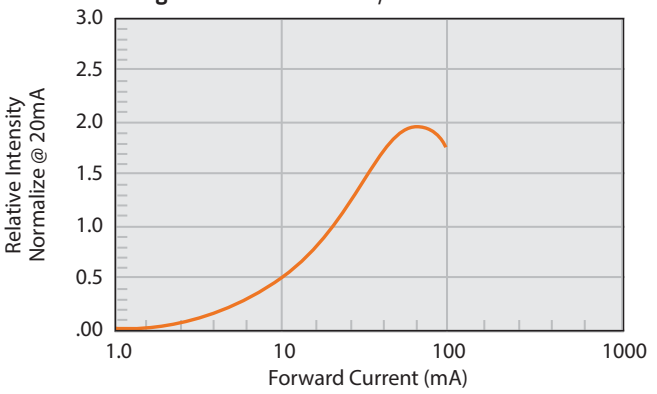


Fig.3 Current vs Temp

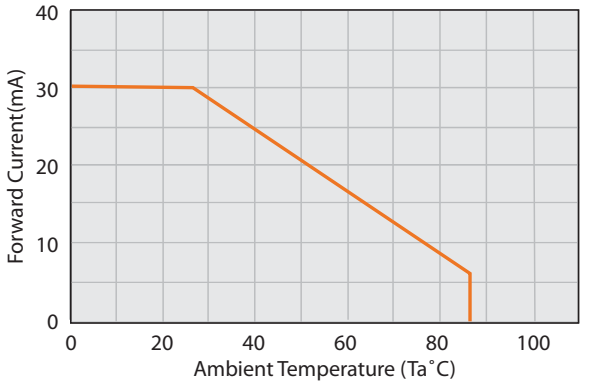


Fig.4 Relative Intensity vs Temperature

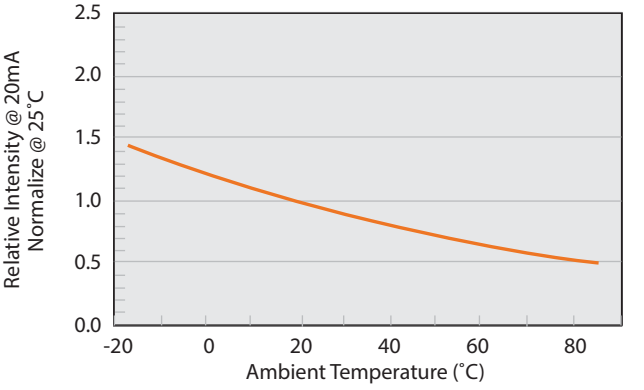


Fig.5 Relative Intensity vs Wavelength

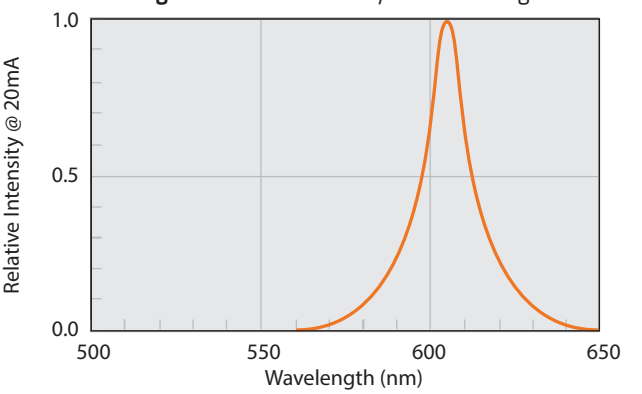
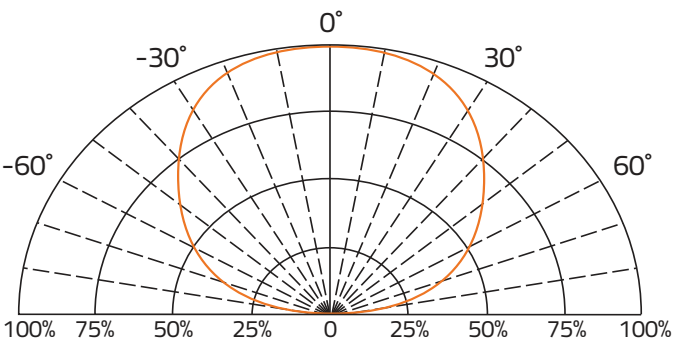


Fig. 6 Direct Radiation



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

Label Example

Item: CTL0603FOG1T

Chip Type LED,0603,Flat Lens,Orange

Qty: 4000 D/C: 1616

Lot: 20160502001

BIN/HUE: N/9 VF: 2.0-2.2

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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.
P	50	80
Q	80	125
R	125	200
S	200	320
T	320	500

Dominant Wavelength Classification (HUE Code)

HUE Code	λD (nm) at 20mA	
	Min.	Max.
20	598	600
21	600	603
22	603	606
23	606	609
24	609	612

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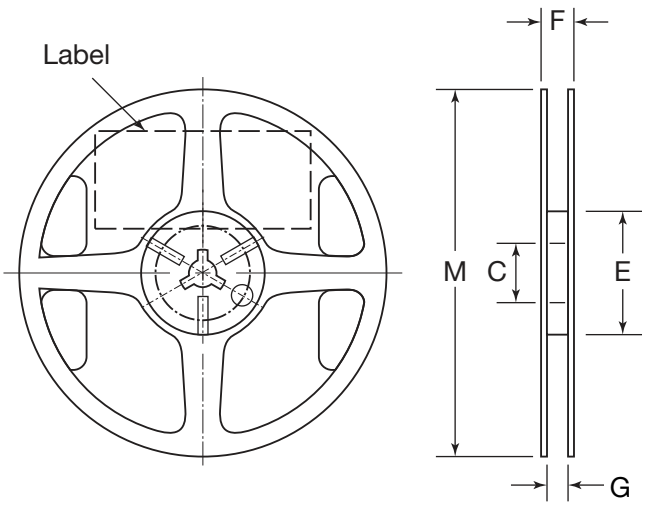
Reel Specifications

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

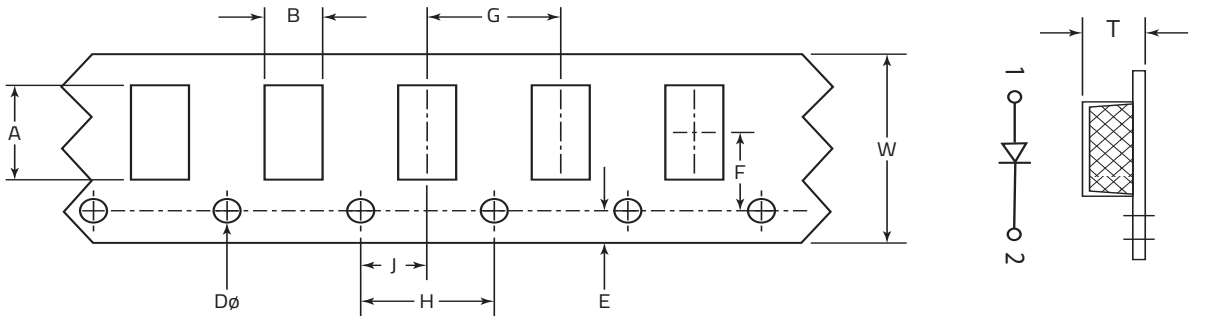
1. Storage temperature and RH: 5°C~35°C, RH60%

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
0.60±0.5	8.0±0.3	1.75±0.5	0.90±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

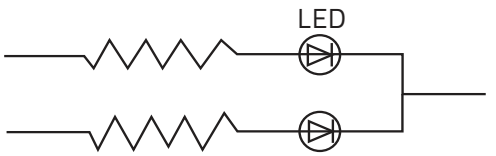
Environmental Test Criteria

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