



PART NO.: 19-21 UBGC/TR8
0.8mm Height Flat Top LEDs

Device Number : DSE-191-037 REV. 1.1

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Features :

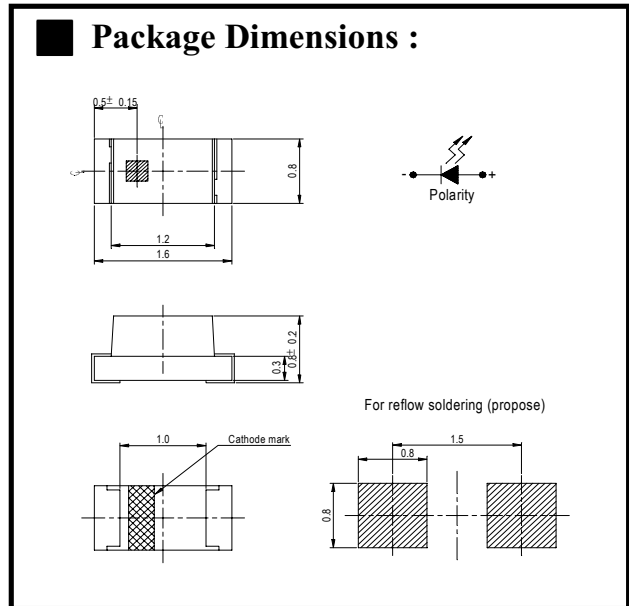
- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.

Descriptions :

- The 19-21 SMD is much smaller than lead frame type components, demands smaller board size enhances packing density, reduces storage space and finally smaller equipment is required.
- Besides, light weight makes them ideal for miniature applications, etc.

Applications :

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.



Notes :

Tolerances Unless Dimension $\pm 0.1\text{mm}$
 Angle $\pm 0.5^\circ$
 Unit = mm

PART NO.	Chip		Lens Color
	Material	Emitted Color	
19-21 UBGC/TR8	InGaN/SiC	Super Blue Green	Water Clear

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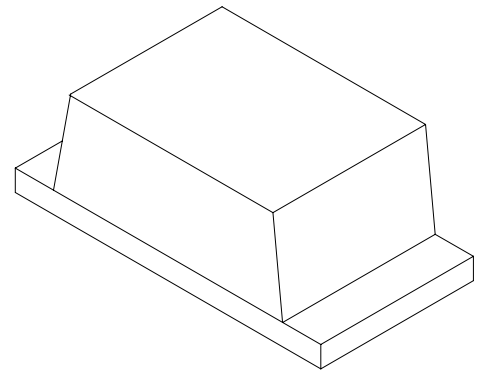
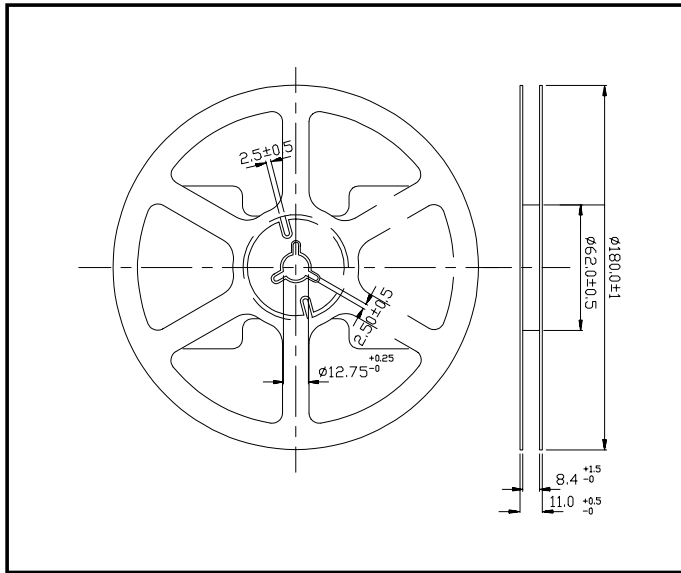
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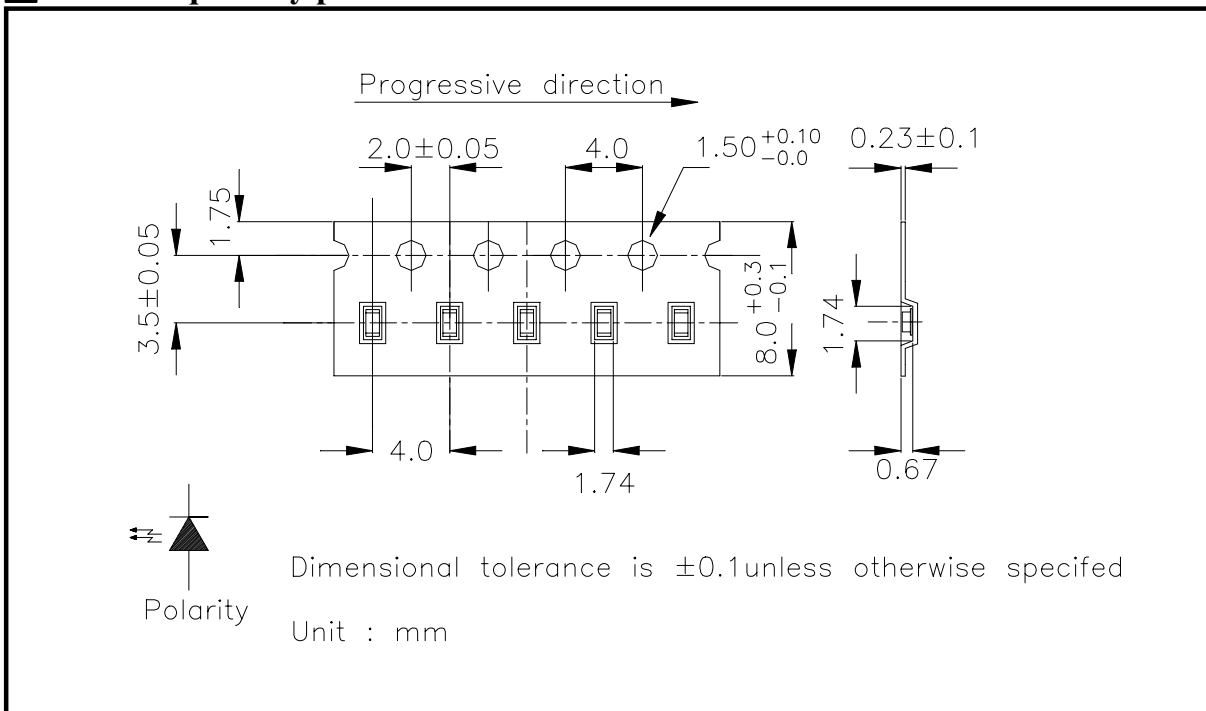
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■ Package Dimensions :



■ Loaded quantity per reel 3000 PCS/reel :



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■ **Absolute Maximum Ratings at Ta = 25°C:**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	30	mA
Operating Temperature	T _{opr}	-20 ~ +80	°C
Storage Temperature	T _{stg}	-30 ~ +90	°C
Electrostatic Discharge	ESD	1000	V
Soldering Temperature	T _{sol}	260 (for 5 second)	°C
Power Dissipation	P _d	120	mW
Peak Forward Current(Duty 1/10 @ 1KHz)	I _F (Peak)	100	mA

■ **Electronic Optical Characteristics :**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	-----	3	-----	mcd	I _F =2mA
		33	57	-----		I _F =20mA
Viewing Angle	2θ 1/2	-----	100	-----	deg	I _F =20mA
Peak Wavelength	λ _p	-----	502	-----	nm	I _F =20mA
Dominant Wavelength	λ _d	-----	505	-----	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	-----	30	-----	nm	I _F =20mA
Forward Voltage	V _F	-----	3.5	4.0	V	I _F =20mA
Reverse Current	I _R	-----	-----	50	μA	V _R =5V

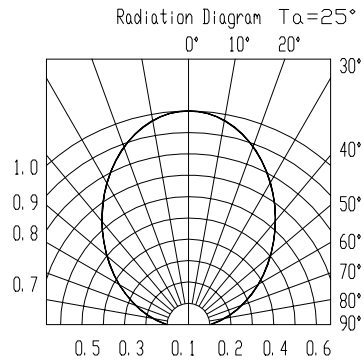
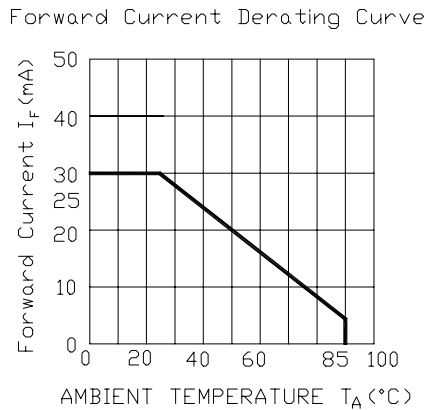
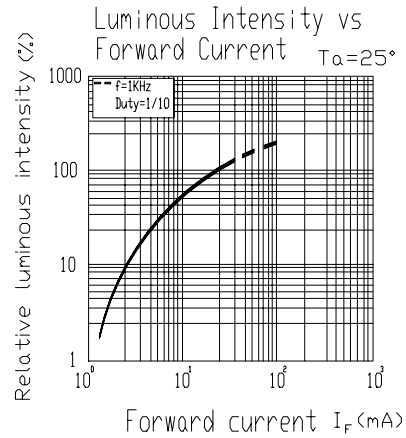
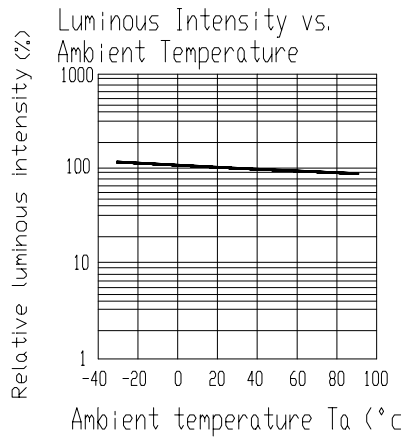
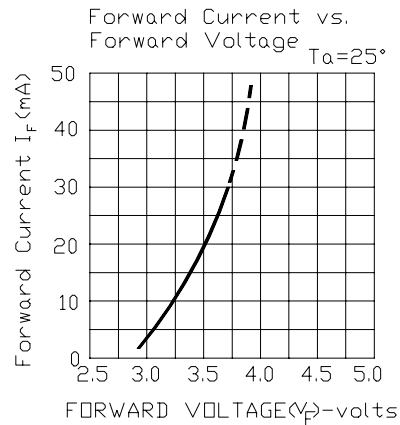
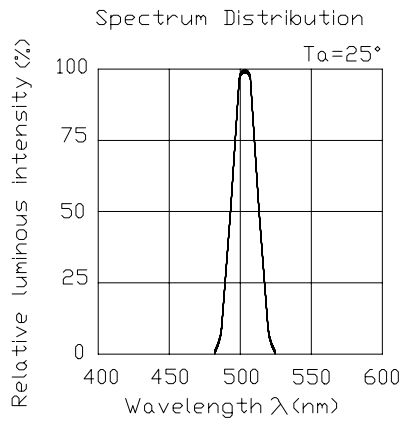


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■ Typical Electro-Optical Characteristic Curves :





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■ **Reliability Test Items And Conditions**

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP. : 260°C ± 5 °C	5 SEC.	76 PCS	0/1
2	Temperature Cycle	H : +85°C 30min. ∫ 5 min. L : -55°C 30min.	50 CYCLES	76 PCS	0/1
3	Thermal Shock	H : +100°C 5min. ∫ 10 sec. L : -10°C 5min.	50 CYCLES	76 PCS	0/1
4	High Temperature Storage	TEMP. : 100°C	1000 HR.	76 PCS	0/1
5	Low Temperature Storage	TEMP. : -55°C	1000 HR.	76 PCS	0/1
6	DC Operating Life	I _F = 20 mA	1000 HR.	76 PCS	0/1
7	High Temperature / High Humidity	85°C/RH85%	1000 HR.	76 PCS	0/1



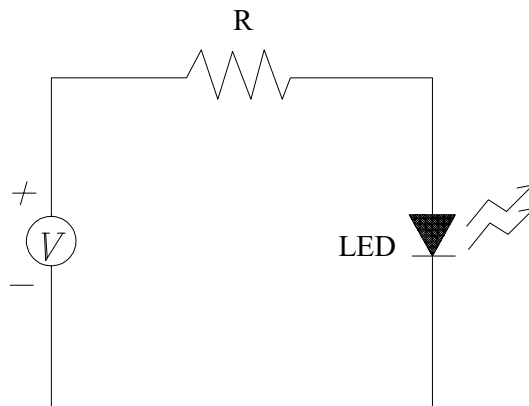
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■ **Test Circuit :**



■ **Precautions For Use :**

1. Over-current-proof

Customer must use resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage time

2.1 The operation temperature and RH are : $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH60%.

2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be kept in a damp proof box with desiccant.

Considering the tape life, we suggest our customers to use our products within a year(from production date).

2.3 If opened more than one week in an atmosphere $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH60% , they should be treated at $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 15hrs.

2.4 When you discover that the desiccant in the package turns into pink (normal = blue) , you should treat them in the same conditions as 2.3.

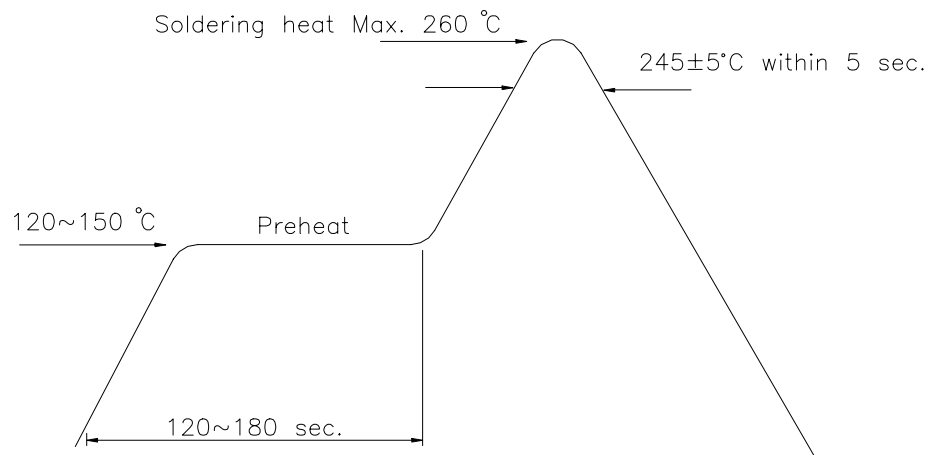
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■ **Soldering heat reliability (DIP) :**

Please refer to the following figure :

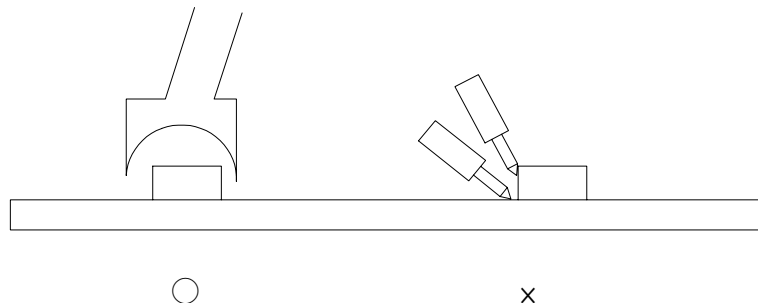


■ **Soldering Iron :**

Basic spec is ≤ 5 sec. when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec.). Power dissipation of iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under 230 °C .

■ **Rework :**

1. Customer must finish rework within 5 sec. under 260°C .
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.





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■ Reflow Temp./Time :

