

## 1.3 mm Height Subminiature , Axial Flat Top LEDs

 PART NO. : 28-21VGC/TR8

### Features :

- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- IC compatible.
- EIA std package.
- Mono-color type.

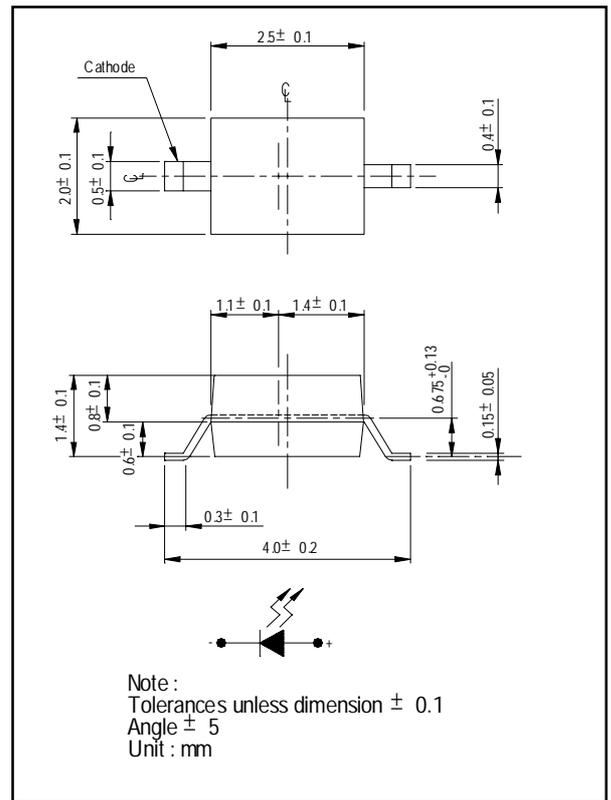
### Descriptions :

- The 28-21 SMD taping is much smaller than lead frame type components. Thus enable smaller board size. Higher packing density. Reduced storage space and finally smaller equipment to be obtained.
- Besides, light weight makes them ideal for miniature applications, etc.
- Furthermore by automation assembly machines the accuracy is anticipated.

### Applications :

- Small indicator for outdoor applications.
- Flat backlight for LCD, switches and symbols.
- Indicator and backlight in office equipment.
- Indicator and backlight for battery driven equipment.
- Indicator and backlight for audio and video equipment.
- Automotive : backlighting in dashboards and switches.
- Telecommunication : indicator and backlighting in telephone and fax.
- General use.

### Package Dimensions :



PART NO.	Chip		Lens Color
	Material	Emitted Color	
28-21VGC/TR8	GaP	Green	Water Clear

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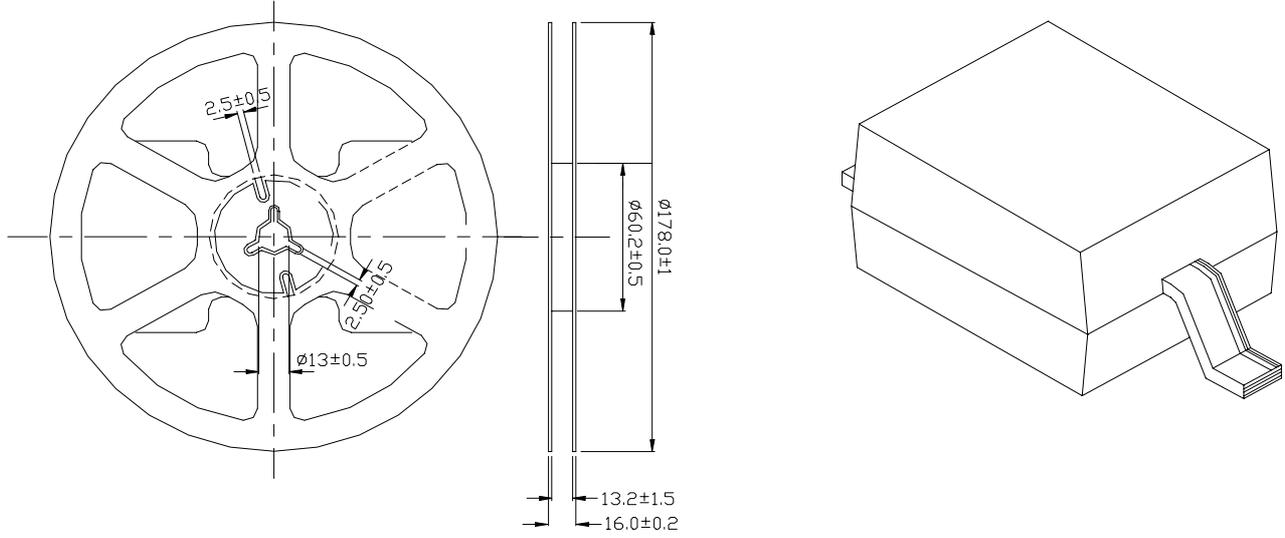
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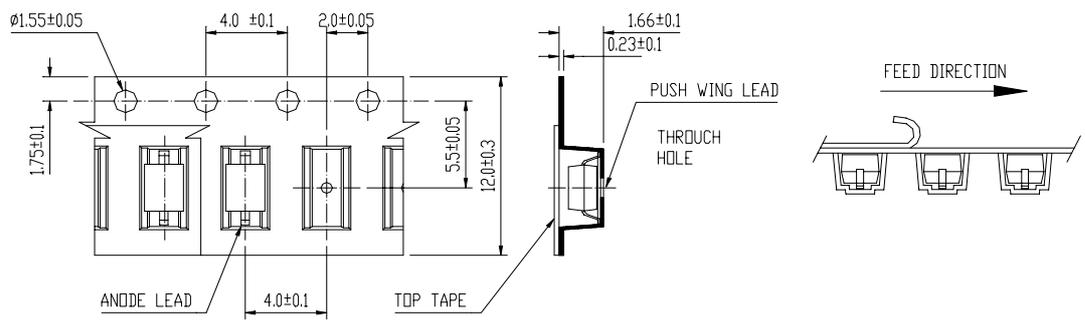
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### ■ Package Dimensions



### ■ Loaded Quantity Per Reel 2000 Pcs/Reel



1. All dimensions are in millimeters.
2. Lead spacing is measured where the lead emerge from the package
3. Protruded resin under flange 1.5 mm (0.59") max.



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DEVICE NUMBER : DLE-282-028REV : 1.2

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### ■ Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit
Reverse Voltage	VR	5	V
Forward Current	IF	30	mA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Soldering Temperature	Tsol	260 ± 5 for 5 sec	°C
Power Dissipation	Pd	100	mW
Peak Forward Current(Duty 1/10 @ 1KHz)	IF(Peak)	160	mA

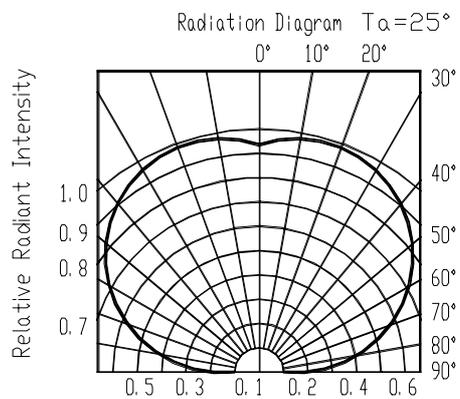
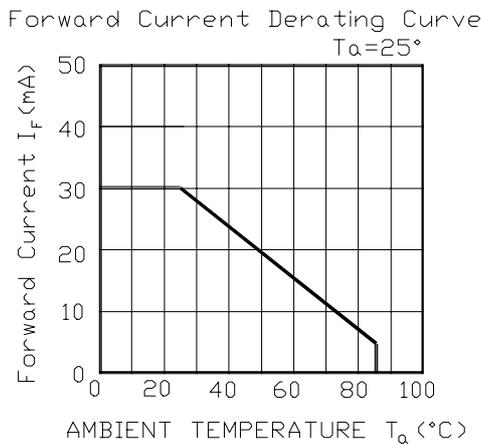
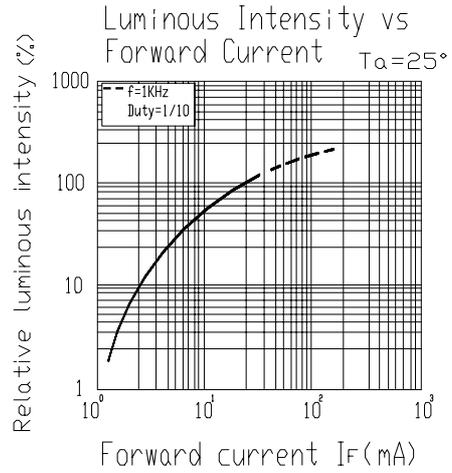
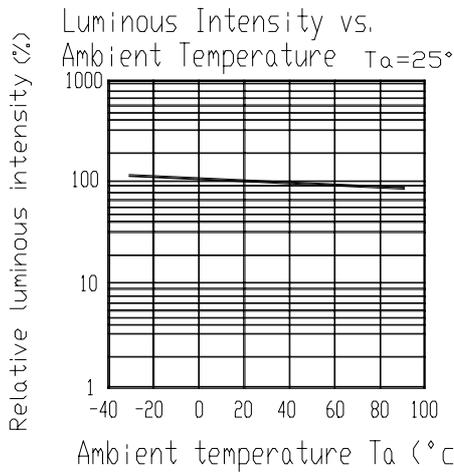
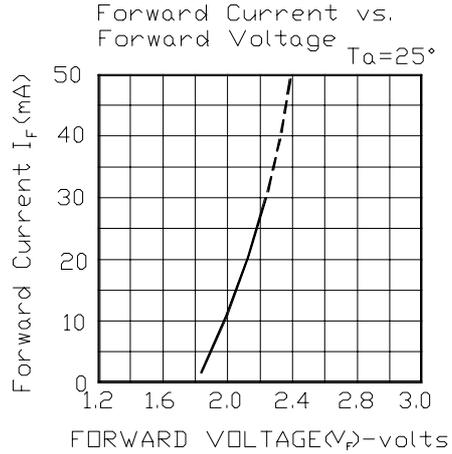
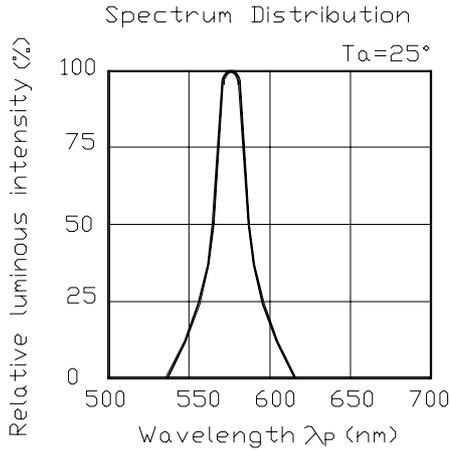
### ■ Electronic Optical Characteristics :

Parameter	Symbol	MIN.	TYP.	MAX.	Unit	Condition
Luminous Intensity	Iv	1.0	5.5	----	mcd	IF = 20 mA
Viewing Angle	2θ 1/2	----	150	----	deg	
Peak Wavelength	λp	----	570	----	nm	
Dominant Wavelength	λd	----	571	----	nm	
Spectrum Radiation Bandwidth	Δλ	----	30	----	nm	
Forward Voltage	VF	1.7	2.1	2.4	V	IF = 20 mA
Reverse Current	IR	----	----	10	μA	VR=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 30 min. § 5 min. L : -55°C 30 min.	50 CYCLES	76 PCS	0/1
3	Thermal Shock	H : +100°C 5 min. § 10 sec. L : -10°C 30 min.	50 CYCLES	76 PCS	0/1
4	High Temperature Storage	TEMP. : +100°C	1000 HRS	76 PCS	0/1
5	Low Temperature Storage	TEMP. : -55°C	1000 HRS	76 PCS	0/1
6	DC Operating Life	IF = 20 mA	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85°C / 85% R H	1000 HRS	76 PCS	0/1

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