



## Technical Data Sheet

### Bi-Color (Multi-Color) Top LEDs

#### 67-22VRVGC/TR8

#### Features

- P-LCC-4 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Inter reflector.
- Low (2mA) current operation.
- Wide viewing angle.
- Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Pb-free.



#### Descriptions

- The 67-22 series is available in soft orange, green, blue and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector, this feature makes the SMT TOP LED ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

#### Applications

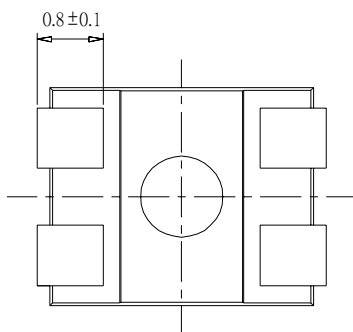
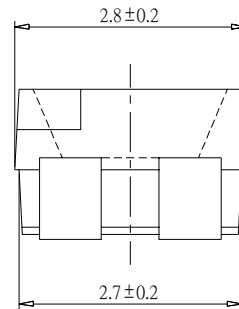
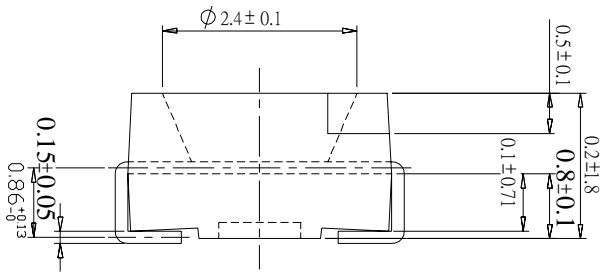
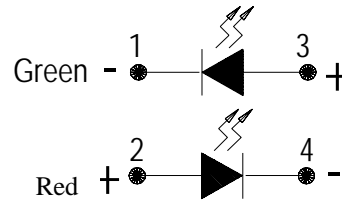
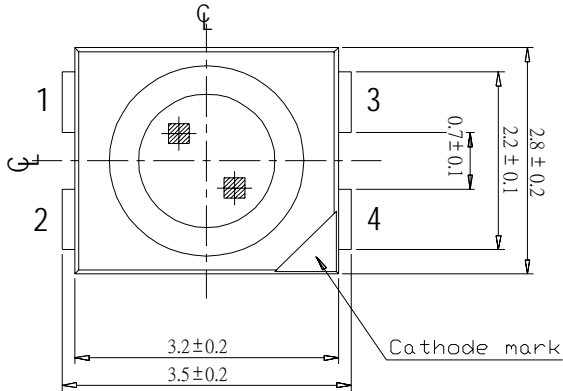
- Automotive: backlight in dashboards and switches.
- Telecommunication: indicator and backlight in telephone and fax.
- Indicator and backlight for audio and video equipment.
- Indicator and backlight in office and family equipment.
- Flat backlight for LCD's, switches and symbols.
- Light pipe application.
- General use.

#### Device Selection Guide

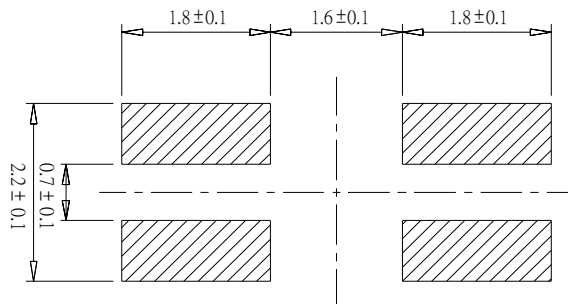
Chip			Lens Color
Material	Emitted Color		
AlGaInP	GaAsP/GaP	Hi-Eff Red	Water Clear
GaP	GaP	Green	

**67-22VRVGC/TR8**

**Package Dimensions**



**For reflow soldering (propose)**



**Note:** Tolerances Unless Dimension  $\pm 0.1\text{mm}$  , Unit = mm

**67-22VRVGC/TR8**
**Absolute Maximum Ratings Ta=25°C**

Parameter	Symbol	Rating	Unit	
Operating Temperature	Topr	-40 ~ +85	°C	
Storage Temperature	Tstg	-40~ +100	°C	
Soldering Temperature	Tsol	260 (for 5 second)	°C	
Electrostatic Discharge	ESD	2000	V	
Reverse Voltage	V <sub>R</sub>	5	V	
Power Dissipation	Pd	VR	100	mW
		VG	100	
Forward Current	I <sub>F</sub>	VR	30	mA
		VG	30	
Peak Forward Current (Duty 1/10 @ 1KHZ)	I <sub>FP</sub>	VR	60	mA
		VG	60	

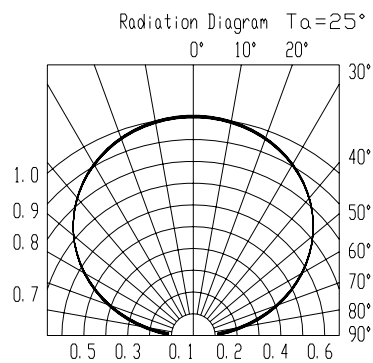
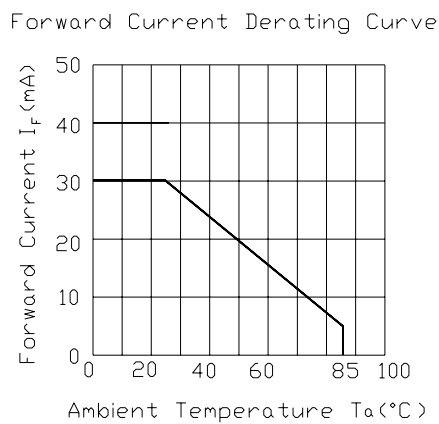
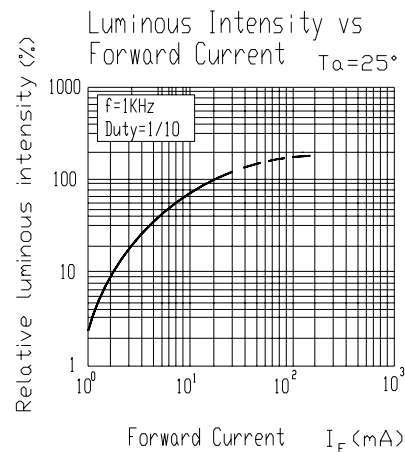
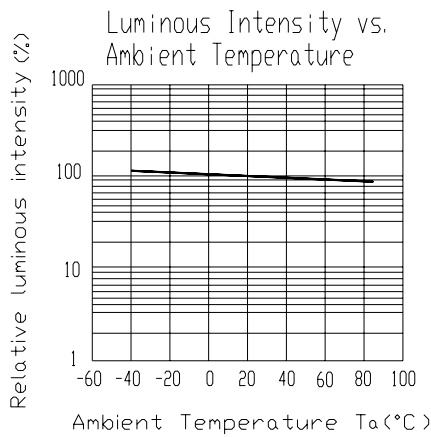
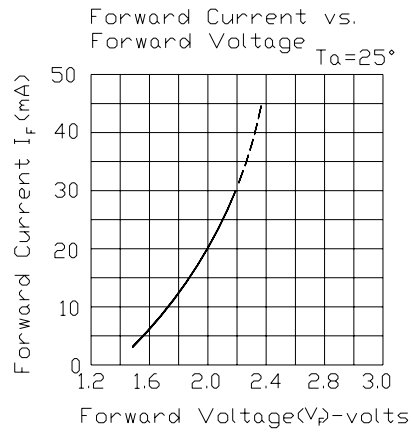
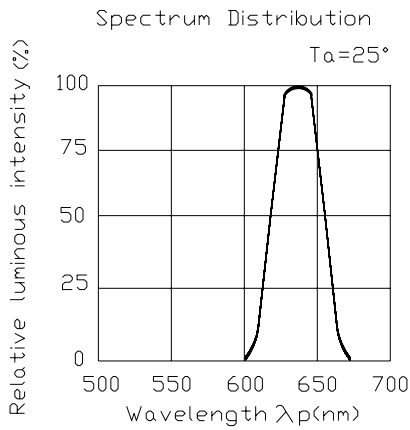
**Electro-Optical Characteristics Ta=25°C**

Parameter	*Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	VR	6	10	-----	mcd I <sub>F</sub> =20mA
		VG	8	15	-----	
Peak Wavelength	λ <sub>p</sub>	VR	-----	640	-----	nm I <sub>F</sub> =20mA
		VG	-----	570	-----	
Dominant Wavelength	λ <sub>d</sub>	VR	-----	605	-----	nm I <sub>F</sub> =20mA
		VG	-----	571	-----	
Spectrum Radiation Bandwidth	Δλ	VR	-----	45	-----	nm I <sub>F</sub> =20mA
		VG	-----	30	-----	
Forward Voltage	V <sub>F</sub>	VR	1.7	2.0	2.4	V I <sub>F</sub> =20mA
		VG	1.7	2.1	2.4	
Viewing Angle	2θ 1/2	-----	130	-----	deg	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =5V

**67-22VRVGC/TR8**

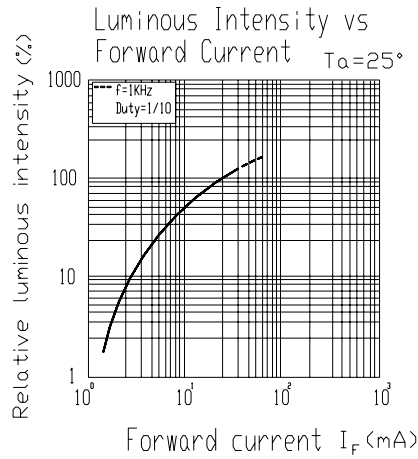
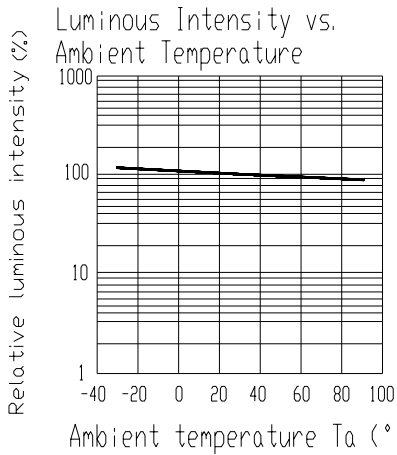
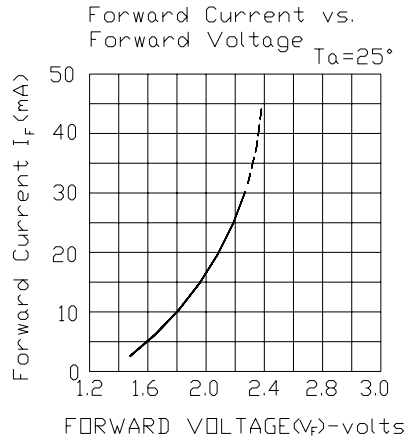
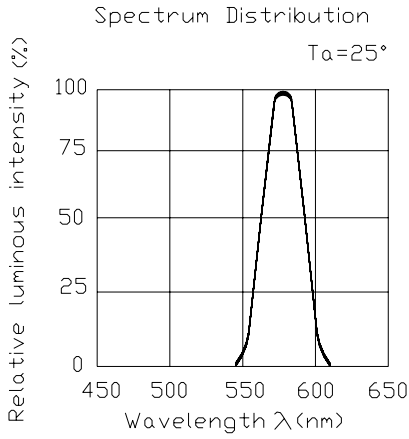
**Typical Electro-Optical Characteristics Curves**

VR

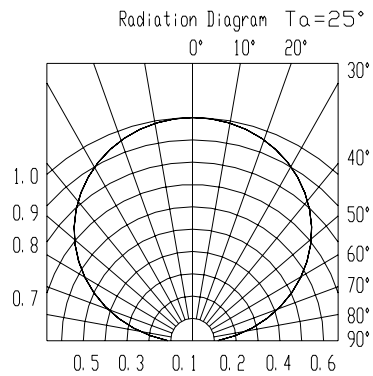
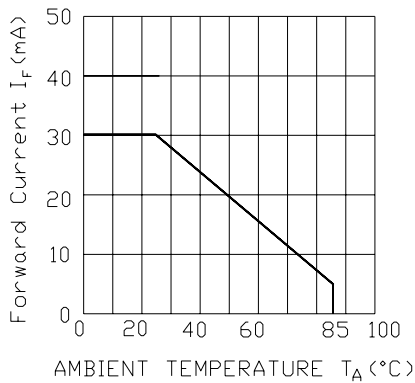


**Typical Electro-Optical Characteristics Curves**

VG



Forward Current Derating Curve

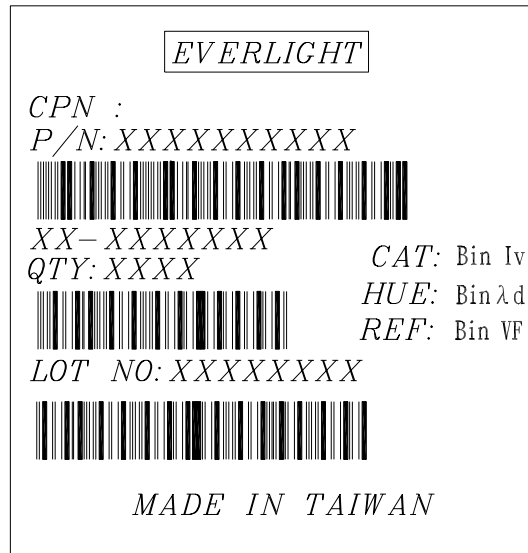


**Label explanation**

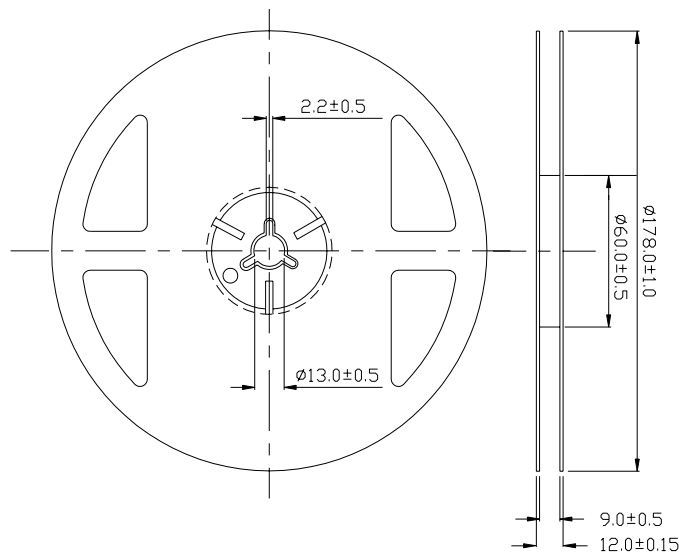
**CAT: Luminous Intensity Rank**

**HUE: Dom. Wavelength Rank**

**REF: Forward Voltage Rank**

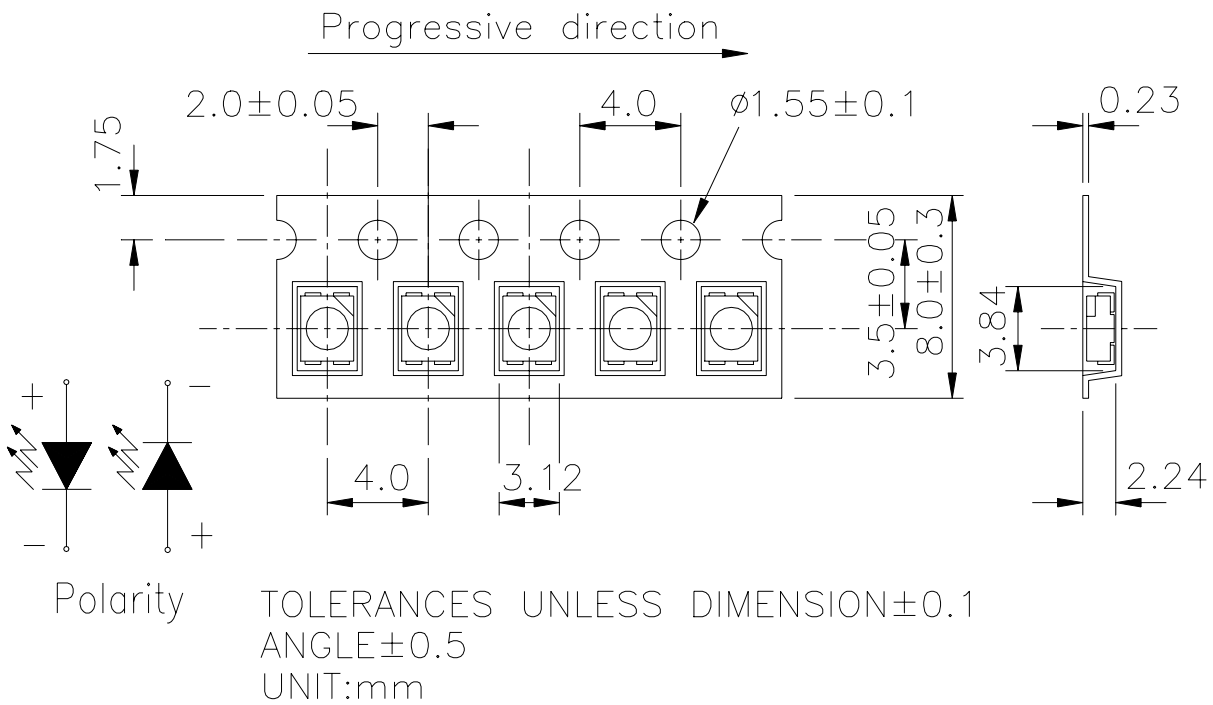


**Reel Dimensions**

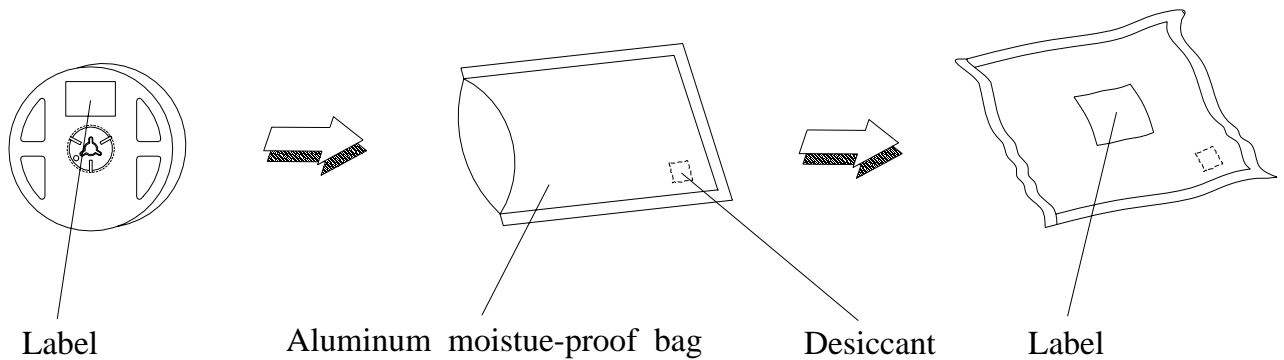


**Note:** Tolerances Unless Dimension  $\pm 0.1$ mm, Unit = mm

**Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel**



**Moisture Resistant Packaging**



**67-22VRVGC/TR8**

**Reliability Test Items And Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C ±5°C Min. 5sec.	6 min	22 PCS.	0/1
2	Temperature Cycle	H : +100°C 15min § 5 min L : -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100°C 5min § 10 sec L : -10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1



**Precautions For Use**

## 1. Over-current-proof

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

## 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

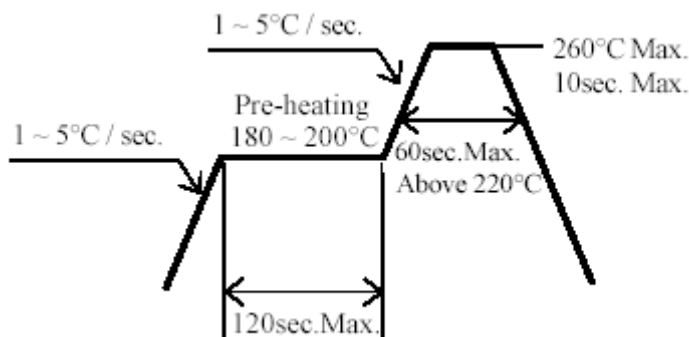
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

## 3. Soldering Condition

## 3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

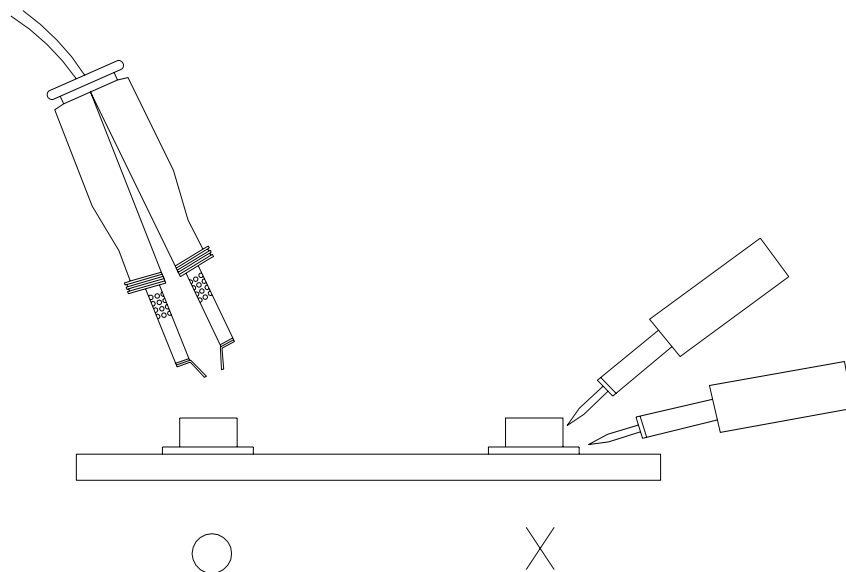
3.4 After soldering, do not warp the circuit board.

## 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

**67-22VRVGC/TR8****5.Repairing**

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



**EVERLIGHT ELECTRONICS CO., LTD.**  
Office: No 25, Lane 76, Sec 3, Chung Yang Rd,  
Tucheng, Taipei 236, Taiwan, R.O.C

Tel: 886-2-2267-2000, 2267-9936  
Fax: 886-2267-6244, 2267-6189, 2267-6306  
<http://www.everlight.com>