

Technical Data Sheet

Side View LEDs (Height 1.4mm)

50-215UMC/3537771/TR8(IVO)

Features

- Side view white LED
- White SMT package
- Lead frame package with individual 2 pins
- Wide viewing angle
- Soldering methods: IR reflow soldering
- Pb-free
- The product itself will remain within RoHS compliant version.



Descriptions

- Due to the package design, 50-215 has wide viewing angle, low power consumption and white LEDs are devices that are materialized by combing blue chips and special phosphor. This feature makes the LED ideal for light guide application.

Applications

- LCD Back Light
- Mobile Phones
- Indicators
- Illuminations
- Switch Lights

Device Selection Guide

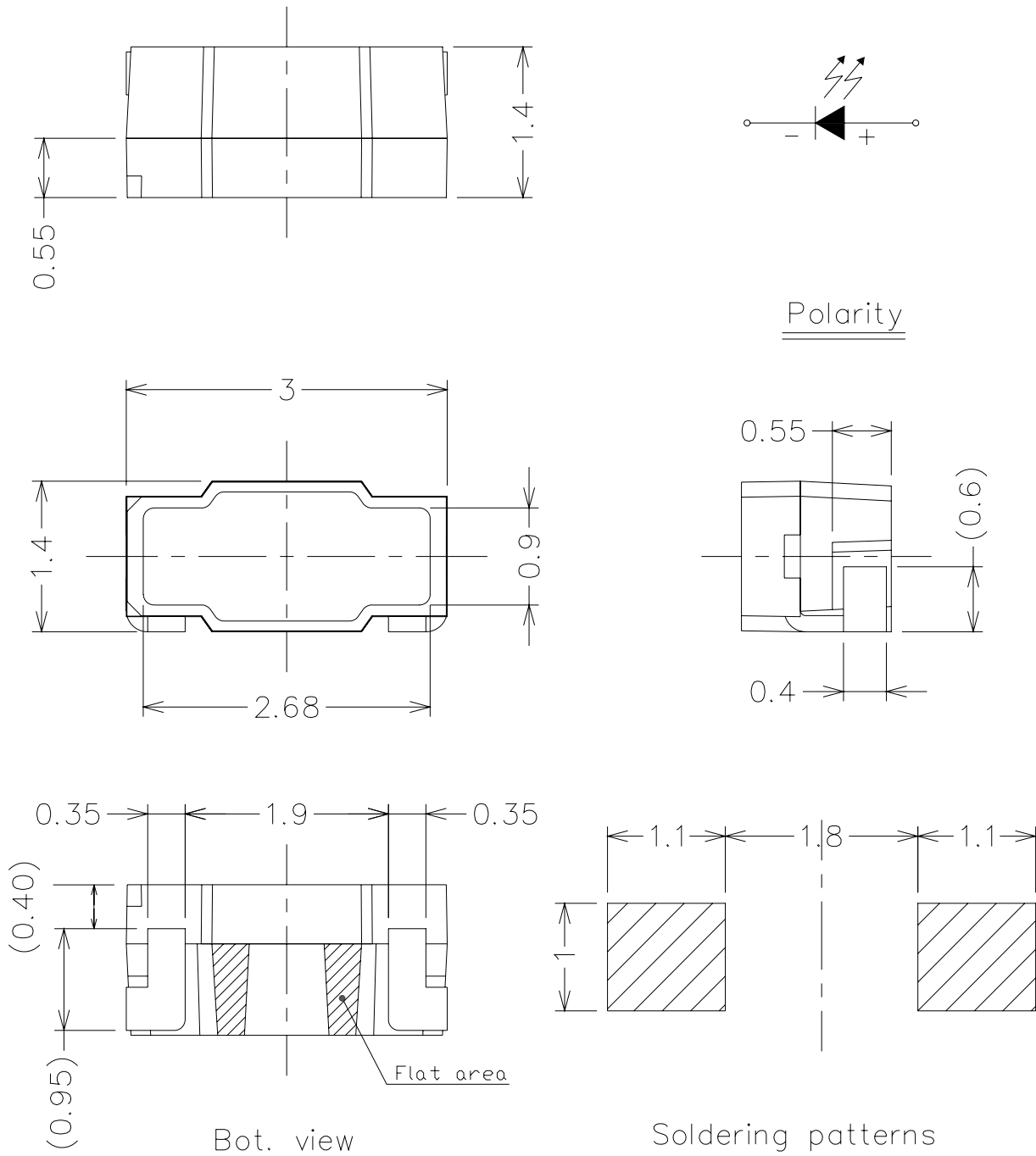
Chip	Emitted Color	Resin Color
Material		
InGaN	Pure White	Water Clear

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Package Outline Dimensions



Note: The tolerances unless dimensions are $\pm 0.1\text{mm}$.

**Technical Data Sheet****Side View LEDs (Height 1.4mm)****50-215UMC/3537771/TR8(IVO)****Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
DC Forward Current	I _F	30	mA
Pulse Forward Current (Duty 1/10 @1KHz)	I _{FP}	100	mA
Power Dissipation	P _d	110	mW
Electrostatic Discharge(HBM) ^{*1}	ESD	2000	V
Operating Temperature	T _{opr}	-30 ~ +100	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Soldering Temperature	T _{sol}	Reflow Soldering: 260°C for 10sec. Hand Soldering: 350°C for 3sec.	

Note^{*1}:

The products are sensitive to static electricity and must be carefully taken when handling products.

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _V	1850	---	2000	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =20mA
Forward Voltage	V _F	2.95	---	3.35	V	I _F =20mA

Notes:

1. Tolerance of Luminous Intensity: ± 11%
2. Tolerance of Forward Voltage: ± 0.05V

**Technical Data Sheet****Side View LEDs (Height 1.4mm)****50-215UMC/3537771/TR8(IVO)****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Condition
35	1850	1900	mcd	$I_F=20\text{mA}$
36	1900	1950		
37	1950	2000		

Note: Tolerance of Luminous Intensity: $\pm 11\%$

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
6-1	2.95	3.05	V	$I_F=20\text{mA}$
6-2	3.05	3.15		
7-1	3.15	3.25		
7-2	3.25	3.35		

Note: Tolerance of Forward Voltage: $\pm 0.05\text{V}$

**Technical Data Sheet****Side View LEDs (Height 1.4mm)****50-215UMC/3537771/TR8(IVO)****Bin Range of Chromaticity Coordinates****(I_F=20mA)**

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
B5-3-1	0.2938	0.2808	B5-4-1	0.3019	0.2900
	0.2917	0.2857		0.3003	0.2950
	0.2959	0.2903		0.3046	0.2998
	0.2978	0.2854		0.3059	0.2946
B5-3-2	0.2978	0.2854	B5-4-2	0.3059	0.2946
	0.2959	0.2903		0.3046	0.2998
	0.3003	0.2950		0.3090	0.3045
	0.3019	0.2900		0.3100	0.2993
B5-3-3	0.2960	0.2760	B5-4-3	0.3035	0.2850
	0.2938	0.2808		0.3019	0.2900
	0.2978	0.2854		0.3059	0.2946
	0.2998	0.2805		0.3073	0.2895
B5-3-4	0.2998	0.2805	B5-4-4	0.3073	0.2895
	0.2978	0.2854		0.3059	0.2946
	0.3019	0.2900		0.3100	0.2993
	0.3035	0.2850		0.3110	0.2940

Note: Tolerance of Chromaticity Coordinates: ± 0.01

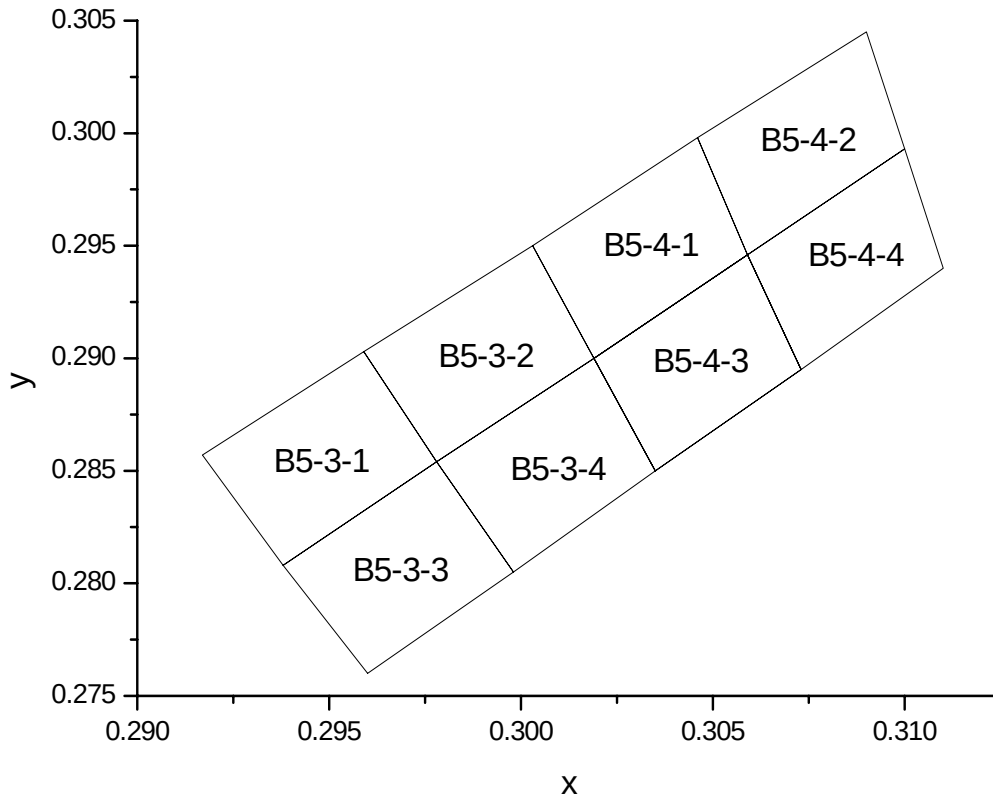


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The C.I.E. 1931 Chromaticity Diagram

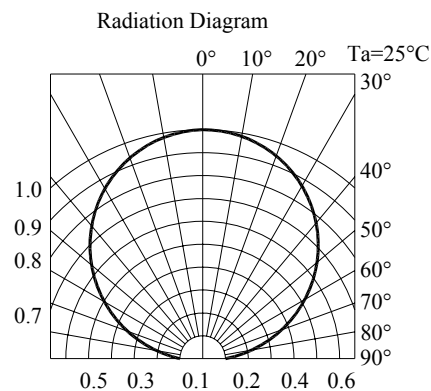
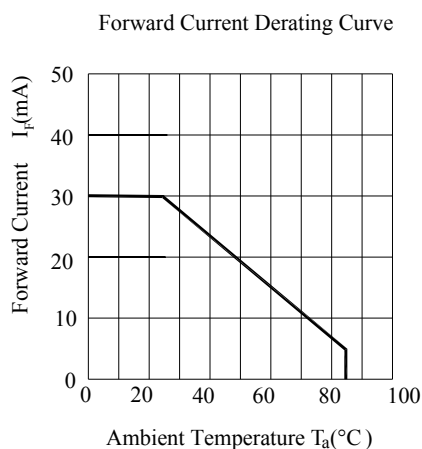
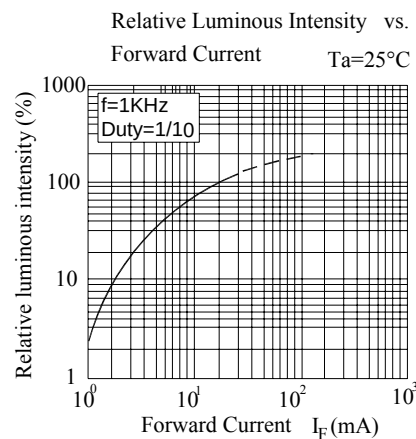
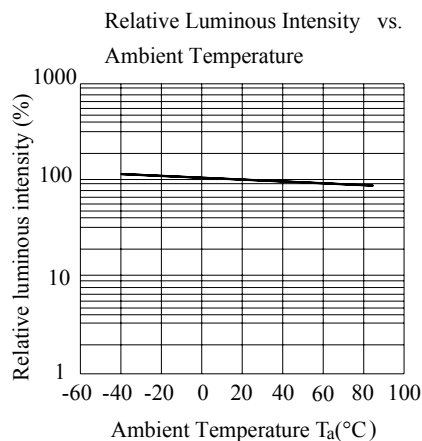
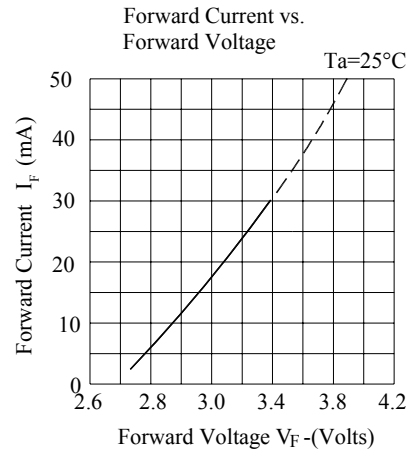
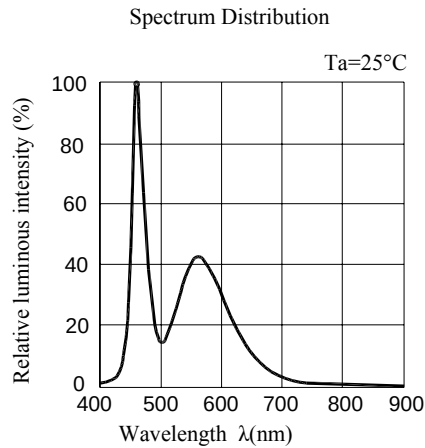


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Typical Electro-Optical Characteristics Curves





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Label Explanation

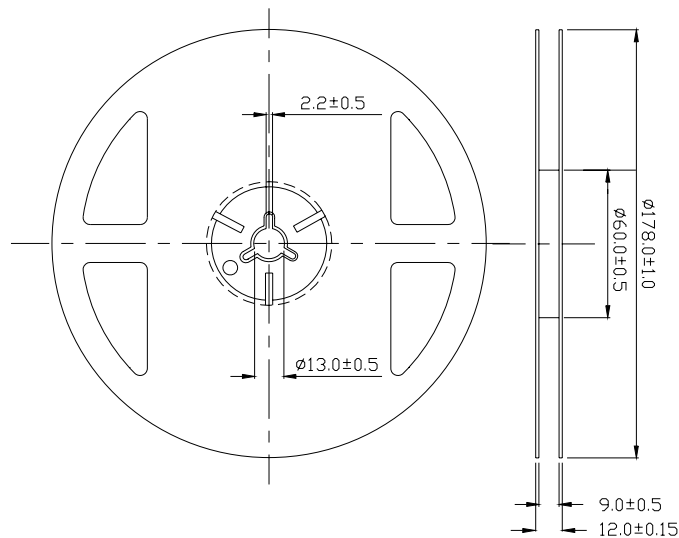
CAT: Luminous Intensity Rank

HUE: Chromaticity Coordinates

REF: Forward Voltage Rank



Reel Dimensions



Note: The tolerances unless dimensions are $\pm 0.1\text{mm}$.

50-215UMC/3537771/TR8(IVO)

Technical drawing of a PCB layout showing dimensions and component footprints. The drawing includes a top view and a side view.

Top View Dimensions:

- Overall width: 8.00 ± 0.10
- Distance from left edge to first component footprint: 3.50 ± 0.05
- Distance between component footprints: 4.00 ± 0.10
- Distance between component footprints: 2.00 ± 0.05
- Distance between component footprints: 4.00 ± 0.10
- Distance between component footprints: 1.50 ± 0.05
- Distance from last component footprint to right edge: 1.50 ± 0.05
- Distance from center of last component footprint to right edge: $1.50^{+0.10}_{-0.00}$

Side View Dimensions:

- Overall height: 3.20 ± 0.05
- Distance from bottom edge to top of component footprint: 0.23 ± 0.05
- Distance from bottom edge to top of component footprint: 1.48 ± 0.05

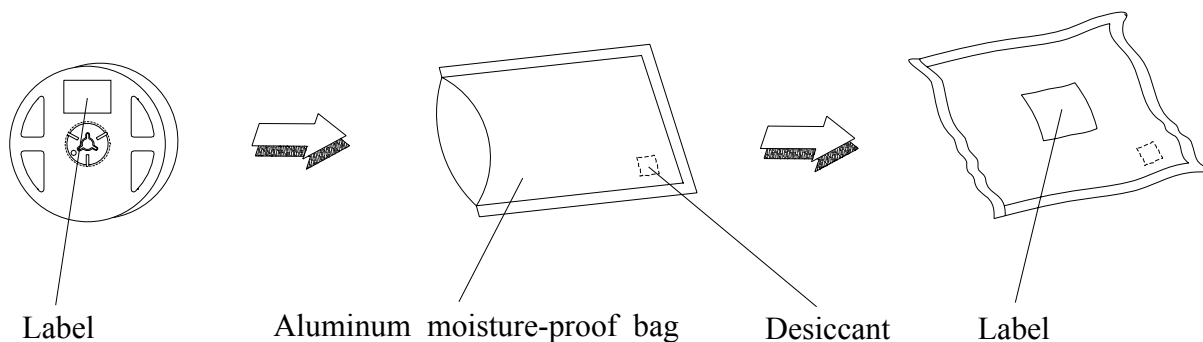
Component Footprints:

- Seven circular footprints are shown, representing components.
- Seven rectangular footprints are shown, representing components.

Legend:

- Symbol 1: $\square$ (Square)
- Symbol 2: $\triangle$ (Triangle)
- Symbol 3: $\square$ (Square)
- Symbol 4: $\square$ (Square)
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- Symbol 100: $\square$ (Square)

Moisture Resistant Packaging



**Technical Data Sheet****Side View LEDs (Height 1.4mm)****50-215UMC/3537771/TR8(IVO)****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 Qty'	Ac/Re
1	Reflow Soldering	Temp.: 260°C±5°C Max. 10 sec.	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±5°C	1000 hrs.	22 pcs.	0/1
5	Low Temperature Storage	Temp.: -40°C±5°C	1000 hrs.	22 pcs.	0/1
6	DC Operating Life	I _F = 20 mA / 25°C	1000 hrs.	22 pcs.	0/1
7	High Temperature / High Humidity	85°C±5°C / 85%RH	1000 hrs.	22 pcs.	0/1

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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 Don't 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.

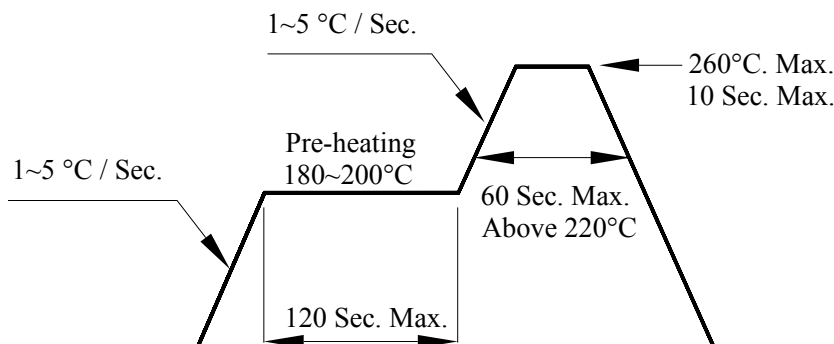
2.3 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

2.4 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.

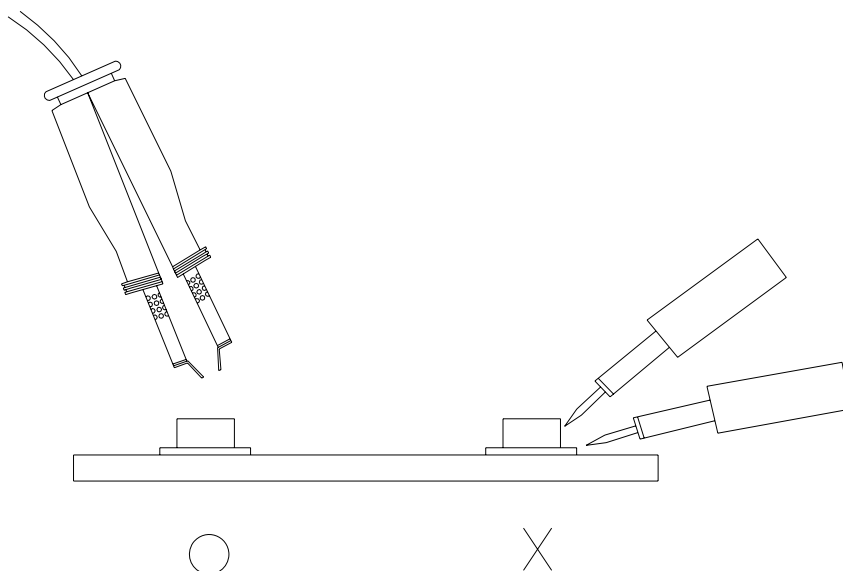
3.4 After soldering, do not warp the circuit board.

Technical Data Sheet**Side View LEDs (Height 1.4mm)****50-215UMC/3537771/TR8(IVO)****4. Soldering Iron**

Each terminal is to go to the tip of soldering iron temperature less than 350°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.

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>