

### Power Top LEDs 67-31E-YDC-E9CACBG3H-2T8-AM



#### Features

- P-LCC-3 package.
- Colorless clear resin.
- Wide viewing angle 120°.
- Inner reflector and white package.
- Brightness: 2800 to 4500 mcd at 70mA.
- Qualification according to AEC-Q101 rev C.
- Automotive reflow profile (IR reflow or wave soldering)

#### Applications

- Automotive backlighting : Indicator and exterior automotive lighting (Dashboard backlighting, turn signal lamps, sidemakers, symbol and signal luminaire...etc.
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Optical indicator.
- General applications.

## Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AllnGaP	Brilliant Yellow	Water Clear

## Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	$V_R$	10	V
Forward Current	$I_F$	70	mA
Peak Forward Current (Duty 1/10 @1KHz)	$I_{FP}$	100	mA
Power Dissipation	$P_d$	120	mW
Junction Temperature	$T_j$	125	
Operating Temperature	$T_{opr}$	-40 ~ +100	
Storage Temperature	$T_{stg}$	-40 ~ +110	
Thermal resistance	$R_{th\ J-A}$	250	K/W
	$R_{th\ J-S}$	150	K/W
ESD (Classification acc. AEC Q101)	$ESD_{HBM}$	2000	V
	$ESD_{MM}$	200	V
Soldering Temperature	$T_{sol}$	Reflow Soldering : 260 °C for 30 sec. Hand Soldering : 350 °C for 3 sec.	

## Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	$I_v$	2800	---	4500	mcd	$I_F = 70mA$
Viewing Angle	$2\theta_{1/2}$	---	120	---	deg	$I_F = 70mA$
Peak Wavelength	$\lambda_p$	---	591	---	nm	$I_F = 70mA$
Dominant Wavelength	$\lambda_d$	586	---	595	nm	$I_F = 70mA$
Spectrum Radiation Bandwidth	$\Delta\lambda$	---	20	---	nm	$I_F = 70mA$
Forward Voltage	$V_F$	1.8	---	2.8	V	$I_F = 70mA$
Reverse Current	$I_R$	---	---	10	$\mu A$	$V_R = 12V$

Note:

1. Tolerance of Luminous Intensity:  $\pm 11\%$
2. Tolerance of Dominant Wavelength:  $\pm 1nm$
3. Tolerance of Forward Voltage:  $\pm 0.1V$

### Bin Range of Luminous Intensity

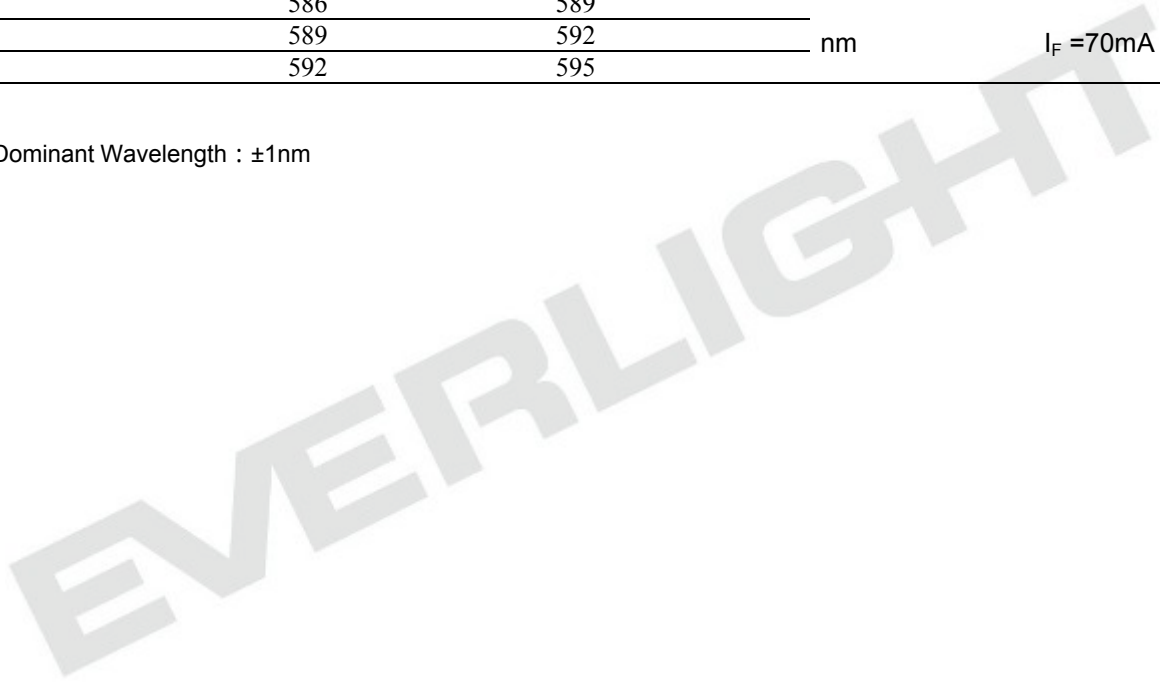
Bin Code	Min.	Max.	Unit	Condition
CA	2800	3550	mcd	I <sub>F</sub> =70mA
CB	3550	4500		

Note:  
Tolerance of Luminous Intensity: ±11%

### Bin Range of Dominant Wavelengths

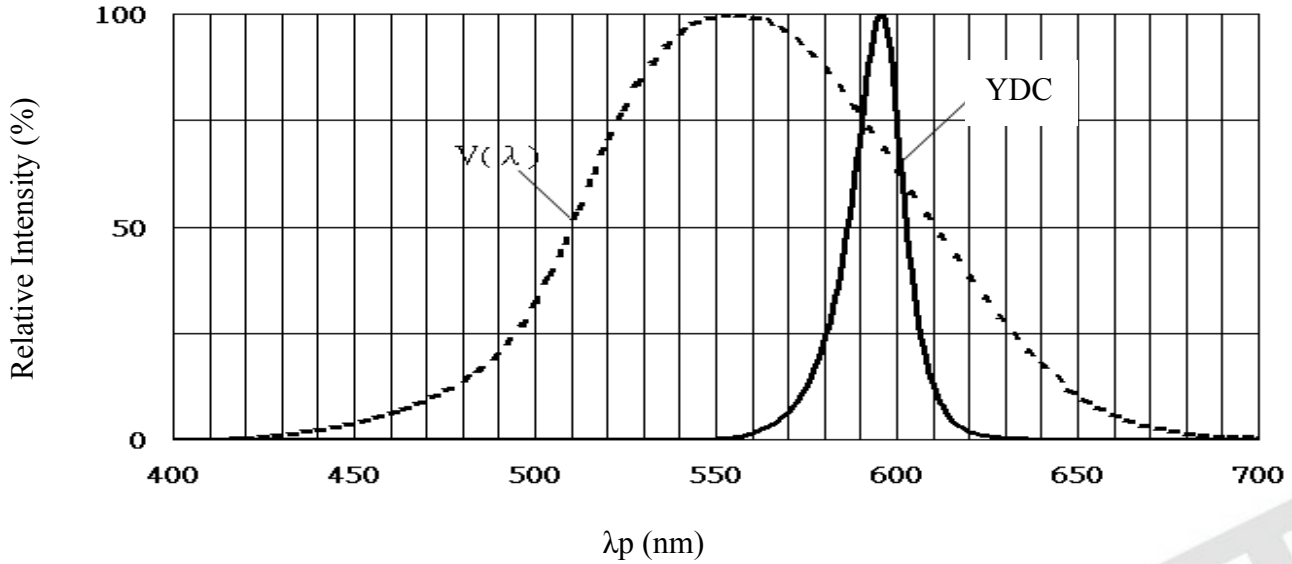
Bin Code	Min.	Max.	Unit	Condition
A6	586	589	nm	I <sub>F</sub> =70mA
A7	589	592		
A8	592	595		

Note:  
Tolerance of Dominant Wavelength : ±1nm



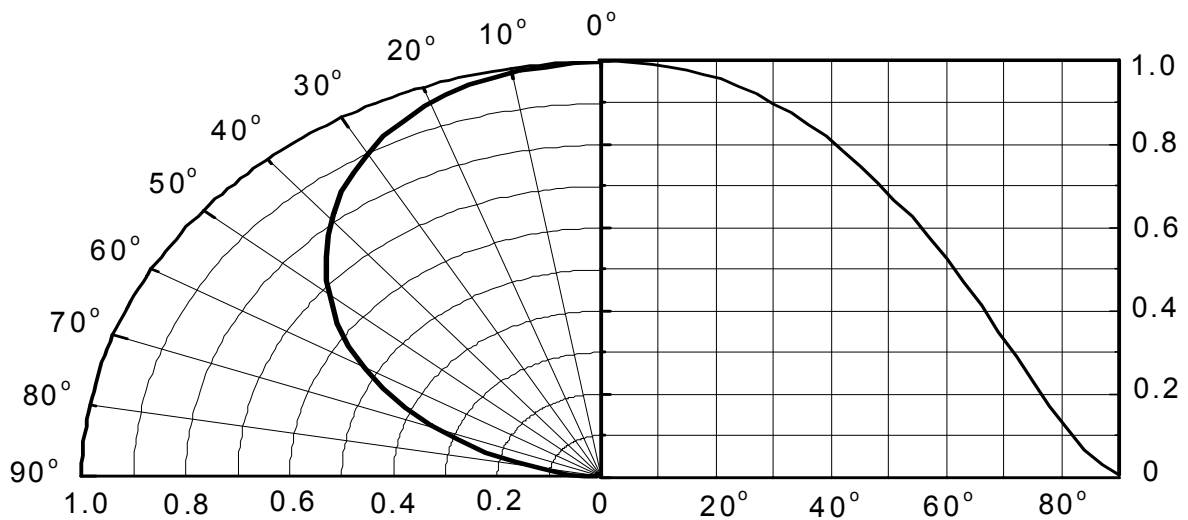
## Typical Electro-Optical Characteristics Curves

### Typical Curve of Spectral Distribution

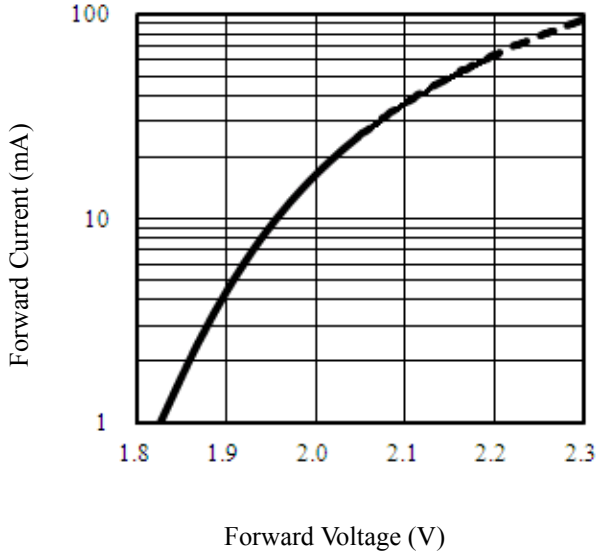


Note:  $V(\lambda)$ =Standard eye response curve

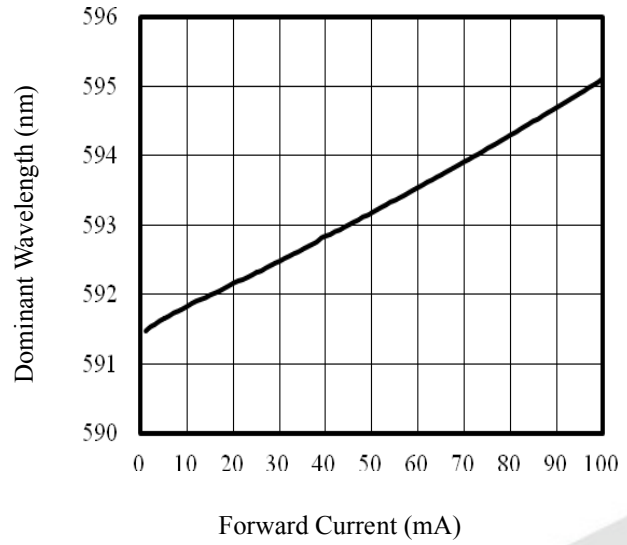
### Diagram Characteristics of Radiation



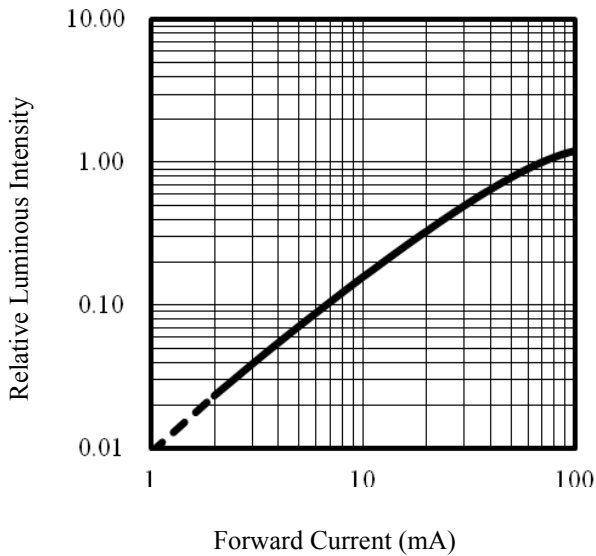
**Forward Current vs. Forward Voltage**  
 (Ta=25 °C)



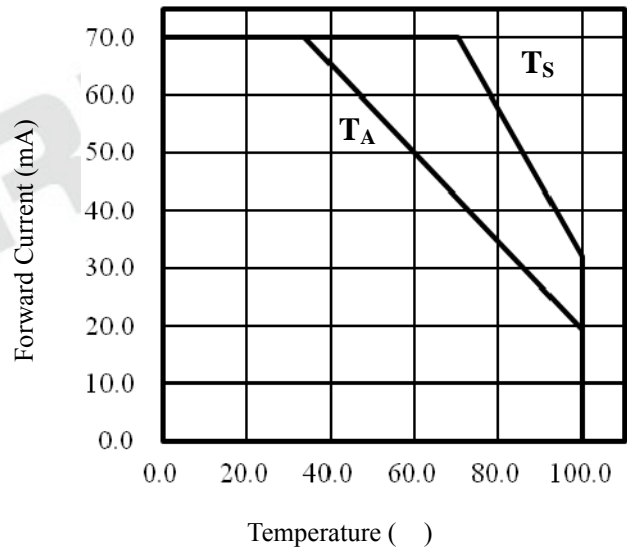
**Dominant Wavelength vs. Forward Current**  
 (Ta=25 °C)



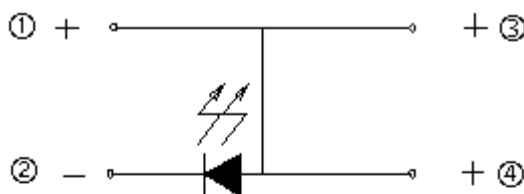
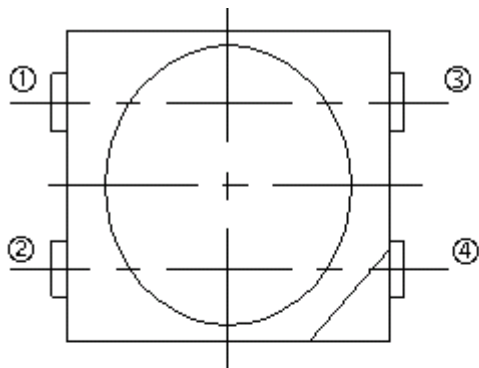
**Relative Luminous Intensity vs. Forward Current**  
 (Ta=25 °C)



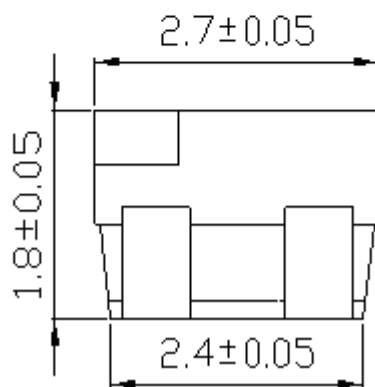
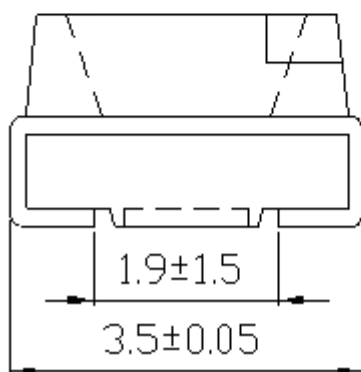
**Forward current vs. Ambient and Solder Temperature**



### Package Dimension



Polarity



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

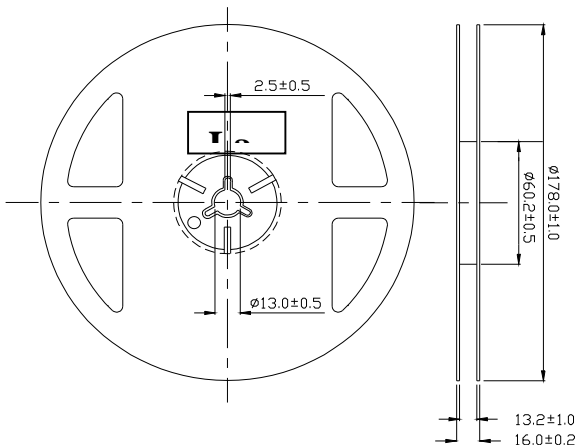
**Moisture Resistant Packing Materials**

**Label Explanation**

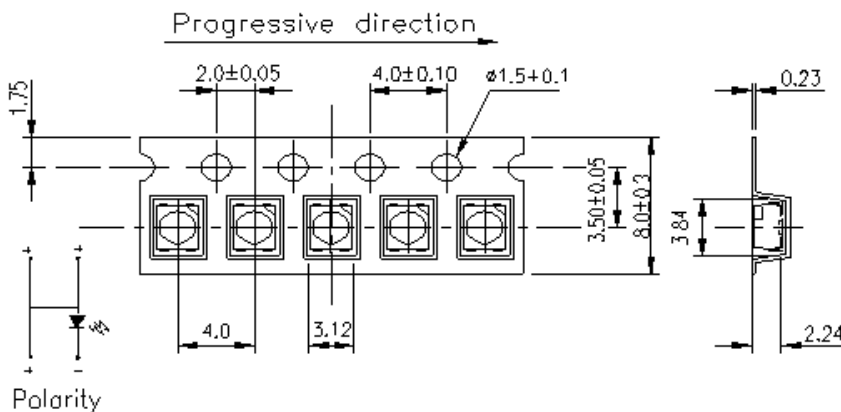


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

**Reel Dimensions**

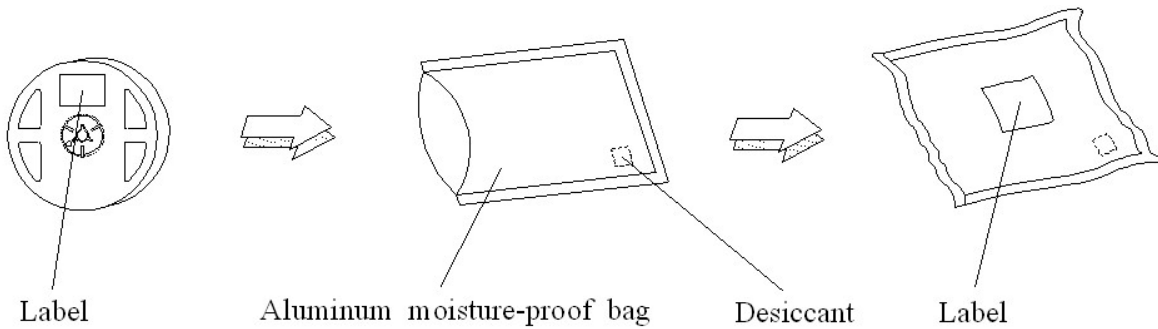


**Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel**



Note: Tolerances unless mentioned ±0.1mm. Unit = mm

**Moisture Resistant Packing Process**

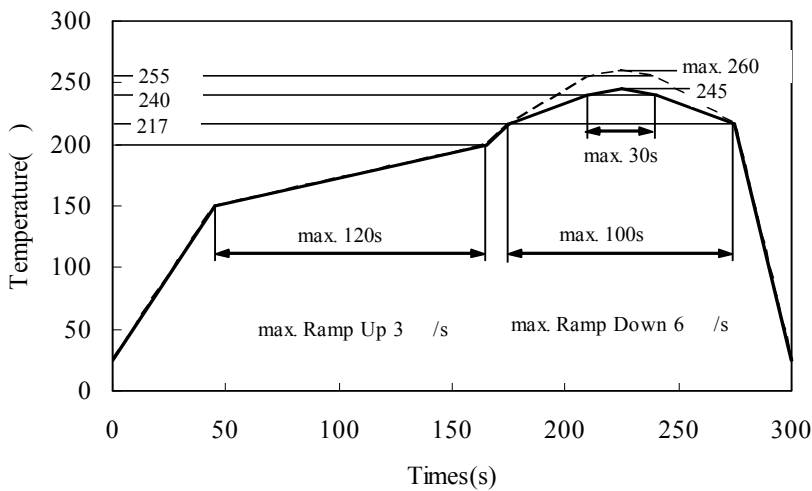


Note: Tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit = mm

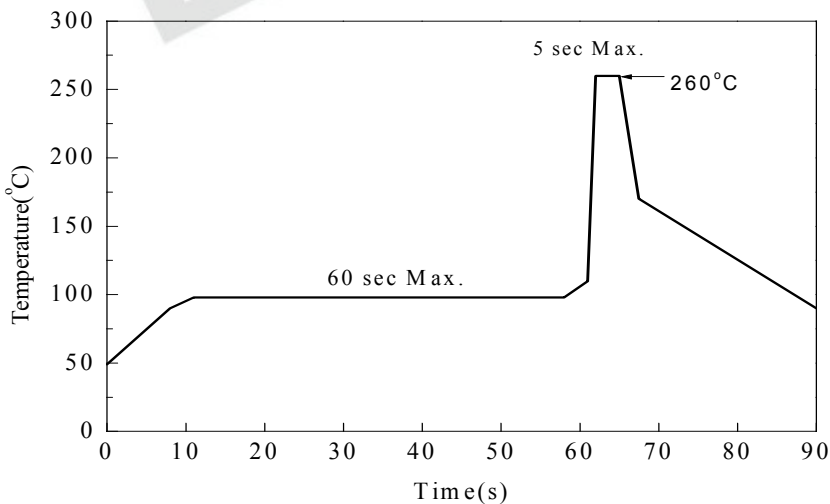
**Precautions for Use**

**1. Soldering Condition (Reference: IPC/JEDEC J-STD-020D)**

**a. IR reflow**

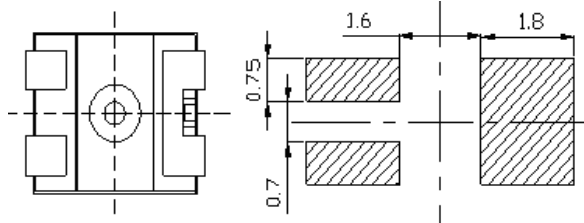


**b. Wave soldering reflow**





(B) Recommend soldering pad



Note: Tolerances unless mentioned  $\pm 0.1$ mm. Unit = mm

## 2. Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations. Otherwise damage could occur.

## 3. Storage

3.1 Moisture proof bag should only be opened immediately prior to usage.

3.2 Environment should be less than 30 °C and 60% RH when moisture proof bag is opened.

3.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

3.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg for 24 hours.

## 4. Iron Soldering

Hand soldering is not recommended for regular production. These guidelines are for rework only. Soldering iron tip should contact each terminal no more than 3 sec at 350 °C, using soldering iron with nominal power less than 25W. Allow min. 2 sec. between soldering intervals.

## 5. Usage

Do not exceed the values given in this specification.