



LEDTECH ELECTRONICS CORP.

(Zone 22) North Guiyuan Rd., West Jixi Rd.,  
Duanzhou District, Zhaoqing City, Guangdong  
Province, China

TEL:86-758-2877017,2875541,2870651,2877464

FAX:86-758-2878014

[Http://www.ledtech.com.tw](http://www.ledtech.com.tw)

# SPECIFICATION

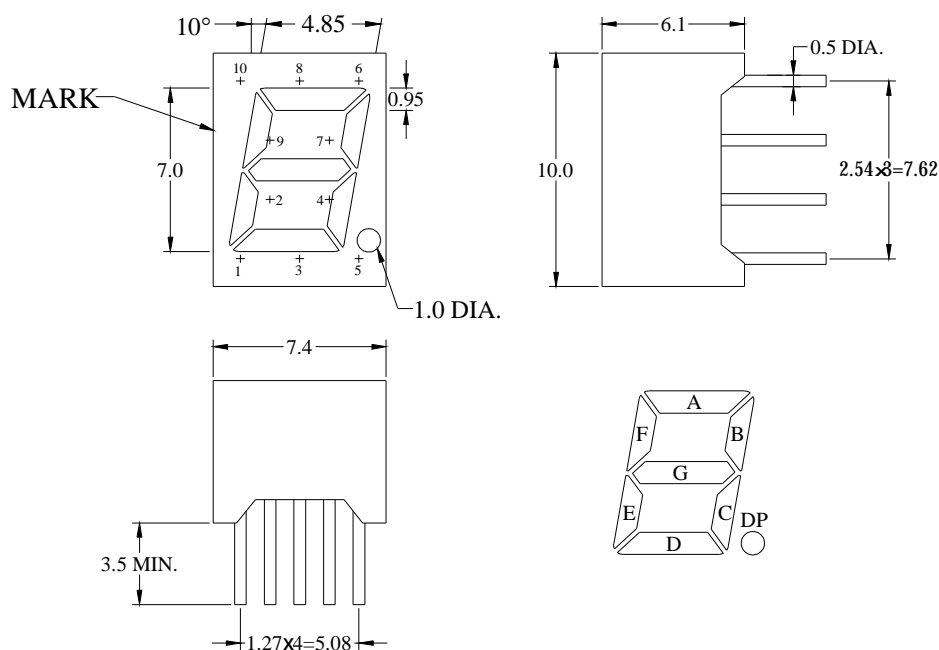
*PART NO. : LA(C)2811-11-UR93 EWRN*  
*0.28"(7.0mm)SINGLE DIGIT DISPLAY*



Approved by	Checked by	Prepared by
<i>Yue</i>	<i>Lian</i>	<i>Liang Dai</i>

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## Dimensions

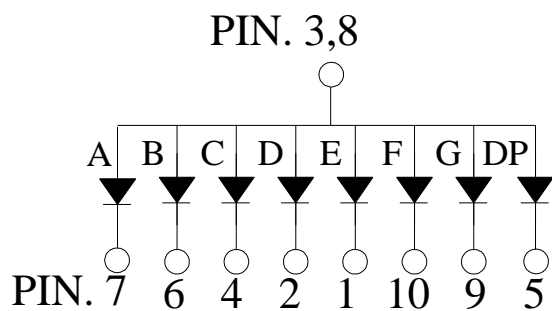


### Notes:

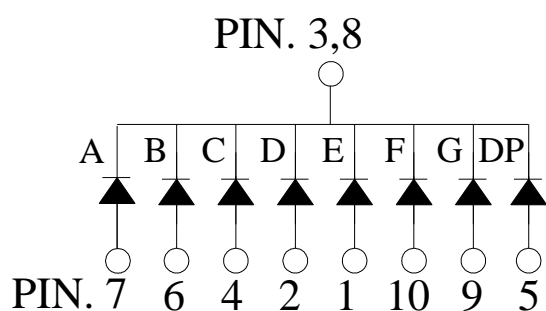
1. THE SLPE ANGLE OF ANY PIN MAY BE  $\pm 5.0^\circ$  MAX.
2. ALL DIMENSIONS ARE IN mm, TOLERANCE IS  $\pm 0.25$ mm UNLESS OTHERWISE NOTED.

## Internal Circuit Diagram

**LA2811-11-UR93**



**LC2811-11-UR93**



**LA(C)2811-11-UR93****0.28" SINGLE DIGIT  
DISPLAY****Description**

Part No.	LED Chip		Face Color	
	Material	Emitting Color	Surface	Segments
LA2811-11-UR93 EWRN	AlGaInP/GaAs	Deep Red	Black	White
LC2811-11-UR93 EWRN	AlGaInP/GaAs	Deep Red	Black	White

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

Parameter	Symbol	Rating	Unit
Power Dissipation Per Segment	PD	72	mW
Pulse Current(1/10Duty Cycle,0.1ms Pulse Width.) Per Chip	IFP	100	mA
Forward Current Per Chip	IF	30	mA
Reverse (Leakage)Current Per Chip	Ir	100	uA
Reverse Voltage Per Chip	VR	5	V
Operating Temperature Range	Topr.	-25 to +85	°C
Storage Temperature Range	Tstg.	-40 to +100	°C
Soldering Temperature.	Tsol.	Dip Soldering: 260°C for 5 sec. Hand Soldering: 350°C for 3 sec.	

**Electrical and Optical Characteristics:**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous Intensity Per Segment	I <sub>v</sub>	If=10mA/seg.	22.0	45.0		mcd
Forward Voltage	V <sub>f</sub>	If=20mA/seg.		1.9	2.4	V
Peak Wavelength	λ <sub>p</sub>	If=20mA/seg.		650		nm
Dominant Wavelength	λ <sub>d</sub>	If=20mA/seg.		639		nm
Reverse Current Per Chip (Leakage Current Per Chip)	I <sub>r</sub>	V <sub>r</sub> =5V			100	μA
Spectrum Line Halfwidth	Δλ	If=20mA/seg.		20		nm
Response Time	T	-----		250		ns

Notes: 1.Tolerance of Luminous Intensity is ±15%

2.Tolerance of Forward Voltage is ±0.1V

3.Tolerance of Dominant Wavelength is ±1nm

4.Customer' s special requirements are also welcome

## Typical Electrical/Optical Characteristic Curves

(25°C Ambient Temperature Unless Otherwise Noted)

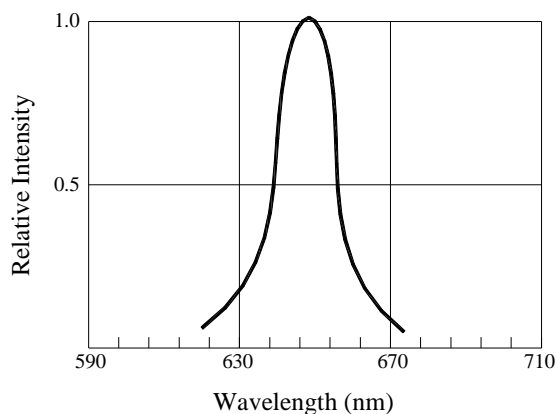


Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

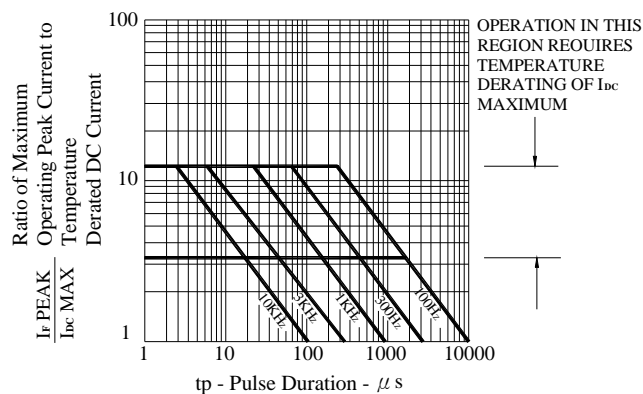


Fig.2 MAXIMUM TOLERABLE PEAK CURRENT VS. PULSE DURATION

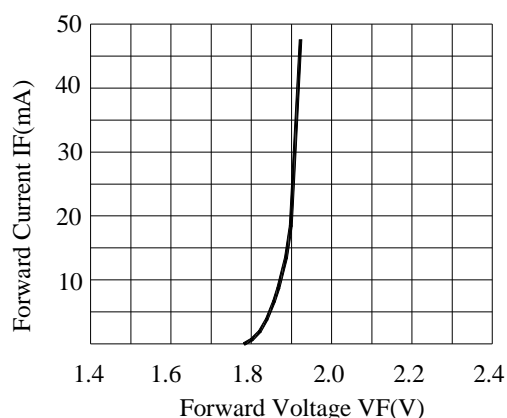


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE PER CHIP

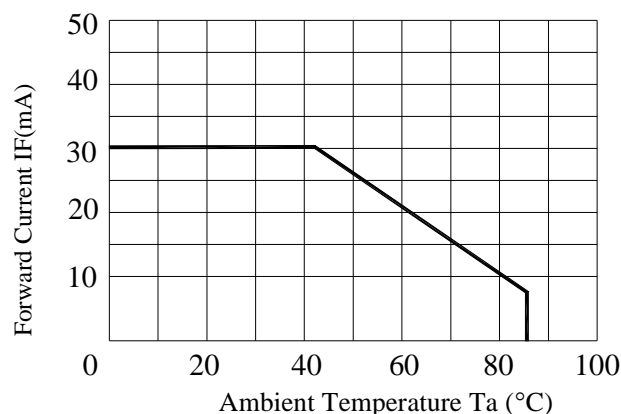


Fig.4 FORWARD CURRENT VS. DERATING CURVE

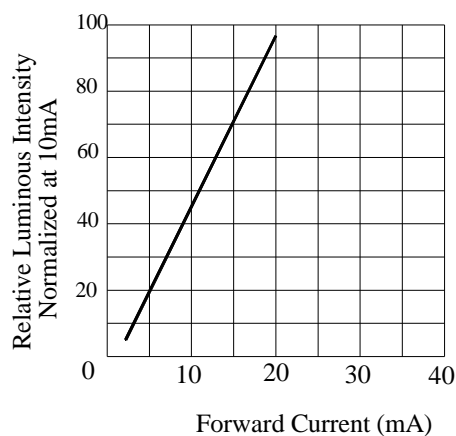


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

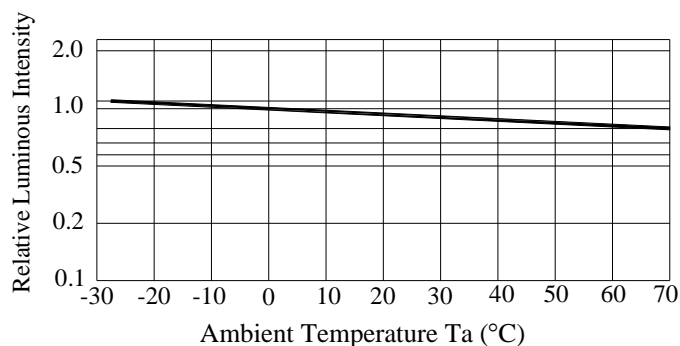


Fig.6 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

**Precautions in Use:**

PLEASE PAY SPECIAL ATTENTION TO THE NEXT POINT TO INCORPORATE OPTO DEVICE TO HIGH RELIABILITY

1. Do not bend the lead. Bending leads could cause breakage of leads or the degradation of the chip.  
When bending is unavoidable, strictly follow the cautionary instruction below.
  - (1) Bend the leads before soldering.
  - (2) Bending a lead must be done by fixing a lead tightly and applying no stress on the resin part.
  - (3) The lead bending point must be more than 1.6mm away from the edge or the resin part.
  - (4) When a pin is tested for its endurance, bending degree should be 45° and repeated no more than two times.
2. Setting a product by using tool such as a holder should be avoided.  
When necessary, no stress should be applied to the resin part and lead to consider dimension tolerance, thermal expansion, thermal contraction of holder, product and circuit board etc.
3. The hole pitch of a circuit board must fit into the lead pitch of products.
4. When soldering, care the followings:
  - (1) Do not heat a product under any stress (i.e.: twist) to leads.
  - (2) Do not heat ( for example, by soldering ) a product while out side force is applied the resin part.
  - (3) The lead bending point must be more than 1.6mm away from the edge or the resin part.
  - (4) Soldering with PC Board should be conducted with following conditions.
    - (a) For dip soldering  
Pre-heating : 90℃ Max. for within 60 Sec.  
Soldering Max. : 260±5℃ (Solder Temp.) for within 5 Sec.
    - (b) Soldering iron : 350℃ (Soldering iron tip) for within 3 Sec.
5. Flux could corrode the leads. Use flux that contains as little chlorine as possible (RA, RMA, less than 0.2 wt%) and need not be washed away. When, however, washing is necessary, partially wash around the leads, instead of the entire LED, by the following conditions.  
Cleaning agent : Methyl Alcohol  
Cleaning temp : 45℃ Max.  
Cleaning time : 30Sec. Max.
6. Minimum amount of soldering flux should be used. Soldering flux should be applied only to the pin portion.
7. The following may damage products or LED chips: Attachment or contact of residual flux solvent onto the product surface or to LED chips, or invasion of the same into the product.

**Disclaimer**

1. Our department reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets our department published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. Our department assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
5. These specification sheets include materials protected under copyright of our department. Reproduction in any form is prohibited without obtaining our department's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized our department sales agent for special application request.