

# Single Digit LED Numeric Display

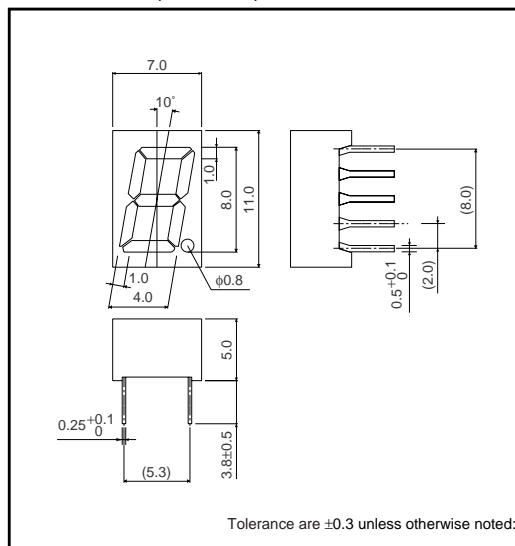
## LA-301 B / L Series

LA-301 B / L series is developed because of the demand for small single digit LED Numeric Display. Materials of emission are GaAsP on GaP, AlGaInP, GaP and GaN. This is the height of a letter 8mm, single digit LED Numeric Display that is packed by epoxy resin.

### ●Features

- 1) The height of a letter is 8mm.
- 2) The light don't leak from the segment in spite of the small package.
- 3) The package of surface color is black. Color of segment is colored in emitting color. (Blue color is only milky white)
- 4) Each color has anode common and cathode common respectively.

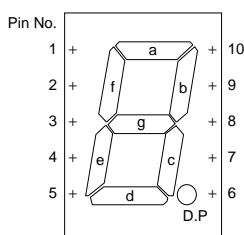
### ●Dimensions (Unit : mm)



### ●Selection guide

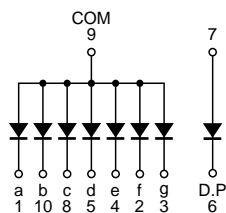
Emitting color	Common					
	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness)	Green	Blue
Anode	LA-301VB	LA-301AB	LA-301EB	LA-301XB	LA-301MB	LA-301BB
Cathode	LA-301VL	LA-301AL	LA-301EL	LA-301XL	LA-301ML	LA-301BL

### ●Pin assignments

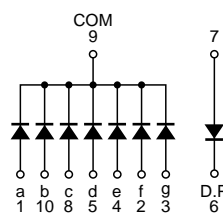


Pin No.	Function
1	Segment "a"
2	Segment "f"
3	Segment "g"
4	Segment "e"
5	Segment "d"
6	D.P Cathode
7	D.P Anode
8	Segment "c"
9	Common
10	Segment "b"

### ●Equivalent circuit (anode common)



### (cathode common)



## LED displays

## ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness)	Green	Blue	Unit
		LA-301VB / VL	LA-301AB / AL	LA-301EB / EL	LA-301XB / XL	LA-301MB / ML	LA-301BB / BL	
Power dissipation	P <sub>D</sub>	320	520	520	520	480	336	mW
Power dissipation	P <sub>D</sub> / seg	40	65	65	65	60	42	mW
Forward current	I <sub>F</sub>	15	25	25	25	20	10	mA
Peak forward current	I <sub>FP</sub>	60 *1	50 *2	50 *2	50 *2	60 *1	50 *2	mA
Reverse voltage	V <sub>R</sub>	5	5	5	5	5	5	V
Operating temperature	T <sub>opr</sub>	-25 to +75						°C
Storage temperature	T <sub>stg</sub>	-30 to +85						°C

\*1 Pulse width 1ms Duty 1 / 5

\*2 Pulse width 0.1ms Duty 1 / 10

## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Red		Red (High brightness)		Orange (High brightness)		Yellow (High brightness)		Green		Blue		Unit
			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	
Forward voltage	V <sub>F</sub>	I <sub>F</sub> =10mA	2.0	2.8	2.05*	2.6*	2.05*	2.6*	2.05*	2.6*	2.1	2.8	3.6	4.2	V
Reverse current	I <sub>R</sub>	V <sub>R</sub> =3V	—	100	—	100	—	100	—	100	—	100	—	100	μA
Peak wavelength	λ <sub>P</sub>	I <sub>F</sub> =10mA	650	—	626*	—	610*	—	589*	—	563	—	470	—	nm
Spectral line half width	Δλ	I <sub>F</sub> =10mA	40	—	18*	—	17*	—	15*	—	40	—	26	—	nm

©The products are not radiations resistant.

\* Shows the number on the condition of I<sub>F</sub>=20mA.

## ●Luminous intensity

Color	λ <sub>P</sub> (nm)	Type	Min.	Typ.	Unit
Red	650	LA-301VB	3.6	10	mcd
		LA-301VL			
Red (High brightness)	626	LA-301AB	36	90	mcd
		LA-301AL			
Orange (High brightness)	610	LA-301EB	36	90	mcd
		LA-301EL			
Yellow (High brightness)	589	LA-301XB	36	90	mcd
		LA-301XL			
Green	563	LA-301MB	3.6	10	mcd
		LA-301ML			
Blue	470	LA-301BB	14	56	mcd
		LA-301BL			

© A condition of measurement is I<sub>F</sub>=10mA.

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●Electrical and optical characteristic curve

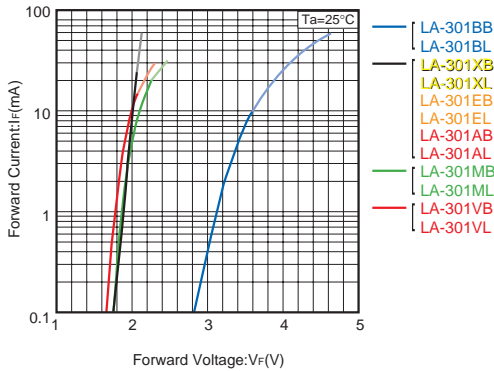


Fig.1 Forward Current - Forward Voltage

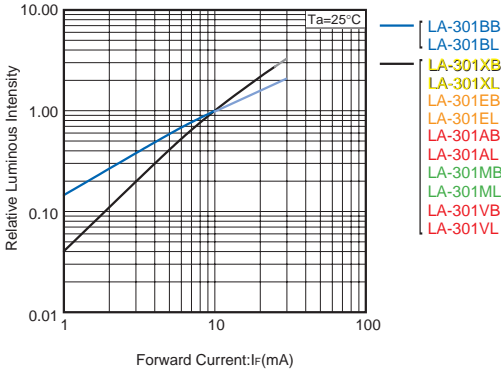


Fig.2 Relative Luminous Intensity - Forward Current

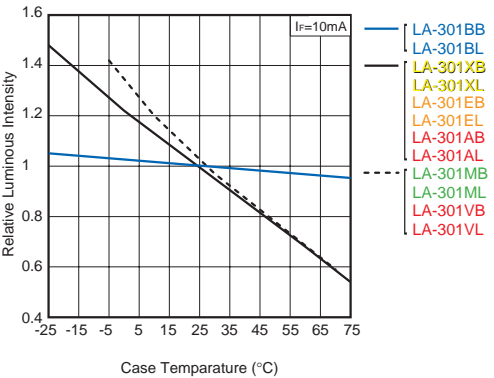


Fig.3 Relative Luminous Intensity - Case Temperature

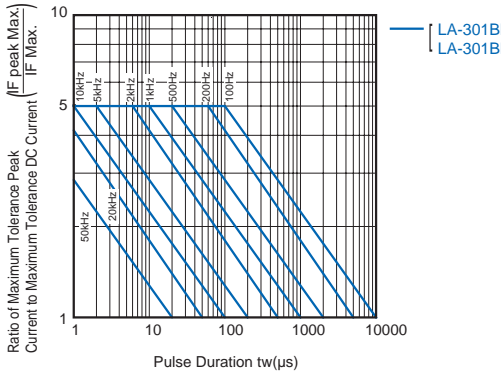


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( I )

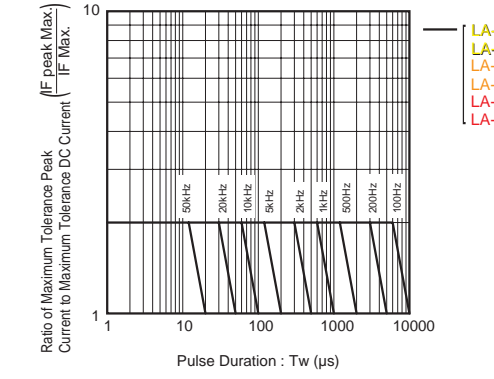


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( II )

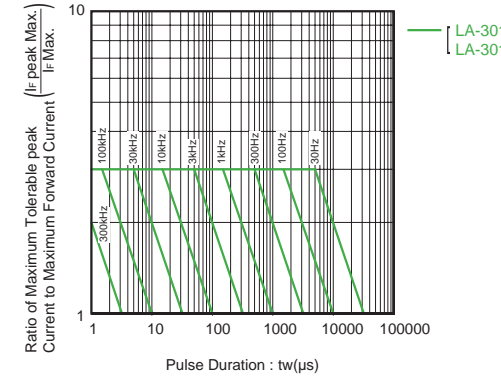


Fig.6 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( III )

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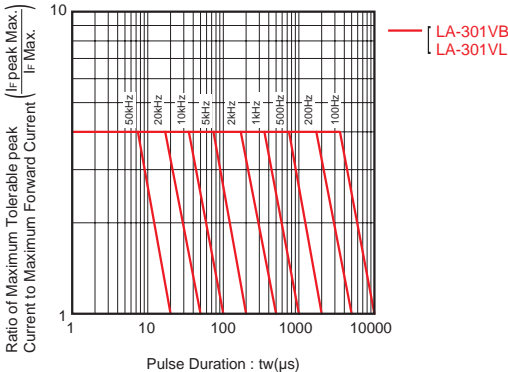


Fig.7 Ratio of Maximum Tolerable Peak Current - Pulse Duration ( IV )

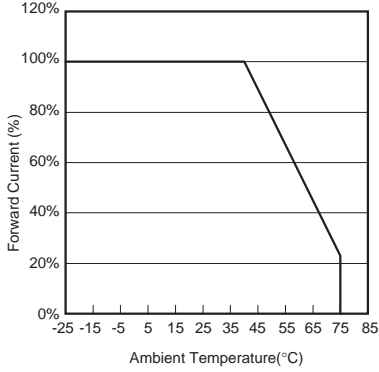


Fig.8 Derating

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