Single Digit LED Numeric Display

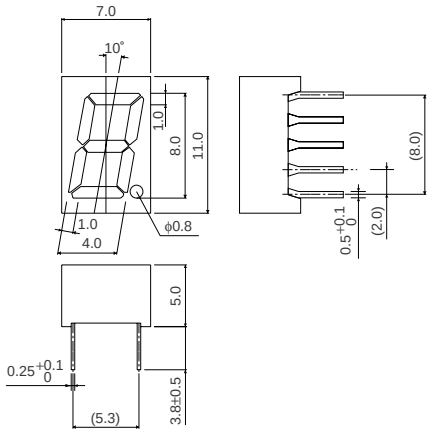
LA-301 B / L Series

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)

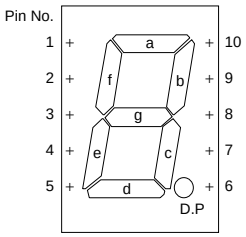


Tolerance are ±0.3 unless otherwise noted:

●Selection guide

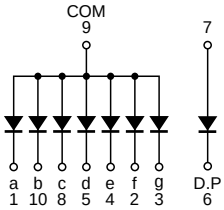
Emitting color / Common	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness)	Green	Blue
Anode	LA-301VB	LA-301AB	LA-301EB	LA-301XB	LA-301MB	LA-301BB
Cathode	LA-301VL	LA-301AL	LA-301EL	LA-301XL	LA-301ML	LA-301BL

●Pin assignments

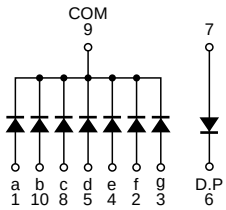


Pin No.	Function
1	Segment "a"
2	Segment "f"
3	Segment "g"
4	Segment "e"
5	Segment "d"
6	D.P Cathode
7	D.P Anode
8	Segment "c"
9	Common
10	Segment "b"

●Equivalent circuit (anode common)



(cathode common)



●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_D	320	520	520	520	480	336	mW
Power dissipation	P_D / seg	40	65	65	65	60	42	mW
Forward current	I_F	15	25	25	25	20	10	mA
Peak forward current	I_{FP}	60 ∗1	50 ∗2	50 ∗2	50 ∗2	60 ∗1	50 ∗2	mA
Reverse voltage	V_R	5	5	5	5	5	5	V
Operating temperature	Topr	−25 to +75						˚C
Storage temperature	Tstg	−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_F	I_F=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_R	V_R=3V	–	100	–	100	–	100	–	100	–	100	–	100	μA
Peak wavelength	λ_P	I_F=10mA	650	–	626 ∗	–	610 ∗	–	589 ∗	–	563	–	470	–	nm
Spectral line half width	$\Delta\lambda$	I_F=10mA	40	–	18 ∗	–	17 ∗	–	15 ∗	–	40	–	26	–	nm

◎The products are not radiations resistant.
∗ Shows the number on the condition of I_F=20mA.

●Luminous intensity

Color	λ_P (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_F=10mA.

●Electrical and optical characteristic curve

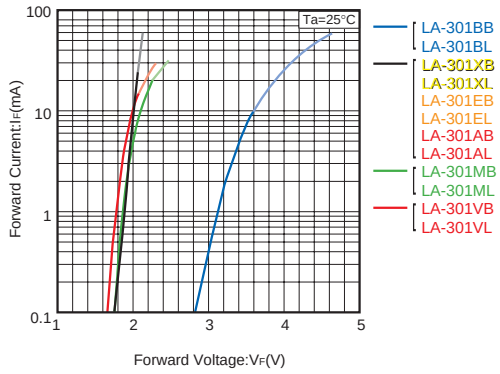


Fig.1 Forward Current - Forward Voltage

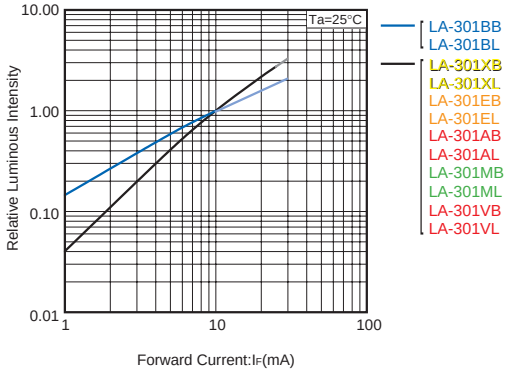


Fig.2 Relative Luminous Intensity - Forward Current

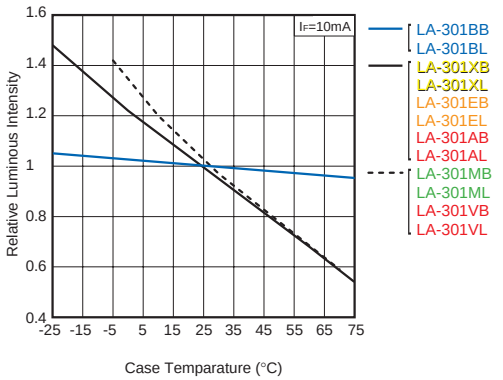


Fig.3 Relative Luminous Intensity - Case Temperature

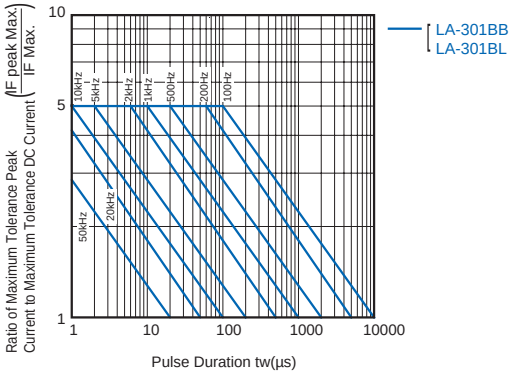


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration (I)

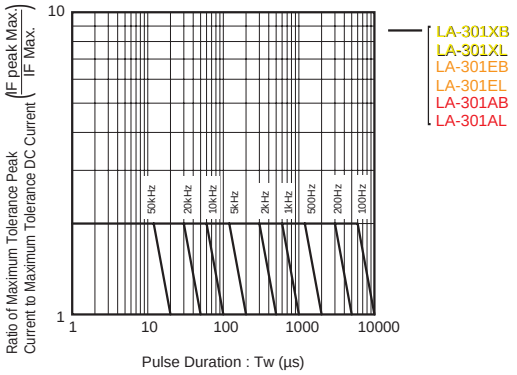


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration (II)

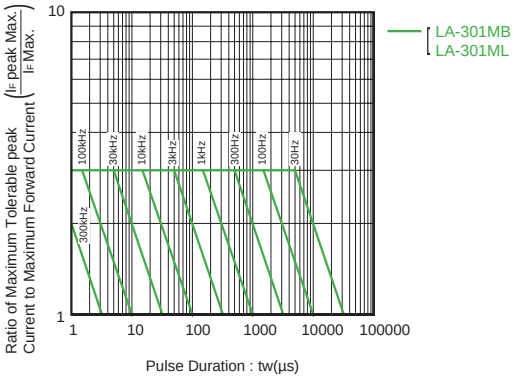


Fig.6 Ratio of Maximum Tolerable Peak Current - Pulse Duration (III)

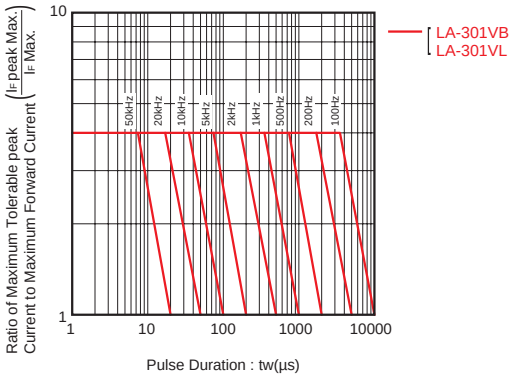


Fig.7 Ratio of Maximum Tolerable Peak Current - Pulse Duration (IV)

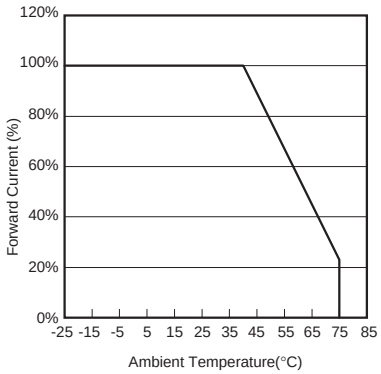


Fig.8 Derating

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