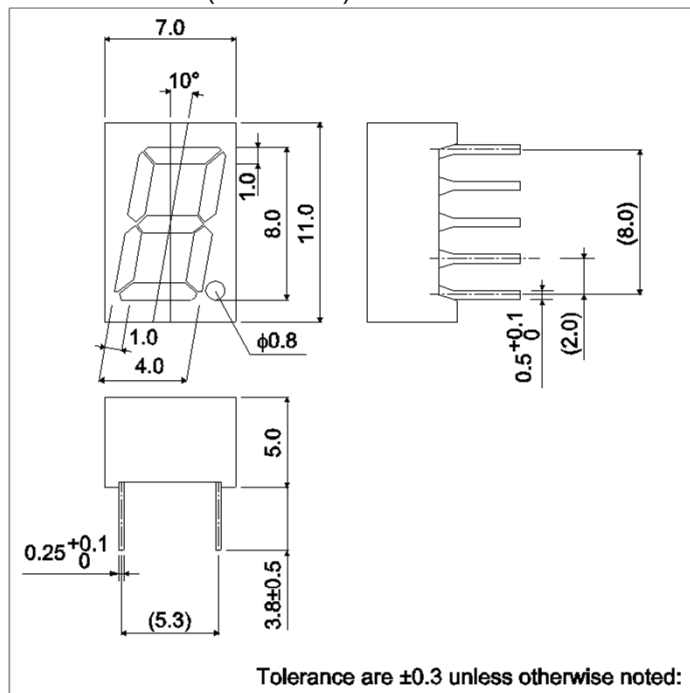


LA-301 B / L series is developed because of the demand for small single digit LED Numeric Display. Materials of emission are GaAsP on GaP, AlGaInP and GaP. This is the height of a letter 8mm, single digit LED Numeric Display that is packed by epoxy resin.

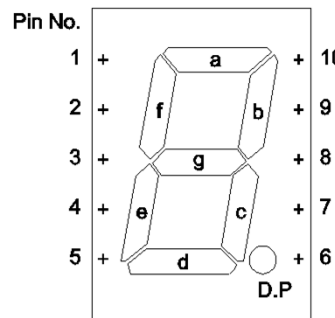
### ●Features

- 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.
- 4) Each color has anode common and cathode common respectively.

### ●Dimensions (Unit : mm)

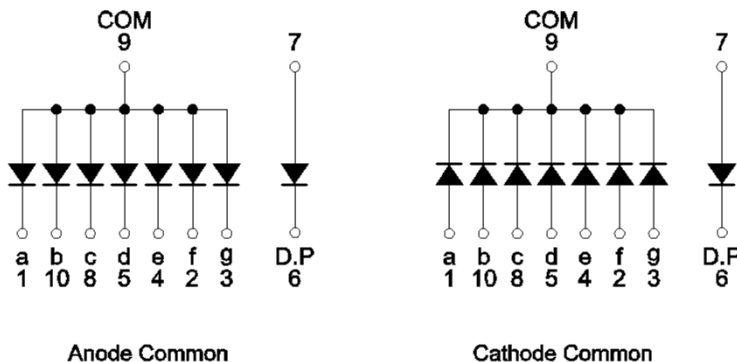


### ●Pin assignments



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"

### ●Internal circuit schematic



### ●Selection guide

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

●Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness) (NRND)	Green	Unit	
		LA-301VB / VL	LA-301AB / AL	LA-301EB / EL	LA-301XB / XL	LA-301MB / ML		
Power dissipation	$P_D$	320	520	520	520	480	mW	
Power dissipation	$P_D / \text{seg}$	40	65	65	65	60	mW	
Forward current	$I_F$	15	25	25	25	20	mA	
Peak forward current	$I_{FP}$	60 * <sup>1</sup>	50 * <sup>2</sup>	50 * <sup>2</sup>	50 * <sup>2</sup>	60 * <sup>1</sup>	mA	
Reverse voltage	$V_R$	5	5	5	5	5	V	
Operating temperature	$T_{opr}$	-25 to +75						$^\circ\text{C}$
Storage temperature	$T_{stg}$	-30 to +85						$^\circ\text{C}$

\*<sup>1</sup> Pulse width 1ms, duty 1 / 5

\*<sup>2</sup> Pulse width 0.1ms, duty 1 / 10

●Electrical and optical characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Red		Red (High brightness)		Orange (High brightness)		Yellow (High brightness) (NRND)		Green		Unit
			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	
Forward voltage	$V_F$	$I_F = 10\text{mA}$	2.0	2.8	2.05*	2.6*	2.05*	2.6*	2.05*	2.6*	2.1	2.8	V
Reverse current	$I_R$	$V_R = 3\text{V}$	-	100	-	100	-	100	-	100	-	100	$\mu\text{A}$
Peak wavelength	$\lambda_p$	$I_F = 10\text{mA}$	650	-	626*	-	610*	-	589*	-	563	-	nm
Spectral line halfwidth	$\Delta\lambda$	$I_F = 10\text{mA}$	40	-	18*	-	17*	-	15*	-	40	-	nm

© Not designed for radiation resistance.

\* Shows the number on the condition of  $I_F = 20\text{mA}$ .

## ●Luminous intensity

Parameter	$\lambda_p$	Type	Min.	Typ.	Max.	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) (NRND)	589	LA-301XB	36	90	-	mcd
		LA-301XL				
Green	563	LA-301MB	3.6	10	-	mcd
		LA-301ML				

© Condition  $I_F=10\text{mA}$ 

## ●Iv classification

Parameter	Type	Item	Iv classification	Unit
Red	LA-301VB LA-301VL	“ K ”	3.6 to 7.1	mcd
		“ L ”	5.6 to 11	mcd
		“ M ”	9.0 to 18	mcd
		“ N ”	14 to 28	mcd
		“ P ”	22 to (45)	mcd
Red (High brightness)	LA-301AB LA-301AL	“ Q ”	36 to 71	mcd
		“ R ”	56 to 110	mcd
		“ S ”	90 to 180	mcd
		“ T ”	140 to 280	mcd
		“ U ”	220 to (450)	mcd
Orange (High brightness)	LA-301EB LA-301EL	“ Q ”	36 to 71	mcd
		“ R ”	56 to 110	mcd
		“ S ”	90 to 180	mcd
		“ T ”	140 to 280	mcd
		“ U ”	220 to (450)	mcd
Green	LA-301MB LA-301ML	“ K ”	3.6 to 7.1	mcd
		“ L ”	5.6 to 11	mcd
		“ M ”	9.0 to 18	mcd
		“ N ”	14 to 28	mcd
		“ P ”	22 to (45)	mcd

© Condition  $I_F=10\text{mA}$

●Electrical and optical characteristics curves

Fig.1 Forward Current vs. Forward Voltage

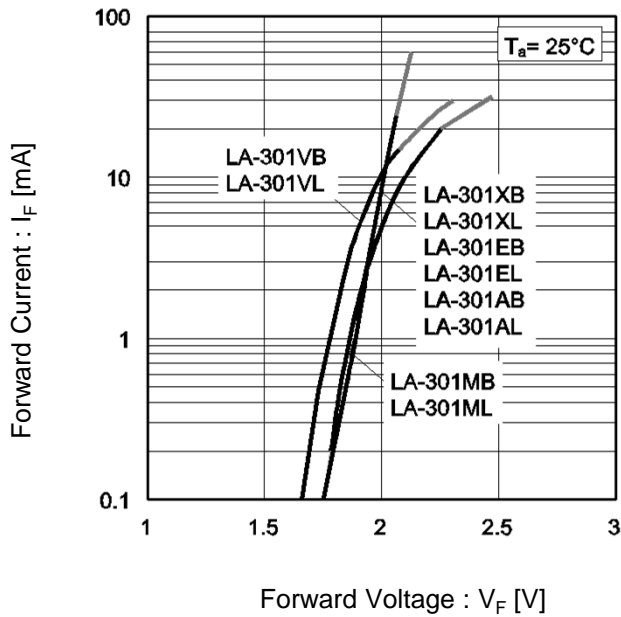


Fig.2 Relative Luminous Intensity vs. Forward Current

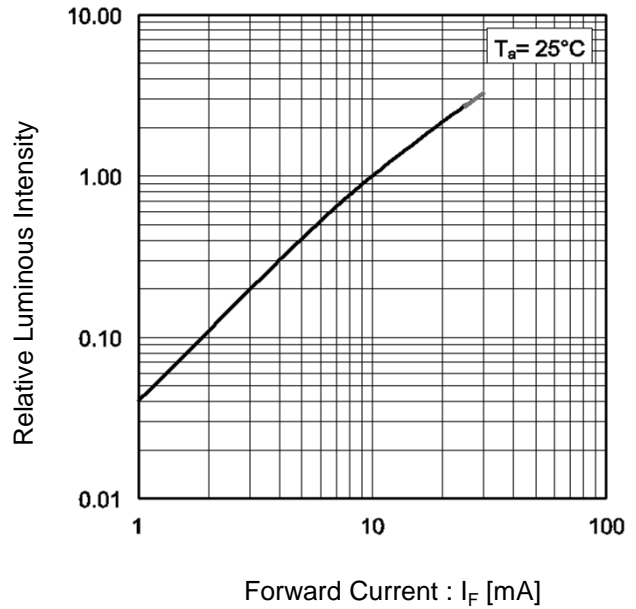


Fig.3 Relative Luminous Intensity vs. Case Temperature

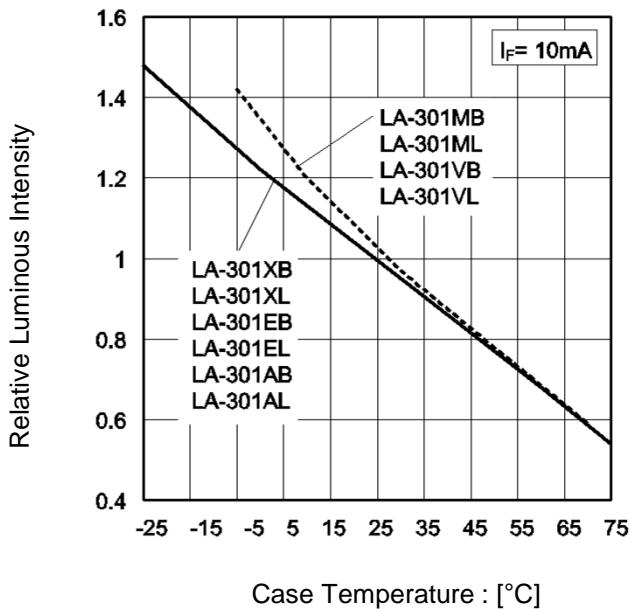
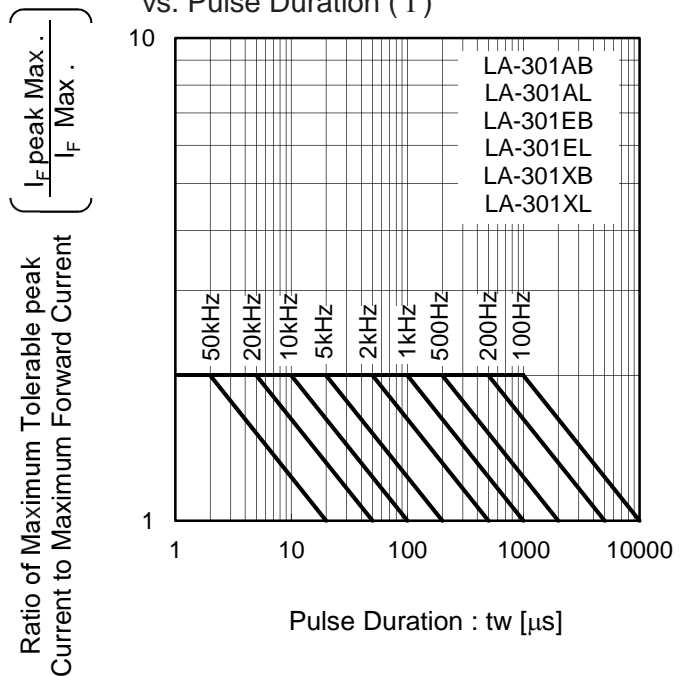


Fig.4 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration ( t )



●Electrical and optical characteristics curves

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

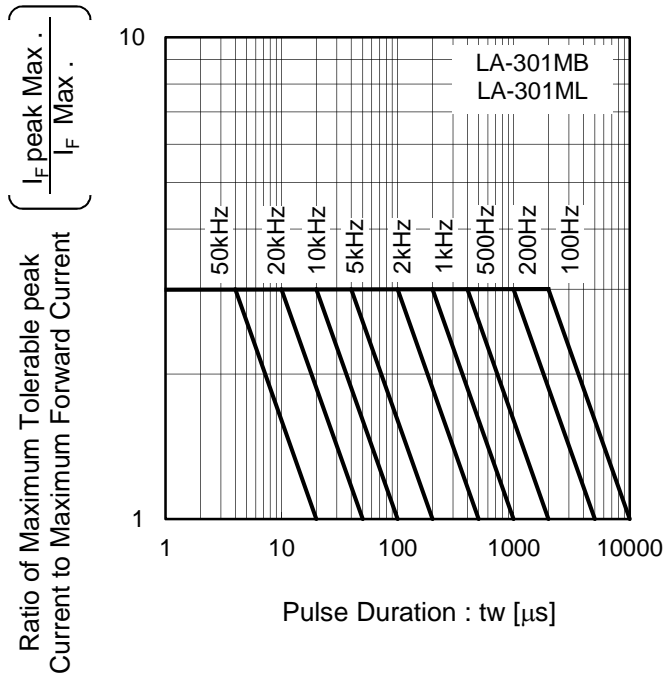


Fig.6 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration ( III )

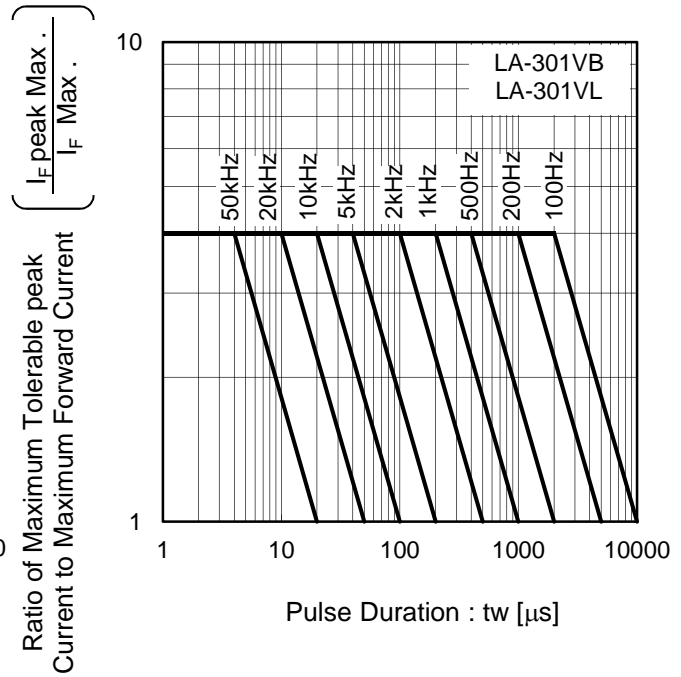
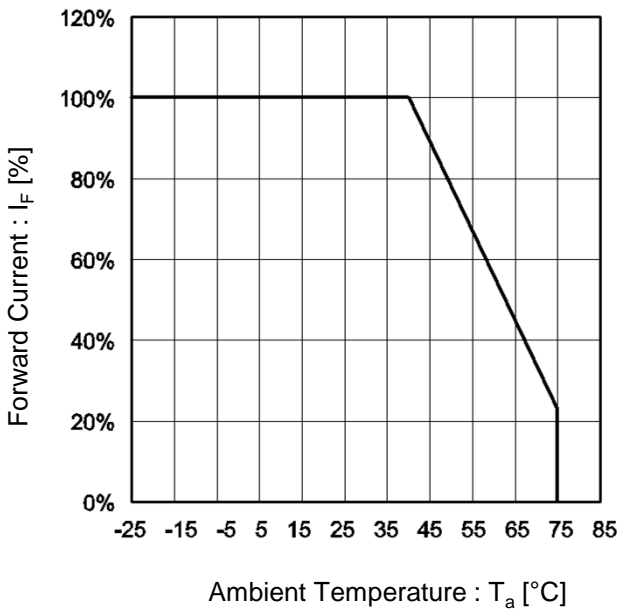


Fig.7 Derating



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LA-301ML - Web Page

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Part Number	LA-301ML
Package	LA-301ML
Unit Quantity	160
Minimum Package Quantity	
Packing Type	Filmpack
Constitution Materials List	inquiry
RoHS	Yes