Single Digit LED Numeric Display

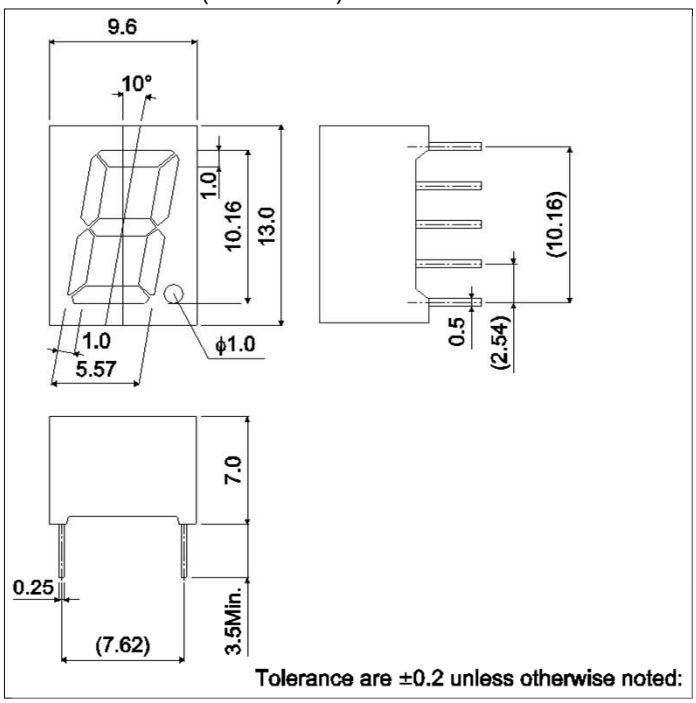
LA-401 D / N Series Datasheet

LA-401 D / N 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 10.16mm, single digit LED Numeric Display that is packed by EPOXY resin.

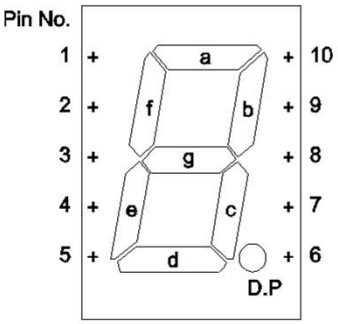
●Features

1) The height of a letter is 10.16mm.
2) Dimension is 9.6×13.0×7.0mm.
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)

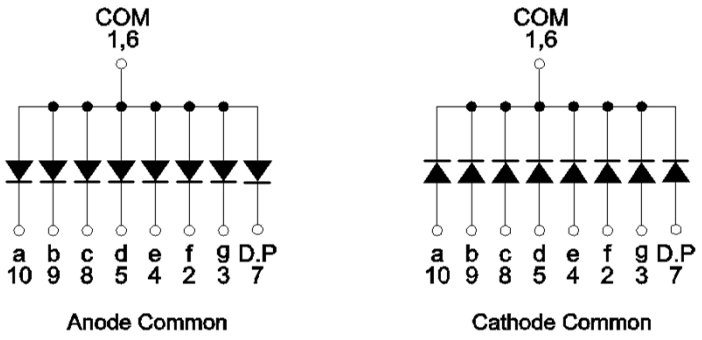


●Pin assignments



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

●Internal circuit schematic



●Selection guide

Emitting color / Common	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness) (NRND)	Green
Anode	LA-401VD	LA-401AD	LA-401ED	LA-401XD	LA-401MD
Cathode	LA-401VN	LA-401AN	LA-401EN	LA-401XN	LA-401MN

●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Red	Red (High brightness)	Orange (High brightness)	Yellow (High brightness) (NRND)	Green	Unit
		LA-401VD / VN	LA-401AD / AN	LA-401ED / EN	LA-401XD / XN	LA-401MD / MN	
Power dissipation	P_D	320	520	520	520	480	mW
Power dissipation	P_D / seg	40	65	65	65	60	mW
Forward current	I_F	15	25	25	25	20	mA
Peak forward current	I_{FP}	60 *1	50 *2	50 *2	50 *2	60 *1	mA
Reverse voltage	V_R	5	5	5	5	5	V
Operating temperature	T_{opr}	−25 to +75					°C
Storage temperature	T_{stg}	−30 to +85					°C

*1 Pulse width 1ms, duty 1 / 5

*2 Pulse width 0.1ms, duty 1 / 10

●Electrical and optical characteristics (T_a = 25°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 =10mA	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 =3V	-	100	-	100	-	100	-	100	-	100	μA
Peak wavelength	λ_p	I_F=10mA	650	-	626*	-	610*	-	589*	-	563	-	nm
Spectral line halfwidth	$\Delta\lambda$	I_F=10mA	40	-	18*	-	17*	-	15*	-	40	-	nm

◎ Not designed for radiation resistance.

* Shows the number on the condition of I_F=20mA.

●Luminous intensity

Parameter	λ_p	Type	Min.	Typ.	Max.	Unit
Red	650	LA-401VD LA-401VN	5.6	16	-	mcd
Red (High brightness)	626	LA-401AD LA-401AN	36	90	-	mcd
Orange (High brightness)	610	LA-401ED LA-401EN	36	90	-	mcd
Yellow (High brightness) (NRND)	589	LA-401XD LA-401XN	36	90	-	mcd
Green	563	LA-401MD LA-401MN	5.6	16	-	mcd

◎ Condition I_F=10mA

●Iv classification

Parameter	Type	Item	Iv classification	Unit
Red	LA-401VD LA-401VN	" L "	5.6 to 11	mcd
		" M "	9.0 to 18	mcd
		" N "	14 to 28	mcd
		" P "	22 to 45	mcd
		" Q "	36 to (71)	mcd
Red (High brightness)	LA-401AD LA-401AN	" 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-401ED LA-401EN	" 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-401MD LA-401MN	" L "	5.6 to 11	mcd
		" M "	9.0 to 18	mcd
		" N "	14 to 28	mcd
		" P "	22 to 45	mcd
		" Q "	36 to (71)	mcd

◎ Condition I_F=10mA

●Electrical and optical characteristics curves

Fig.1 Forward Current vs. Forward Voltage

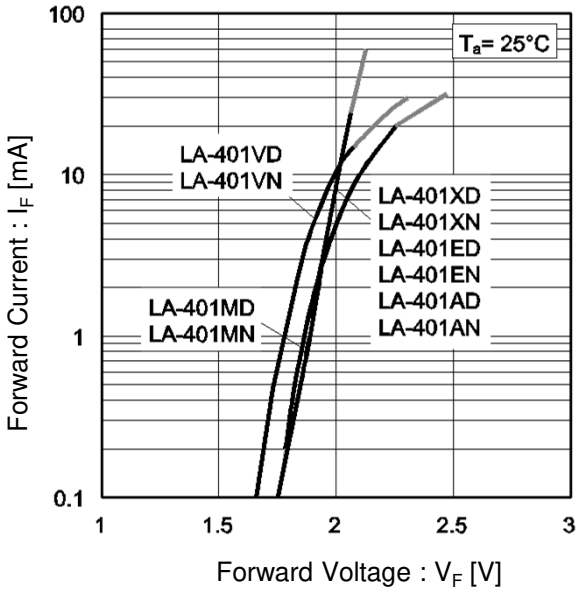


Fig.2 Relative Luminous Intensity vs. Forward Current

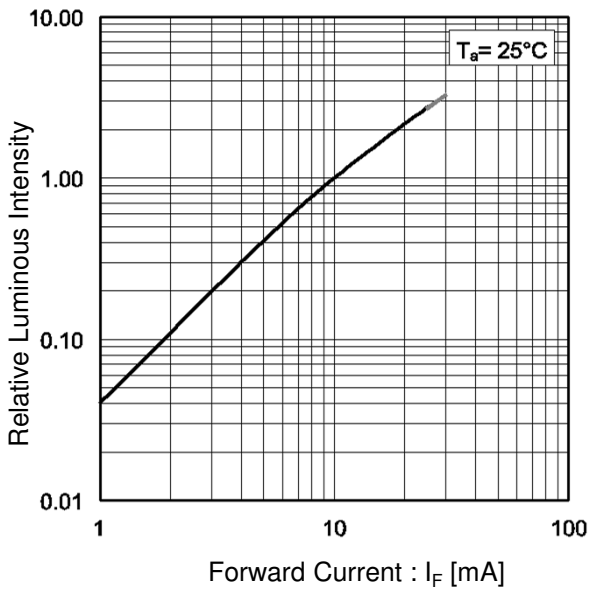


Fig.3 Relative Luminous Intensity vs. Case Temperature

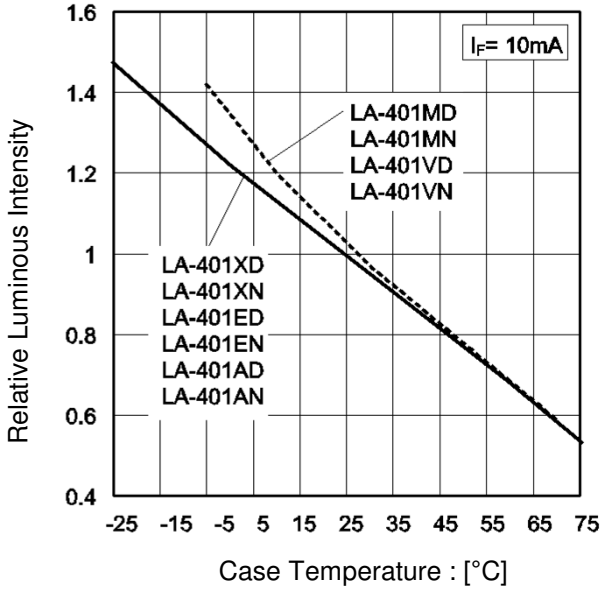
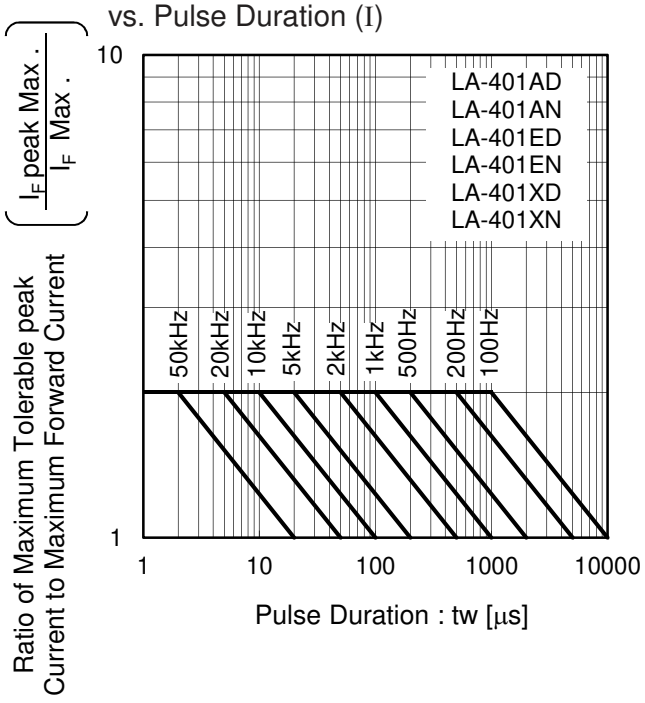


Fig.4 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration (I)



●Electrical and optical characteristics curves

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

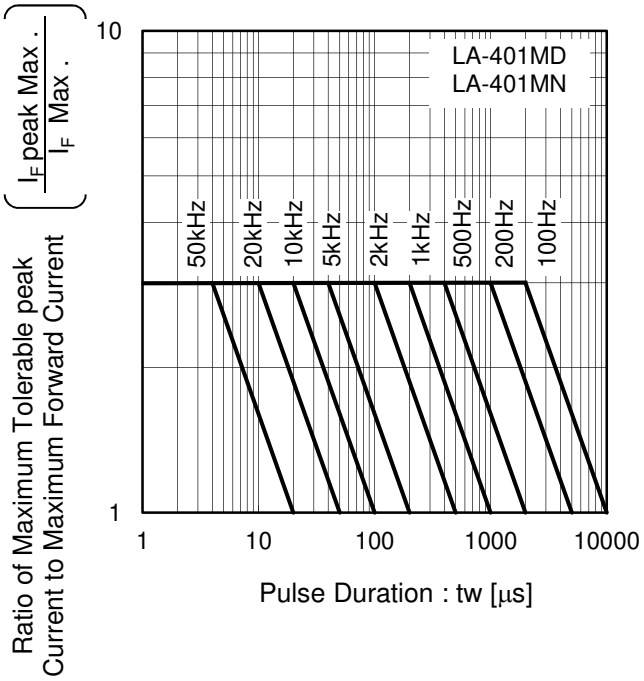


Fig.6 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration (III)

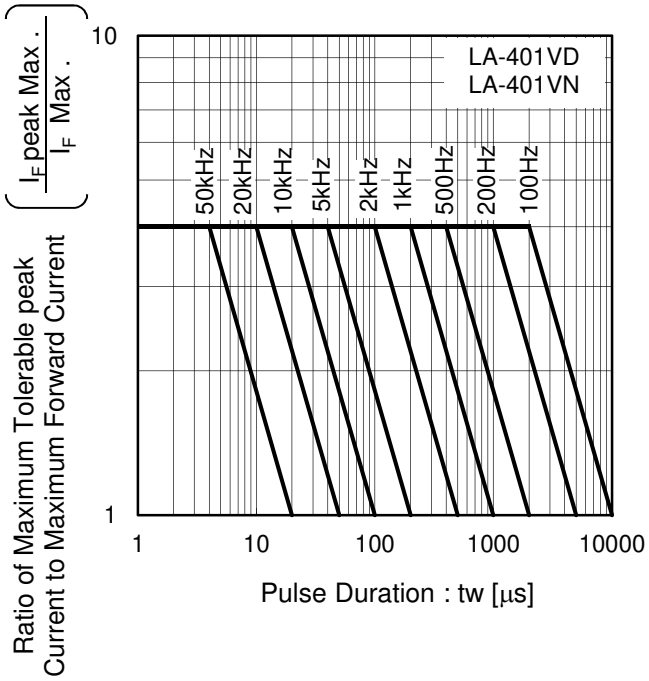
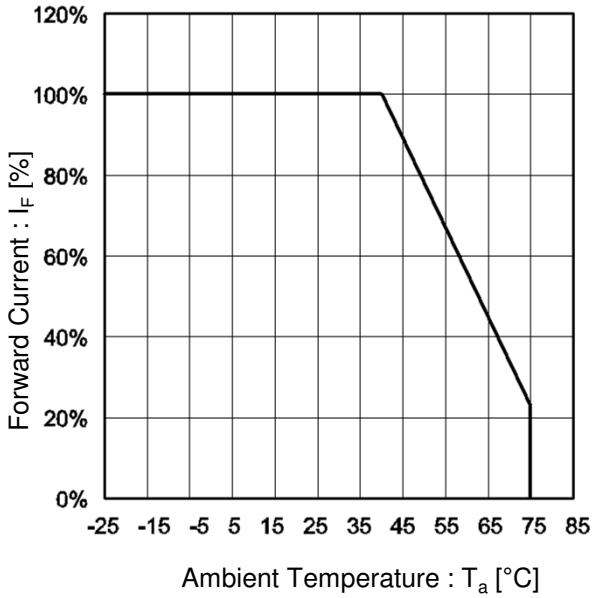


Fig.7 Derating



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