

Single Digit LED Numeric Display

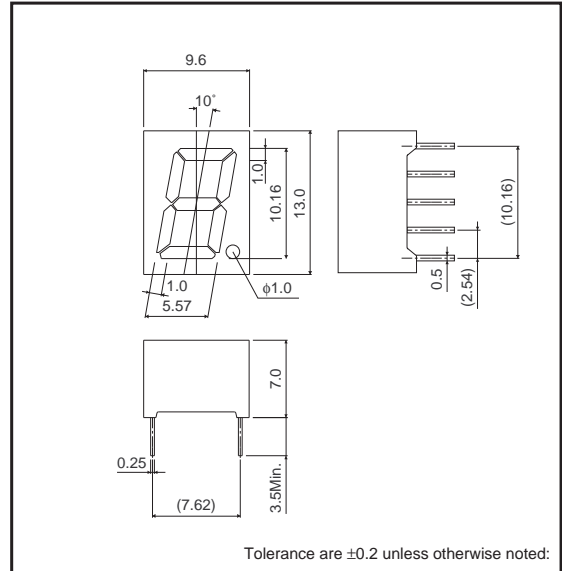
LAP-401 D / N Series

LAP-401 D / N series are the numerical display units featuring ROHM's in-house 4-element (AlGaInP) high-brightness LED dies. Their luminous intensity is top class in the industry while degradation is considerably slow, which helps to keep illumination vividness almost unchanged and the image of sets high over a long period of time.

●Features

- 1) 10.16mm for letter height, single-line LED numerical displays.
- 2) About 10 times more luminous intensity than the conventional products by use of 4-element LED dies. (in case of orange color)
- 3) The same luminous intensity as the conventional products at their 1/10 of current, which contributes lots to energy-saving of sets.
- 4) Light-leakage from segments probable with the small display packages is very rare.
- 5) Both anode common type and cathode common type are available in lineup for each color.

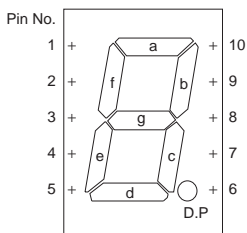
●Dimensions (Unit : mm)



●Selection guide

Emitting color	Common			
	Red	Orange	Yellow	Green
Anode	LAP-401VD	LAP-401DD	LAP-401YD	LAP-401MD
Cathode	LAP-401VN	LAP-401DN	LAP-401YN	LAP-401MN

●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"

●Inner circuit (anode common)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Red	Orange	Yellow	Green	Unit
		LAP-401VD / VN	LAP-401DD / DN	LAP-401YD / YN	LAP-401MD / MN	
Power dissipation	P _D	448	448	448	448	mW
Power dissipation	P _D / seg	56	56	56	56	mW
Forward current	I _F	20	20	20	20	mA
Peak forward current	I _{FP}	60 *1	60 *1	60 *1	60 *1	mA
Reverse voltage	V _R	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

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Red		Orange		Yellow		Green		Unit
			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Max.	
Forward voltage	V _F	I _F =10mA	1.9	2.6	1.9	2.6	1.9	2.6	1.9	2.6	V
Reverse current	I _R	V _R =3V	–	100	–	100	–	100	–	100	μA
Peak wavelength	λ _P	I _F =10mA	650	–	605	–	590	–	572	–	nm
Spectral line half width	Δλ	I _F =10mA	20	–	20	–	20	–	20	–	nm

©The products are not radiations resistant.

●Luminous intensity

Color	λ _P (nm)	Type	Min.	Typ.	Unit
Red	650	LAP-401VD	14	36	mcd
		LAP-401VN			
Orange	605	LAP-401DD	56	250	mcd
		LAP-401DN			
Yellow	590	LAP-401YD	90	450	mcd
		LAP-401YN			
Green	572	LAP-401MD	36	100	mcd
		LAP-401MN			

©A condition of measurement is I_F=10mA.

●Electrical and optical characteristic curve

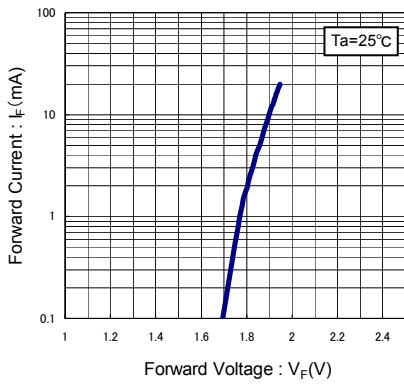


Fig.1 Forward Current - Forward Voltage

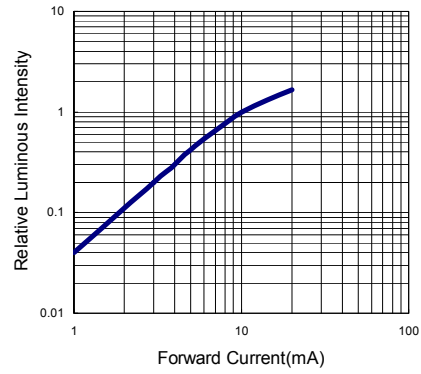


Fig.2 Relative Luminous Intensity - Forward Current

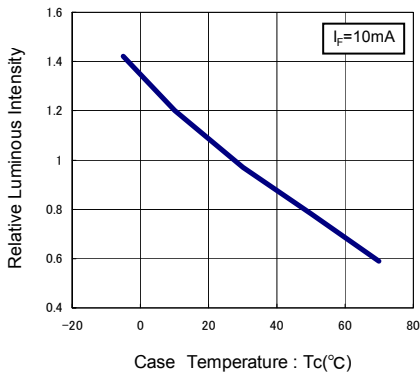


Fig.3 Relative Luminous Intensity - Case Temperature(°C)

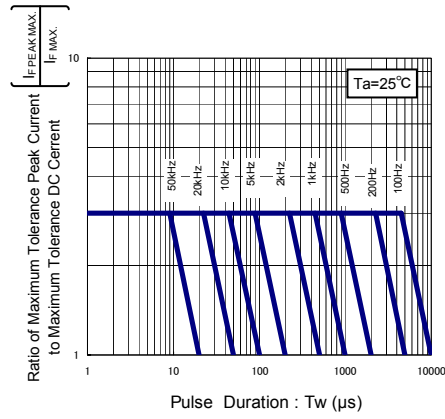


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration

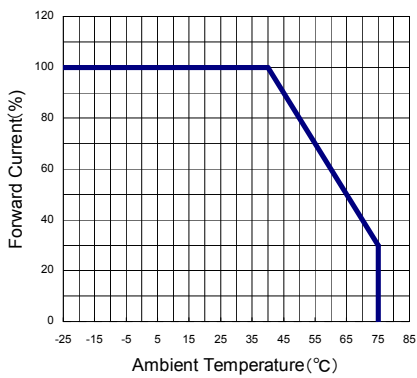


Fig.5 Derating

Notes

No copying or reproduction of this document, in part or in whole, is permitted without the consent of ROHM Co.,Ltd.

The content specified herein is subject to change for improvement without notice.

The content specified herein is for the purpose of introducing ROHM's products (hereinafter "Products"). If you wish to use any such Product, please be sure to refer to the specifications, which can be obtained from ROHM upon request.

Examples of application circuits, circuit constants and any other information contained herein illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

Great care was taken in ensuring the accuracy of the information specified in this document. However, should you incur any damage arising from any inaccuracy or misprint of such information, ROHM shall bear no responsibility for such damage.

The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM and other parties. ROHM shall bear no responsibility whatsoever for any dispute arising from the use of such technical information.

The Products specified in this document are intended to be used with general-use electronic equipment or devices (such as audio visual equipment, office-automation equipment, communication devices, electronic appliances and amusement devices).

The Products specified in this document are not designed to be radiation tolerant.

While ROHM always makes efforts to enhance the quality and reliability of its Products, a Product may fail or malfunction for a variety of reasons.

Please be sure to implement in your equipment using the Products safety measures to guard against the possibility of physical injury, fire or any other damage caused in the event of the failure of any Product, such as derating, redundancy, fire control and fail-safe designs. ROHM shall bear no responsibility whatsoever for your use of any Product outside of the prescribed scope or not in accordance with the instruction manual.

The Products are not designed or manufactured to be used with any equipment, device or system which requires an extremely high level of reliability the failure or malfunction of which may result in a direct threat to human life or create a risk of human injury (such as a medical instrument, transportation equipment, aerospace machinery, nuclear-reactor controller, fuel-controller or other safety device). ROHM shall bear no responsibility in any way for use of any of the Products for the above special purposes. If a Product is intended to be used for any such special purpose, please contact a ROHM sales representative before purchasing.

If you intend to export or ship overseas any Product or technology specified herein that may be controlled under the Foreign Exchange and the Foreign Trade Law, you will be required to obtain a license or permit under the Law.



Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

<http://www.rohm.com/contact/>