Double Digits High Brightness, LED Numeric Display LBP-602 A / K2 Series Datasheet

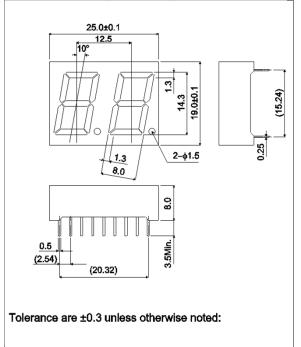
LBP-602 A / K2 series are the numberical display units featuring ROHM's in-house 4-element (AlGaInP) high-brightness LED dies. Their luminous intensity is top class in the industry while degradation is considerably slow, which helps to keep illumination vividness almost unchanged and the image of sets high over a long period of time.

Features

ROHM

- 1) 14.3mm for letter height, two-lines 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	itting color Red		Yellow (NRND)	Green	
Anode	LBP-602VA2	LBP-602DA2	LBP-602YA2	LBP-602MA2	
Cathode	LBP-602VK2	LBP-602DK2	LBP-602YK2	LBP-602MK2	

•Pin assignments

+

a1

g1

Digit 1

Pin No. 1 2 3 4 5 6

b1

c1 e2

D.P1

12 11 10

+

b2

c2 ⊖

D.P2

a2

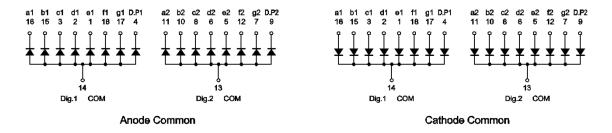
 a^2

Digit 2

18 17 16 15 14 13

Pin No.	Function
1	Segment "e1"
2	Segment "d1"
3	Segment "c1"
4	D.P1
5	Segment "e2"
6	Segment "d2"
7	Segment "g2"
8	Segment "c2"
9	D.P2
10	Segment "b2"
11	Segment "a2"
12	Segment "f2"
13	Digit 2 Common
14	Digit 1 Common
15	Segment "b1"
16	Segment "a1"
17	Segment "g1"
18	Segment "f1"

Internal circuit schematic



●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Red	Orange	Yellow (NRND)	Green	Unit	
	-	LBP-602VA2 / VK2	LBP-602DA2 / DK2	LBP-602YA2 / YK2	LBP-602MA2 / MK2		
Power dissipation	P _D	896	896	896	896	mW	
Power dissipation	P_D/seg	56	56	56	56	mW	
Forward current	۱ _F	20	20	20	20	mA	
Peak forward current	I _{FP}	60 *	60 *	60 *	60 *	mA	
Reverse voltage	V _R	5	5	5	5	V	
Operating temperature	T_{opr}	-25 to +75					
Storage temperature	T _{stg}	-30 to +85					

* Pulse width 1ms, duty 1 / 5

●Electrical and optical characteristics (T_a = 25°C)

Parameter	Symbol	Symbol Conditions		Red		Orange		Yellow (NRND)		Green	
				Max.	Тур.	Max.	Тур.	Max.	Тур.	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 halfwidth	Δλ	I _F =10mA	20	-	20	-	20	-	20	-	nm

O Not designed for radiation resistance.

•Luminous intensity

Parameter	λρ	Туре	Min.	Тур.	Max.	Unit
Red	650	LBP-602VA2	14	20		mod
Reu	050	LBP-602VK2	14	36	-	mcd
Oranga	605	LBP-602DA2	56	050		mcd
Orange	605	LBP-602DK2	90	250	-	
Yellow	500	LBP-602YA2	90	450		mcd
(NRND)	590	LBP-602YK2	90	450	-	
Green	572	LBP-602MA2	26	100		mod
Green	572	LBP-602MK2	36	100	-	mcd

© Condition I_F=10mA

●Iv classification

Parameter	Туре	Item	lv cla	lv classification			
		" N "	14	to	28	mcd	
		"P"	22	to	45	mcd	
Red	LBP-602VA2 LBP-602VK2	" Q "	36	to	71	mcd	
		" R "	56	to	110	mcd	
		" S "	90	to	(180)	mcd	
	LBP-602DA2 LBP-602DK2	" R "	56	to	110	mcd	
		" S "	90	to	180	mcd	
Orange		"Т"	140	to	280	mcd	
		" U "	220	to	450	mcd	
		" V "	360	to	(710)	mcd	
	LBP-602MA2 LBP-602MK2	" Q "	36	to	71	mcd	
Green		" R "	56	to	110	mcd	
		" S "	90	to	180	mcd	
		"Т"	140	to	280	mcd	
		" U "	220	to	(450)	mcd	

© Condition I_F=10mA

•Electrical and optical characteristics curves

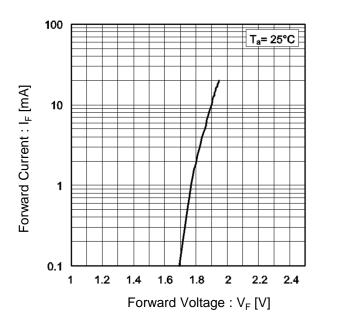


Fig.1 Forward Current vs. Forward Voltage

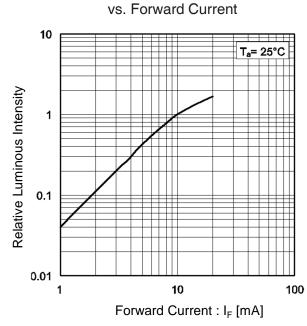


Fig.2 Relative Luminous Intensity

Fig.3 Relative Luminous Intensity vs. Case Temperature

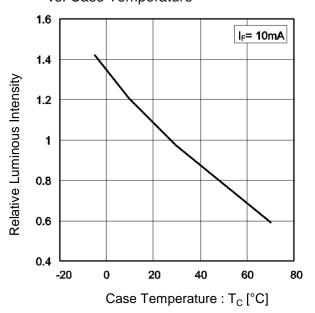
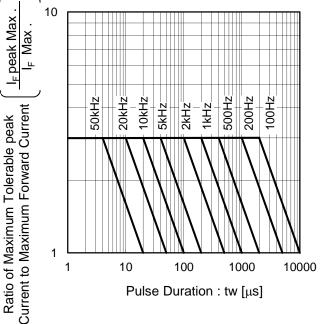


Fig.4 Ratio of Maximum Tolerable Peak Current vs. Pulse Duration



•Electrical and optical characteristics curves

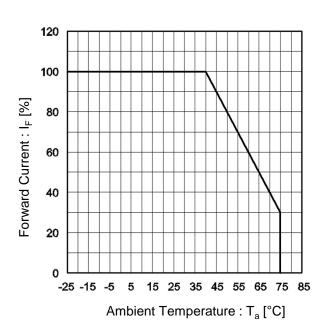


Fig.5 Derating





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