

# High efficiency, two-digit numeric displays

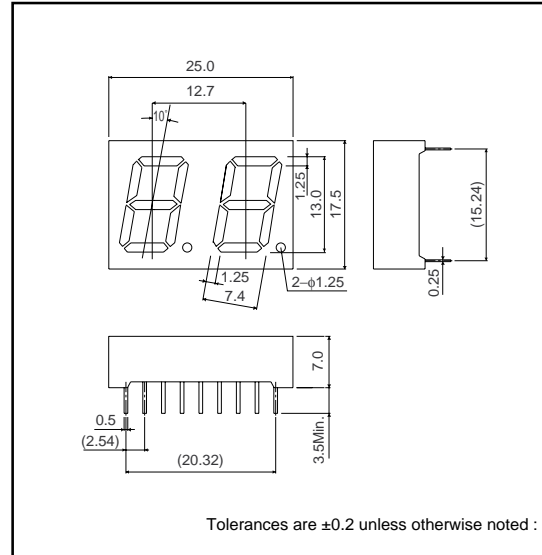
## LB-502DN Series

The LB-502DN series were designed to meet the need for multi-digit numeric displays. These LED numeric displays use GaAsP on GaP for the emitting material (with the exception of green) and are housed in an epoxy resin package. They are two-digit displays with a character height of 13.0mm.

### ●Features

- 1) Height of character: 13.0mm
- 2) Common anode and common cathode configurations are available for each color.
- 3) High efficiency reflectors are used to achieve a bright, clear display.
- 4) The package surface is painted black and the segments are colored the display color.

### ●Dimensions (Unit: mm)

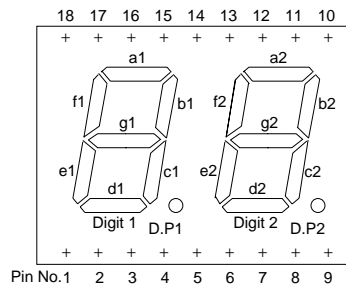


### ●Selection guide

Emitting color	Red	Orange	Green
	Common		
Anode	LB-502VD	LB-502DD *	LB-502MD
Cathode	LB-502VN	LB-502DN *	LB-502MN

\* Order-based production.

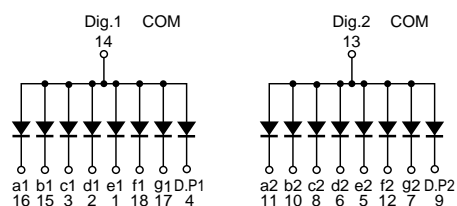
### ●Pin assignments



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

## LED displays

## ●Internal circuit schematic (example of common anode)



## ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Red	Orange	Green	Unit
		LB-502VD / VN	LB-502DD / DN	LB-502MD / MN	
Power dissipation	$P_D$	960	960	960	mW
Power dissipation	$P_D / \text{seg}$	60	60	60	mW
Forward current	$I_F$	20	20	20	mA
Peak forward current	$I_{FP}$	60*	60*	60*	mA
Reverse voltage	$V_R$	5	5	5	V
Operating temperature	$T_{opr}$	-25~+75			°C
Storage temperature	$T_{stg}$	-30~+85			°C

\* Pulse width 1ms duty 1 / 5

## ●Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Red			Orange			Green			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward voltage	$V_F$	$I_F=10\text{mA}$	-	2.0	2.8	-	2.0	2.8	-	2.1	2.8	V
Reverse current	$I_R$	$V_R=5\text{V}$	-	-	100	-	-	100	-	-	100	$\mu\text{A}$
Peak wavelength	$\lambda_P$	$I_F=10\text{mA}$	-	650	-	-	610	-	-	563	-	nm
Spectral line half width	$\Delta\lambda$	$I_F=10\text{mA}$	-	40	-	-	40	-	-	40	-	nm

© Not designed for radiation resistance.

## ●Luminous intensity

Color	$\lambda_P$	Type	Min.	Typ.	Max.	Unit
Red	650	LB-502VD	5.6	16	-	mcd
		LB-502VN				
Orange	610	LB-502DD	5.6	16	-	mcd
		LB-502DN				
Green	563	LB-502MD	9.0	25	-	mcd
		LB-502MN				

Note : Measured at  $I_F=10\text{mA}$

LED displays

●Electrical and optical characteristic curves

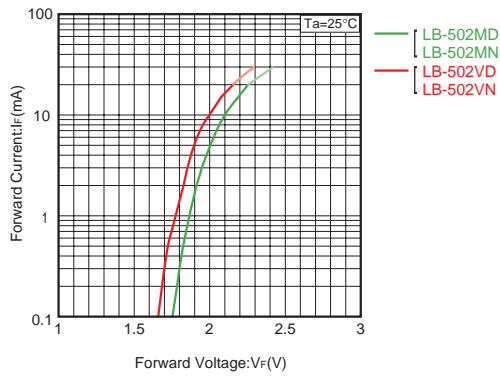


Fig.1 Forward Current - Forward Voltage

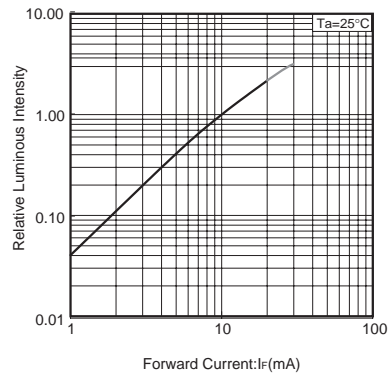


Fig.2 Relative Luminous Intensity - Forward Current

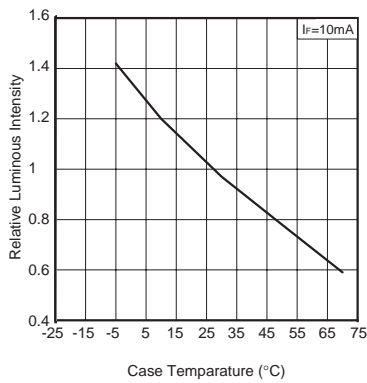


Fig.3 Relative Luminous Intensity - Case Temperature

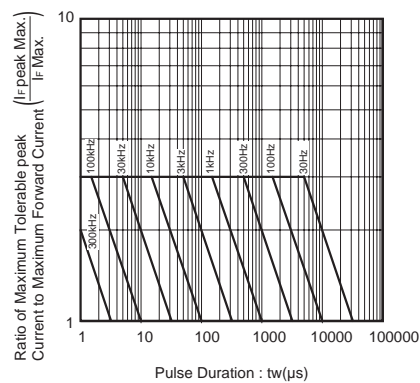


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration

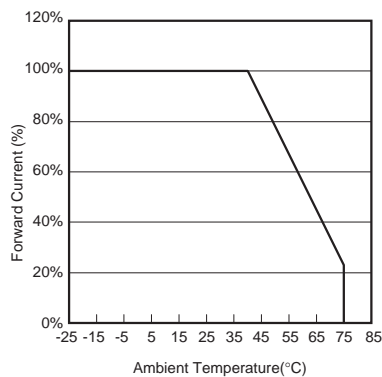


Fig.5 Derating

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