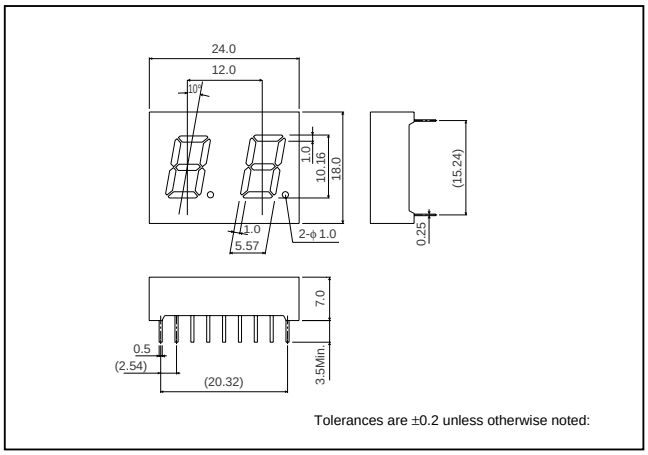
High efficiency, two-digit numeric displays

LB-402DN Series

The LB-402 DN 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 10.16 mm.

●**Dimensions** (Unit : mm)



●**Features**

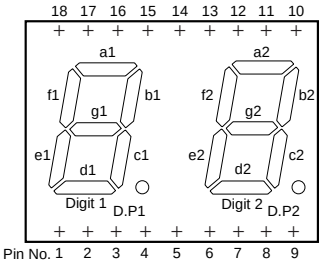
1) Height of character : 10.16 mm
2) Common anode and common cathode configurations are available for each color.
3) The package surface is painted black and the segments are colored the display color.
4) High efficiency reflectors are used to achieve a bright, clear display.

●**Selection guide**

Common \ Emitting color	Red	Orange	Yellow	Green
Anode	LB-402VD	LB-402DD*	LB-402YD*	LB-402MD
Cathode	LB-402VN	LB-402DN*	LB-402YN*	LB-402MN

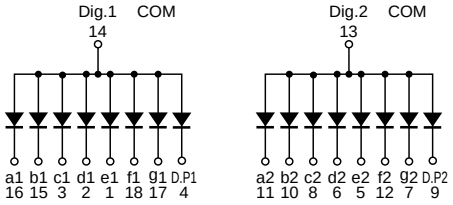
*Order-based production.

●**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"

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



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

Parameter	Symbol	Red	Orange	Yellow	Green	Unit
		LB-402VD / VN	LB-402DD / DN	LB-402YD / YN	LB-402MD / MN	
Power dissipation	P_D	640	640	640	960	mW
Power dissipation	P_D / seg	40	40	40	60	mW
Forward current	I_F	15	15	15	20	mA
Peak forward current	I_{FP}	60*	60*	60*	60*	mA
Reverse voltage	V_R	3	3	3	3	V
Operating temperature	Topr	–25~+75				°C
Storage temperature	Tstg	–30~+85				°C

* Pulse width 1ms duty 1 / 5

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

Parameter	Symbol	Conditions	Red			Orange			Yellow			Green			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 10mA	–	2.0	2.8	–	2.0	2.8	–	2.1	2.8	–	2.1	2.8	V
Reverse current	I_R	V_R = 3V	–	–	100	–	–	100	–	–	100	–	–	100	μA
Peak wavelength	λ_P	I_F = 10mA	–	650	–	–	610	–	–	585	–	–	563	–	nm
Spectral line half width	$\Delta\lambda$	I_F = 10mA	–	40	–	–	40	–	–	40	–	–	40	–	nm

◎Not designed for radiation resistance.

● **Luminous intensity**

Color	λ_P	Type	Min.	Typ.	Max.	Unit
Red	650	LB-402VD	5.6	16	–	mcd
		LB-402VN				
Orange	610	LB-402DD	3.6	10	–	mcd
		LB-402DN				
Yellow	585	LB-402YD	3.6	10	–	mcd
		LB-402YN				
Green	563	LB-402MD	9.0	25	–	mcd
		LB-402MN				

Note : Measured at I_F = 10mA

● Electrical and optical characteristic curves

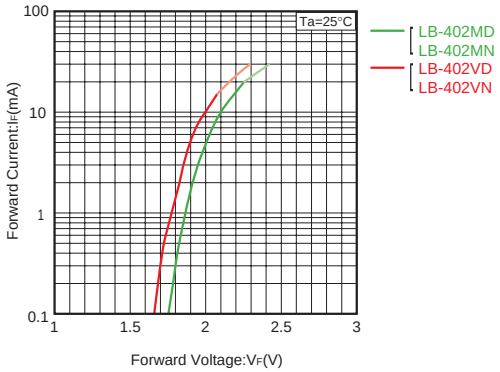


Fig.1 Forward Current - Forward Voltage

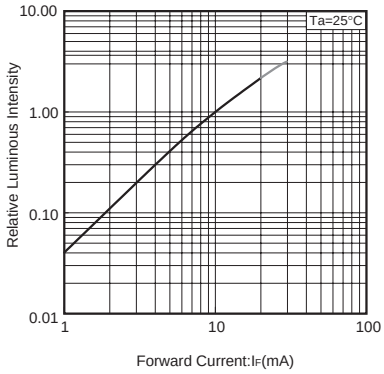


Fig.2 Relative Luminous Intensity - Forward Current

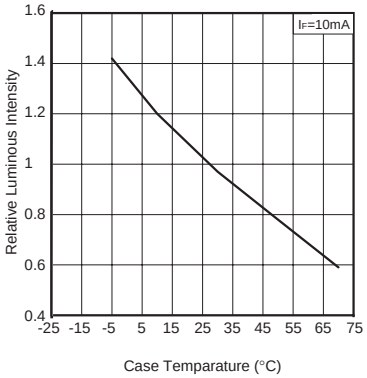


Fig.3 Relative Luminous Intensity - Case Temperature

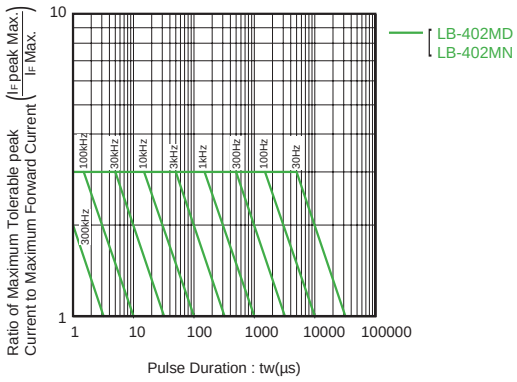


Fig.4 Ratio of Maximum Tolerable Peak Current - Pulse Duration (I)

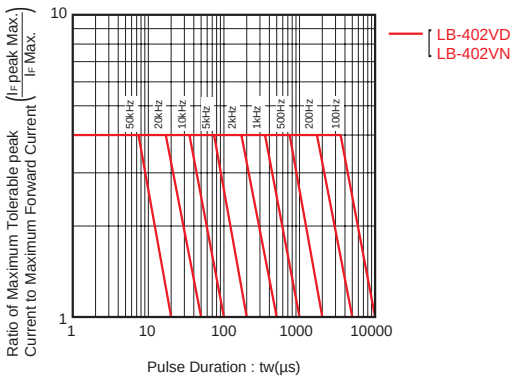


Fig.5 Ratio of Maximum Tolerable Peak Current - Pulse Duration (II)

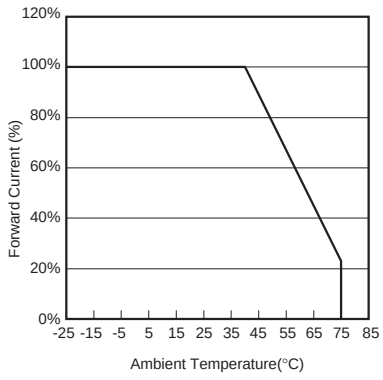


Fig.6 Derating

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