

## LED NUMERIC DISPLAY, 2 DIGIT

BL-D50X-22

### Features:

- 12.70mm (0.50") Dual digit numeric display series.
- Low current operation.
- Excellent character appearance.
- Easy mounting on P.C. Boards or sockets.
- I.C. Compatible.
- ROHS Compliance.



### ■ Super Bright

**Electrical-optical characteristics: (Ta=25°C)** (Test Condition: IF=20mA)

| Part No         |                 | Chip          |                 |                  | VF Unit:V |      | Iv<br>TYP.(mcd) |
|-----------------|-----------------|---------------|-----------------|------------------|-----------|------|-----------------|
| Common Cathode  | Common Anode    | Emitted Color | Material        | $\lambda_P$ (nm) | Typ       | Max  |                 |
| BL-D50A-22S-XX  | BL-D50B-22S-XX  | Hi Red        | GaAlAs/GaAs,SH  | 660              | 1.85      | 2.20 | 100             |
| BL-D50A-22D-XX  | BL-D50B-22D-XX  | Super Red     | GaAlAs/GaAs,DH  | 660              | 1.85      | 2.20 | 160             |
| BL-D50A-22UR-XX | BL-D50B-22UR-XX | Ultra Red     | GaAlAs/GaAs,DDH | 660              | 1.85      | 2.20 | 190             |
| BL-D50A-22E-XX  | BL-D50B-22E-XX  | Red           | GaAsP/GaP       | 635              | 2.10      | 2.50 | 60              |
| BL-D50A-22Y-XX  | BL-D50B-22Y-XX  | Yellow        | GaAsP/GaP       | 585              | 2.10      | 2.50 | 55              |
| BL-D50A-22G-XX  | BL-D50B-22G-XX  | Green         | GaP/GaP         | 570              | 2.20      | 2.50 | 40              |

### ■ Ultra Bright

**Electrical-optical characteristics: (Ta=25° C)** (Test Condition: IF=20mA)

| Part No          |                  | Chip             |          |                  | VF Unit:V |      | Iv<br>TYP.(mcd) |
|------------------|------------------|------------------|----------|------------------|-----------|------|-----------------|
| Common Cathode   | Common Anode     | Emitted Color    | Material | $\lambda_P$ (nm) | Typ       | Max  |                 |
| BL-D50A-22UHR-XX | BL-D50B-22UHR-XX | Ultra Red        | AlGaInP  | 645              | 2.10      | 2.50 | 190             |
| BL-D50A-22UE-XX  | BL-D50B-22UE-XX  | Ultra Red        | AlGaInP  | 630              | 2.10      | 2.50 | 120             |
| BL-D50A-22YO-XX  | BL-D50B-22YO-XX  | Ultra Amber      | AlGaInP  | 619              | 2.10      | 2.50 | 120             |
| BL-D50A-22UY-XX  | BL-D50B-22UY-XX  | Ultra Yellow     | AlGaInP  | 590              | 2.10      | 2.50 | 120             |
| BL-D50A-22UG-XX  | BL-D50B-22UG-XX  | Ultra Green      | AlGaInP  | 574              | 2.20      | 2.50 | 115             |
| BL-D50A-22PG-XX  | BL-D50B-22PG-XX  | Ultra Pure Green | InGaIn   | 525              | 3.80      | 4.50 | 185             |
| BL-D50A-22B-XX   | BL-D50B-22B-XX   | Ultra Blue       | InGaIn   | 470              | 2.70      | 4.20 | 75              |
| BL-D50A-22W-XX   | BL-D50B-22W-XX   | Ultra White      | InGaIn   | /                | 2.70      | 4.20 | 75              |

### ■ -XX: Surface / Lens color:

| Number            | 0           | 1              | 2            | 3              | 4               | 5 |
|-------------------|-------------|----------------|--------------|----------------|-----------------|---|
| Ref Surface Color | White       | Black          | Gray         | Red            | Green           |   |
| Epoxy Color       | Water clear | White diffused | Red Diffused | Green Diffused | Yellow Diffused |   |

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

| Parameter                                          |                                                                       | S   | D   | UR  | E   | Y   | G   | Unit |
|----------------------------------------------------|-----------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|------|
| Forward Current $I_F$                              |                                                                       | 25  | 25  | 25  | 25  | 25  | 30  | mA   |
| Power Dissipation $P_d$                            |                                                                       | 60  | 60  | 60  | 60  | 60  | 65  | mW   |
| Reverse Voltage $V_R$                              |                                                                       | 5   | 5   | 5   | 5   | 5   | 5   | V    |
| Peak Forward Current $I_{PF}$<br>(Duty 1/10 @1KHZ) |                                                                       | 150 | 150 | 150 | 150 | 150 | 150 | mA   |
| Operation Temperature $T_{OPR}$                    | -40 to +80                                                            |     |     |     |     |     |     | °C   |
| Storage Temperature $T_{STG}$                      | -40 to +85                                                            |     |     |     |     |     |     | °C   |
| Lead Soldering Temperature<br>$T_{SOL}$            | Max.260±5°C for 3 sec Max.<br>(1.6mm from the base of the epoxy bulb) |     |     |     |     |     |     | °C   |

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

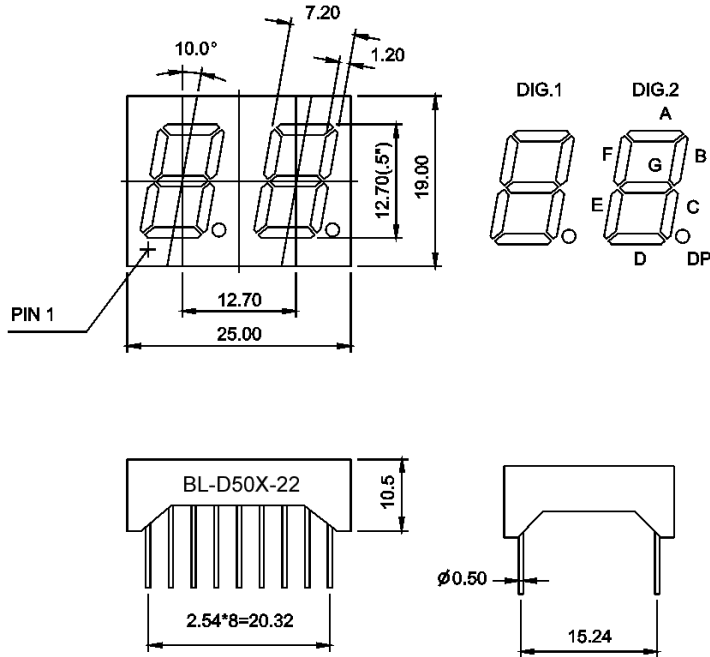
| Parameter                                          | UHR                                                                   | UE  | YO  | UY  | UG  | PG  | UB  | UW  | Unit |
|----------------------------------------------------|-----------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current $I_F$                              | 30                                                                    | 30  | 30  | 30  | 30  | 30  | 30  | 30  | mA   |
| Power Dissipation $P_d$                            | 75                                                                    | 65  | 65  | 65  | 75  | 110 | 120 | 120 | mW   |
| Reverse Voltage $V_R$                              | 5                                                                     | 5   | 5   | 5   | 5   | 5   | 5   | 5   | V    |
| Peak Forward Current $I_{PF}$<br>(Duty 1/10 @1KHZ) | 150                                                                   | 150 | 150 | 150 | 150 | 150 | 100 | 100 | mA   |
| Operation Temperature $T_{OPR}$                    | -40 to +80                                                            |     |     |     |     |     |     |     | °C   |
| Storage Temperature $T_{STG}$                      | -40 to +85                                                            |     |     |     |     |     |     |     | °C   |
| Lead Soldering Temperature<br>$T_{SOL}$            | Max.260±5°C for 3 sec Max.<br>(1.6mm from the base of the epoxy bulb) |     |     |     |     |     |     |     | °C   |

## LED NUMERIC DISPLAY, 2 DIGIT

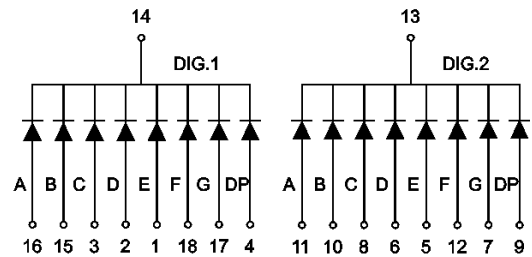
BL-D50X-22

### ■ Package configuration & Internal circuit diagram

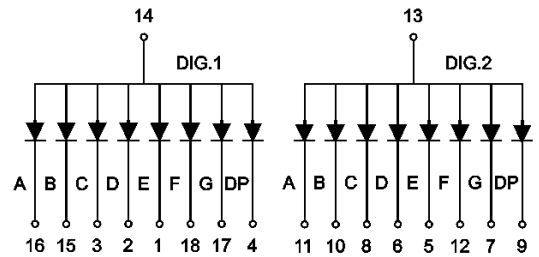
#### BL-D50X-22 Series



#### BL-D50A-22



#### BL-D50B-22



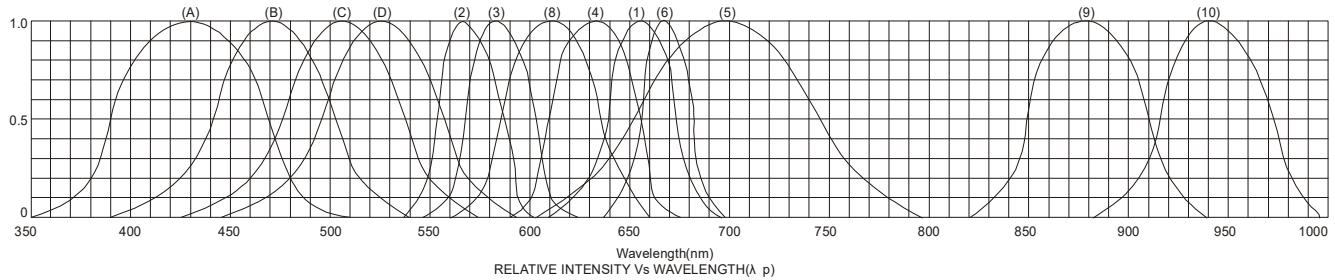
#### Notes:

1. All dimensions are in millimeters (inches)
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Specifications are subject to change without notice.

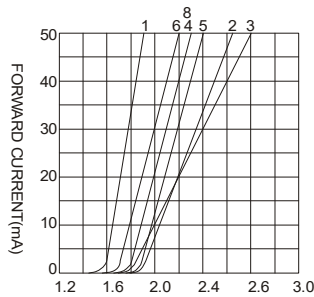
## LED NUMERIC DISPLAY, 2 DIGIT

**BL-D50X-22**

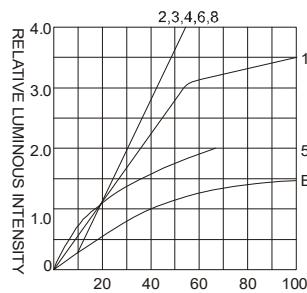
### ■ Typical electrical-optical characteristics curves:



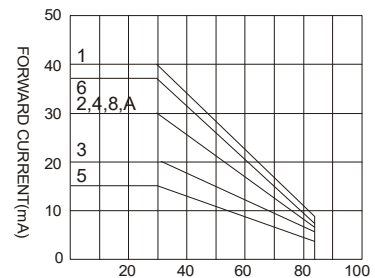
- |                                           |                                      |
|-------------------------------------------|--------------------------------------|
| (1) - GaAsP/GaAs 655nm/Red                | (9) - GaAlAs 880nm                   |
| (2) - GaP 570nm/Yellow Green              | (10) - GaAs/GaAs & GaAlAs/GaAs 940nm |
| (3) - GaAsP/GaP 585nm/Yellow              | (A) - GaN/SiC 430nm/Blue             |
| (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B) - InGaN/SiC 470nm/Blue           |
| (5) - GaP 700nm/Bright Red                | (C) - InGaN/SiC 505nm/Ultra Green    |
| (6) - GaAlAs/GaAs 660nm/Super Red         | (D) - InGaAl/SiC 525nm/Ultra Green   |
| (8) - GaAsP/GaP 610nm/Super Red           |                                      |



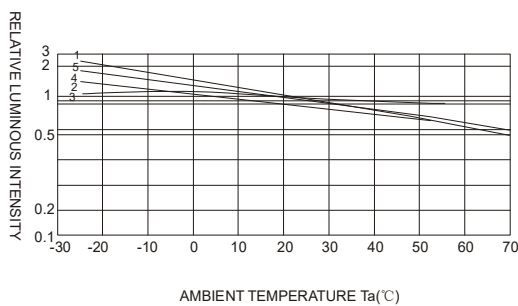
FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



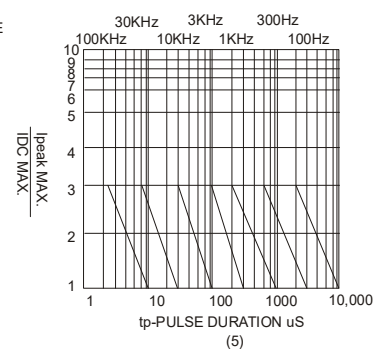
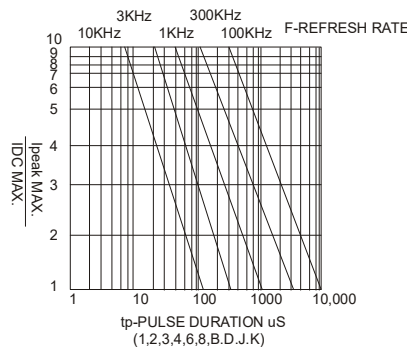
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



AMBIENT TEMPERATURE Ta(°C)  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta(°C)



NOTE: 25°C free air temperature unless otherwise specified

## LED NUMERIC DISPLAY, 2 DIGIT

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### ■ Packing and weighting

