

## LED DOT MATRIX

BL-M15X881

### Features:

- 38.00mm (1.5") Φ3.7 dot matrix LED display.
- 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) |
|-----------------------------|-----------------------------|---------------|-----------------|------------------------|-----------|------|-----------------|
| Row Cathode<br>Column Anode | Row Anode<br>Column Cathode | Emitted Color | Material        | λ <sub>P</sub><br>(nm) | Typ       | Max  |                 |
| BL-M15C881S-XX              | BL-M15D881S-XX              | Hi Red        | GaAlAs/GaAs,SH  | 660                    | 1.85      | 2.20 | 250             |
| BL-M15C881D-XX              | BL-M15D881D-XX              | Super Red     | GaAlAs/GaAs,DH  | 660                    | 1.85      | 2.20 | 320             |
| BL-M15C881UR-XX             | BL-M15D881UR-XX             | Ultra Red     | GaAlAs/GaAs,DDH | 660                    | 1.85      | 2.20 | 400             |
| BL-M15C881E-XX              | BL-M15D881E-XX              | Red           | GaAsP/GaP       | 635                    | 2.10      | 2.50 | 190             |
| BL-M15C881Y-XX              | BL-M15D881Y-XX              | Yellow        | GaAsP/GaP       | 585                    | 2.10      | 2.50 | 190             |
| BL-M15C881G-XX              | BL-M15D881G-XX              | Green         | GaP/GaP         | 570                    | 2.20      | 2.50 | 195             |

### Ultra Bright

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

| Part No                     |                             | Chip             |          |                        | VF Unit:V |      | Iv<br>TYP.(mcd) |
|-----------------------------|-----------------------------|------------------|----------|------------------------|-----------|------|-----------------|
| Row Cathode<br>Column Anode | Row Anode<br>Column Cathode | Emitted Color    | Material | λ <sub>P</sub><br>(nm) | Typ       | Max  |                 |
| BL-M15C881UHR-XX            | BL-M15D881UHR-XX            | Ultra Red        | AlGaInP  | 645                    | 2.10      | 2.50 | 400             |
| BL-M15C881UE-XX             | BL-M15D881UE-XX             | Ultra Red        | AlGaInP  | 630                    | 2.10      | 2.50 | 235             |
| BL-M15C881YO-XX             | BL-M15D881YO-XX             | Ultra Amber      | AlGaInP  | 619                    | 2.10      | 2.50 | 235             |
| BL-M15C881UY-XX             | BL-M15D881UY-XX             | Ultra Yellow     | AlGaInP  | 590                    | 2.10      | 2.50 | 235             |
| BL-M15C881UG-XX             | BL-M15D881UG-XX             | Ultra Green      | AlGaInP  | 574                    | 2.20      | 2.50 | 250             |
| BL-M15C881PG-XX             | BL-M15D881PG-XX             | Ultra Pure Green | InGaN    | 525                    | 3.80      | 4.50 | 270             |
| BL-M15C881B-XX              | BL-M15D881B-XX              | Ultra Blue       | InGaN    | 470                    | 2.70      | 4.20 | 180             |
| BL-M15C881W-XX              | BL-M15D881W-XX              | Ultra White      | InGaN    | /                      | 2.70      | 4.20 | 235             |

·-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 |   |

**LED DOT MATRIX**
**BL-M15X881**
**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)**

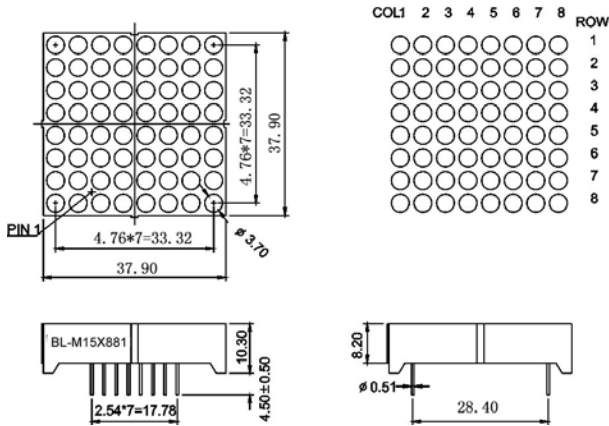
| Parameter  | UHR   | UE  | YO  | UY  | UG  | PG  | B   | W   | Unit |
|--|---|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current $I_F$                              | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | mA   |
| Power Dissipation $P_d$                            | 75  | 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 DOT MATRIX

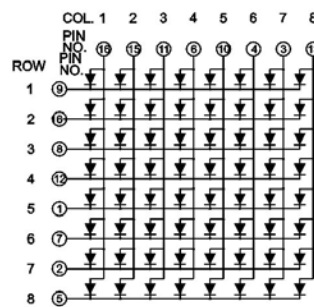
BL-M15X881

## Package configuration & Internal circuit diagram

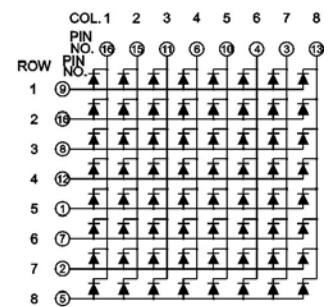
### BL-M15X881 Series



### BL-M15C881



### BL-M15D881



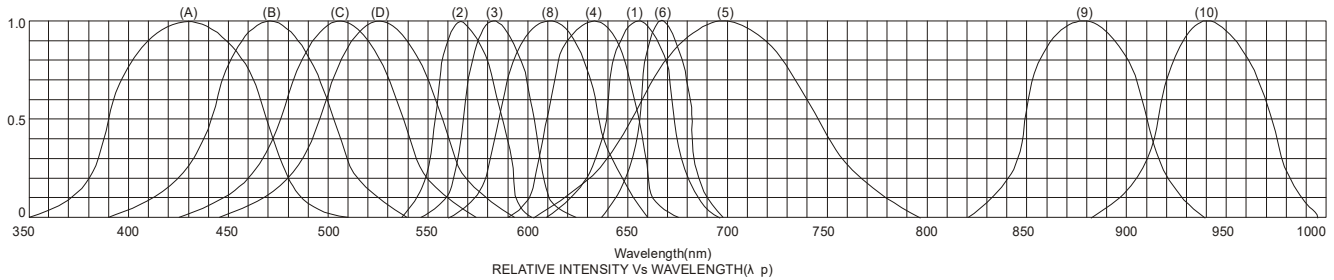
### Notes:

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.

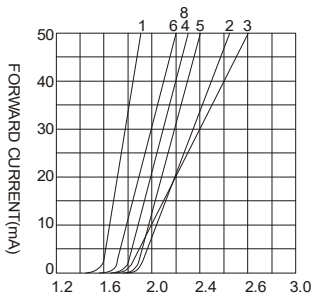
# LED DOT MATRIX

**BL-M15X881**

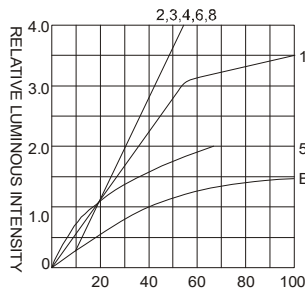
## Typical electrical-optical characteristics curves:



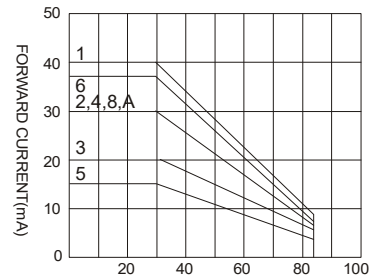
- (1) - GaAsP/GaAs 655nm/Red
- (2) - GaP 570nm/Yellow Green
- (3) - GaAsP/GaP 585nm/Yellow
- (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) - GaP 700nm/Bright Red
- (6) - GaAlAs/GaAs 660nm/Super Red
- (8) - GaAsP/GaP 610nm/Super Red
- (9) - GaAlAs 880nm
- (10) - GaAs/GaAs & GaAlAs/GaAs 940nm
- (A) -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



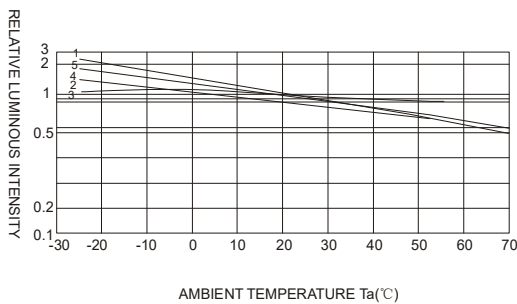
FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



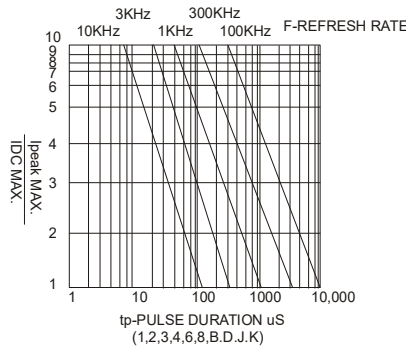
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



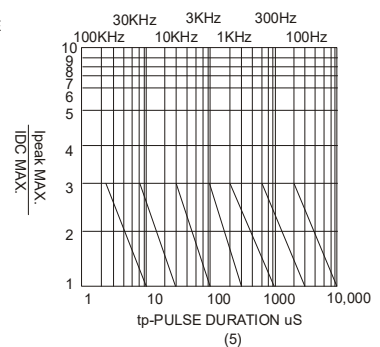
AMBIENT TEMPERATURE Ta(°C)  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta(°C)



tp-PULSE DURATION µS  
(1,2,3,4,6,8,B,D,J,K)



(5)

NOTE: 25°C free air temperature unless otherwise specified

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■ **Packing and weighting**

