

**LED DOT MATRIX**
**BL-M12X573**
**Features:**

- Ø 42.00mm (1.6") 4.0x4.0 SQUARE dot matrix LED display..
- Ø Low current operation.
- Ø Excellent character appearance.
- Ø Easy mounting on P.C. Boards or sockets.
- Ø I.C. Compatible.
- Ø ROHS Compliance.


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

| Part No         |              |                 | Chip           |               |                 | VF Unit:V        |      | Iv   |           |
|-----------------|--------------|-----------------|----------------|---------------|-----------------|------------------|------|------|-----------|
| Row Cathode     | Column Anode | Row Anode       | Column Cathode | Emitted Color | Material        | $\lambda_p$ (nm) | Typ  | Max  | TYP.(mcd) |
| BL-M12A573S-XX  |              | BL-M12B573S-XX  |                | Hi Red        | GaAlAs/GaAs,SH  | 660              | 1.85 | 2.20 | 100       |
| BL-M12A573D-XX  |              | BL-M12B573D-XX  |                | Super Red     | GaAlAs/GaAs,DH  | 660              | 1.85 | 2.20 | 110       |
| BL-M12A573UR-XX |              | BL-M12B573UR-XX |                | Ultra Red     | GaAlAs/GaAs,DDH | 660              | 1.85 | 2.20 | 120       |
| BL-M12A573E-XX  |              | BL-M12B573E-XX  |                | Orange        | GaAsP/GaP       | 635              | 2.10 | 2.50 | 90        |
| BL-M12A573Y-XX  |              | BL-M12B573Y-XX  |                | Yellow        | GaAsP/GaP       | 585              | 2.10 | 2.50 | 90        |
| BL-M12A573G-XX  |              | BL-M12B573G-XX  |                | Green         | GaP/GaP         | 570              | 2.20 | 2.50 | 95        |

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

| Part No          |              | Chip             |                |                  | VF Unit:V |                  | Iv   |      |           |
|------------------|--------------|------------------|----------------|------------------|-----------|------------------|------|------|-----------|
| Row Cathode      | Column Anode | Row Anode        | Column Cathode | Emitted Color    | Material  | $\lambda_p$ (nm) | Typ  | Max  | TYP.(mcd) |
| BL-M12A573UHR-XX |              | BL-M12B573UHR-XX |                | Ultra Red        | AlGaInP   | 645              | 2.10 | 2.50 | 120       |
| BL-M12A573UE-XX  |              | BL-M12B573UE-XX  |                | Ultra Orange     | AlGaInP   | 630              | 2.10 | 2.50 | 100       |
| BL-M12A573YO-XX  |              | BL-M12B573YO-XX  |                | Ultra Amber      | AlGaInP   | 619              | 2.10 | 2.50 | 100       |
| BL-M12A573UY-XX  |              | BL-M12B573UY-XX  |                | Ultra Yellow     | AlGaInP   | 590              | 2.10 | 2.50 | 100       |
| BL-M12A573UG-XX  |              | BL-M12B573UG-XX  |                | Ultra Green      | AlGaInP   | 574              | 2.20 | 2.50 | 130       |
| BL-M12A573PG-XX  |              | BL-M12B573PG-XX  |                | Ultra Pure Green | InGaN     | 525              | 3.80 | 4.50 | 150       |
| BL-M12A573B-XX   |              | BL-M12B573B-XX   |                | Ultra Blue       | InGaN     | 470              | 2.70 | 4.20 | 70        |
| BL-M12A573W-XX   |              | BL-M12B573W-XX   |                | Ultra White      | InGaN     | /                | 2.70 | 4.20 | 100       |

--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 |   |

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

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| 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)**

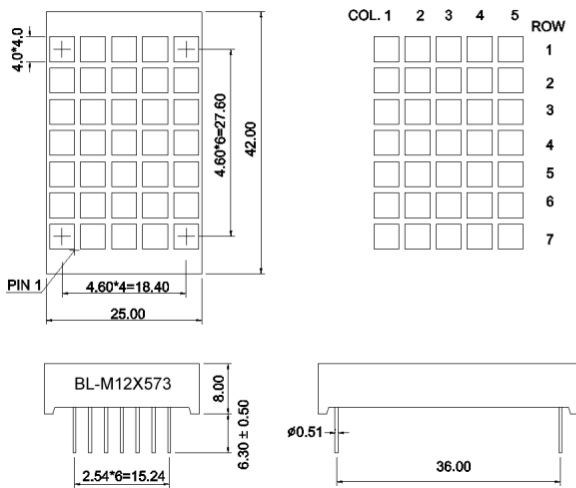
| Parameter  | UHR   | UE  | YO  | UY  | UG  | PG  | B   | W   | Unit |
|--|---|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current $I_F$                              | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30  | mA   |
| Power Dissipation $P_d$                            | 75  |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

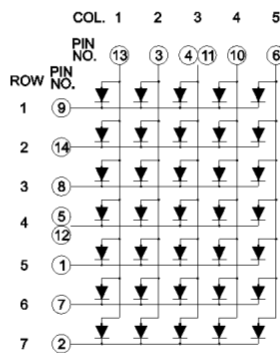
BL-M12X573

### Package configuration & Internal circuit diagram

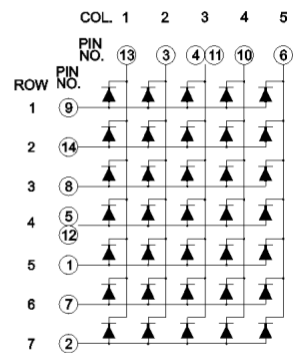
#### BL-M12X573 Series



#### BL-M12A573



#### BL-M12B573



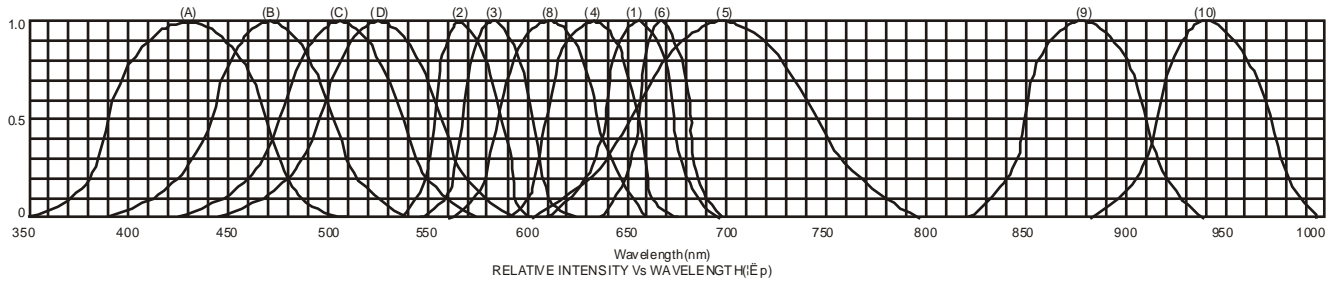
#### Notes:

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.

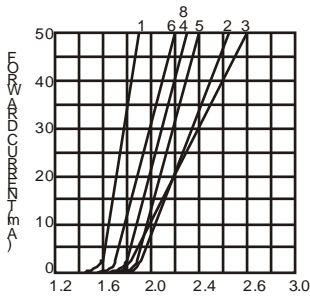
## LED DOT MATRIX

BL-M12X573

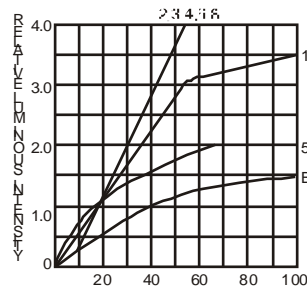
### Typical electrical-optical characteristics curves:



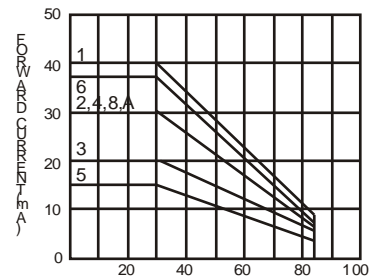
- (1) - GaAsP/GaAs 655nm/Red
- (2) - GaP 570nm/Yellow Green
- (3) - GaAsP/GaP 585nm/Yellow
- (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) - GaP 700nm/Bright Red
- (6) - GaAlAs/GaAs 660nm/Super Red
- (8) - GaAsP/GaP 610nm/Super Red
- (9) - GaAlAs 880nm
- (10) - GaAs/GaAs & GaAlAs/GaAs 940nm
- (A) -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



FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



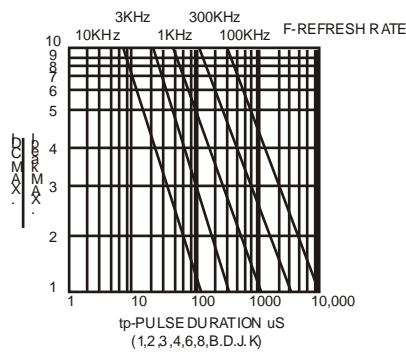
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



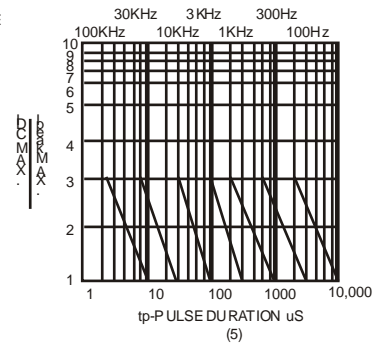
AMBIENT TEMPERATURE Ta ( °C )  
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE Ta ( °C )



tp-PULSE DURATION  $\mu$ S  
(1,2,3,4,6,8,B,D,J,K)



(5)

NOTE: 25 free air temperature unless otherwise specified