

LED DOT MATRIX

BL-M12X591

Features:

- 39.00mm (1.2") 4.0x4.0 SQUARE 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 |
|-----------------|--------------|-----------------|----------------|---------------|-----------------|------------------|-----------|
| Row Cathode | Column Anode | Row Anode | Column Cathode | Emitted Color | Material | λ_p (nm) | TYP.(mcd) |
| | | | | | | | |
| BL-M12A591S-XX | | BL-M12B591S-XX | | Hi Red | GaAlAs/GaAs,SH | 660 | 105 |
| BL-M12A591D-XX | | BL-M12B591D-XX | | Super Red | GaAlAs/GaAs,DH | 660 | 115 |
| BL-M12A591UR-XX | | BL-M12B591UR-XX | | Ultra Red | GaAlAs/GaAs,DDH | 660 | 125 |
| BL-M12A591E-XX | | BL-M12B591E-XX | | Red | GaAsP/GaP | 635 | 95 |
| BL-M12A591Y-XX | | BL-M12B591Y-XX | | Yellow | GaAsP/GaP | 585 | 95 |
| BL-M12A591G-XX | | BL-M12B591G-XX | | Green | GaP/GaP | 570 | 100 |

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 | λ_p (nm) | TYP.(mcd) |
| | | | | | | | |
| BL-M12A591UHR-XX | | BL-M12B591UHR-XX | | Ultra Red | AlGaInP | 645 | 125 |
| BL-M12A591UE-XX | | BL-M12B591UE-XX | | Ultra Red | AlGaInP | 630 | 105 |
| BL-M12A591YO-XX | | BL-M12B591YO-XX | | Ultra Amber | AlGaInP | 619 | 105 |
| BL-M12A591UY-XX | | BL-M12B591UY-XX | | Ultra Yellow | AlGaInP | 590 | 105 |
| BL-M12A591UG-XX | | BL-M12B591UG-XX | | Ultra Green | AlGaInP | 574 | 135 |
| BL-M12A591PG-XX | | BL-M12B591PG-XX | | Ultra Pure Green | InGaN | 525 | 155 |
| BL-M12A591B-XX | | BL-M12B591B-XX | | Ultra Blue | InGaN | 470 | 75 |
| BL-M12A591W-XX | | BL-M12B591W-XX | | Ultra White | InGaN | / | 105 |

--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} (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 T_{SOL} | Max.260±5°C for 3 sec Max. (1.6mm from the base of the epoxy bulb) | | | | | | °C |

■ Absolute maximum ratings (Ta=25°C)

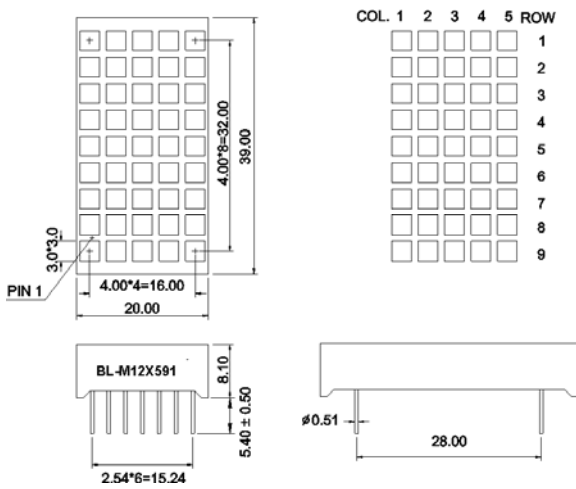
| Parameter | UHR | UE | YO | UY | UG | PG | B | W | Unit |
|--|---|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current I_F | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | mA |
| Power Dissipation P_d | 75 | 65 | 65 | 65 | 75 | 110 | 120 | 120 | mW |
| Reverse Voltage V_R | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | V |
| Peak Forward Current I_{PF} (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 T_{SOL} | Max.260±5°C for 3 sec Max. (1.6mm from the base of the epoxy bulb) | | | | | | | | °C |

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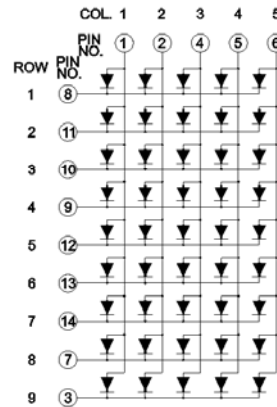
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■ Package configuration & Internal circuit diagram

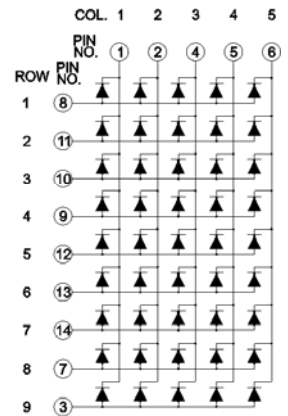
BL-M12X591 Series



BL-M12A591



BL-M12B591



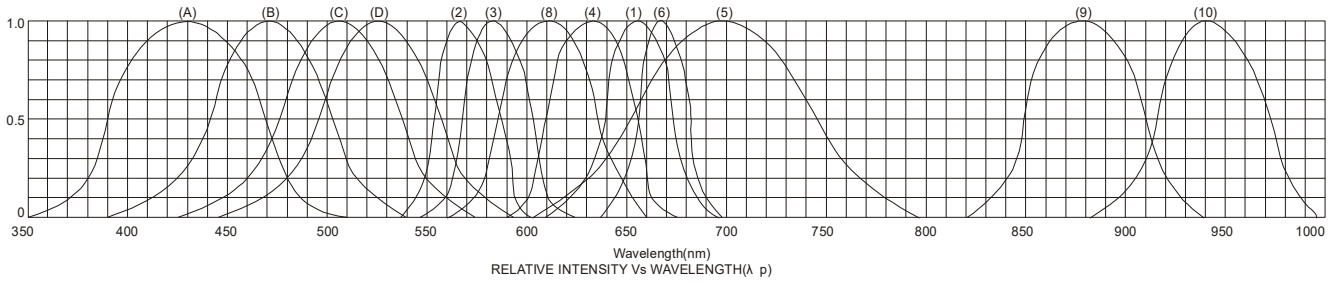
Notes:

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.

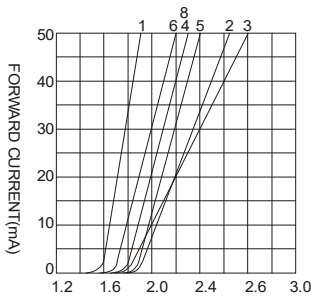
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Typical electrical-optical characteristics curves:



- (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)



NOTE:25°C free air temperature unless otherwise specified

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■ **Packing and weighting**

