

LED NUMERIC DISPLAY, 4 DIGIT
BL-Q28X-41
Features:

- 7.00mm (0.28") Four 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) (Test Condition: IF=20mA)

| Part No | | Chip | | | VF Unit:V | | Iv TYP.(mcd) |
|-----------------|-----------------|---------------|-----------------|------------------|-----------|------|--------------|
| Common Cathode | Common Anode | Emitted Color | Material | λ_p (nm) | Typ | Max | |
| BL-Q28E-41S-XX | BL-Q28F-41S-XX | Hi Red | GaAlAs/GaAs,SH | 660 | 1.85 | 2.20 | 95 |
| BL-Q28E-41D-XX | BL-Q28F-41D-XX | Super Red | GaAlAs/GaAs,DH | 660 | 1.85 | 2.20 | 110 |
| BL-Q28E-41UR-XX | BL-Q28F-41UR-XX | Ultra Red | GaAlAs/GaAs,DDH | 660 | 1.85 | 2.20 | 155 |
| BL-Q28E-41E-XX | BL-Q28F-41E-XX | Orange | GaAsP/GaP | 635 | 2.10 | 2.50 | 105 |
| BL-Q28E-41Y-XX | BL-Q28F-41Y-XX | Yellow | GaAsP/GaP | 585 | 2.10 | 2.50 | 105 |
| BL-Q28E-41G-XX | BL-Q28F-41G-XX | Green | GaP/GaP | 570 | 2.20 | 2.50 | 110 |

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

| Part No | | Chip | | | VF Unit:V | | Iv TYP.(mcd) |
|------------------|------------------|------------------|----------|------------------|-----------|------|--------------|
| Common Cathode | Common Anode | Emitted Color | Material | λ_p (nm) | Typ | Max | |
| BL-Q28E-41UHR-XX | BL-Q28F-41UHR-XX | Ultra Red | AlGaInP | 645 | 2.10 | 2.50 | 155 |
| BL-Q28E-41UE-XX | BL-Q28F-41UE-XX | Ultra Orange | AlGaInP | 630 | 2.10 | 2.50 | 110 |
| BL-Q28E-41YO-XX | BL-Q28F-41YO-XX | Ultra Amber | AlGaInP | 619 | 2.10 | 2.50 | 110 |
| BL-Q28E-41UY-XX | BL-Q28F-41UY-XX | Ultra Yellow | AlGaInP | 590 | 2.10 | 2.50 | 120 |
| BL-Q28E-41UG-XX | BL-Q28F-41UG-XX | Ultra Green | AlGaInP | 574 | 2.20 | 2.50 | 130 |
| BL-Q28E-41PG-XX | BL-Q28F-41PG-XX | Ultra Pure Green | InGaN | 525 | 3.80 | 4.50 | 190 |
| BL-Q28E-41B-XX | BL-Q28F-41B-XX | Ultra Blue | InGaN | 470 | 2.70 | 4.20 | 120 |
| BL-Q28E-41W-XX | BL-Q28F-41W-XX | Ultra White | InGaN | / | 2.70 | 4.20 | 140 |

■ -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 NUMERIC DISPLAY, 4 DIGIT
BL-Q28X-41
Absolute maximum ratings (Ta=25)

| 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 | | | | | | |
| Storage Temperature T_{STG} | -40 to +85 | | | | | | |
| Lead Soldering Temperature T_{SOL} | Max.260±5 for 3 sec Max. (1.6mm from the base of the epoxy bulb) | | | | | | |

■ Absolute maximum ratings (Ta=25°C)

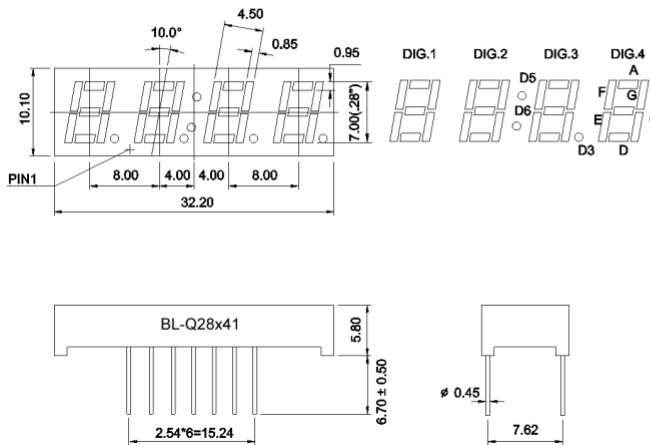
| Parameter | UHR | UE | YO | UY | UG | PG | UB | UW | Unit |
|--|---|-----|-----|-----|-----|-----|-----|-----|------|
| Forward Current I_f | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | mA |
| Power Dissipation P_d | 75 | 65 | 65 | 65 | 75 | 110 | 120 | 120 | mW |
| Reverse Voltage V_R | 5 | 5 | 5 | 5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

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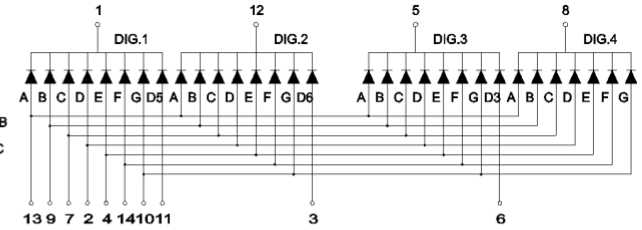
BL-Q28X-41

Package configuration & Internal circuit diagram

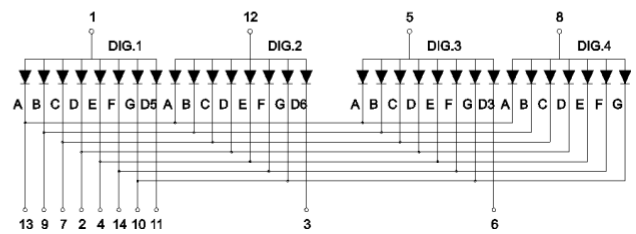
BL-Q28x41 Series



BL-Q28E41



BL-Q28F41



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) - InGaAl/SiC 525nm/Ultra Green



FORWARD VOLTAGE (Vf)
FORWARD CURRENT VS.
FORWARD VOLTAGE



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



AMBIENT TEMPERATURE Ta()
FORWARD CURRENT VS. AMBIENT
TEMPERATURE



AMBIENT TEMPERATURE Ta()



NOTE:25 free air temperature unless otherwise specified