

# **DATA SHEET**

# **LED Displays**

| Order code | Manufacturer code | Description                    |  |  |  |
|------------|-------------------|--------------------------------|--|--|--|
| 57-0240    | BA56-12EWA        | 14.2MM CA TRIPLE DIGIT DISPLAY |  |  |  |

| LED Displays   | Page 1 of 6 |
|--|-------------|
| The enclosed information is believed to be correct, Information may change 'without notice' due to | Revision A  |
| product improvement. Users should ensure that the product is suitable for their use. E. & O. E.    | 04/07/2003  |

Sales: 01206 751166 Sales@rapidelec.co.uk

Technical: 01206 835555 Tech@rapidelec.co.uk Fax: 01206 7551188 www.rapidelectronics.co.uk



#### 14.22mm (0.56INCH) THREE DIGIT **NUMERIC DISPLAYS**

BA56-11EWA/GWA/YWA/SRWA BC56-11EWA/GWA/YWA/SRWA BA56-12EWA/GWA/YWA/SRWA BC56-12EWA/GWA/YWA/SRWA BA56-13EWA/GWA/YWA/SRWA BC56-13EWA/GWA/YWA/SRWA

#### **Features**

- •0.56 INCH DIGIT HEIGHT.
- •LOW CURRENT OPERATION.
- •EXCELLENT CHARACTER APPEARANCE.
- •EASY MOUNTING ON P.C. BOARDS OR SOCKETS.
- •I.C. COMPATIBLE.
- •CATEGORIZED FOR LUMINOUS INTENSITY, YELLOW AND GREEN CATEGORIZED FOR COLOR.
- •MECHANICALLY RUGGED.
- •STANDARD: GRAY FACE, WHITE SEGMENT.

#### **Description**

The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

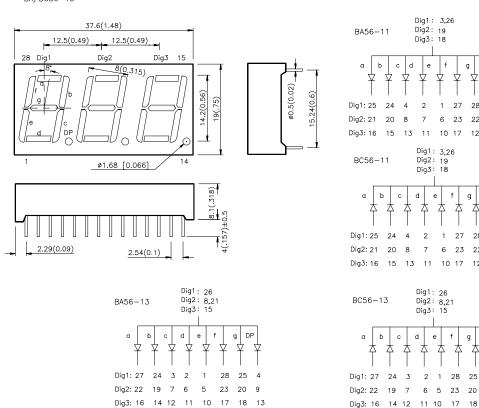
The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

#### **Package Dimensions & Internal Circuit Diagram**

BA/BC56-11 BA/BC56-13



| BA56-11                            | Dig2:        | 3,26<br>19<br>18 |      |    |  |  |  |
|------------------------------------|--------------|------------------|------|----|--|--|--|
| a b c                              | d e<br>Z Z S | f ¥              | g DF | ·  |  |  |  |
| Dig1: 25 24 4                      | 2            | 1 27             | 28   | 5  |  |  |  |
| Dig2: 21 20 8                      | 3 7          | 6 23             | 22   | 9  |  |  |  |
| Dig3: 16 15 1                      | 3 11         | 10 17            | 12   | 14 |  |  |  |
| Dig1: 3,26<br>Dig2: 19<br>Dig3: 18 |              |                  |      |    |  |  |  |
|                                    |              |                  |      |    |  |  |  |
| Dig1: 25 24                        | 4 2          | 1 27             | 7 28 | 5  |  |  |  |
| Dig2: 21 20                        | 8 7          | 6 23             | 3 22 | 9  |  |  |  |
| Dig3: 16 15                        | 13 11        | 10 17            | 12   | 14 |  |  |  |
| Dig1: 26<br>Dig2: 8,21<br>Dig3: 15 |              |                  |      |    |  |  |  |
|                                    |              | 4                | - DI | ,  |  |  |  |

3 2 28

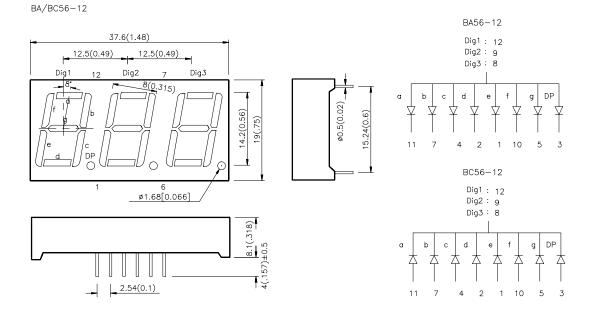
#### Notes:

- 1. All dimensions are in millimeters (inches), Tolerance is  $\pm 0.25 (0.01")$  unless otherwise noted.
- 2. Specifications are subject to change whitout notice.

DATE: SEP/14/2001 DRAWN: X.Q.ZHENG



## Package Dimensions & Internal Circuit Diagram



#### Notes:

- 1. All dimensions are in millimeters (inches), Tolerance is  $\pm 0.25(0.01")$ unless otherwise noted. 2. Specifications are subject to change whitout notice.

#### **Selection Guide**

| Part No.                                  | Dice                            | <b>lv (ucd)</b><br>@ 10 mA |       |                                  |  |
|---|---------------------------------|----------------------------|-------|----------------------------------|--|
| Tartito.                                  | Dice                            | Min.                       | Тур.  | Description                      |  |
| BA56-11EWA<br>BA56-12EWA<br>BA56-13EWA    | HIGH EFFICIENCY RED (GaAsP/GaP) | 1900                       | 6400  | Common Anode, Rt. Hand Decimal   |  |
| BC56-11EWA<br>BC56-12EWA<br>BC56-13EWA    | HIGH EFFICIENCY RED (GAASP/GAP) |                            |       | Common Cathode, Rt. Hand Decimal |  |
| BA56-11GWA<br>BA56-12GWA<br>BA56-13GWA    | ODEEN (O. D.)                   | 3000                       | 10500 | Common Anode, Rt. Hand Decimal   |  |
| BC56-11GWA<br>BC56-12GWA<br>BC56-13GWA    | GREEN (GaP)                     |                            |       | Common Cathode, Rt. Hand Decimal |  |
| BA56-11YWA<br>BA56-12YWA<br>BA56-13YWA    | VELLOW (Q. A. P.Q. P.)          | 1900                       | 4700  | Common Anode, Rt. Hand Decimal   |  |
| BC56-11YWA<br>BC56-12YWA<br>BC56-13YWA    | YELLOW (GaAsP/GaP)              |                            |       | Common Cathode, Rt. Hand Decimal |  |
| BA56-11SRWA<br>BA56-12SRWA<br>BA56-13SRWA | CUPED DRIGHT DED (C. AMA.)      | 8000                       | 24000 | Common Anode, Rt. Hand Decimal   |  |
| BC56-11SRWA<br>BC56-12SRWA<br>BC56-13SRWA | SUPER BRIGHT RED (GaAlAs)       |                            |       | Common Cathode, Rt. Hand Decimal |  |

SPEC NO: KDA0340 APPROVED:J.LU

**REV NO: V.1** CHECKED:

DATE: SEP/14/2001 DRAWN:X.Q.ZHENG PAGE: 2 OF 5



# Electrical / Optical Characteristics at T<sub>A</sub>=25°C

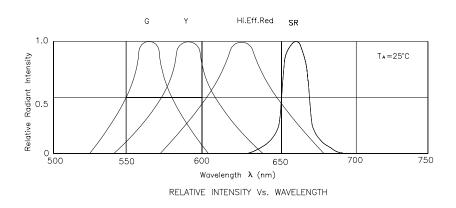
| Symbol         | Parameter               | Device   | Тур.                      | Max.                     | Units | Test Conditions |
|----------------|-------------------------|--|---------------------------|--------------------------|-------|-----------------|
| λpeak          | Peak Wavelength         | High Efficiency Red<br>Green<br>Yellow<br>Super Bright Red | 627<br>565<br>590<br>660  |                          | nm    | IF=20mA         |
| λD             | Dominate Wavelength     | High Efficiency Red<br>Green<br>Yellow<br>Super Bright Red | 625<br>568<br>588<br>640  |                          | nm    | IF=20mA         |
| Δλ1/2          | Spectral Line Halfwidth | High Efficiency Red<br>Green<br>Yellow<br>Super Bright Red | 45<br>30<br>35<br>20      |                          | nm    | IF=20mA         |
| С              | Capacitance             | High Efficiency Red<br>Green<br>Yellow<br>Super Bright Red | 15<br>15<br>20<br>45      |                          | pF    | VF=0V;f=1MHz    |
| V <sub>F</sub> | Forward Voltage         | High Efficiency Red<br>Green<br>Yellow<br>Super Bright Red | 2.0<br>2.2<br>2.1<br>1.85 | 2.5<br>2.5<br>2.5<br>2.5 | V     | IF=20mA         |
| I <sub>R</sub> | Reverse Current         | All  |                           | 10                       | uA    | VR = 5V         |

# Absolute Maximum Ratings at T<sub>A</sub>=25°C

| Parameter                     | High Efficiency<br>Red | Green | Yellow            | Super Bright<br>Red | Units |  |
|-------------------------------|------------------------|-------|-------------------|---------------------|-------|--|
| Power dissipation             | 105                    | 105   | 105               | 100                 | mW    |  |
| DC Forward Current            | 30                     | 25    | 30                | 30                  | mA    |  |
| Peak Forward Current [1]      | 160                    | 140   | 140               | 155                 | mA    |  |
| Reverse Voltage               | 5                      | 5     | 5                 | 5                   | V     |  |
| Operation/Storage Temperature | -40°C To +85°C         |       |                   |                     |       |  |
| Lead Solder Temperature [2]   |                        | 260   | 0°C For 5 Seconds |                     |       |  |

#### Notes:

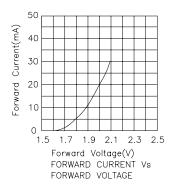
- 1. 1/10 Duty Cycle, 0.1ms Pulse Width.
- 2. 4mm below package base.

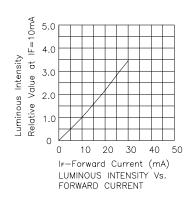


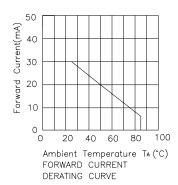
SPEC NO: KDA0340 APPROVED:J.LU REV NO: V.1 CHECKED: DATE: SEP/14/2001 DRAWN:X.Q.ZHENG PAGE: 3 OF 5

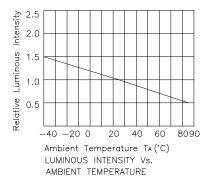
# Kingbright

### **High Efficiency Red**

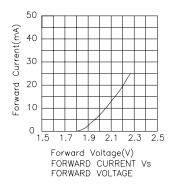


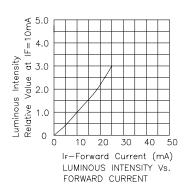


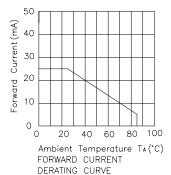


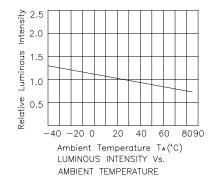


#### Green





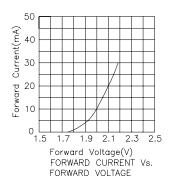


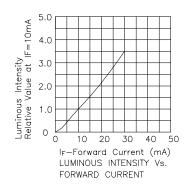


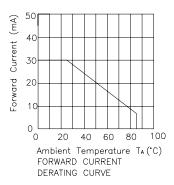
DATE: SEP/14/2001 DRAWN:X.Q.ZHENG PAGE: 4 OF 5

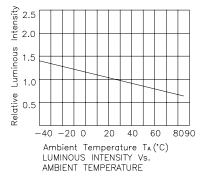
# Kingbright

### Yellow

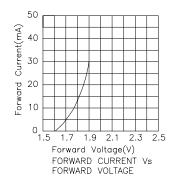


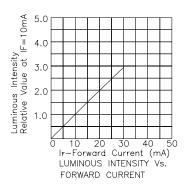


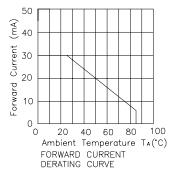


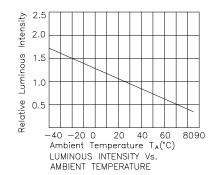


## **Super Bright Red**









DATE: SEP/14/2001 DRAWN:X.Q.ZHENG PAGE: 5 OF 5