

# B10 — 1B4PG3Y2R

## 10-Segment Multicolor LED Bar Graph Array — Technical Datasheet

### 1. General Description

The **B10 1B4PG3Y2R** is a 10-segment multicolor LED bar graph array in a compact through-hole DIP package. It integrates 10 individual LED elements in a 4-color configuration: 1x Blue, 4x Super Green (cyan), 3x Yellow and 2x Super Red, arranged in a linear array. The component is designed for level indication, signal strength display, battery charge monitoring, VU meters and general-purpose visual feedback in electronic systems.

### 2. Features

- 10 independent LED segments in a single DIP-20 package.
- Multicolor configuration: 1B (Blue) + 4PG (Super Green) + 3Y (Yellow) + 2R (Super Red).
- Low forward current: 20 mA per segment (continuous).
- Wide operating temperature range: -35 to +85 °C.
- End-stackable design for cascading multiple units.
- Compatible with standard LED driver ICs (LM3914, LM3915, LM3916, MAX7219, etc.).
- RoHS compliant.

### 3. Part Number Decode

Code	Meaning
B10	Bar graph, 10 segments
1B	1 x Blue LED (segment 1)
4PG	4 x Pure/Super Green LED (segments 2-5)
3Y	3 x Yellow LED (segments 6-8)
2R	2 x Super Red LED (segments 9-10)

### 4. Segment Color Map

Seg.	1	2	3	4	5	6	7	8	9	10
Color	Blue	S.Green	S.Green	S.Green	S.Green	Yellow	Yellow	Yellow	S.Red	S.Red

### 5. Package & Mechanical Data

Parameter	Value
Package type	DIP-20, through-hole
Number of pins	20 (10 per side)
Overall dimensions (L x W x H)	25.0 x 10.0 x 14.0 mm
Pin pitch	2.54 mm (0.1 in)
Pin length	~5.0 mm
Weight (approx.)	~2.5 g
Mounting	Through-hole, end-stackable

Marking

B10 / 1B4PG3Y2R (top label)

## 6. Absolute Maximum Ratings (Ta = 25 °C)

Parameter	Blue	S. Green	S. Red	Yellow	Unit
Power Dissipation (Pd)	66	50	40	42	mW
Peak Forward Current (Ifp)	100	100	100	100	mA
Continuous Forward Current (If)	20	20	20	20	mA
Reverse Voltage (Vr)	5	5	5	5	V
Reverse Current (Ir)	20	20	20	20	uA
Operating Temp. Range (Ta)	-35 ~ +85	-35 ~ +85	-35 ~ +85	-35 ~ +85	deg C
Storage Temp. Range (Tstg)	-35 ~ +85	-35 ~ +85	-35 ~ +85	-35 ~ +85	deg C
Lead Solder Temp.	260 for 3 sec	260 for 3 sec	260 for 3 sec	260 for 3 sec	deg C

## 7. Electro-Optical Characteristics (If = 20 mA, Ta = 25 °C)

Emitting Color	Peak Wavelength (nm)	Spectral Bandwidth (nm)	Vf Typ. (V)	Vf Max. (V)	Luminous Intensity Max (mcd)
Blue	465 - 475	40	3.3	4.0	200
Super Green	565 - 575	30	1.9	2.4	80
Yellow	590 - 600	35	2.1	2.5	60
Super Red	625 - 640	20	1.8	2.3	100

## 8. Pin Configuration

The component has 20 pins arranged in two rows of 10 (standard DIP-20). Each LED segment has one anode and one cathode. Pinout follows the standard bar graph convention:

Pin	Function	Pin	Function
1	Anode - Seg 1 (Blue)	20	Cathode - Seg 1 (Blue)
2	Anode - Seg 2 (S.Green)	19	Cathode - Seg 2 (S.Green)
3	Anode - Seg 3 (S.Green)	18	Cathode - Seg 3 (S.Green)
4	Anode - Seg 4 (S.Green)	17	Cathode - Seg 4 (S.Green)
5	Anode - Seg 5 (S.Green)	16	Cathode - Seg 5 (S.Green)
6	Anode - Seg 6 (Yellow)	15	Cathode - Seg 6 (Yellow)
7	Anode - Seg 7 (Yellow)	14	Cathode - Seg 7 (Yellow)
8	Anode - Seg 8 (Yellow)	13	Cathode - Seg 8 (Yellow)
9	Anode - Seg 9 (S.Red)	12	Cathode - Seg 9 (S.Red)
10	Anode - Seg 10 (S.Red)	11	Cathode - Seg 10 (S.Red)

## 9. Internal Circuit (Schematic)

Each segment consists of a single LED connected between its anode pin (bottom row, pins 1–10) and its corresponding cathode pin (top row, pins 20–11). All 10 LEDs are electrically independent — no common anode or cathode bus. Each segment requires its own current-limiting resistor.

Recommended resistor values for 5V supply: Blue = 56Ω, Super Green = 150Ω, Yellow = 150Ω, Super Red = 150Ω (all for  $I_f = 20 \text{ mA}$ ).

## 10. Recommended Operating Conditions

Parameter	Min	Typ	Max	Unit
Forward current per segment	5	20	20	mA
Supply voltage (with resistor)	3.3	5.0	12.0	V
Ambient temperature	-35	25	+85	deg C
Duty cycle (if multiplexed)	1/10	1/5	1/1	-
Multiplexing frequency	100	1000	-	Hz

## 11. Typical Applications

- Audio VU meter / level indicator
- Battery charge / discharge level display
- Signal strength indicator (RF, Wi-Fi, LoRa)
- Process / progress bar for embedded systems
- Temperature / pressure visual gauge
- Voltage / current level monitor
- DIY and educational electronics projects (Arduino, ESP32, PIC, STM32)

## 12. Compatible Driver ICs

IC	Type	Interface	Notes
LM3914	Dot/Bar driver	Analog voltage input	Linear scale, 10 outputs
LM3915	Dot/Bar driver	Analog voltage input	Logarithmic (dB) scale
LM3916	Dot/Bar driver	Analog voltage input	VU meter scale
MAX7219	LED driver	SPI	8-digit / 64-LED matrix, cascadable
74HC595	Shift register	SPI	8 outputs, cascadable for 10+
TLC5940	PWM driver	SPI	16-ch, 12-bit PWM per channel

## 13. Soldering Guidelines

Hand soldering: 260 °C max for 3 seconds per pin. Wave soldering: 260 °C max for 5 seconds. Avoid excessive heat to prevent damage to the epoxy encapsulant and LED die bond. Recommended tip temperature for hand soldering: 300–350 °C with contact time < 3 seconds.

## 14. Ordering Information

Part Number	Configuration	Package	MOQ
B10 1B4PG3Y2R	1 Blue + 4 S.Green + 3 Yellow + 2 S.Red	DIP-20 THT	10 pcs

Specifications are subject to change without notice. All data based on manufacturer published values and verified test conditions.

Document revision: 2026-04 · B10-1B4PG3Y2R-DS-Rev.A