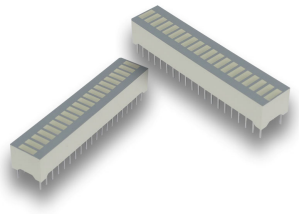
DC20/20EWA

20 Segments Bar Graph Array



DESCRIPTION

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

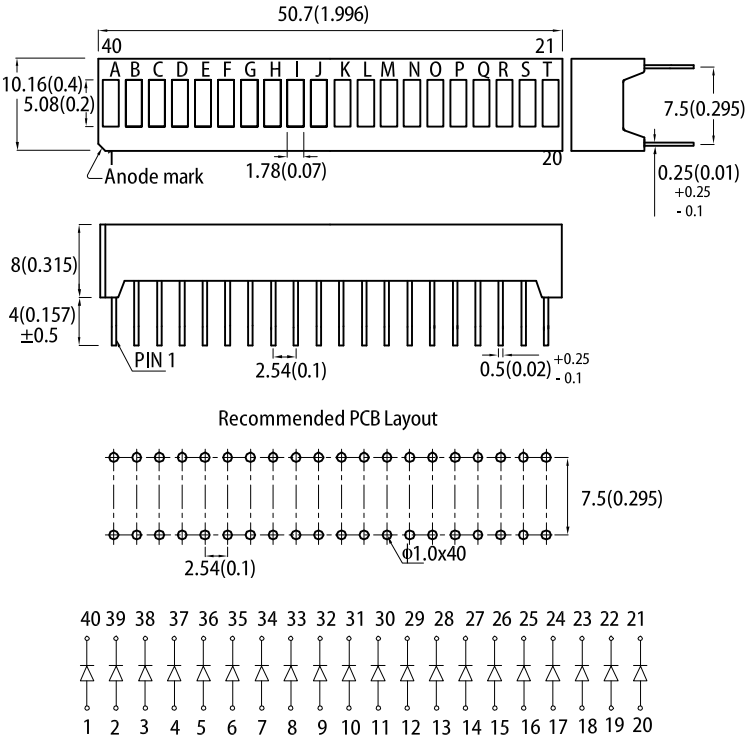
FEATURES

- Suitable for level indicators
- Low current operation
- Excellent on/off contrast
- End stackable
- Mechanically rugged
- Different colors in one unit available
- Standard: gray face, white segment
- RoHS complian

APPLICATIONS

- Home and smart appliances
- Display time and digital combination
- Industrial and instrumental applications
- Numeric status

PACKAGE DIMENSIONS



Notes:
1. All dimensions are in millimeters (inches), Tolerance is ±0.25(0.01")unless otherwise noted.
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (ucd) @ 10mA [1]		Description
			Min.	Typ.	
DC20/20EWA	High Efficiency Red (GaAsP/GaP)	White Diffused	3600	9000	20 Segments Bar graph-Display
			*900	*2000	

Notes:
1. Luminous intensity / luminous flux: +/-15%.
** Luminous intensity value is traceable to CIE127-2007 standards.*

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I_F = 10mA	λ_{peak}	High Efficiency Red	627	-	nm
Dominant Wavelength I_F = 10mA	λ_{dom} [1]	High Efficiency Red	617	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 10mA	Δλ	High Efficiency Red	45	-	nm
Capacitance	C	High Efficiency Red	15	-	pF
Forward Voltage I_F = 10mA	V_F [2]	High Efficiency Red	1.9	2.3	V
Reverse Current (V_R = 5V)	I_R	High Efficiency Red	-	10	uA

Notes:
1. The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

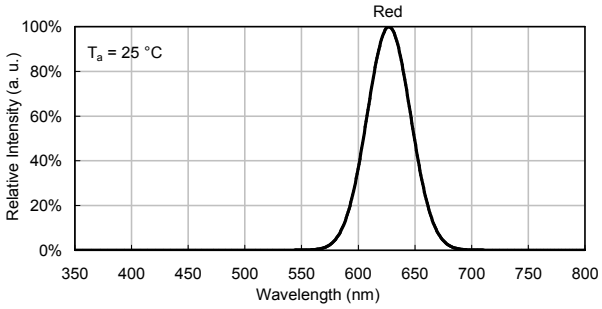
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	75	mW
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	125	°C
Operating Temperature	T_{op}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
DC Forward Current	I_F	30	mA
Peak Forward Current	I_{FM} [1]	160	mA
Electrostatic Discharge Threshold (HBM)	-	8000	V
Lead Solder Temperature [2]		260°C For 3-5 Seconds	

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

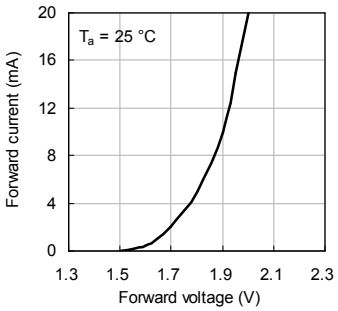
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

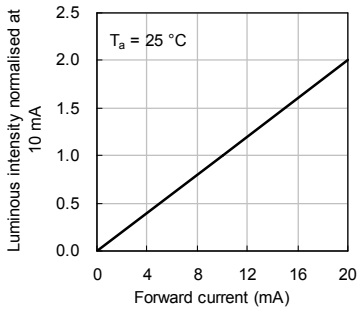


HIGH EFFICIENCY RED

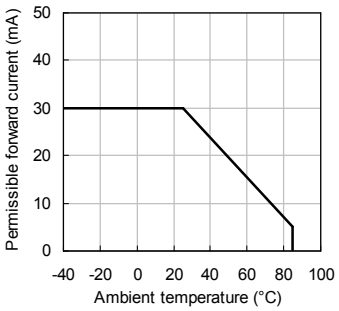
Forward Current vs. Forward Voltage



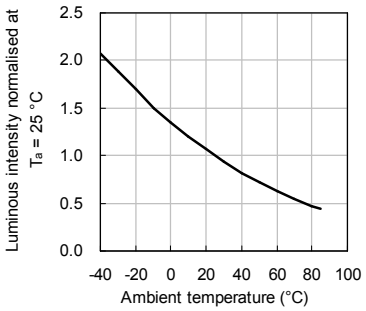
Luminous Intensity vs. Forward Current



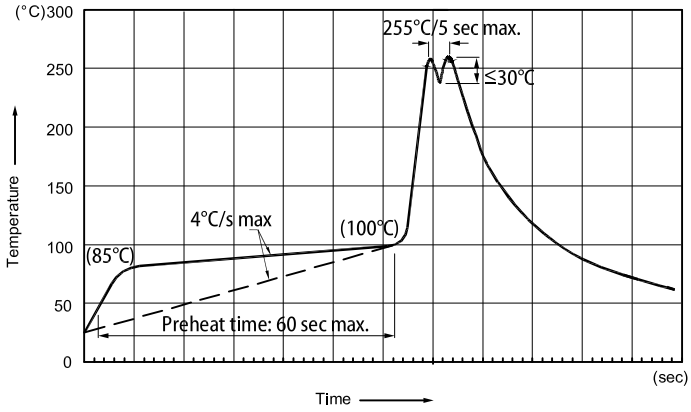
Forward Current Derating Curve



Luminous Intensity vs. Ambient Temperature



RECOMMENDED WAVE SOLDERING PROFILE



Notes:
1. *Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C*
2. *Peak wave soldering temperature between 245°C ~ 255°Cfor 3 sec (5 sec max).*
3. *Do not apply stress to the epoxy resin while the temperature is above 85°C.*
4. *Fixtures should not incur stress on the component when mounting and during soldering process.*
5. *SAC 305 solder alloy is recommended.*
6. *No more than one wave soldering pass.*
7. *During wave soldering, the PCB top-surface temperature should be kept below 105°C.*

Soldering General Notes

1. Through-hole displays are incompatible with reflow soldering.
2. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with Kingbright for compatibility.

CLEANING

1. Mild "no-clean" fluxes are recommended for use in soldering.
2. If cleaning is required, Kingbright recommends to wash components with water only. Do not use harsh organic solvents for cleaning because they may damage the plastic parts .
3. The cleaning process should take place at room temperature and the devices should not be washed for more than one minute.
4. When water is used in the cleaning process, Immediately remove excess moisture from the component with forced-air drying afterwards.

