Kingbright

Part Number: DC56-51SURKWA   Hyper Red

Features

- 0.56 inch digit height.
- Low current operation.
- Excellent character appearance.
- Easy mounting on P.C. boards or sockets.
- Two digit package simplifies alignments & assembly.
- Mechanically rugged.
- Standard : gray face, white segment.
- RoHS compliant.

Description

The Hyper Red source color devices are made with Al-GaInP on GaAs substrate Light Emitting Diode.

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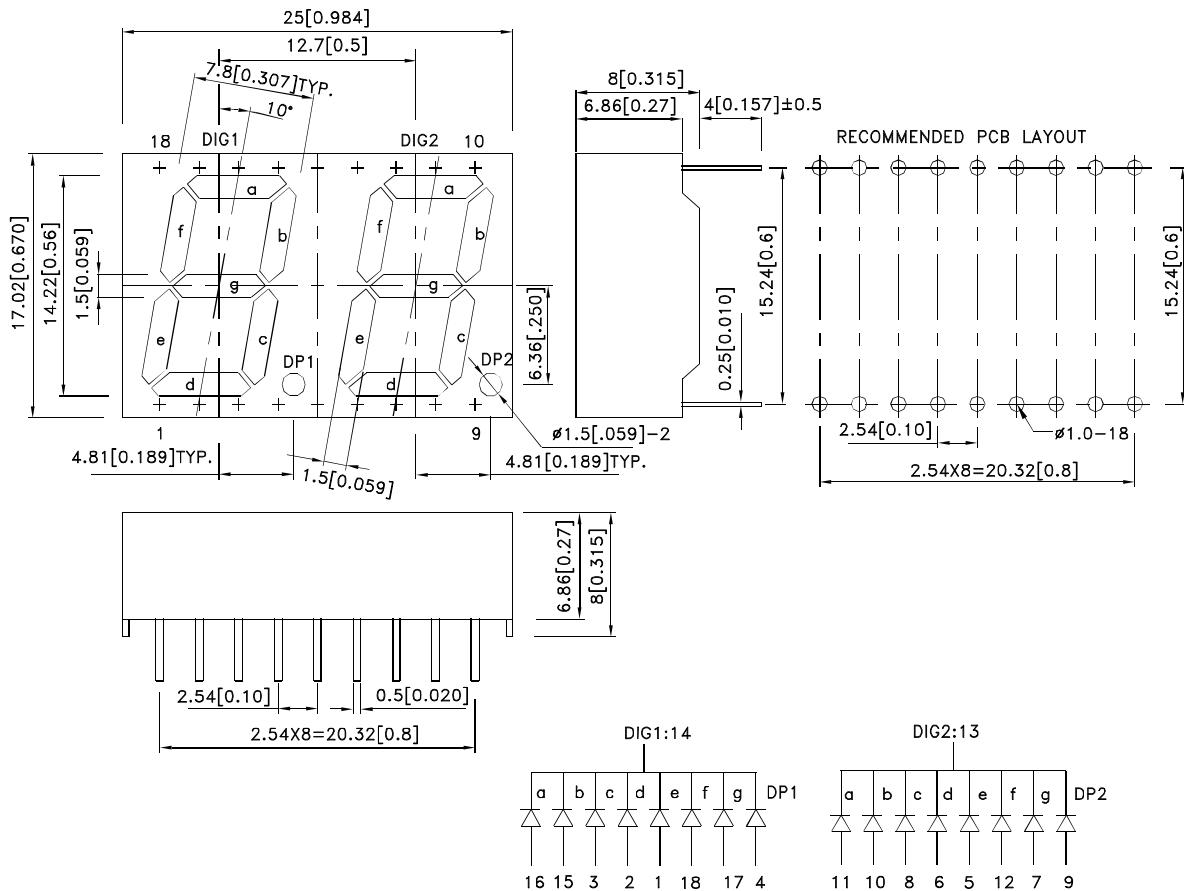
Notes:
1. All dimensions are in millimeters (inches), Tolerance is ±0.25(0.01")unless otherwise noted.
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

SPEC NO: DSAC3653	REV NO: V.5A	DATE: DEC/17/2011	PAGE: 1 OF 6
APPROVED: WYNEC	CHECKED: Joe Lee	DRAWN: D.M.Su	ERP: 1302001068

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Selection Guide

Part No.	Dice	Lens Type	Iv (ucd) [1] @ 10mA		Description
			Min.	Typ.	
DC56-51SURKWA	Hyper Red (AlGaInP)	White Diffused	52000	100000	Common Cathode, Rt. Hand Decimal
			*14000	*30000	

Note:
1. Luminous intensity/ luminous Flux: +/-15%.
 * Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.		Max.	Units	Test Conditions
λpeak	Peak Wavelength	Hyper Red	650	*645		nm	I$_F$=20mA
λD [1]	Dominant Wavelength	Hyper Red	630	*630		nm	I$_F$=20mA
Δλ1/2	Spectral Line Half-width	Hyper Red	28			nm	I$_F$=20mA
C	Capacitance	Hyper Red	35			pF	V$_F$=0V;f=1MHz
V$_F$ [2]	Forward Voltage	Hyper Red	1.95		2.5	V	I$_F$=20mA
I$_R$	Reverse Current	Hyper Red			10	uA	V$_R$=5V

Notes:
1.Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
* Wavelength value is traceable to the CIE127-2007 compliant national standards.

Absolute Maximum Ratings at TA=25°C

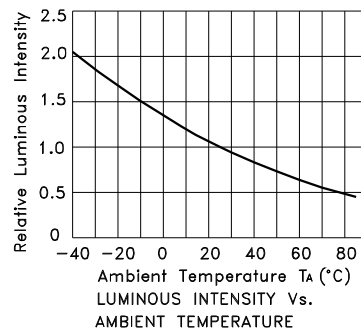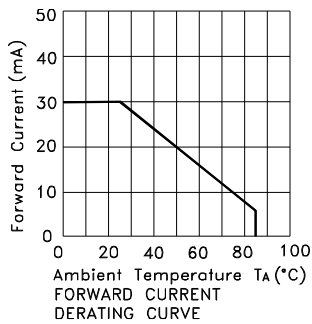| Parameter	Hyper Red	Units
Power dissipation	75	mW
DC Forward Current	30	mA
Peak Forward Current [1]	185	mA
Reverse Voltage	5	V
Operating / Storage Temperature	-40°C To +85°C	
Lead Solder Temperature[2]	260°C For 3-5 Seconds	

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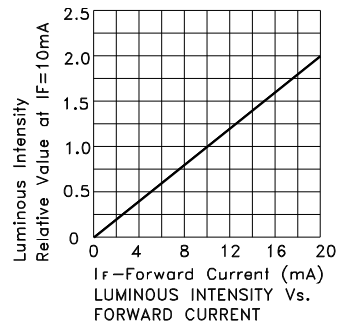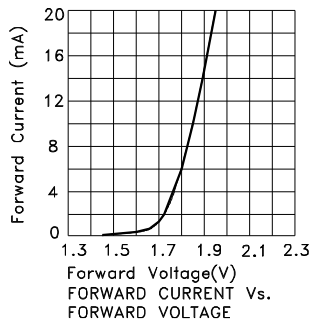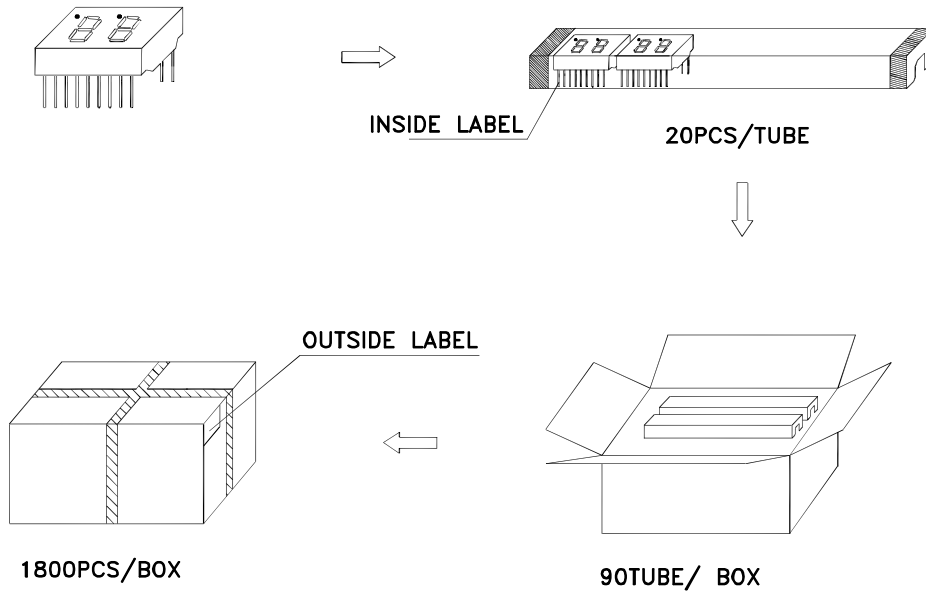1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.

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SURK
Ta=25°C

Relative Radiant Intensity

wavelength λ (nm)

RELATIVE INTENSITY Vs. WAVELENGTH

Hyper Red   **DC56-51SURKWA**

Forward Current (mA)

Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE

Luminous Intensity
Relative Value at IF=10mA

I F—Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

Forward Current (mA)

Ambient Temperature TA (°C)
FORWARD CURRENT
DERATING CURVE

Relative Luminous Intensity

Ambient Temperature TA (°C)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

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PACKING & LABEL SPECIFICATIONS   **DC56-51SURKWA**

INSIDE LABEL

20PCS/TUBE

OUTSIDE LABEL

1800PCS/BOX

90TUBE/ BOX

Inside Label On IC—tube

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TYPE: Dx56—51xxx
QTY: 20 PCS CODE: xx

PASSED
xx xx xx
FQCx

Date

Number OF FQC

XXXXXXXXX-XXXX   RoHS Compliant

LOT NO.

Outside Label On Box

XXXXXX

Dx56—51xxx

1800 PCS   XX

Bin Code
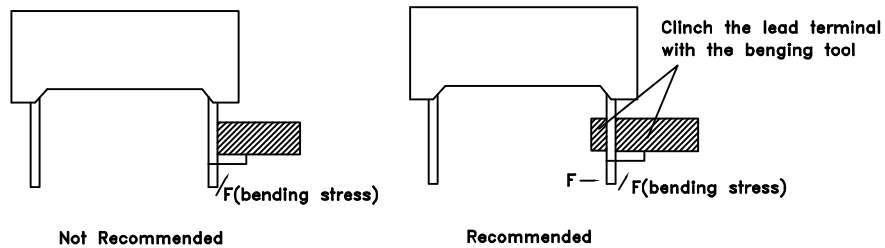
Number OF QA

QAx
xx xx xx
PASSED

Date

RoHS Compliant

Kingbright
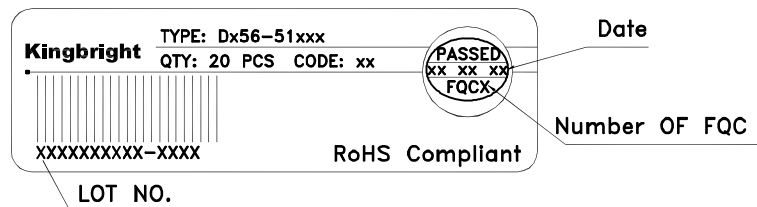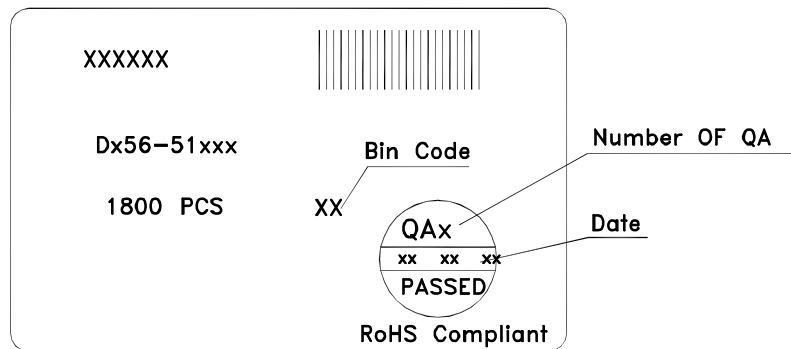
# THROUGH HOLE DISPLAY MOUNTING METHOD

Lead Forming

Do not bend the component leads by hand without proper tools.
The leads should be bent by clinching the upper part of the lead firmly such that the bending force is not exerted on the plastic body.
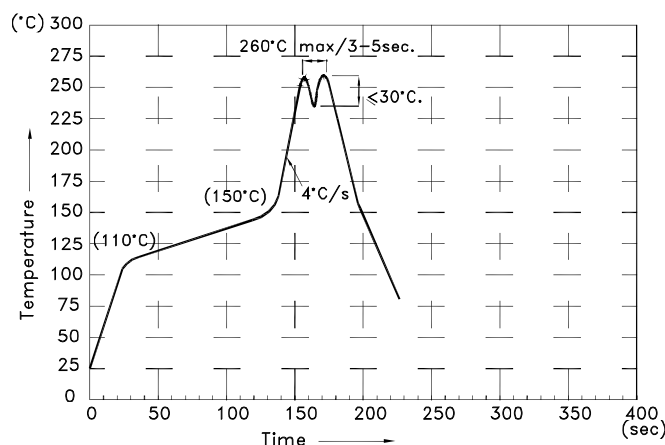
Clinch the lead terminal
with the benging tool

F(bending stress)

F — F(bending stress)

Not Recommended

Recommended

Installation

1. The installation process should not apply stress to the lead terminals.
2. When inserting for assembly, ensure the terminal pitch matches the substrate board's hole pitch to prevent spreading or pinching the lead terminals.

F   F

Not Recommended
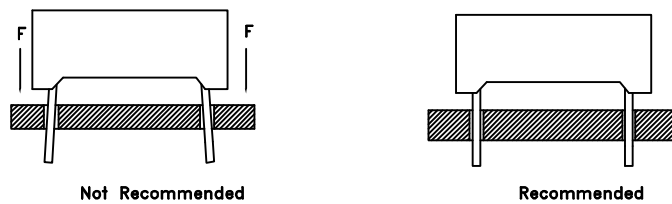
Recommended

DISPLAY SOLDERING CONDITIONS

Wave Soldering Profile For Lead-free Through-hole LED.

(°C) 300
275
250   260°C max/3-5sec.
225   <30°C.
200
175
(150°C)   4°C/s
150
125   (110°C)
100
75
50
25
0
    0   50   100   150   200   250   300   350   400
                                              (sec)
                    Time

NOTES:
1. Recommend the wave temperature 245°C~260°C.The maximum soldering temperature should be less than 260°C.
2. Do not apply stress on epoxy resins when temperature is over 85°C.
3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4. During wave soldering , the PCB top-surface temperature should be kept below 105°C
5. No more than once.

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Soldering General Notes:

a. Through-hole displays are incompatible with reflow soldering.

b. 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 .And the devices should not be washed for more than one minute.

CIRCUIT DESIGN NOTES

1. Protective current-limiting resistors may be necessary to operate the Displays.

2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.

Recommended Set-up   invalid Set-up

VS   VS

GND   GND