Kingbright

Part Number: DE4SURKD   Hyper Red

Features

● Uniform light emitting area.

● Easily mounted on P.C. boards or industry standard sockets.

● Flush mountable.

● Excellent on/off contrast.

● Can be used with panels and legend mounts.

● Mechanically rugged.

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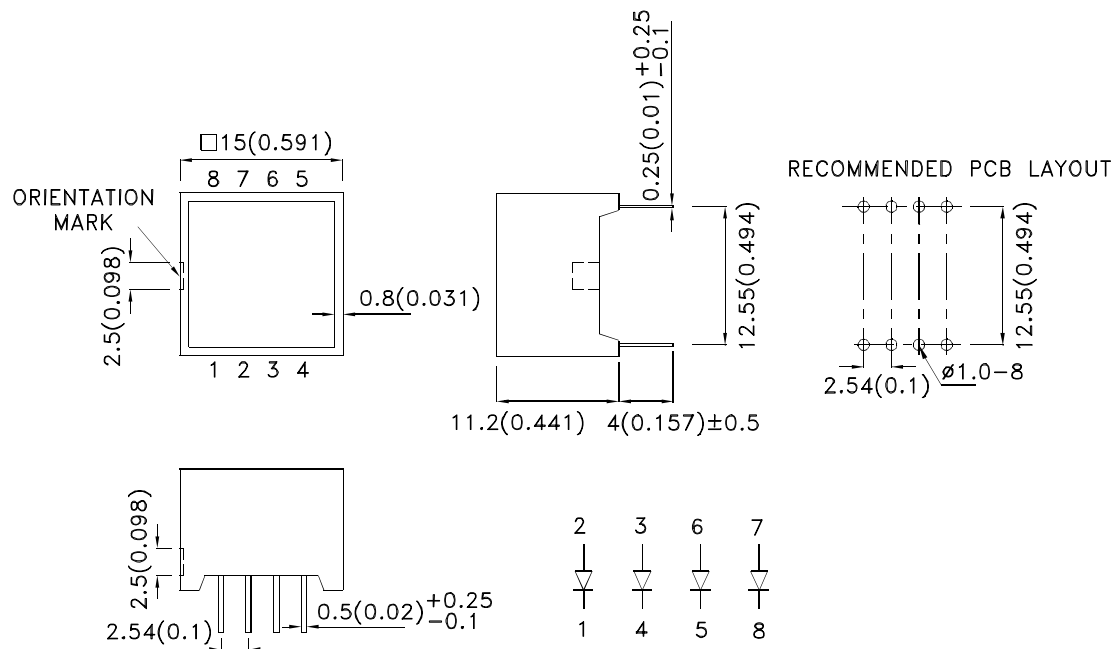
Notes:
1. All dimensions are in millimeters (inches), Tolerance is ±0.25(0.01")unless otherwise noted.
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

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Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [1] @ 20mA	
			Min.	Typ.
DE4SURKD	Hyper Red (AlGaInP)	Red Diffused	500	930
			*120	*250

Notes:
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	645		nm	IF=20mA
λD [1]	Dominant Wavelength	Hyper Red	630		nm	IF=20mA
Δλ1/2	Spectral Line Half-width	Hyper Red	28		nm	IF=20mA
C	Capacitance	Hyper Red	35		pF	VF=0V;f=1MHz
VF [2]	Forward Voltage	Hyper Red	1.95	2.5	V	IF=20mA
IR	Reverse Current	Hyper Red		10	uA	VR=5V

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

Absolute Maximum Ratings at TA=25°C

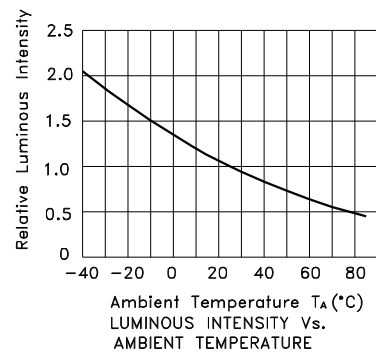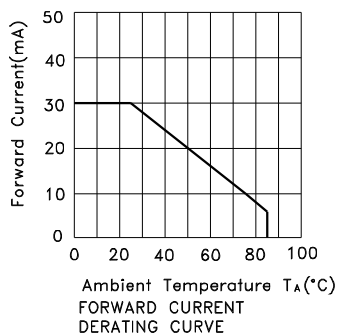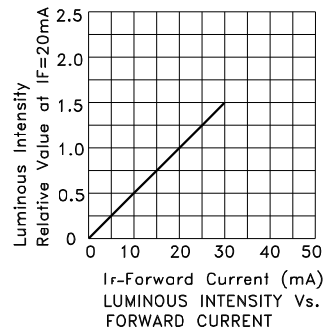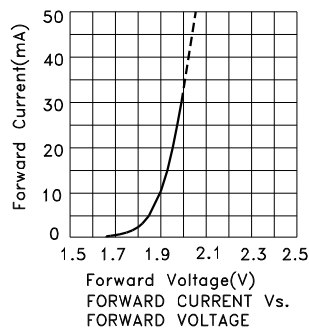| Parameter	Hyper Red	Units
Power dissipation	75	mW
DC Forward Current	30	mA
Peak Forward Current [1]	185	mA
Reverse Voltage	5	V
Operating / Storage Temperature	-40°C To +85°C	
Lead Solder Temperature[2]	260°C For 3-5 Seconds	

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

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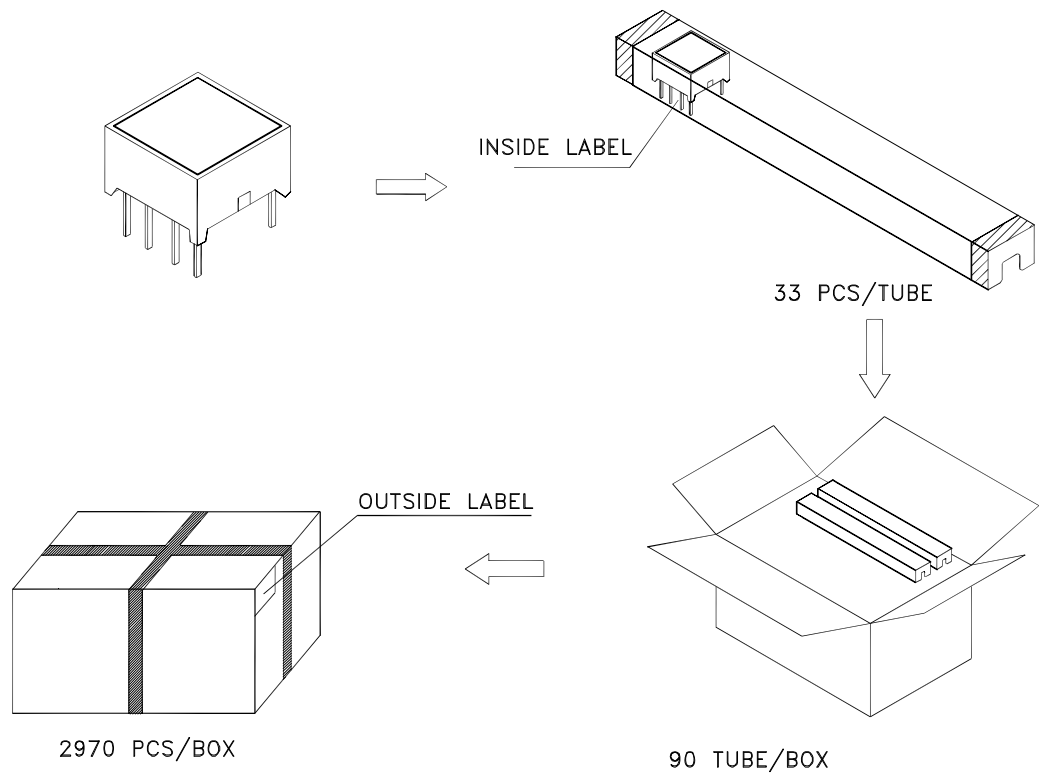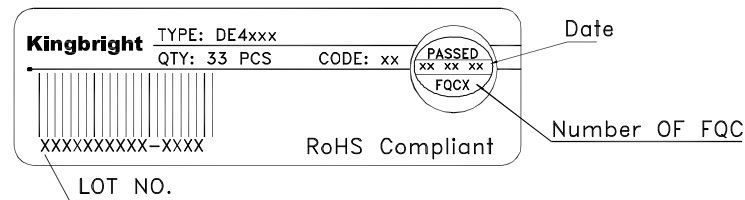

RED

Ta=25°C

Relative Radiant Intensity

wavelength λ (nm)

RELATIVE INTENSITY Vs. WAVELENGTH

Hyper Red   DE4SURKD

Forward Current(mA)

Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE

Luminous Intensity
Relative Value at IF=20mA

Iғ-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   **DE4SURKD**

INSIDE LABEL

33 PCS/TUBE

OUTSIDE LABEL

2970 PCS/BOX   90 TUBE/BOX

Inside Label On IC-tube

Kingbright TYPE: DE4xxx
QTY: 33 PCS   CODE: xx   PASSED xx xx xx   — Date
FQCX

XXXXXXXXXX-XXXX   RoHS Compliant

Number OF FQC

LOT NO.

Outside Label On Box

XXXXXX

DE4xxx
                              Bin Code   Number OF QA
2970 PCS   XX
                                        QAx   Date
                                   xx xx xx
                                   PASSED

RoHS Compliant

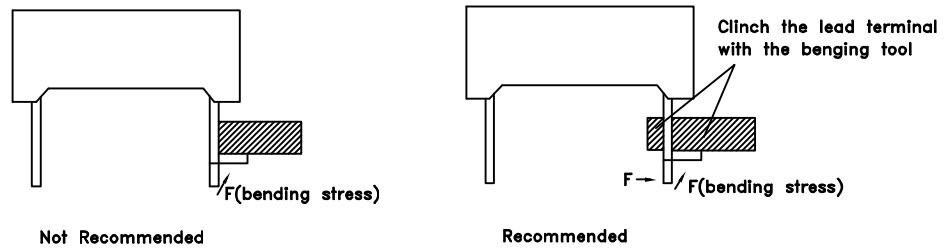# Kingbright
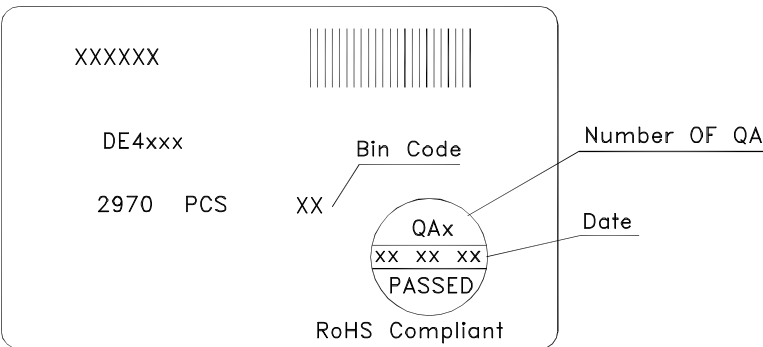
THROUGH HOLE DISPLAY MOUNTING METHOD

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
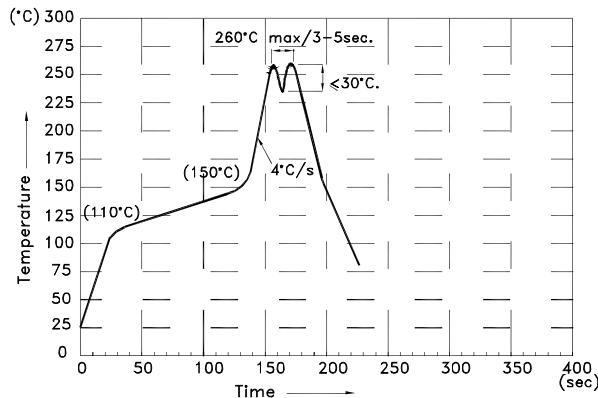   lead terminals.

F   F

Not Recommended
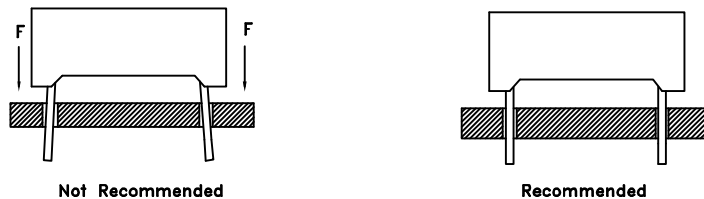
Recommended

3. The component shall be placed at least 5mm from edge of PCB
   to avoid damage caused excessive heat during wave soldering.

>=5mm   >=5mm

Not Recommended

Recommended

Kingbright
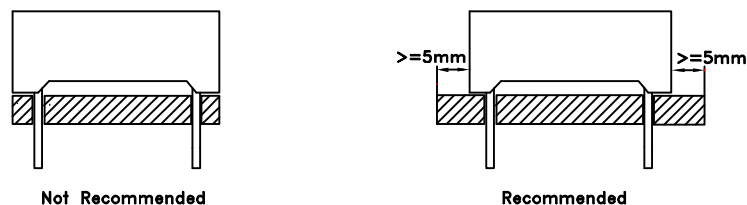
DISPLAY SOLDERING CONDITIONS

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

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.

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 .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
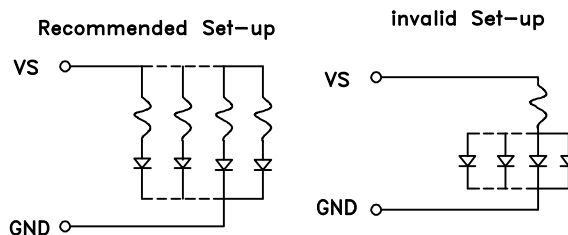
All design applications should refer to Kingbright application notes available at
http://www.KingbrightUSA.com/ApplicationNotes