Kingbright

**SURFACE MOUNT DISPLAY**

Part Number: ACSA04-41SURKWA-F01 Hyper Red

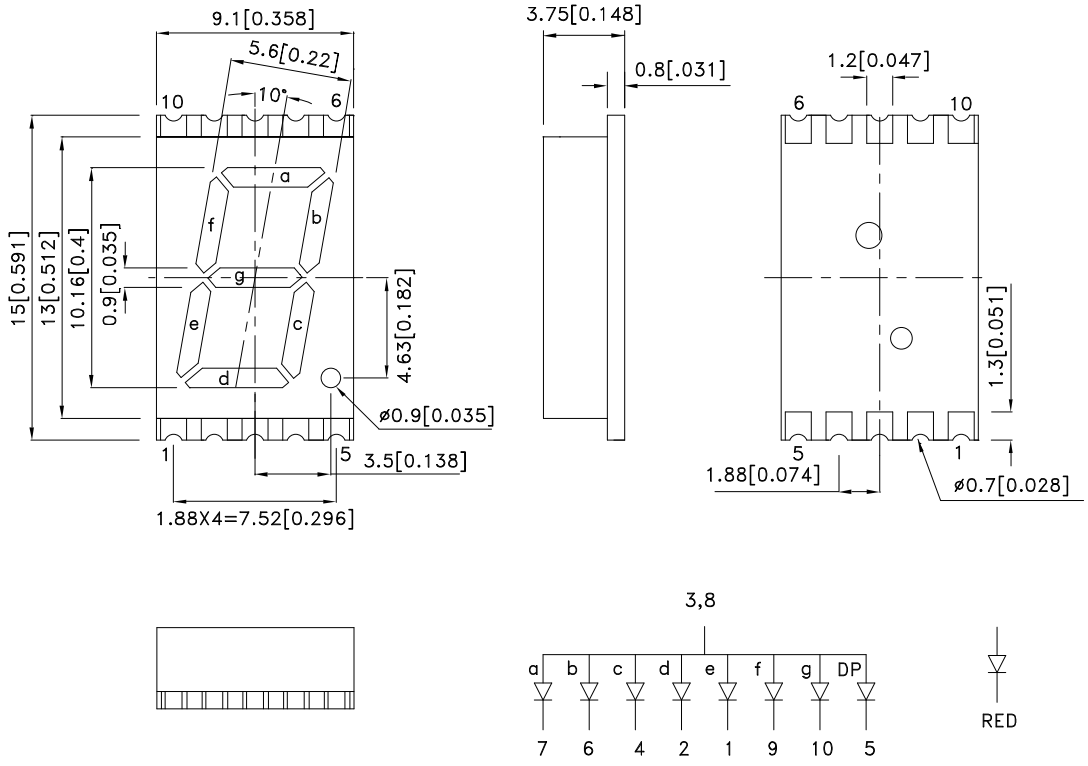
## Features

- 0.4 inch digit height.
- Low current operation.
- Excellent character appearance.
- Mechanically rugged.
- Gray face,white segment.
- Package:400pcs/ reel.
- Moisture sensitivity level : level 2a.
- 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.
3. The gap between the reflector and PCB shall not exceed 0.25mm.

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## Selection Guide

| Part No. | Dice | Lens Type | Iv (ucd) [1] @ 10mA | | Description |
|---|---|---|---|---|---|
| | | | Min. | Typ. | |
| ACSA04-41SURKWA-F01 | Hyper Red (AlGaInP) | White Diffused | 14000 | 27000 | Common Anode, Rt. Hand Decimal. |
| | | | *3600 | *9600 | |

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

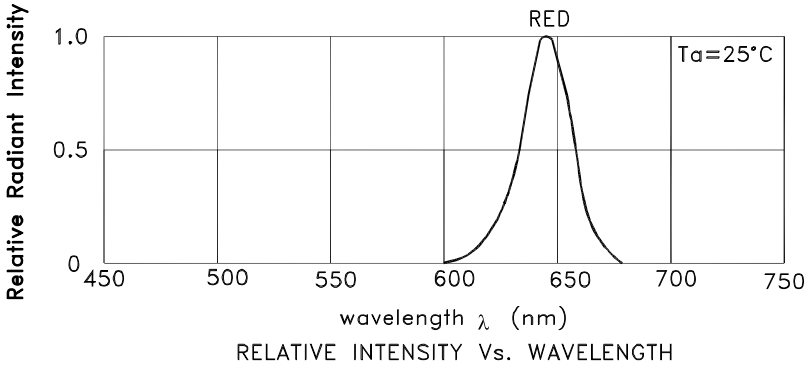
| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|---|---|---|---|---|---|---|
| λpeak | Peak Wavelength | Hyper Red | 645 | | nm | $I_F$=20mA |
| λD [1] | Dominant Wavelength | Hyper Red | 630 | | nm | $I_F$=20mA |
| Δλ1/2 | Spectral Line Half-width | Hyper Red | 28 | | nm | $I_F$=20mA |
| 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.
3.Wavelength value is traceable to the CIE127-2007 compliant national standards.

## Absolute Maximum Ratings at TA=25°C

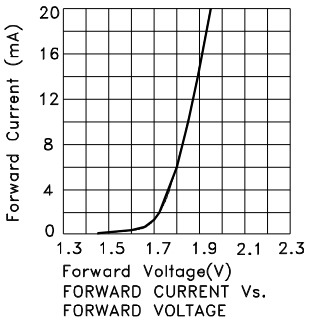
| Parameter | Hyper Red | Units |
|---|---|---|
| Power dissipation | 75 | mW |
| DC Forward Current | 30 | mA |
| Peak Forward Current [1] | 185 | mA |
| Reverse Voltage | 5 | V |
| Operating / Storage Temperature | -40°C To +85°C | |

Note:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.

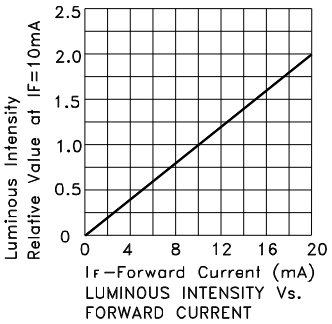


RELATIVE INTENSITY Vs. WAVELENGTH

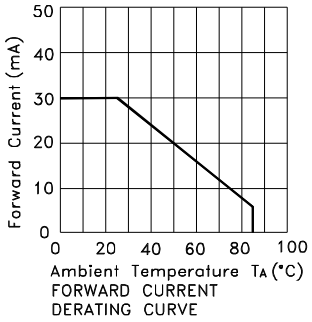
**Hyper Red** **ACSA04-41SURKWA-F01**



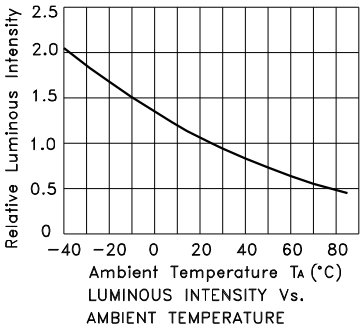
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE

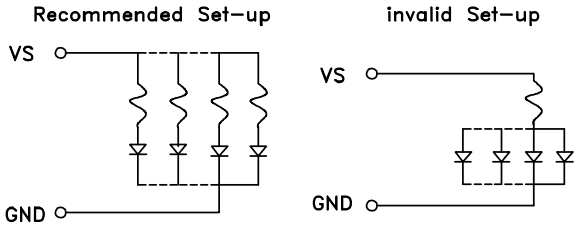


LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

## CIRCUIT DESIGN NOTES

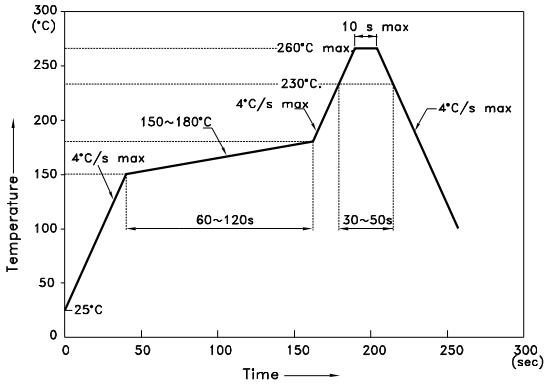
1.Protective current–limiting resistors may be necessary to operate the Displays.

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



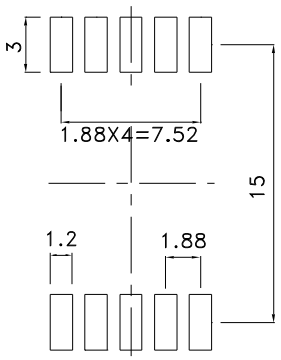
**ACSA04-41SURKWA-F01**

Reflow Soldering Profile For Lead-free SMT Process.

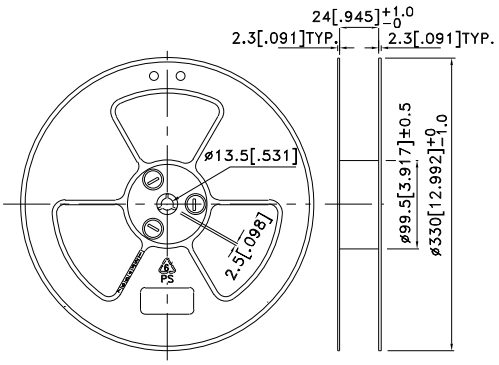



NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

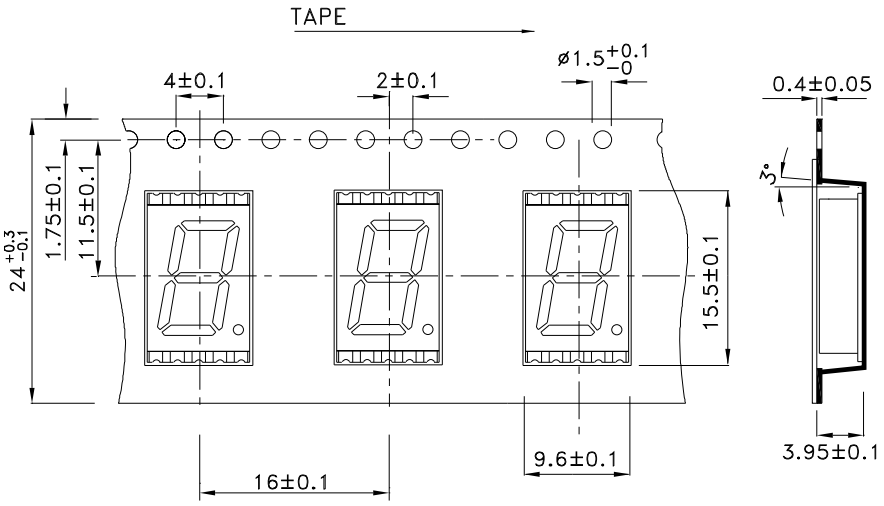
**Recommended Soldering Pattern**
**(Units : mm; Tolerance: ± 0.15)**




**Reel Dimension**




**Tape Specifications**
**(Units : mm)**



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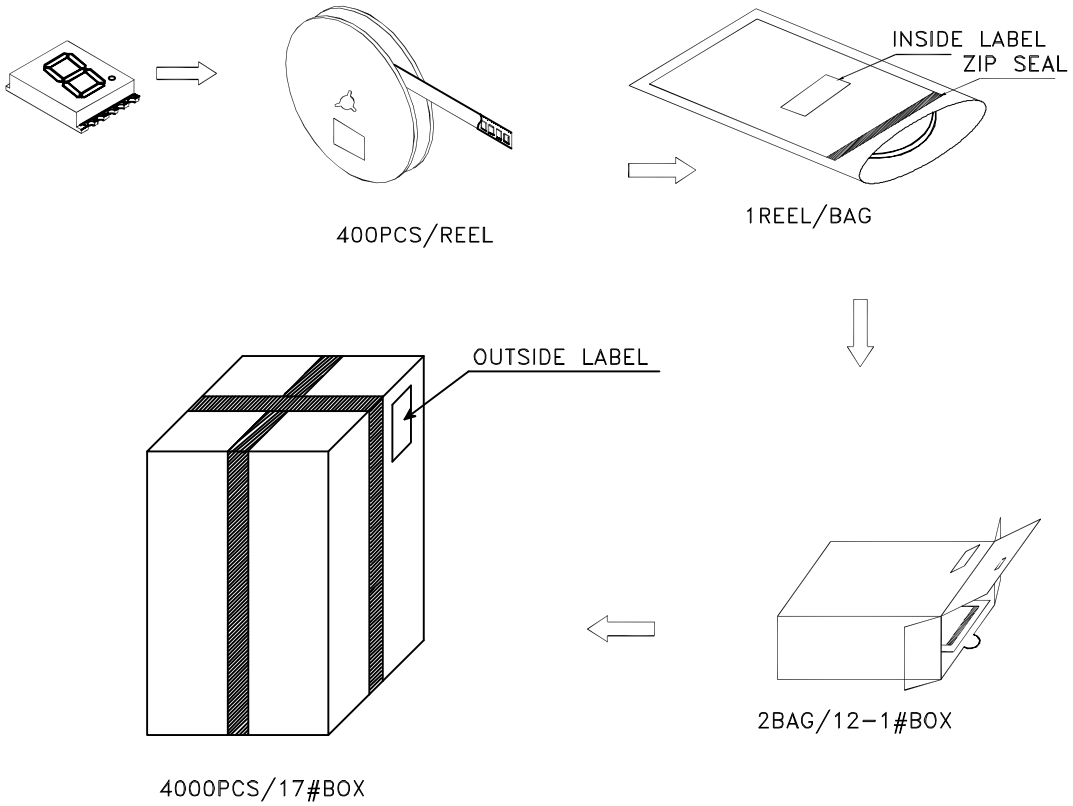
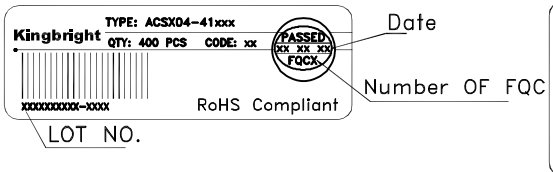
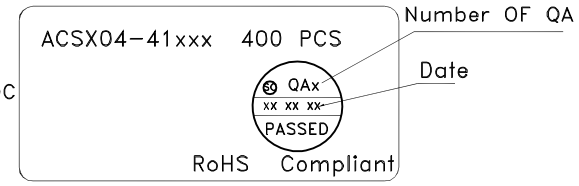
**PACKING & LABEL SPECIFICATIONS** **ACSA04-41SURKWA-F01**



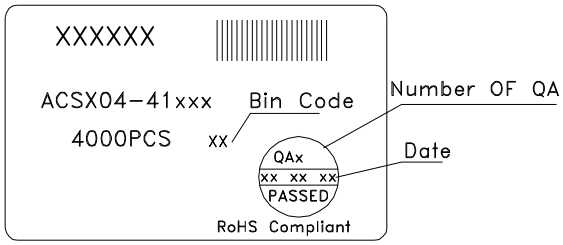

Inside Label On Tape



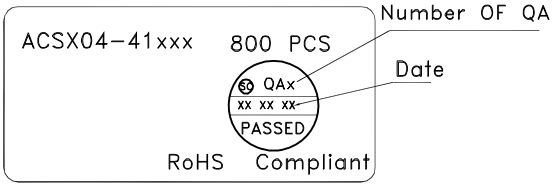

Outside Label On BAG




Outside Label On 17#Box




Outside Label On 12-1#Box




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