



CHINA  
SEMICONDUCTOR  
CORPORATION

|           |                      |
|-----------|----------------------|
| Spec. No. | PS-DD-S40224/S40225S |
| Rev.      | A                    |

# PRODUCT SPECIFICATION

**Model No:CSD-S40224S/S40225S**

## Descriptions:

- 0.4 Inch Dual Digit SMD Display
- Emitting Color : Super Bright Red



| CUSTOMER APPROVED<br>SIGNATURES | APPROVED BY | CHECKED BY | PREPARED BY |
|---------------------------------|-------------|------------|-------------|
|                                 |             |            |             |

CHINA SEMICONDUCTOR CORPORATION  
Address:2FL. NO.909,Chung-Cheng Road,  
Chung-Ho City Taipei Hsien,Taiwan.

Tel:886-2-2223-9696  
Fax:886-2-2223-9377

OPTO PLUS TECHNOLOGIES CO.,LTD  
Address:696 Shun jiang Rd.,Ji Shan St.Shaoxing,  
ZheJiang,China

Tel:86-0575-88623888  
Fax:86-0575-88623112



**Model No : CSD-S40224/S40225S**

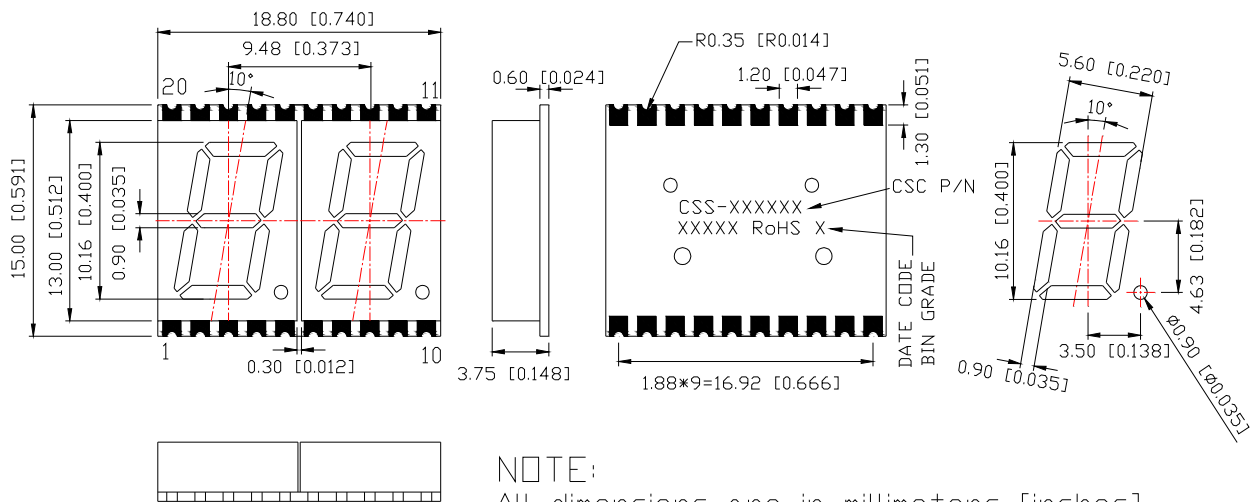
**Features -**

1. 0.4 inch (10.16mm) digit height.
2. Qualified according to JEDEC moisture sensitivity Level 2a.
3. RoHS compliant.
4. Low power consumption.
5. Easy mounting on P.C. board.

**Device Selection Guide -**

| Model No.   | Chip     |                  | Description    |
|-------------|----------|------------------|----------------|
|             | Material | Emitting Color   |                |
| CSD-S40224S | AlGaAs   | Super Bright Red | Common Anode   |
| CSD-S40225S | AlGaAs   | Super Bright Red | Common Cathode |

**Mechanical Dimensions -**



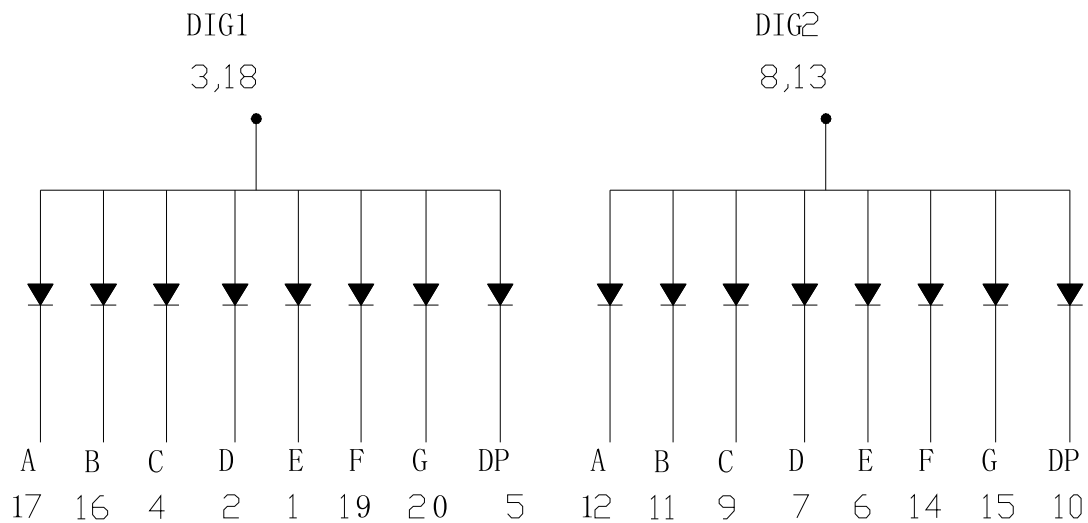
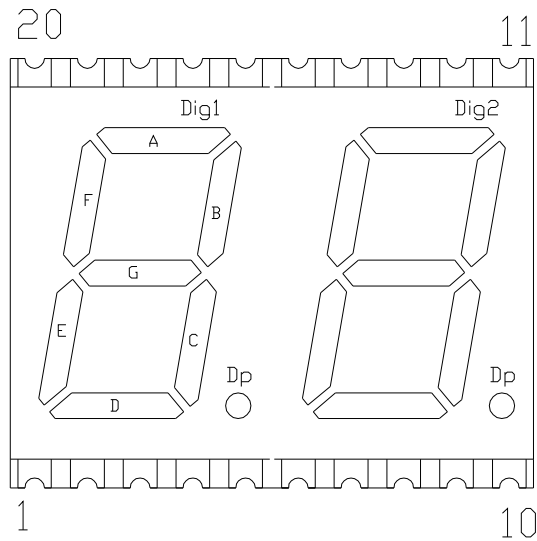
**NOTE:**

All dimensions are in millimeters [inches],  
and tolerance is  $\pm 0.25$  [0.010]  
unless otherwise noted.



Model No : CSD-S40224/S40225S

Internal Circuit Diagrams -



CSD-S40224 Common Anode.  
( CSD-S40225 Is Common Cathode.)



**Model No : CSD-S40224/S40225S**

■ **Absolute Maximum Rating -**

(Ta=25°C)

| Parameter                                   | Symbol           | Rating     | Unit  |
|---------------------------------------------|------------------|------------|-------|
| Power Dissipation Per Dice                  | P <sub>AD</sub>  | 75         | mW    |
| Continuous Forward Current Per Dice         | I <sub>AF</sub>  | 30         | mA    |
| Peak Current Per Dice(duty cycle 1/10,1KHz) | I <sub>PF</sub>  | 120        | mA    |
| Derating Linear From 25°C Per Dice          | -                | 0.42       | mA/°C |
| Reverse Voltage Per Dice                    | V <sub>R</sub>   | 5          | V     |
| Operating Temp.                             | T <sub>opr</sub> | -40 ~ +105 | °C    |
| Storage Temp.                               | T <sub>stg</sub> | -40 ~ +105 | °C    |

Note:Solder temperature 1/16 inch below seating plane for 3 seconds at 260°C

■ **Electro-optical Characteristics -**

(Ta=25°C)

| Parameter                         | Symbol           | Min. | Typ. | Max. | Unit | Condition            |
|-----------------------------------|------------------|------|------|------|------|----------------------|
| Forward Voltage Per Segment       | V <sub>F</sub>   | -    | 1.8  | 2.5  | V    | I <sub>F</sub> =20mA |
| Luminous Intensity Per Segment    | I <sub>v</sub>   | 2.5  | 6    | -    | mcd  | I <sub>F</sub> =10mA |
| Peak Emission Wavelength          | λ <sub>P</sub>   | -    | 660  | -    | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth      | Δλ               | -    | 20   | -    | nm   | I <sub>F</sub> =20mA |
| Reverse Current                   | I <sub>R</sub>   | -    | -    | 100  | μA   | V <sub>R</sub> =5V   |
| Luminous Intensity Matching Ratio | I <sub>V-m</sub> | -    | -    | 2:1  | -    | I <sub>F</sub> =10mA |



Model No : CSD-S40224/S40225S

## Typical Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)

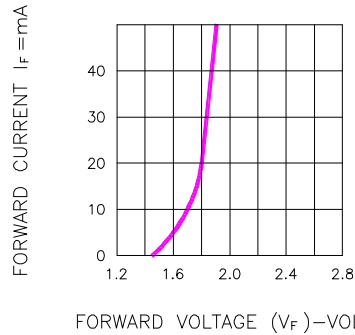


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

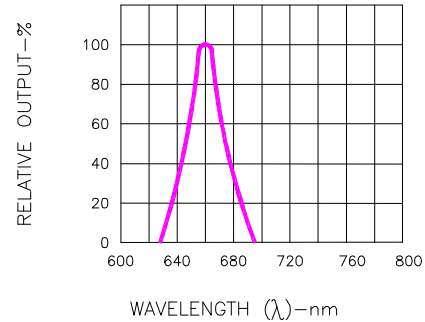


Fig.2 SPECTRAL RESPONSE

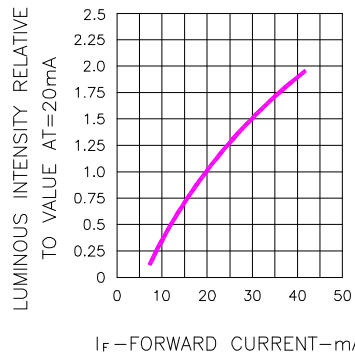


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

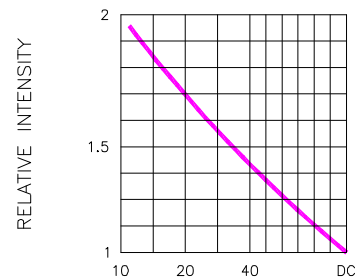


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

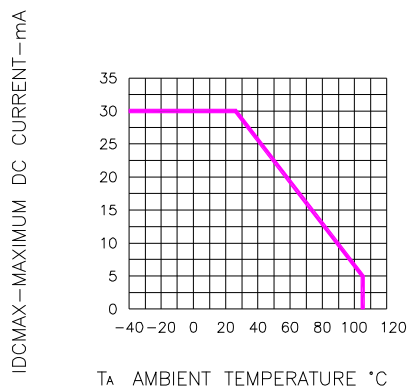


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

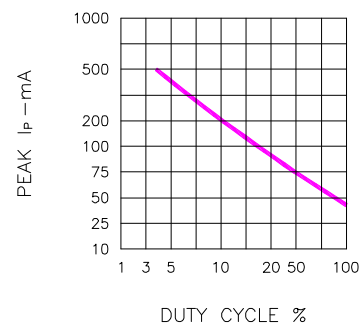


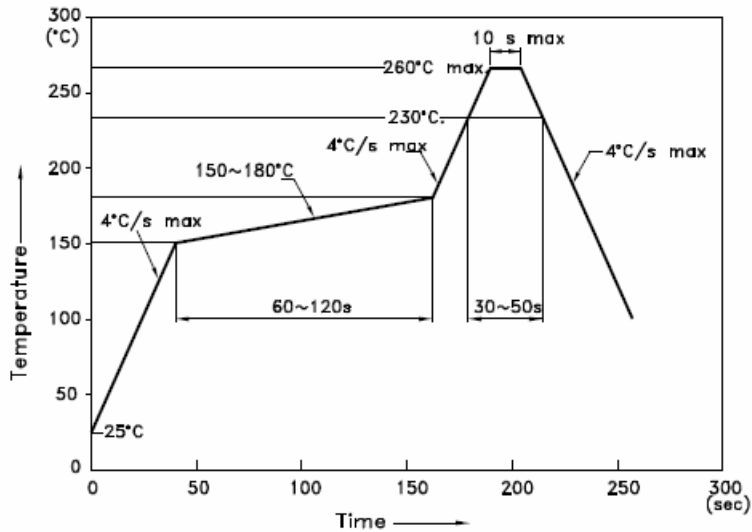
Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)



Model No : CSD-S40224/S40225S

## SMT REFLOW SOLDERING INSTRUCTIONS

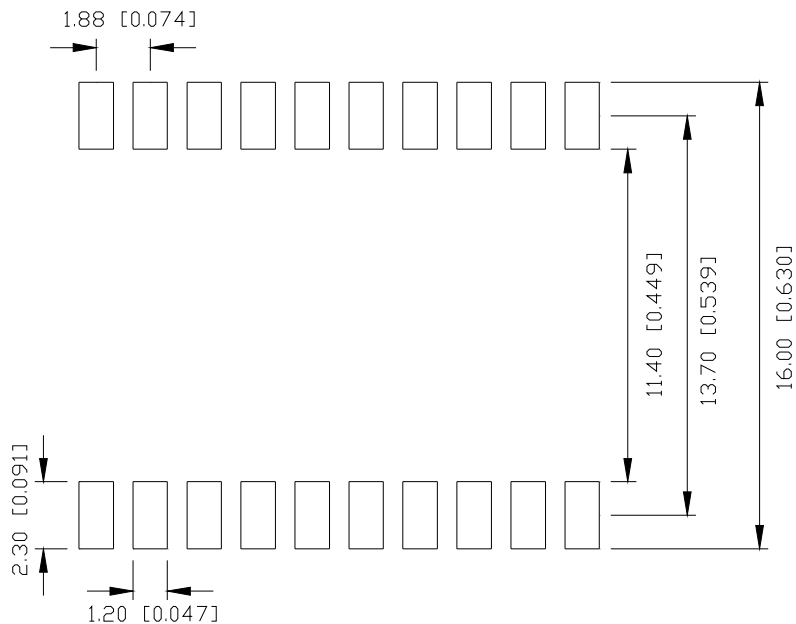
### ■ IR Reflow Temperature / Time :



#### 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.

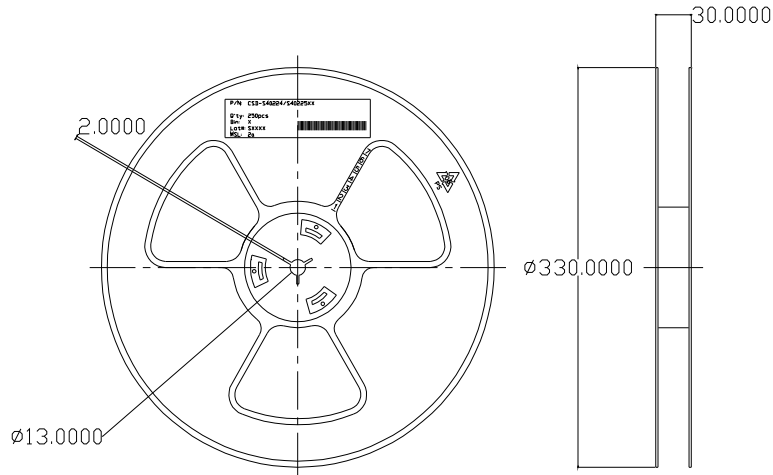
### ■ Soldering Pad Size



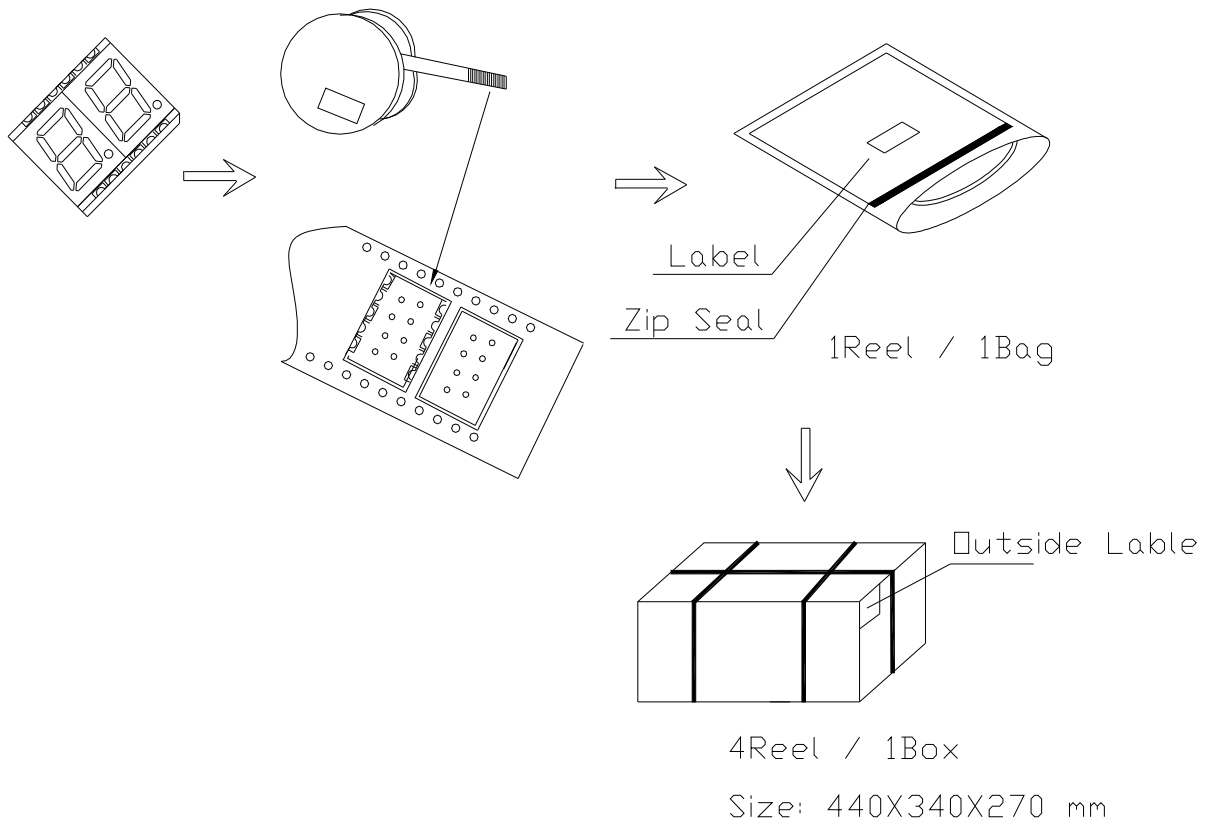


Model No : CSD-S40224/S40225S

## REEL DIMENSIONS



## PACKING & LABEL SPECIFICATIONS



Note: The specifications are subject to change without notice. Please contact us for updated information.