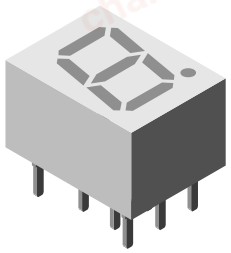
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# High Intensity Red Low Current Seven Segment Display



19235

## FEATURES

- 1500 µcd typical at 1 mA
- Very low power consumption
- Wide viewing angle
- Grey package surface
- Light intensity categorized at $I_F$ = 1 mA
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Pb-free

e4

RoHS COMPLIANT

## APPLICATIONS

- Battery driven instruments
- Telecom devices
- Home appliances
- Instrumentation
- POS terminals

## PRODUCT GROUP AND PACKAGE DATA

- Product group: display
- Package: 7 mm
- Product series: low current
- Angle of half intensity: ± 50°

## DESCRIPTION

This series defines a new standard for low current displays. It is a single digit 7-segment LED display utilizing AlInGaP technology in color red.

The supreme light intensity allows applications under direct sunlight or “black front” designs by using tinted filter glass in front of the display.

Typical 1500 µcd at 1 mA is best in class performance for applications with very limited power supply. The maximum forward current of 10 mA is allowed for an ambient temperature range of - 40 °C to + 85 °C without current derating.

Crosstalk between segments is possible at drive currents above 5 mA per segment. Therefore it is recommend to apply more than 5 mA only under direct sunlight or with tinted filter glass.

**PARTS TABLE**

| PART | COLOR | LUMINOUS INTENSITY AT 1 mA | CIRCUITRY |
|---|---|---|---|
| TDSR0750 | Red | $I_V$ = (180 to 2200) µcd | Common anode |
| TDSR0750-HI | Red | $I_V$ = (700 to 2200) µcd | Common anode |
| TDSR0760 | Red | $I_V$ = (180 to 2200) µcd | Common cathode |

**ABSOLUTE MAXIMUM RATINGS (1) TDSR0750, TDSR0750-HI, TDSR0760**

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Reverse voltage per segment | | $V_R$ | 5 | V |
| DC forward current per segment | | $I_F$ | 10 | mA |
| Peak forward current per segment | $t_p \leq 10$ µs, duty cycle 1/10 | $I_{FM}$ | 50 | mA |
| Power dissipation | $T_{amb} \leq 85$ °C | $P_V$ | 185 | mW |
| Junction temperature | | $T_j$ | 105 | °C |
| Operating temperature range | | $T_{amb}$ | - 40 to + 85 | °C |
| Storage temperature range | | $T_{stg}$ | - 40 to + 85 | °C |
| Soldering temperature | t ≤ 3 s, 2 mm below seating plane | $T_{sd}$ | 260 | °C |
| Thermal resistance LED junction/ambient | | $R_{thJA}$ | 100 | K/W |

**Note**

(1) $T_{amb}$ = 25 °C, unless otherwise specified

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| OPTICAL AND ELECTRICAL CHARACTERISTICS (1) TDSR0750, TDSR0750-HI, TDSR0760, RED | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITION** | **PART** | **SYMBOL** | **MIN.** | **TYP.** | **MAX.** | **UNIT** |
| Luminous intensity per segment (digit average) | $I_F$ = 1 mA | TDSR0750 | $I_V$ | 180 | - | 2200 | µcd |
| | | TDSR0760 | | 180 | - | 2200 | |
| | | TDSR0750-HI | | 700 | - | 2200 | |
| Dominant wavelength | $I_F$ = 1 mA | TDSR0750, TDSR0750-HI, TDSR0760 | $\lambda_d$ | - | 640 | - | nm |
| Peak wavelength | $I_F$ = 1 mA | | $\lambda_p$ | - | 650 | - | nm |
| Forward voltage per segment or DP | $I_F$ = 1 mA | | $V_F$ | - | 1.8 | 2.4 | V |
| Reverse voltage per segment or DP | $V_R$ = 6 V | | $I_R$ | - | 10 | - | µA |

**Note**

(1) $T_{amb}$ = 25 °C, unless otherwise specified

| LUMINOUS INTENSITY CLASSIFICATION | | |
|---|---|---|
| **GROUP** | **LIGHT INTENSITY (µcd)** | |
| **STANDARD** | **MIN.** | **MAX.** |
| E | 180 | 360 |
| F | 280 | 560 |
| G | 450 | 900 |
| H | 700 | 1400 |
| I | 1100 | 2200 |

**Note**

The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped in one tube (there will be no mixing of two groups in one tube).
In order to ensure availability, single brightness groups will not be orderable.

## TYPICAL CHARACTERISTICS

$T_{amb}$ = 25 °C, unless otherwise specified

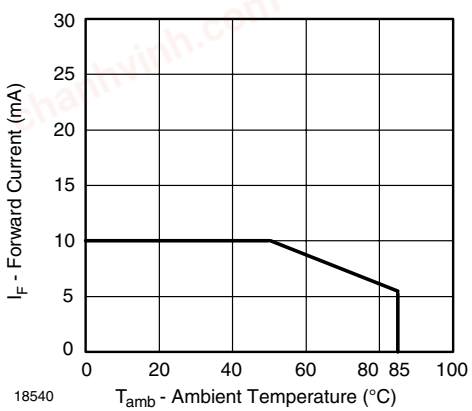



Fig. 1 - Forward Current vs. Ambient Temperature

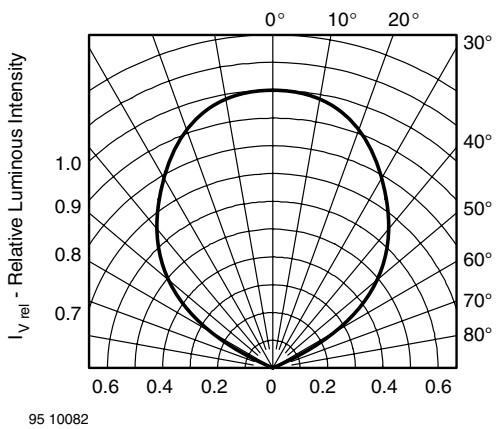



Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

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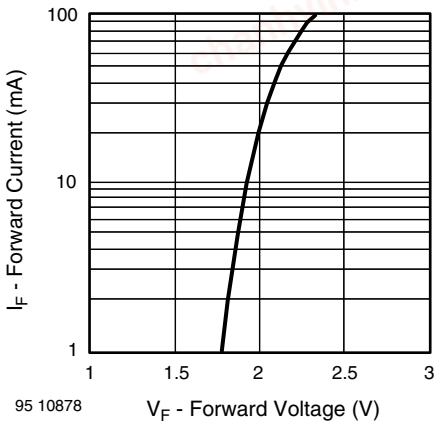



Fig. 3 - Forward Current vs. Forward Voltage

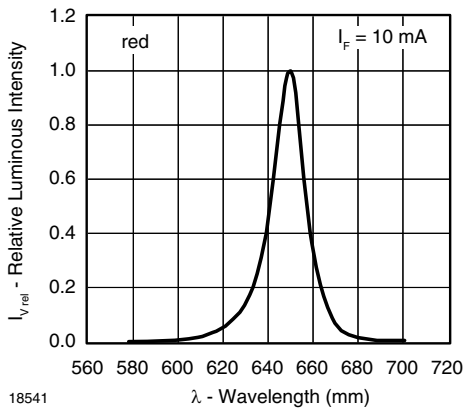



Fig. 6 - Rel. Luminous Intensity vs. Ambient Temperature

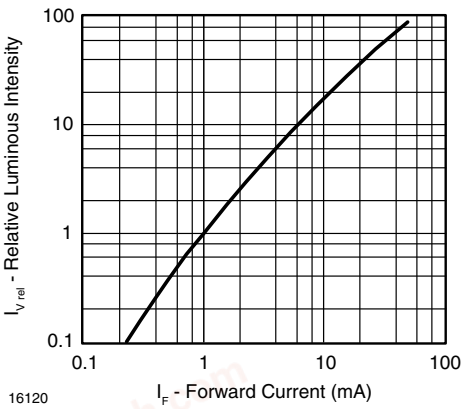



Fig. 4 - Relative Luminous Intensity vs. Forward Current

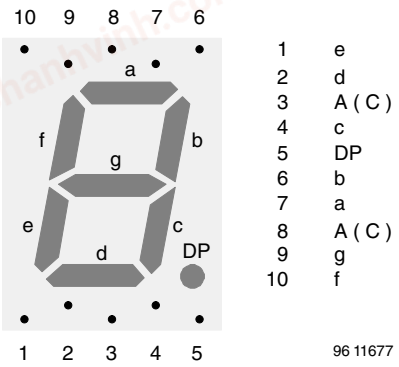



Fig. 7 - TDSR07..

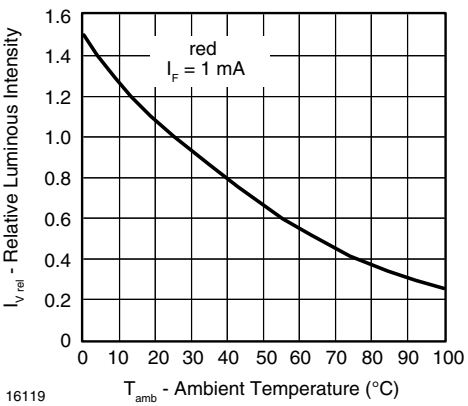
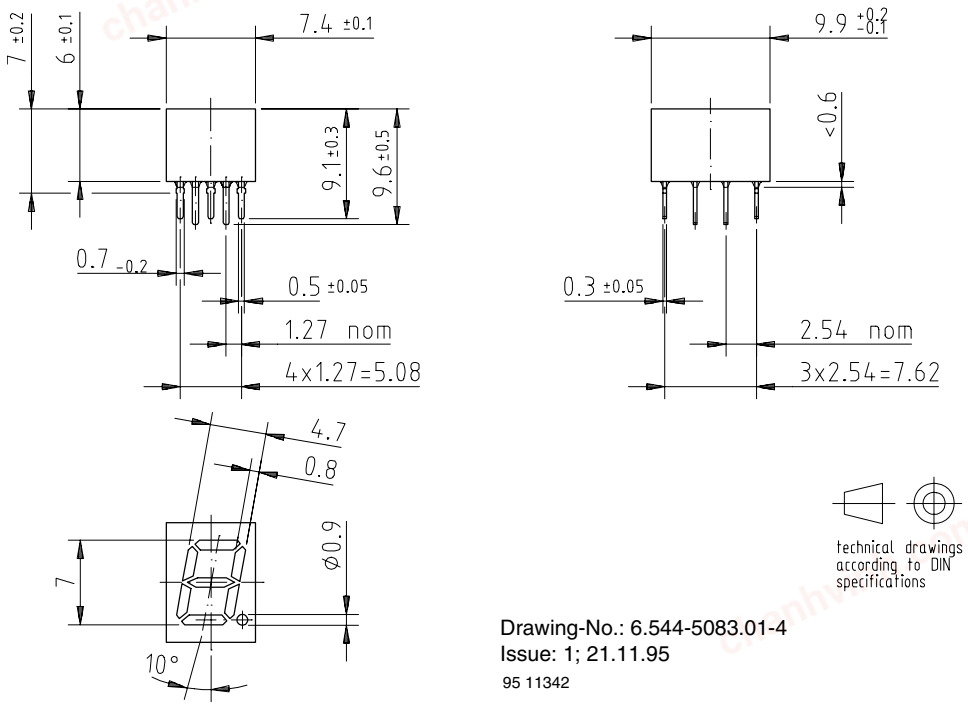



Fig. 5 - Rel. Luminous Intensity vs. Ambient Temperature

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**PACKAGE DIMENSIONS FOR TDSR07..** in millimeters




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