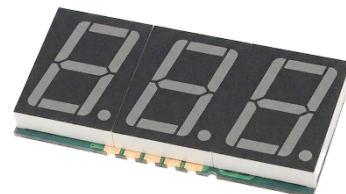


0.56-inch (14.20 mm) 3-Digit Seven-Segment Display**Orange Red Surface-Mount Three-Digit LED Numeric Display****Technical Data Sheet**

Features

- High reliability
- Low current operation
- Low profile and light weight (for space-saving designs)
- Packaged in tape and reel for automated SMT assembly
- Compatible with IR-reflow soldering
- Excellent character appearance
- RoHS compliant

**Descriptions**

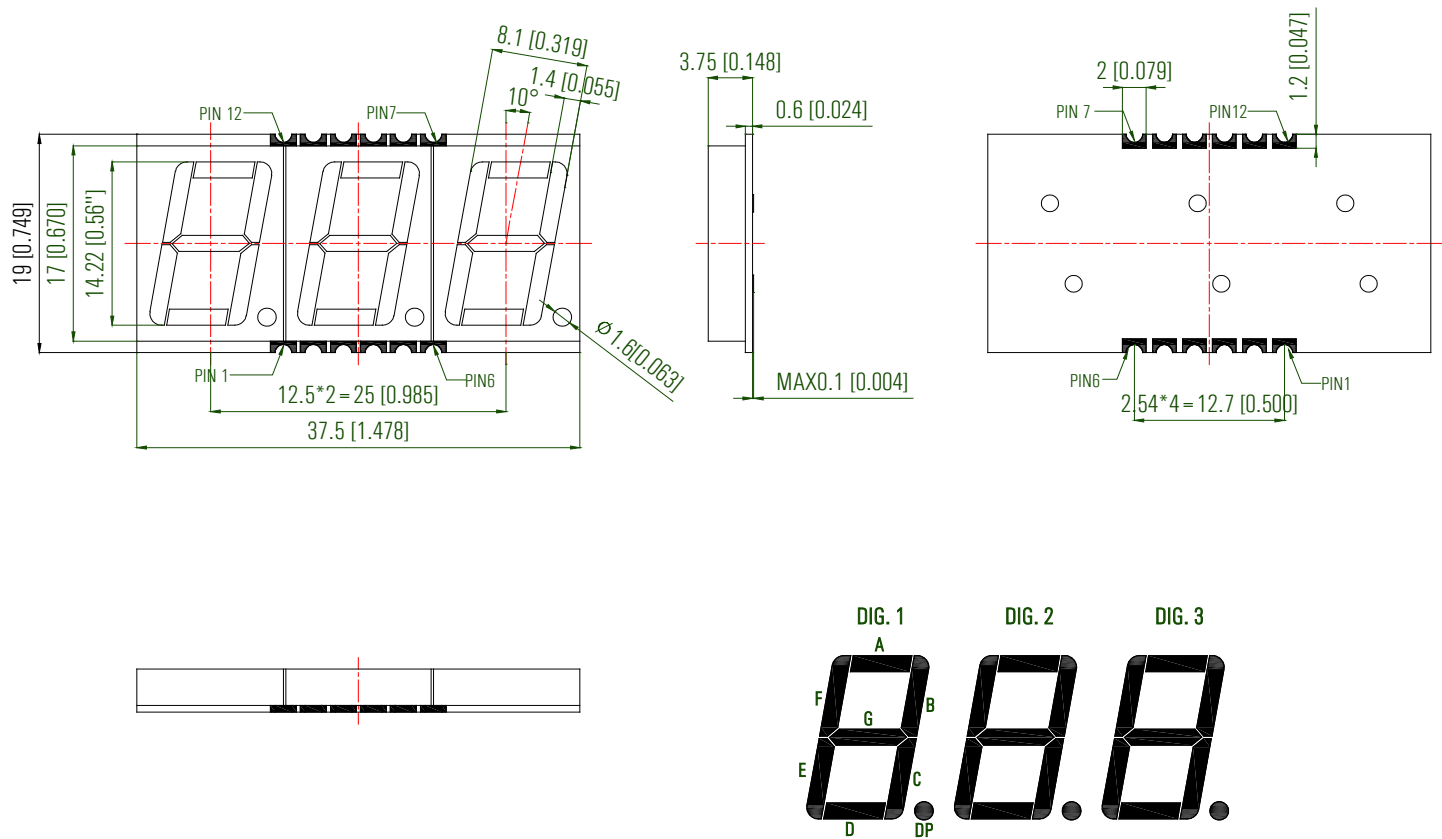
KD3-S561AVB (Common Anode) and KD3-S561CVB (Common Cathode) are 0.56-inch (14.20 mm) character height surface-mount (SMD) orange red 3-digit seven-segment displays. These devices provide excellent readability at distances up to 7 meters and offer stable performance under high ambient light conditions. The standard version features a black surface with white segments; a gray surface version is also available as an option.

Applications

- **Consumer Electronics:** Home appliances, Game console systems
- **Commercial Terminals:** Point-of-sale terminals
- **General Use:** Digital readout displays
- **Industrial Equipment:** Instrumentation panels, Test and measurement equipment, Control systems

Device Selection Guide

Part No.	Emitting Color	Circuit Type
KD3-S561AVB	Orange Red	Common Anode
KD3-S561CVB	Orange Red	Common Cathode

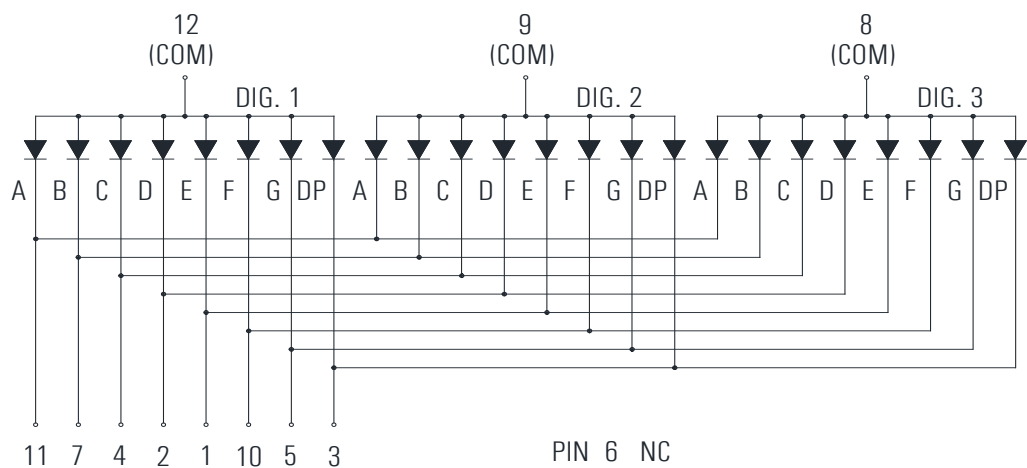
Package Dimension**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
3. The gap between the reflector and PCB shall not exceed 0.25mm.

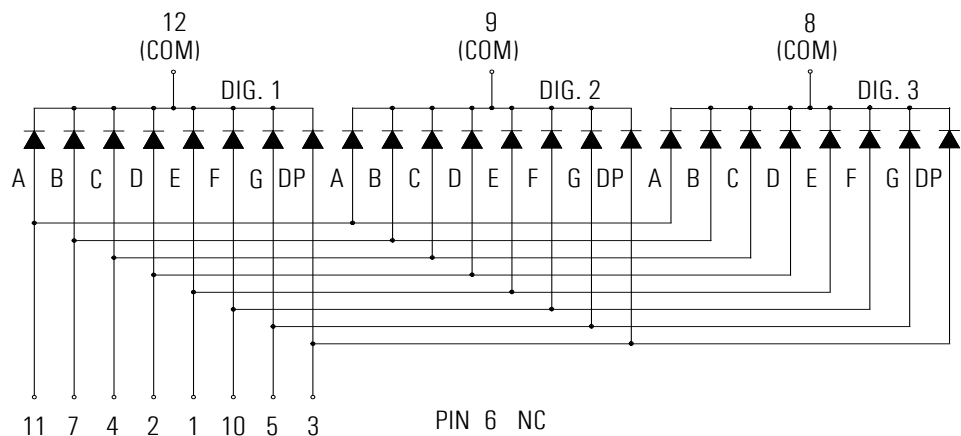
0.56-inch (14.20 mm) 3-Digit Seven-Segment Display
Orange Red Surface-Mount Three-Digit LED Numeric Display
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Internal Circuit Diagram:

KD3-S561AVB (Common Anode)



KD3-S561CVB (Common Cathode)

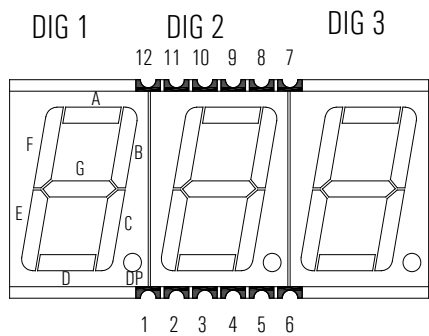


0.56-inch (14.20 mm) 3-Digit Seven-Segment Display

Orange Red Surface-Mount Three-Digit LED Numeric Display

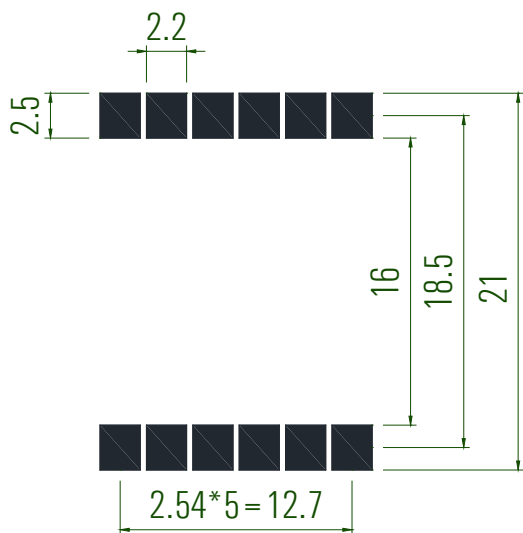
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Pin Connection



Pin No.	Function
1	Segment E
2	Segment D
3	Segment DP
4	Segment C
5	Segment G
6	No connect
7	Segment B
8	Digit3 Common
9	Digit2 Common
10	Segment F
11	Segment A
12	Digit1 Common

Recommended Soldering Pattern



0.56-inch (14.20 mm) 3-Digit Seven-Segment Display

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Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

Parameters	Symbol	Max	Unit
Power Dissipation (Per Chip)	P_d	48	mW
Peak Forward Current (Per Segment) (1/10 Duty Cycle, 0.1ms pulse width)	I_{FP}	40	mA
Forward Current (Per Segment)	I_F	20	mA
Reverse Voltage (Per Chip)	V_R	5	V
Operating Temperature Range	T_{opr}	-40°C to $+80^{\circ}\text{C}$	
Storage Temperature Range	T_{stg}	-40°C to $+85^{\circ}\text{C}$	
Soldering Temperature	T_{sld}	260 $^{\circ}\text{C}$ for 5 Seconds	

Electrical Optical Characteristics at $T_a=25^{\circ}\text{C}$

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_v	10.0	20.0	---	mcd	IF=5mA (Note a)
		20.0	40.0	---	mcd	IF=10mA (Note a)
Luminous Intensity Matching Ratio	I_{v-m}	---	---	2:1		IF=20mA
Peak Emission Wavelength	λ_p	---	632	---	nm	IF=20mA
Dominant Wavelength	λ_d	---	624	---	nm	IF=20mA (Note b)
Spectral Line Half-Width	$\Delta\lambda$	---	20	---	nm	IF=20mA
Forward Voltage (Per Segment)	V_F	---	1.8	2.4	V	IF=20mA (Note c)
Reverse Current (Per Segment)	I_R	---	---	50	μA	VR=5V

Notes:

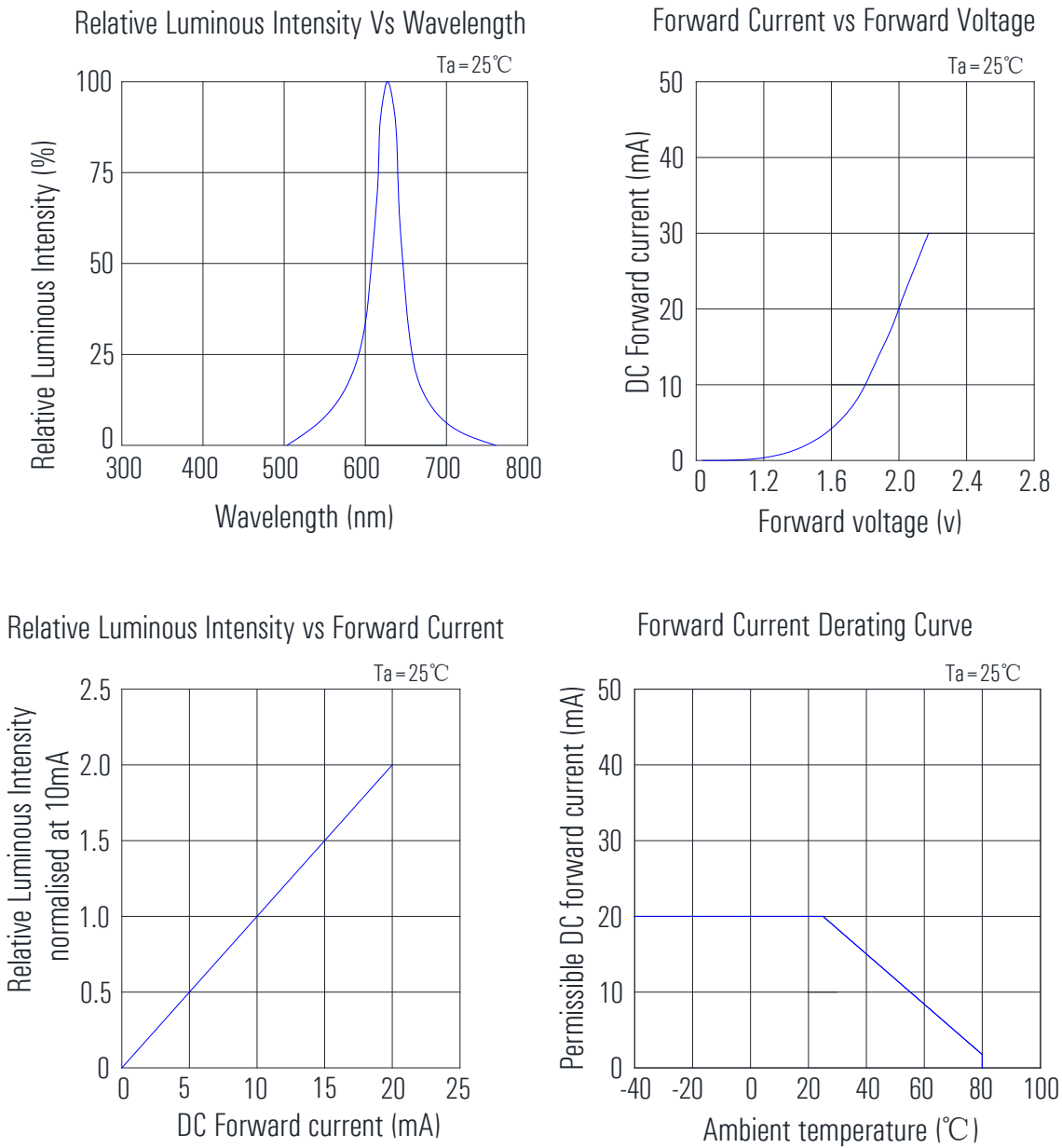
- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
Tolerance of Luminous Intensity: $\pm 10\%$
- The dominant wavelength (λ_d) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
- Tolerance of Forward Voltage: $\pm 0.1\text{V}$

0.56-inch (14.20 mm) 3-Digit Seven-Segment Display

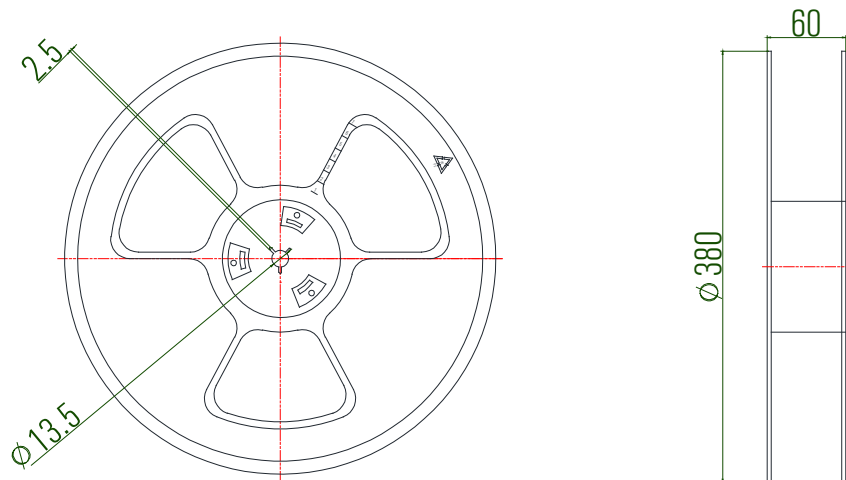
Orange Red Surface-Mount Three-Digit LED Numeric Display

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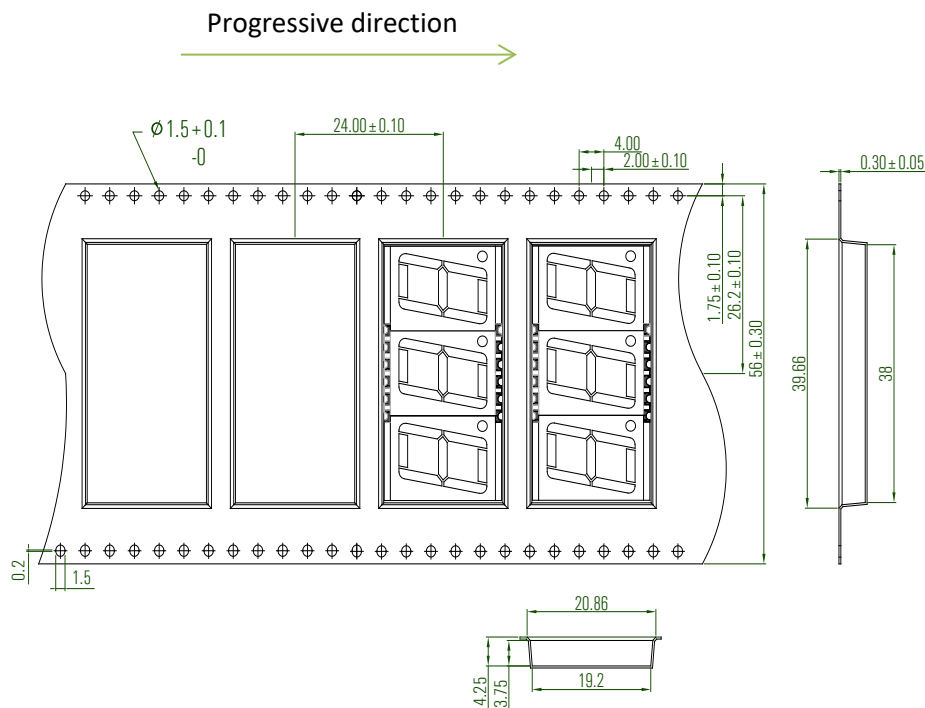
Typical Electrical/Optical Characteristics Curves (Ta=25 °C)



Reel Dimensions (units: mm)

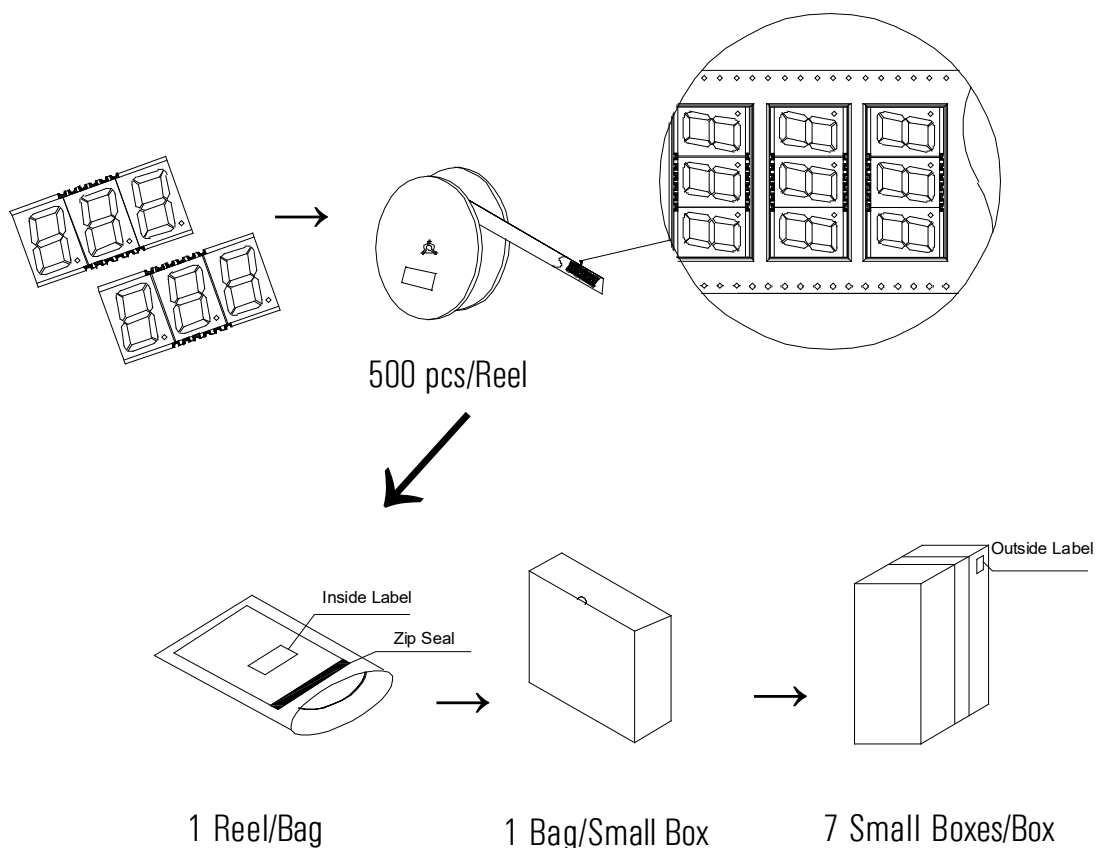


Tape Specifications (units: mm):



Note: Tolerances unless mentioned ±0.25mm.

Packing & Label Specifications



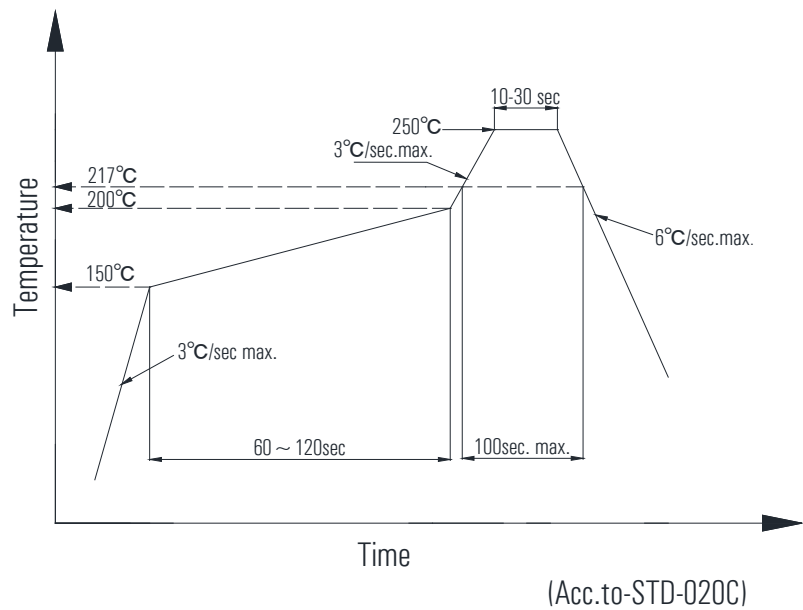
0.56-inch (14.20 mm) 3-Digit Seven-Segment Display

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Precautions for Use

1. Pb-Free Reflow Soldering Profile.



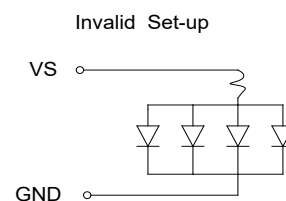
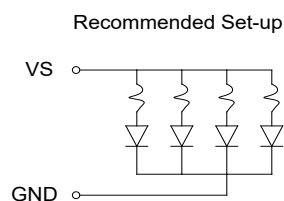
Pre-heat		Other	
Temperature min	150 °C	Liquidus Temperature	217°C
Temperature max	200 °C	Time above Liquidus Temperature	100sec.max
Time	60-120sec	Peak Temperature	250°C
Average ramp-up rate	3 °C/sec.max.	Ramp- Down Rate from Peak Temperature	6 °C/sec. max.
		Reflow times	1 time

- a. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.
- b. All parameters are maximum body case temperature values and cannot be considered as a soldering profile. The body case temperature was measured by soldering a thermal couple to the soldering point of LEDs.
- c. No more than one reflows welding is recommended.

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2. Circuit Design Notes:

- Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
- LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.
- The driving circuit should be designed to protect the LED against reverse voltages and transient voltage spikes when the circuit is powered up or shut down.
- The safe operating current should be chosen after considering the maximum ambient temperature of the operating environment.



Technical Data Sheet

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0.56-inch (14.20 mm) 3-Digit Seven-Segment Display

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Revision History

Revision	Date	Contents	Page
Rev. 1	November 20, 2018	Original Version	/