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HDSM-431x/433x

0.39" (10.0mm)
Single digit surface mount LED display

Data Sheet

Description

This is 0.39" (10.0mm) height single digit display. This device utilizes AlInGaP / GaAs chips.This device is with top surface gray and white segments.

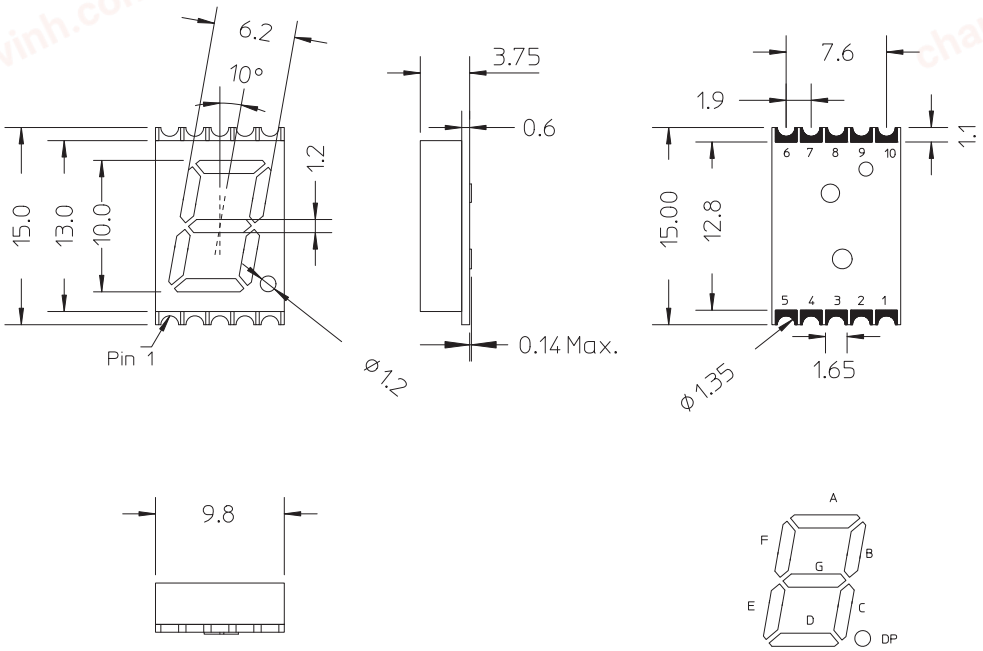
Features

- 0.39" digit height
- Low current operation
- Excellent characters appearance
- Available in CA and CC
- 1000 pieces per reel
- Moisture Sensitivity Level: Level 3
- RoHS compliant

Ordering Information

Red	Green	Yellow	Orange	Description
HDSM-431C	HDSM-431H	HDSM-431F	HDSM-431L	Common Anode, Right Hand Decimal
HDSM-433C	HDSM-433H	HDSM-433F	HDSM-433L	Common Cathode, Right Hand Decimal

Package Dimensions



Note:
1. All dimensions are in millimeters.
2. Tolerance are +/- 0.25mm unless otherwise specified.

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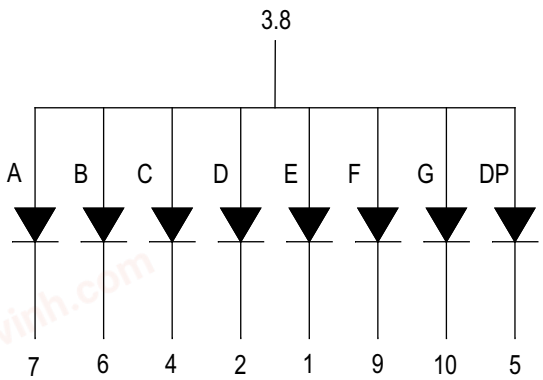
Pin Connection (Common Anode)

PIN No	Connection
1	Cathode E
2	Cathode D
3	Common Anode
4	Cathode C
5	Cathode DP
6	Cathode B
7	Cathode A
8	Common Anode
9	Cathode F
10	Cathode G

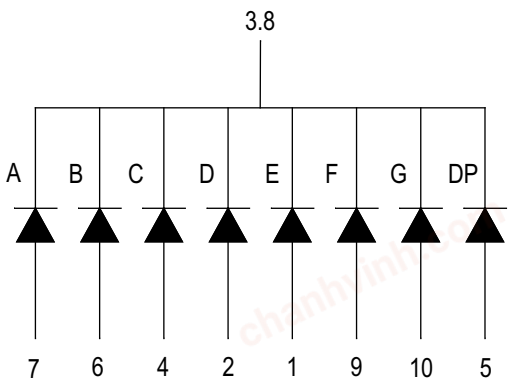
Pin Connection (Common Cathode)

PIN No	Connection
1	Anode E
2	Anode D
3	Common Cathode
4	Anode C
5	Anode DP
6	Anode B
7	Anode A
8	Common Cathode
9	Anode F
10	Anode G

Internal Circuit Diagram (Common Anode)



Internal Circuit Diagram (Common Cathode)



Absolute Maximum Ratings @ T_A=25°

Parameter	Green/Yellow/Red/Orange	Unit
Power Dissipation Per Segment	65	mW
Peak Forward Current Per Segment (1/10 Duty Cycle. ,0.1ms pulse width)	100	mA
Continuous Forward Current Per Segment	25	mA
Derating Linearly From 25°C Per Segment	0.25	mA/ °C
Reverse Voltage Per Segment	5	V
Operating Temperature Range	-40°C to +105°C	
Storage Temperature Range	-40°C to +105°C	

Electrical / Optical Characteristics @ T_A=25°C

Green

Parameters	Symbol	Min	Typ	Max	Unit	Test Condition
Average Luminous Intensity	I_V	5.4	9	-	Mcd	I_F = 10mA
Emissions Wavelength	λ_p/λ_d	-	572/571	-	Nm	I_F = 20mA
Spectral Line Half-Width	$\Delta\lambda$	-	20	-	Nm	I_F = 20mA
Forward Voltage, Per Segment	V_F	-	2.1	2.6	V	I_F = 20mA
Reverse Current, Per Segment	I_R	-		100	μA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	-	-	2:1	-	I_F = 10mA

Yellow

Parameters	Symbol	Min	Typ	Max	Unit	Test Condition
Average Luminous Intensity	I_V	8.6	15	-	Mcd	I_F = 10mA
Emissions Wavelength	λ_p/λ_d	-	591/589	-	Nm	I_F = 20mA
Spectral Line Half-Width	$\Delta\lambda$	-	15	-	Nm	I_F = 20mA
Forward Voltage, Per Segment	V_F	-	2.1	2.6	V	I_F = 20mA
Reverse Current, Per Segment	I_R	-		100	μA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	-	-	2:1	-	I_F = 10mA

Red

Parameters	Symbol	Min	Typ	Max	Unit	Test Condition
Average Luminous Intensity	I_V	8.6	14.3	-	Mcd	I_F = 10mA
Emissions Wavelength	λ_p/λ_d	-	644/630	-	Nm	I_F = 20mA
Spectral Line Half-Width	$\Delta\lambda$	-	20	-	Nm	I_F = 20mA
Forward Voltage, Per Segment	V_F	-	2.0	2.6	V	I_F = 20mA
Reverse Current, Per Segment	I_R	-		100	μA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	-	-	2:1	-	I_F = 10mA

Orange

Parameters	Symbol	Min	Typ	Max	Unit	Test Condition
Average Luminous Intensity	I_V	8.6	16	-	Mcd	I_F = 10mA
Emissions Wavelength	λ_p/λ_d	-	611/605	-	Nm	I_F = 20mA
Spectral Line Half-Width	$\Delta\lambda$	-	17	-	Nm	I_F = 20mA
Forward Voltage, Per Segment	V_F	-	2.1	2.6	V	I_F = 20mA
Reverse Current, Per Segment	I_R	-		100	μA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	-	-	2:1	-	I_F = 10mA

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Typical Electrical / Optical characteristic curves @ T_A=25°C

Green

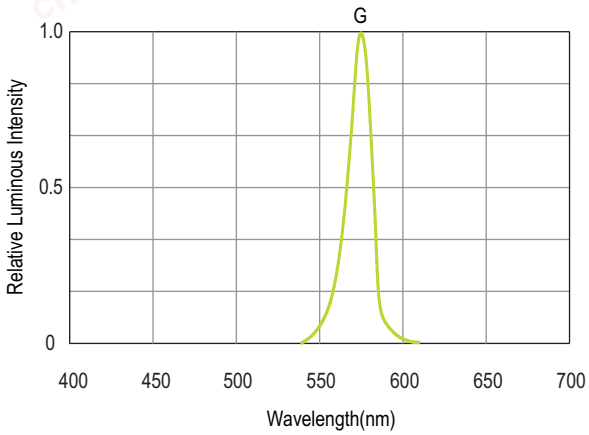

Figure 1. Relative Luminous Intensity vs. Wavelength

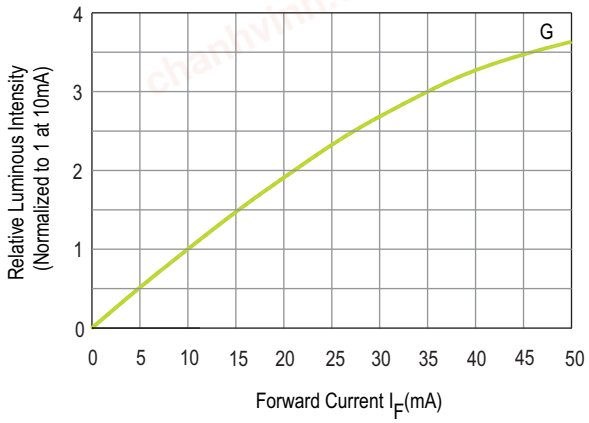

Figure 2. Relative Luminous Intensity vs. Forward Current

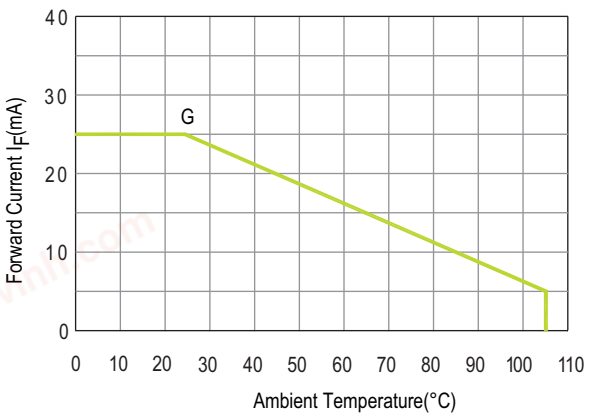

Figure 3. Allowable DC Current vs. Ambient Temperature

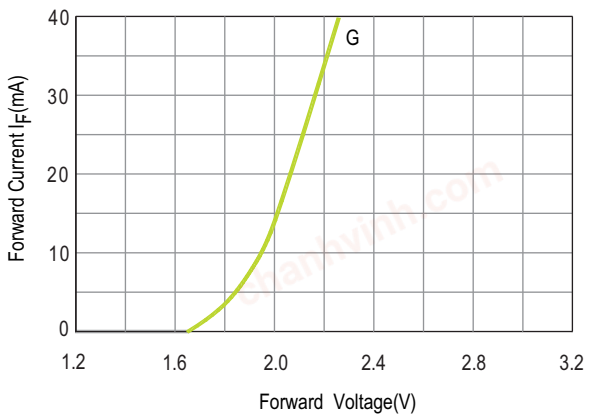

Figure 4. Forward Current vs. Forward Voltage

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Yellow

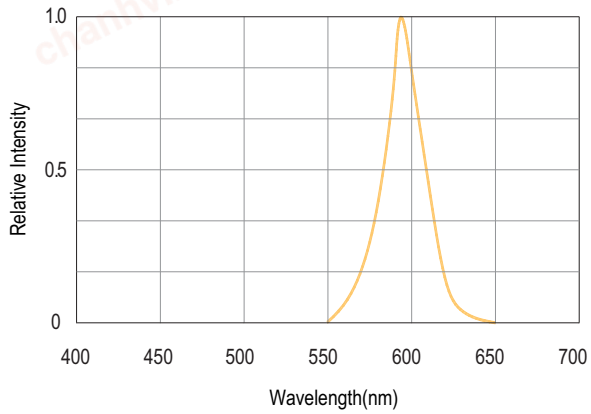


Figure 1. Relative Intensity vs. Wavelength

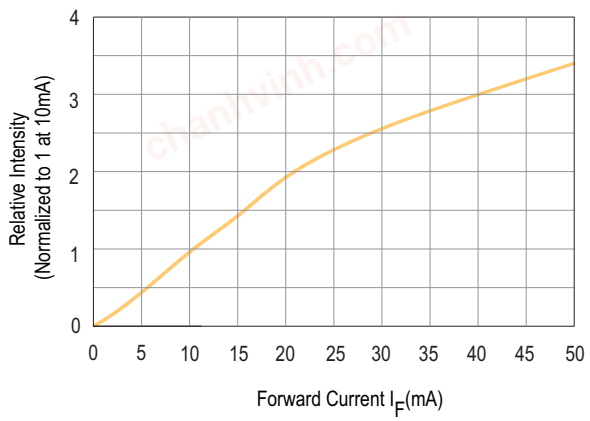
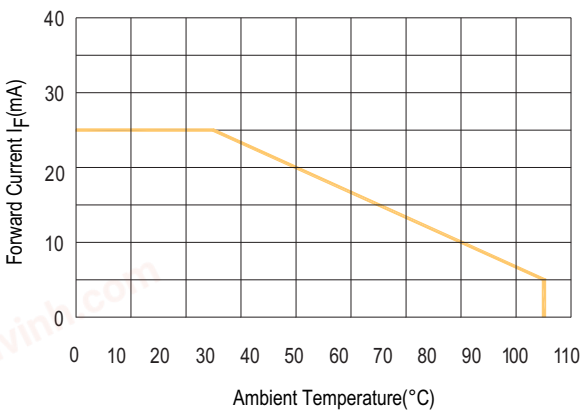


Figure 2. Relative Intensity vs. Forward Current



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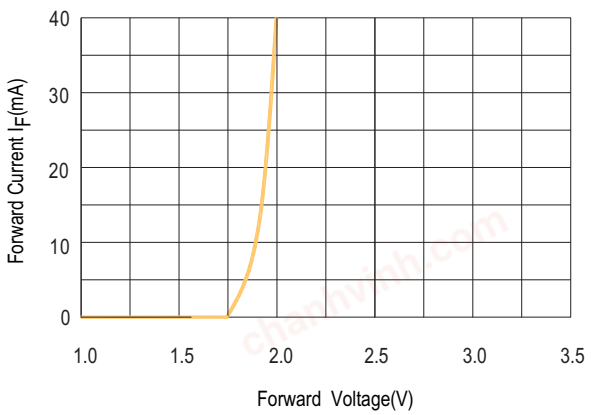

Figure 4. Forward Current vs. Forward Voltage

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Red

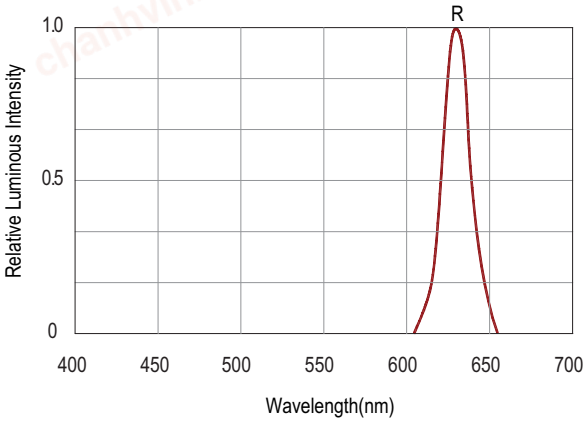

Figure 1. Relative Luminous Intensity vs. Wavelength

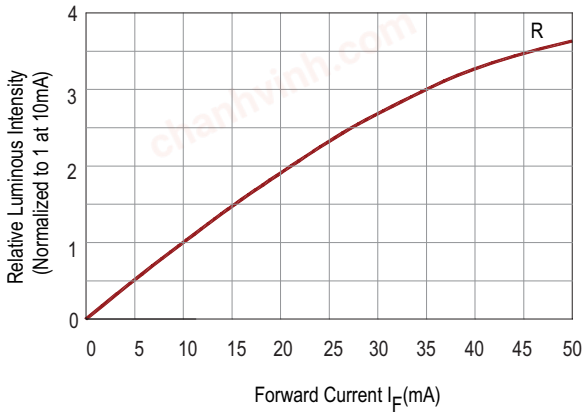

Figure 2. Relative Luminous Intensity vs. Forward Current

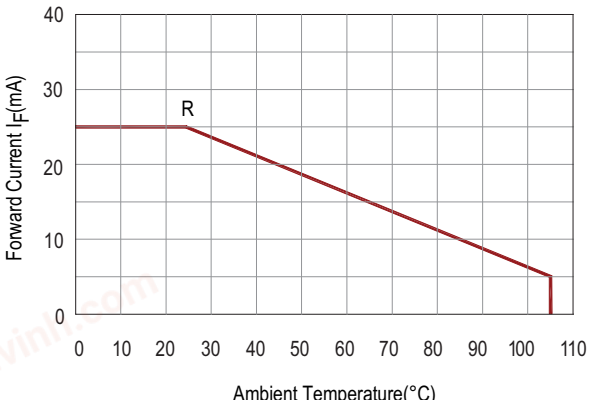

Figure 3. Allowable DC Current vs. Ambient Temperature

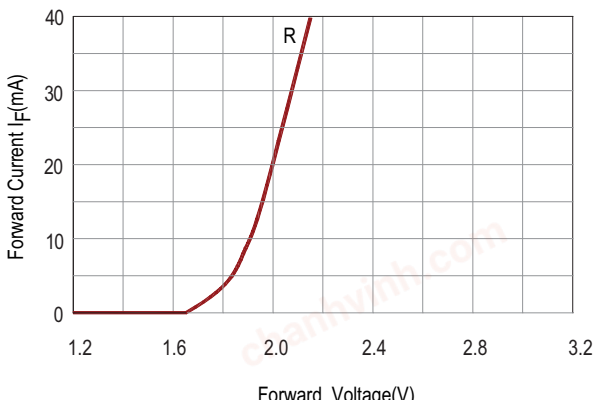

Figure 4. Forward Current vs. Forward Voltage

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Orange

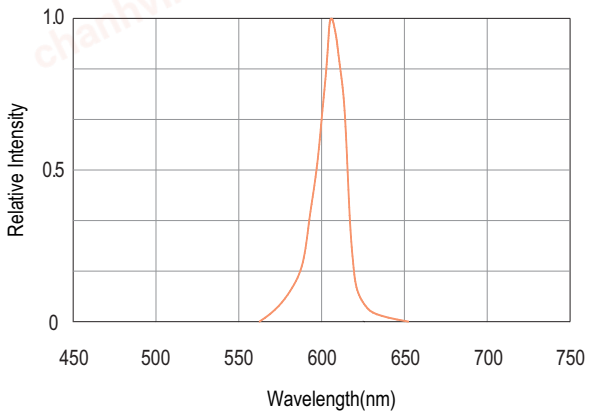


Figure 1. Relative Intensity vs. Wavelength

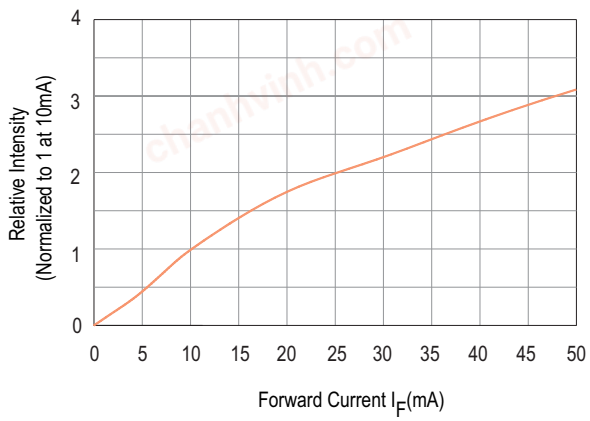
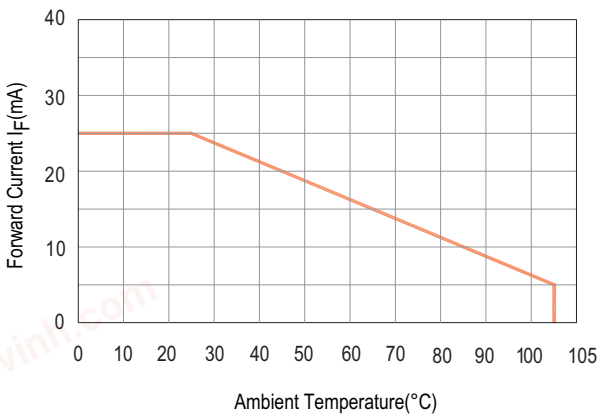


Figure 2. Relative Intensity vs. Forward Current



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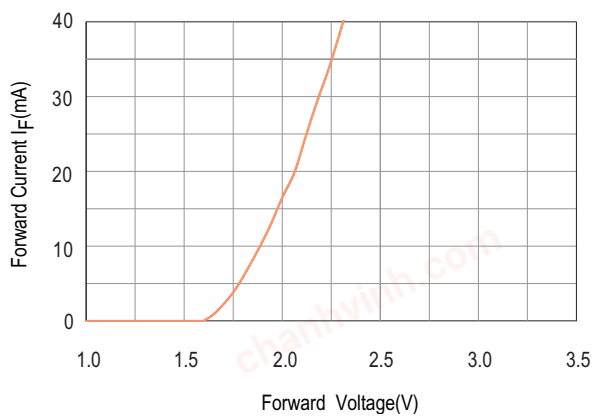

Figure 4. Forward Current vs. Forward Voltage

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Intensity Bin Limits (mcd)

Green

IV Bin Category	Min.	Max.
M	5.401	8.6
N	8.601	13.7
P	13.701	21.8

Tolerance: ±15%

Red

IV Bin Category	Min.	Max.
N	8.601	13.7
P	13.701	21.80
Q	21.801	34.7

Tolerance: ±15%

Yellow

IV Bin Category	Min.	Max.
N	8.601	13.7
P	13.701	21.80
Q	21.801	34.7

Tolerance: ±15%

Orange

IV Bin Category	Min.	Max.
N	8.601	13.7
P	13.701	21.80
Q	21.801	34.7
R	34.701	55.2

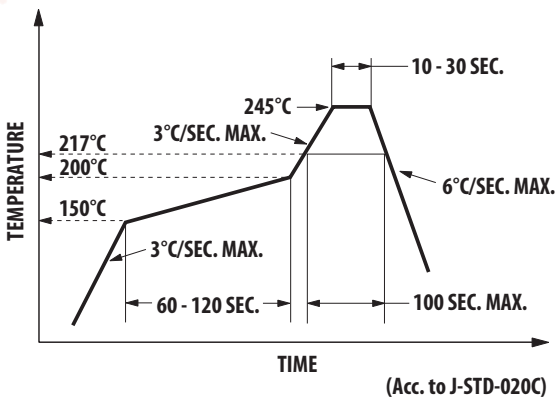
Tolerance: ±15%

Note:

1. Bin categories are established for classification of products. Products may not be available in all categories. Please contact your Avago representative for information on currently available bins.

SMT Soldering Profile

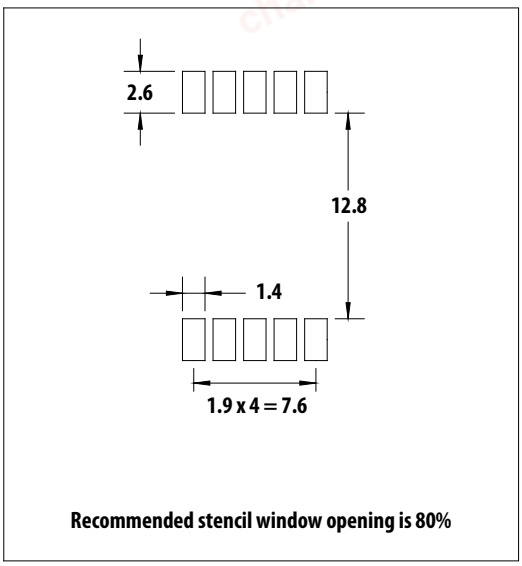
Pb free reflow soldering Profile



Notes:

1. The peak temperature refers to the peak package body temperature.
2. Number of reflow process shall be limited to maximum 2 times only. Cooling process to normal temperature is required between first and second soldering process.

Recommended soldering pattern (unit: mm)



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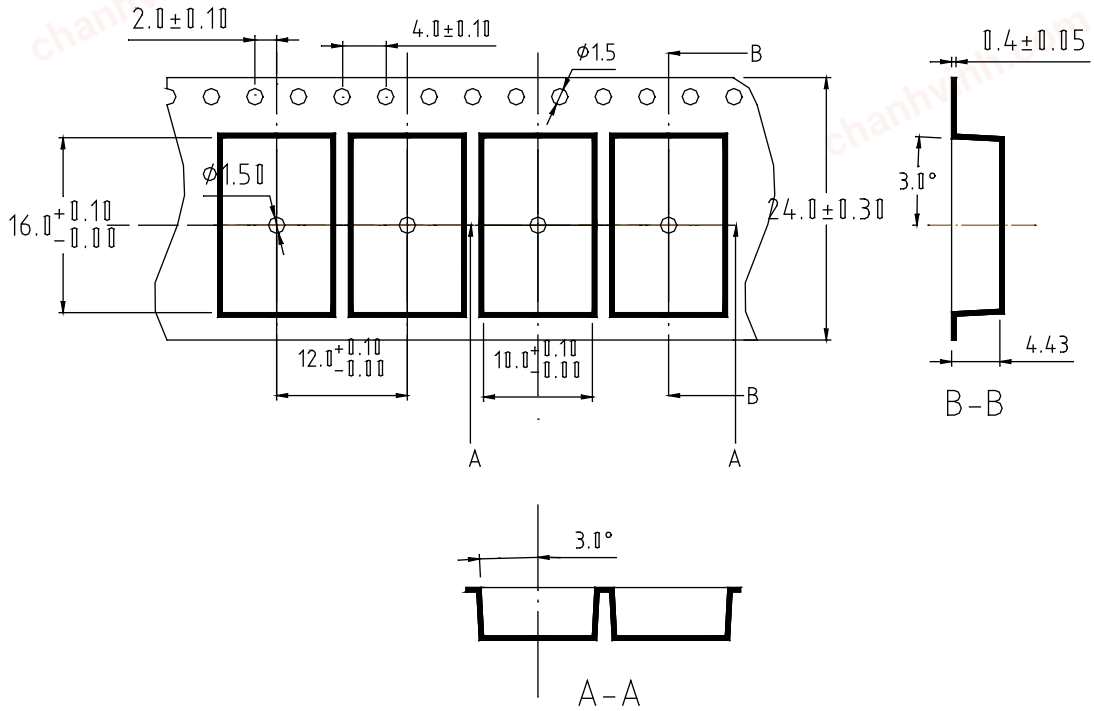
Tape specification (unit: mm)



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