BROADCOM®

Data Sheet

HDSM-281x/283x

0.28 in. (7.0 mm) Single-Digit Surface-Mount LED Display

Description

The Broadcom® HDSM-281x/283x is a single-digit display of 0.28 in. (7.0 mm) height. This device uses AlInGaP/GaAs chips and has a grey top surface with white segments.

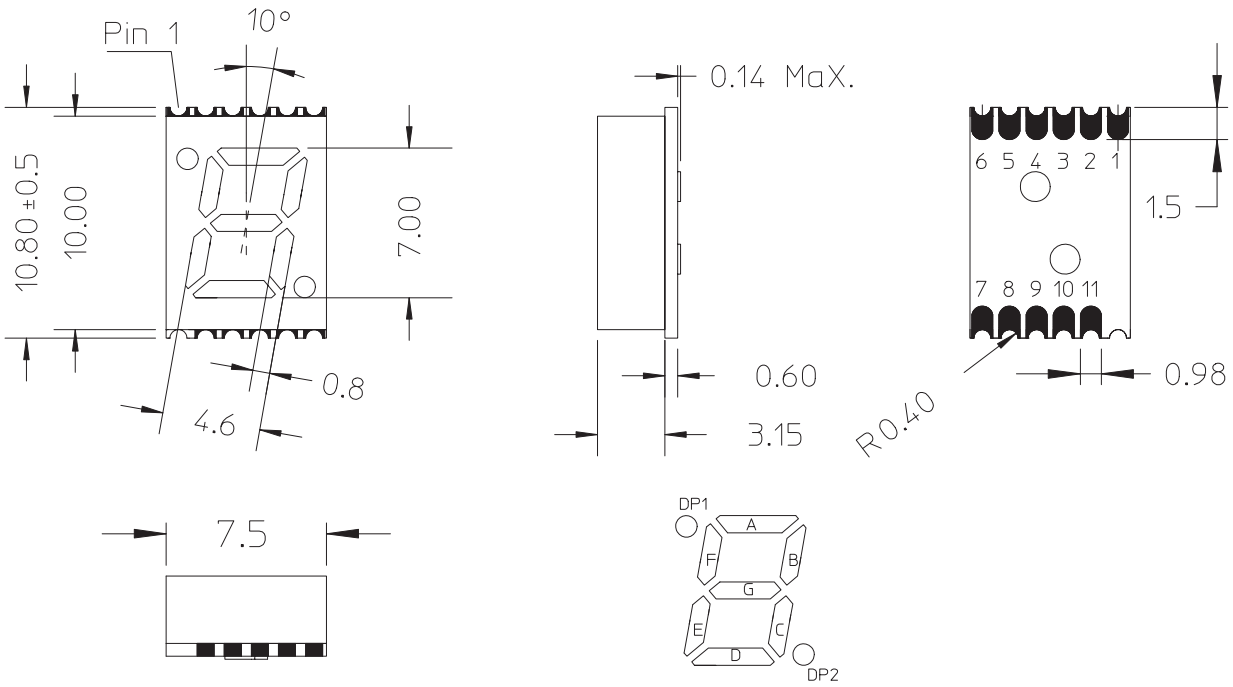
Features

- 0.28 in. 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-281C	HDSM-281H	HDSM-281F	HDSM-281L	Common Anode, Upper and Lower Decimal
HDSM-283C	HDSM-283H	HDSM-283F	HDSM-283L	Common Cathode, Upper and Lower Decimal

Package Dimensions



NOTE:

1. All dimensions are in millimeters (inches).
2. Tolerance ± 0.25 mm (0.01 in.) unless otherwise noted.

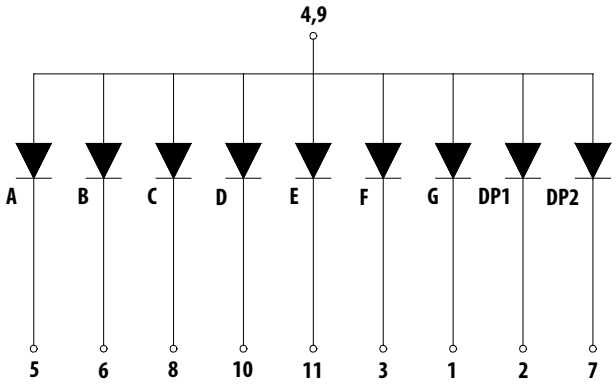
Pin Connection (Common Anode)

Pin Number	Connection
1	CATHODE G
2	CATHODE DP1
3	CATHODE F
4	COMMON ANODE
5	CATHODE A
6	CATHODE B
7	CATHODE DP2
8	CATHODE C
9	COMMON ANODE
10	CATHODE D
11	CATHODE E

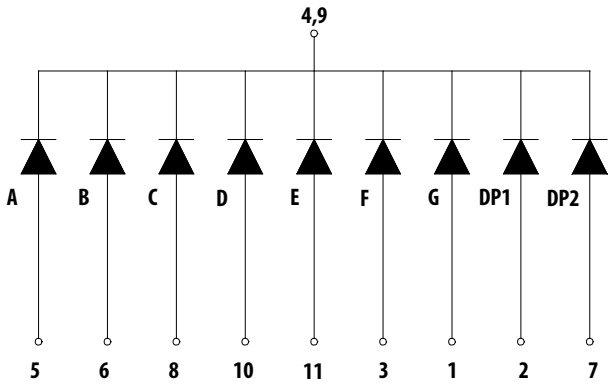
Pin Connection (Common Cathode)

Pin Number	Connection
1	ANODE G
2	ANODE DP1
3	ANODE F
4	COMMON CATHODE
5	ANODE A
6	ANODE B
7	ANODE DP2
8	ANODE C
9	COMMON CATHODE
10	ANODE D
11	ANODE E

Internal Circuit Diagram (Common Anode)



Internal Circuit Diagram (Common Cathode)



Absolute Maximum Ratings at T_A = 25°C

Parameter	Green/Yellow/Red/Orange	Units
Power Dissipation Per Segment	65	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1-ms 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 at T_A = 25°C

Green

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Condition
Average Luminous Intensity	I_V	3.4	6	—	mcd	I_F = 10 mA
Emissions Wavelength	λ_p/λ_d	—	572/571	—	nm	I_F = 20 mA
Spectral Line Half-Width	$\Delta\lambda$	—	20	—	nm	I_F = 20 mA
Forward Voltage, Per Segment	V_F	—	2.1	2.6	V	I_F = 20 mA
Reverse Current, Per Segment	I_R	—	—	100	µA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	—	—	2:1		I_F = 10 mA

Yellow

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Condition
Average Luminous Intensity	I_V	3.4	8.0	—	mcd	I_F = 10 mA
Emissions Wavelength	λ_p/λ_d	—	591/589	—	nm	I_F = 20 mA
Spectral Line Half-Width	$\Delta\lambda$	—	15	—	nm	I_F = 20 mA
Forward Voltage, Per Segment	V_F	—	2.1	2.6	V	I_F = 20 mA
Reverse Current, Per Segment	I_R	—	—	100	µA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	—	—	2:1		I_F = 10 mA

Red

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Condition
Average Luminous Intensity	I_V	3.4	7.5	—	mcd	I_F = 10 mA
Emissions Wavelength	λ_p/λ_d	—	644/630	—	nm	I_F = 20 mA
Spectral Line Half-Width	$\Delta\lambda$	—	20	—	nm	I_F = 20 mA
Forward Voltage, Per Segment	V_F	—	2.0	2.6	V	I_F = 20 mA
Reverse Current, Per Segment	I_R	—	—	100	µA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	—	—	2:1		I_F = 10 mA

Orange

Parameters	Symbol	Min.	Typ.	Max.	Units	Test Condition
Average Luminous Intensity	I_V	3.4	8.5	—	mcd	I_F = 10 mA
Emissions Wavelength	λ_p/λ_d	—	611/605	—	nm	I_F = 20 mA
Spectral Line Half-Width	$\Delta\lambda$	—	20	—	nm	I_F = 20 mA
Forward Voltage, Per Segment	V_F	—	2.1	2.6	V	I_F = 20 mA
Reverse Current, Per Segment	I_R	—	—	100	µA	V_R = 5V
Luminous Intensity Matching Ratio	I_{V-M}	—	—	2:1		I_F = 10 mA

Typical Electrical/Optical Characteristic Curves at T_A = 25°C

Green

Figure 1: Relative Luminous Intensity vs. Wavelength

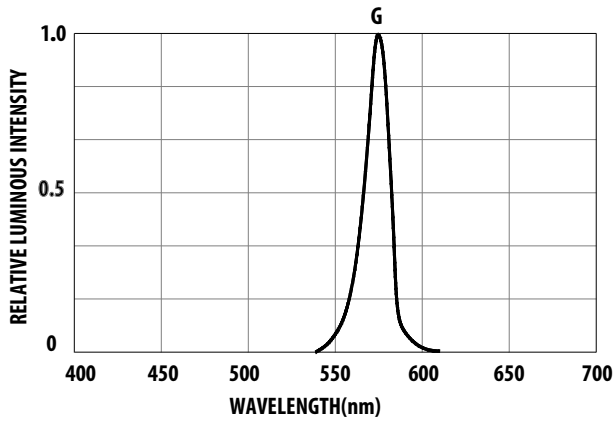


Figure 2: Relative Luminous Intensity vs. Forward Current

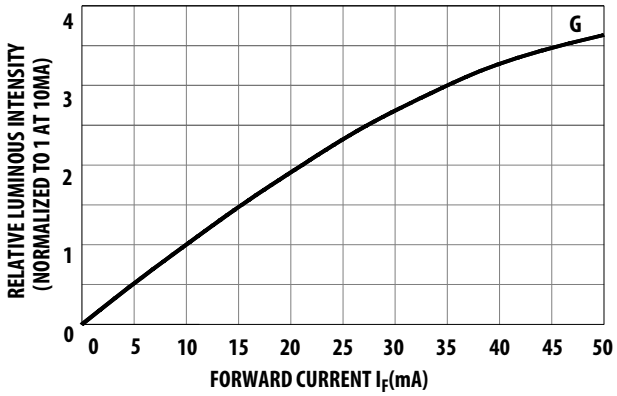


Figure 3: Allowable DC Current vs. Ambient Temperature

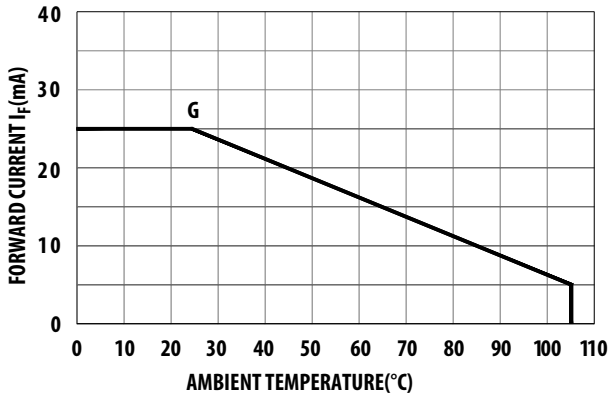
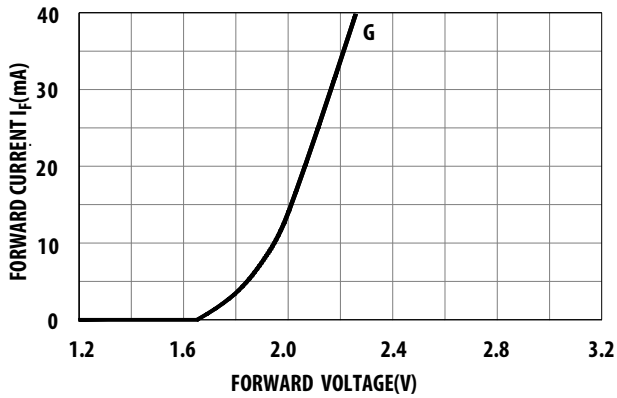


Figure 4: Forward Current vs. Forward Voltage



Typical Electrical/Optical Characteristic Curves at T_A = 25°C

Yellow

Figure 5: Relative Intensity vs. Wavelength

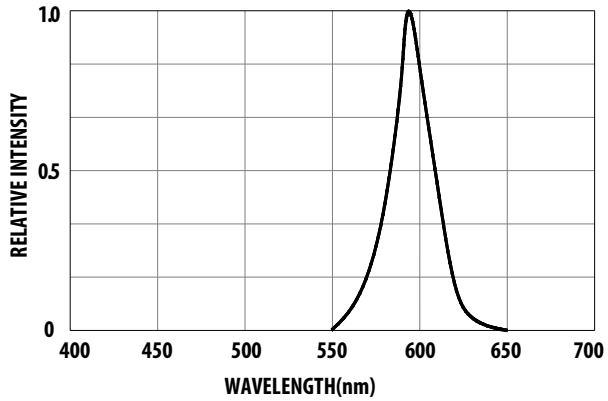


Figure 6: Relative Intensity vs. Forward Current

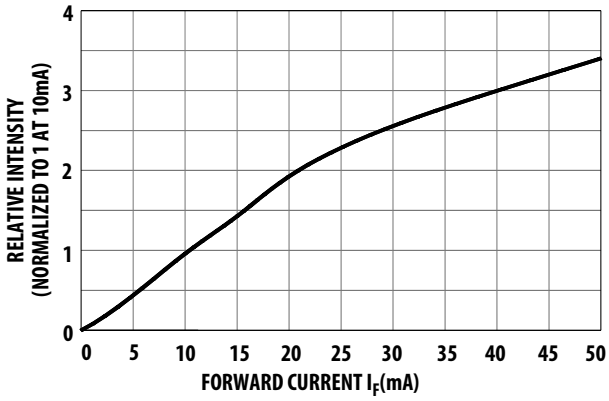


Figure 7: Allowable DC Current vs. Ambient Temperature

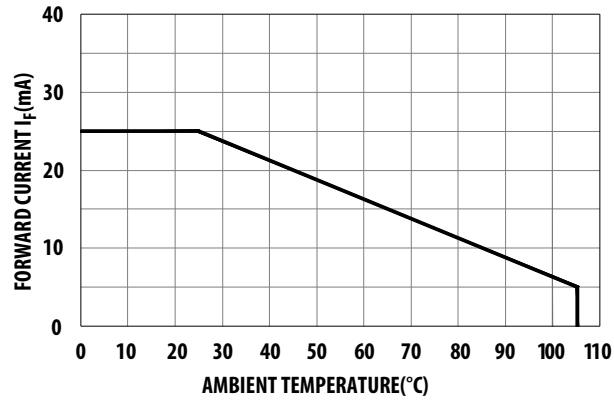
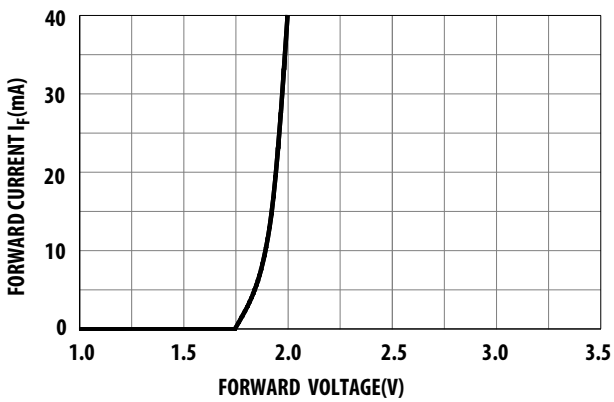


Figure 8: Forward Current vs. Forward Voltage



Typical Electrical/Optical Characteristic Curves at T_A = 25°C

Red

Figure 9: Relative Intensity vs. Wavelength

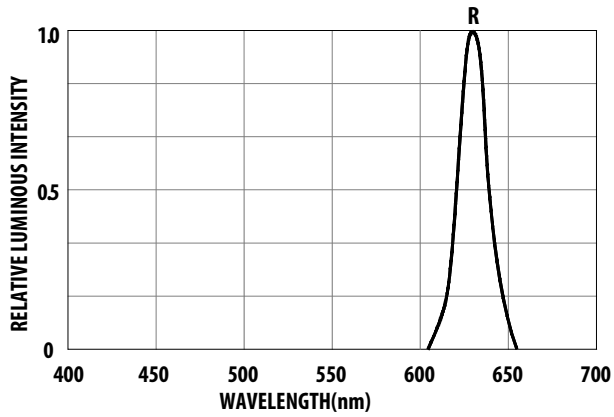


Figure 10: Relative Luminous Intensity vs. Forward Current

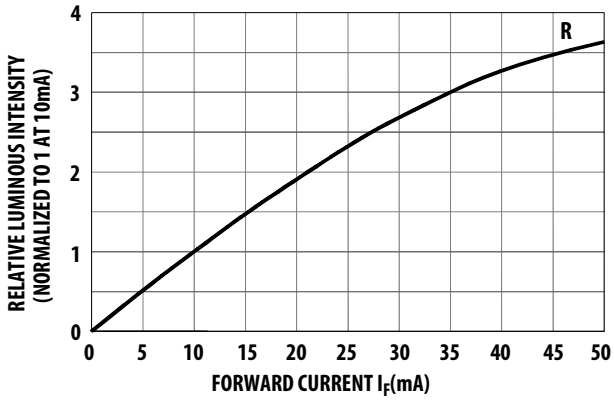


Figure 11: Allowable DC Current vs. Ambient Temperature

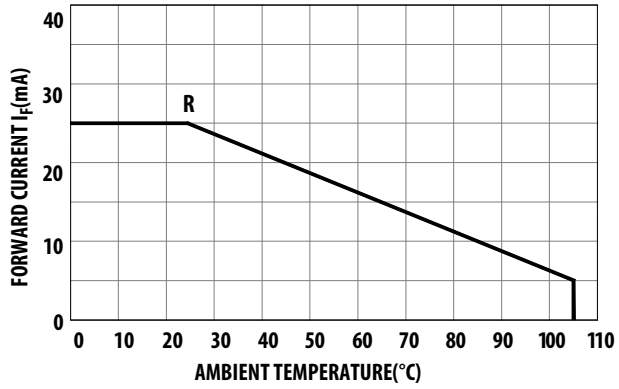
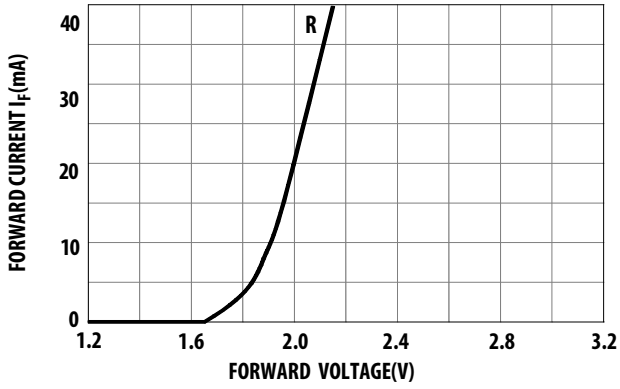


Figure 12: Forward Current vs. Forward Voltage



Typical Electrical/Optical Characteristic Curves at T_A = 25°C

Orange

Figure 13: Relative Intensity vs. Wavelength

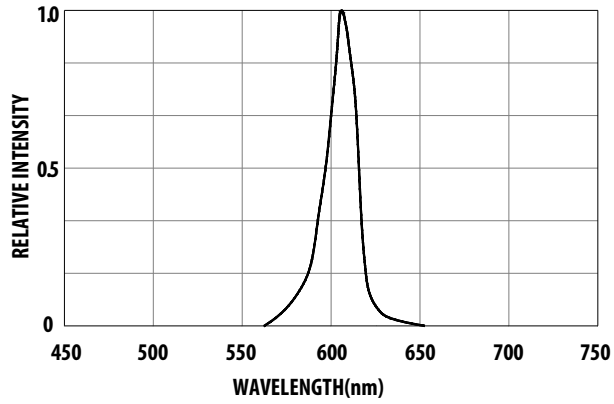


Figure 14: Relative Intensity vs. Forward Current

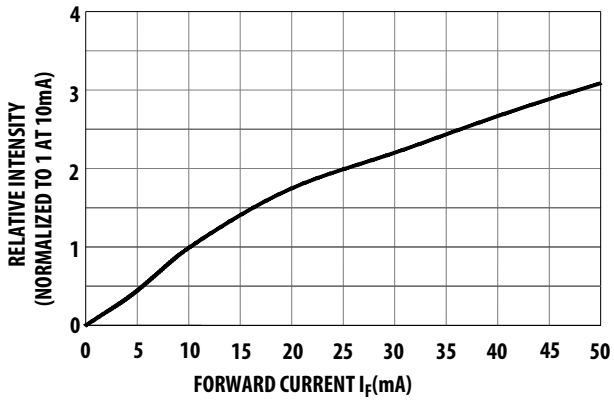


Figure 15: Allowable DC Current vs. Ambient Temperature

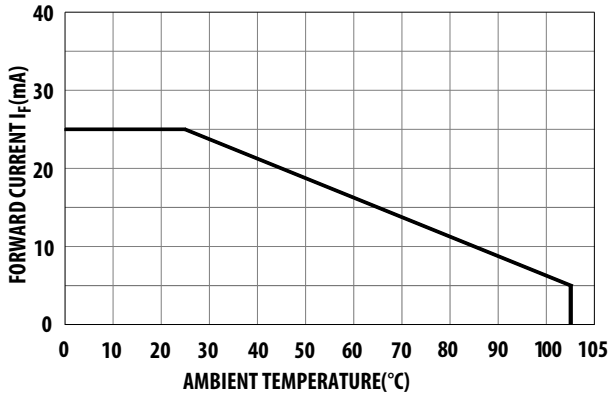
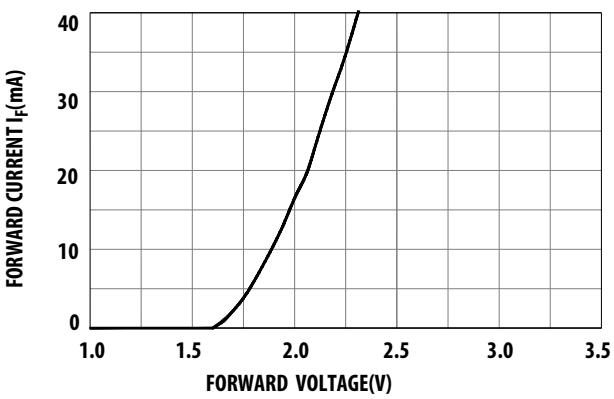


Figure 16: Forward Current vs. Forward Voltage



Intensity Bin Limits (mcd)

Yellow/Red/Orange/Green

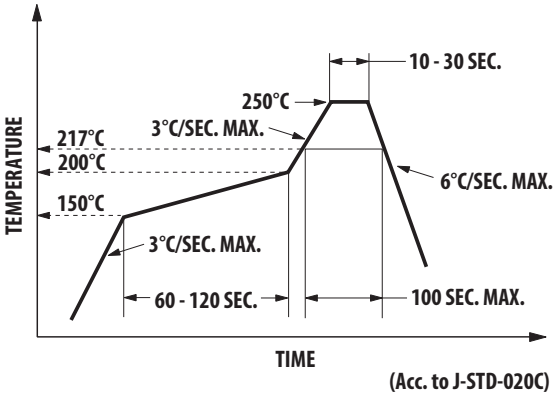
IV Bin Category	Min.	Max.
L	3.401	5.400
M	5.401	8.600
N	8.601	13.700
P	13.701	21.800

Tolerance: ± 15%.

NOTE: Bin categories are established for classification of products. Products may not be available in all categories. Contact your Broadcom representative for information on currently available bins.

SMT Soldering Profile

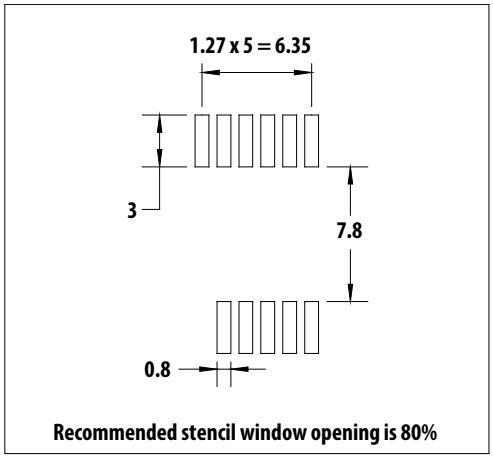
Pb-Free Reflow Soldering Profile



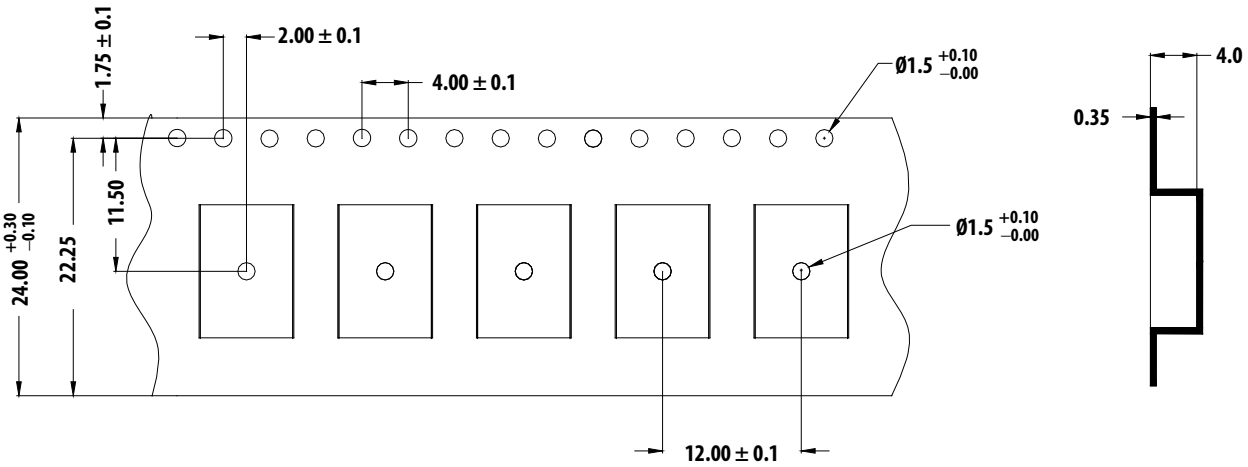
NOTE:

1. The peak temperature refers to the peak package body temperature.
2. The number of reflow processes shall be limited to a maximum of twice only. A cooling process to normal temperature is required between the first and second soldering processes.

Recommended Soldering Pattern (Unit: mm)



Tape Specification (Unit: mm)



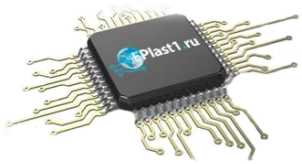
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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