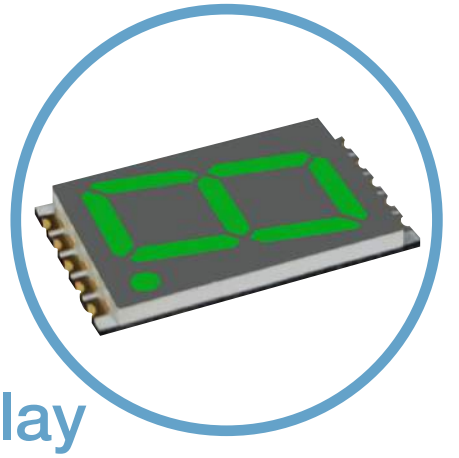


DSM Series
Ultra Thin Surface Mount
Single Digit 7-Segment LED Display

DSM7UA56105 - 0.56” (14.22mm) Digit Height
Emitting Color: Pure Green (InGaN/GaN)

Applications

- People Movers
- Home Appliances
- Medical Devices
- Industrial Devices
- Automation and Controls
- Light Control
- IoT
- Transportation
- Food Service Appliances

Key Features

- 1-digit seven segment led numeric display
- Outer dimensions: 20.0 x 12.50 x 2.1mm
- Reduce overall thickness of PCB, with major cost savings
- Available in 4 different digit heights and widths
- Excellent character appearance, with high light output
- Pure green chip
- Made from InGaN on transparent GaN substrate
- Made of white segments and gray surface
- Also available in super bright red
- Available in cut tape or automation-friendly tape and reel
- Display surface color: black surface and white segments
- Exclusive patented technology
- Low current operation and lower power consumption
- Polarity: common anode
- Available for reverse mounting configuration
- Side by side mounting allows space saving
- Easy mounting on PC boards or sockets
- Moisture Sensitive Level (MSL): 2a
- Life expectancy: 100,000 hours
- Technically and mechanically rugged
- Quality tested with the highest industry standard

Ordering Data

Series	Mounting Type	Number of Segments	Thickness Type	Polarity: Common	Digit Height	Number of Digits	Color	Packaging
D	SM	7	U	A	56	1	05	

Series	
D	Display

Mounting Type	
SM	SMD

Number of Segments	
7	7-Segments

Thickness Type	
U	Ultra Thin

Polarity: Common	
A	Anode

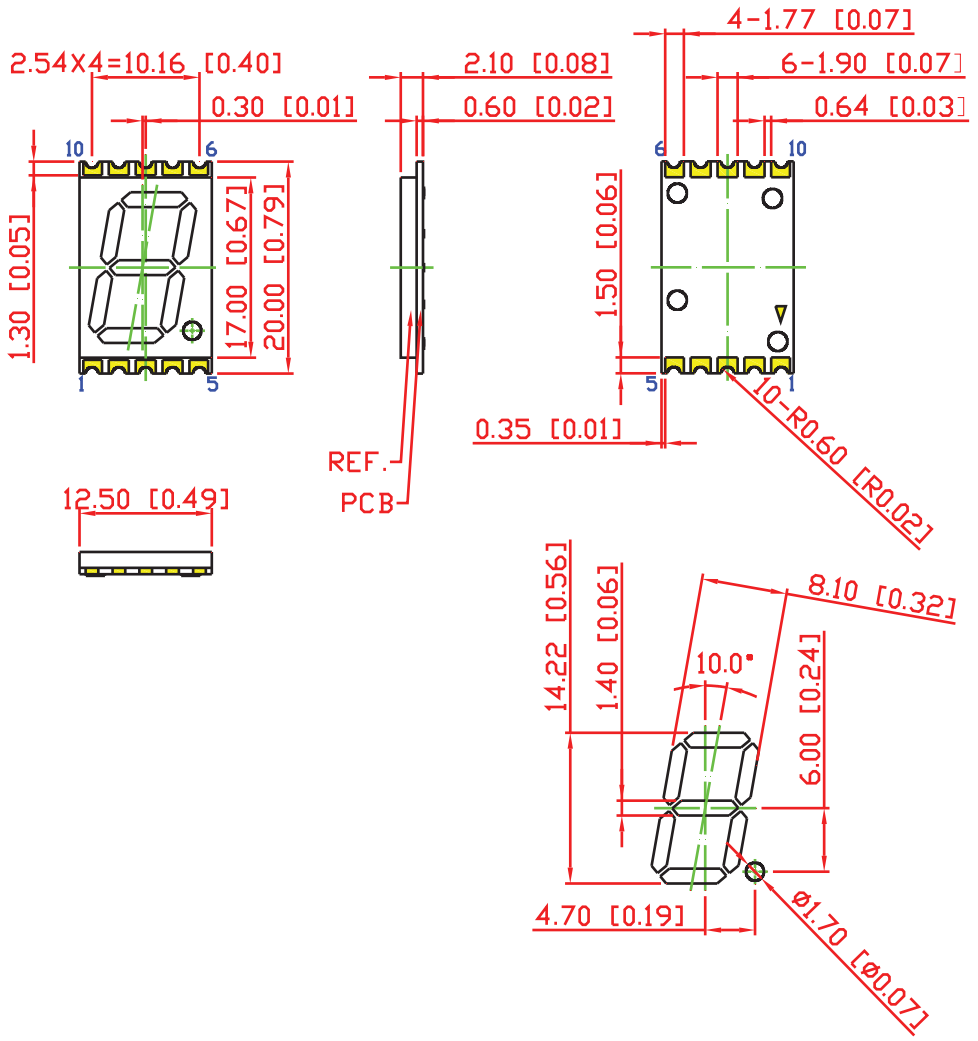
Digit Height	
20	0.20"
30	0.30"
56	0.56"
70	0.70"

Number of Digits	
1	1 digit

Color	
01	Red
05	Pure Green

Packaging	
	Cut Tape
T	Tape & Reel

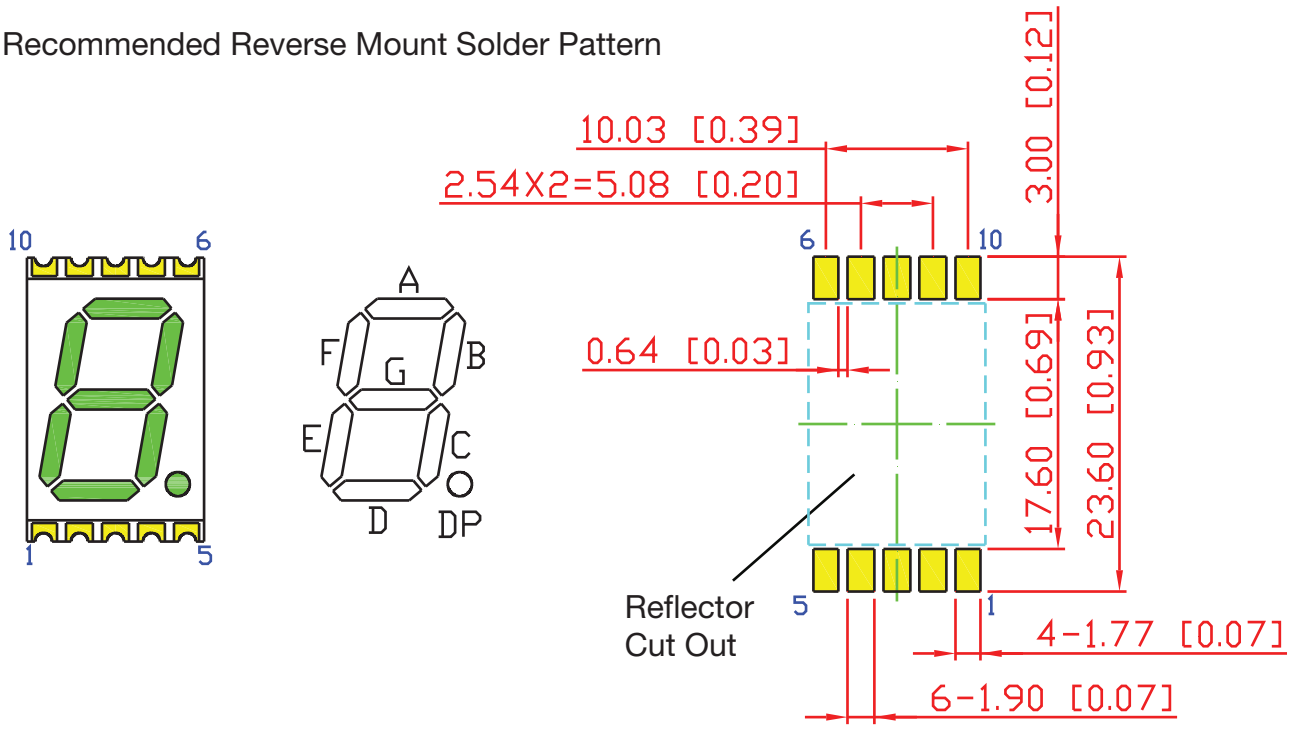
Dimensions and Internal Circuit Diagram



Dimensions in millimeters [inches]
Tolerance is ±0.25mm [.01"] unless otherwise noted

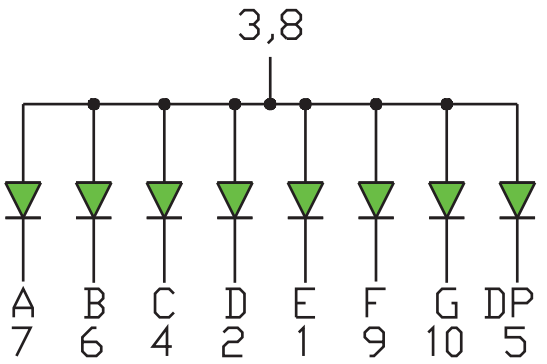
Dimensions and Internal Circuit Diagram

Recommended Reverse Mount Solder Pattern



Dimensions in millimeters [inches]
Tolerance is ±0.25mm [.01"] unless otherwise noted

Pin Connections (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

Product Specifications

Absolute Maximum Rating at Ta=25°C / 77°F (Ta= Ambient Temperature)

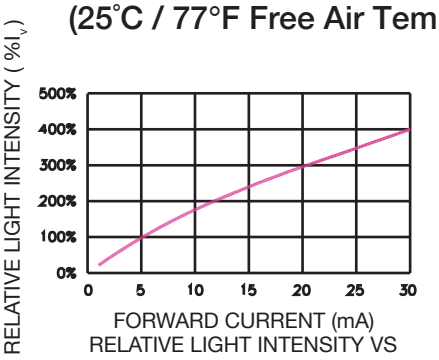
Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	120	mW
Derating liner from 25°C/77°F	-	0.30/9.46	mA ℃ / ℉
Continuous forward current	I_{AF}	30	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	100	mA
Reverse voltage	V_R	5	V
Operating temperature	T_{OPR}	-40 TO +105 -40 TO +221	℃ ℉
Storage temperature	T_{STG}	-40 TO +105 -40 TO +221	℃ ℉

Electrical - Optical Characteristics at Ta=25℃ / 77℉ (Ta= Ambient Temperature)

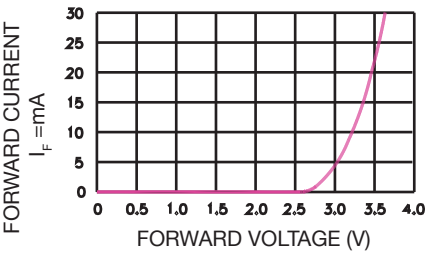
Charateristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage, (Per Dice)	V_F	I_F =20mA	-	2.8	3.6	V
Reverse Current, (Per Dice)	I_R	V_R =8V	-	-	10	μA
Dominant Wavelength	λ_D	I_F =20mA	515	-	530	nm
Luminous Intensity	I_V	I_F =20mA	250	-	600	mcd
Spectral radiation bandwidth	$\Delta\lambda$	I_F =20mA	-	30	-	nm

Product Specifications

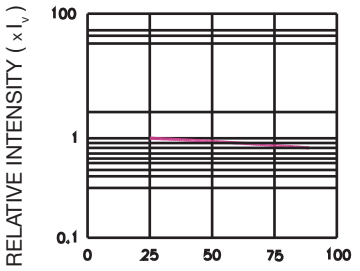
Typical Electro-optical Characteristic Curves
(25˚C / 77°F Free Air Temperature Unless Otherwise Specified)



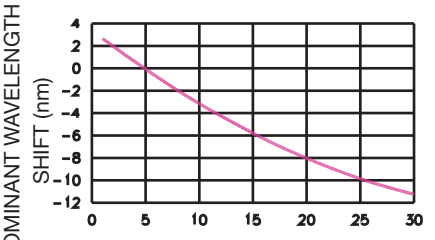
FORWARD CURRENT (mA)
RELATIVE LIGHT INTENSITY VS
FORWARD CURRENT



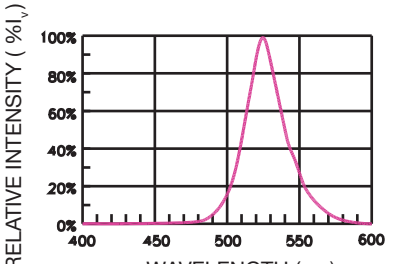
FORWARD VOLTAGE (V)
FORWARD CURRENT VS FORWARD VOLTAGE



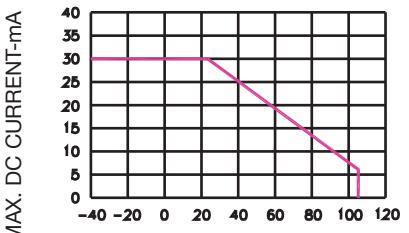
LEAD TEMPERATURE(˚C)
RELATIVE INTENSITY VS LEAD TEMPERATURE
(PULSED 20mA; 300us PULSE, 10ms PERIOD)



FORWARD CURRENT (mA)
DOMINANT WAVELENGTH SHIFT VS.
FORWARD CURRENT



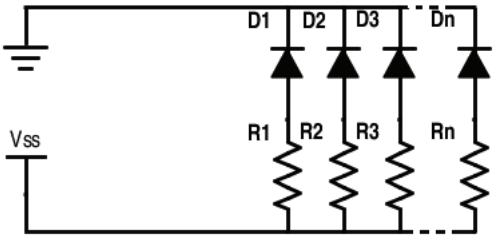
WAVELENGTH (nm)
RELATIVE INTENSITY VS. WAVELENGTH



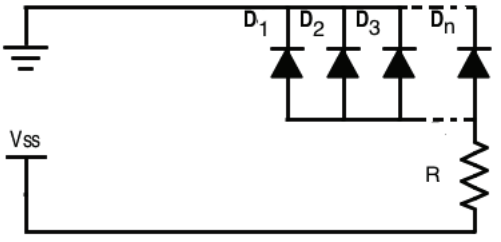
AMBIENT TEMPERATURE (Ta)˚C
MAX. ALLOWABLE DC CURRENT
VS. AMBIENT TEMPERATURE

Circuit Design Notes

- Always use current limit resistors when necessary
- LEDs could be electrically connected in parallel, with each LED having its own current limiting resistor



Correct



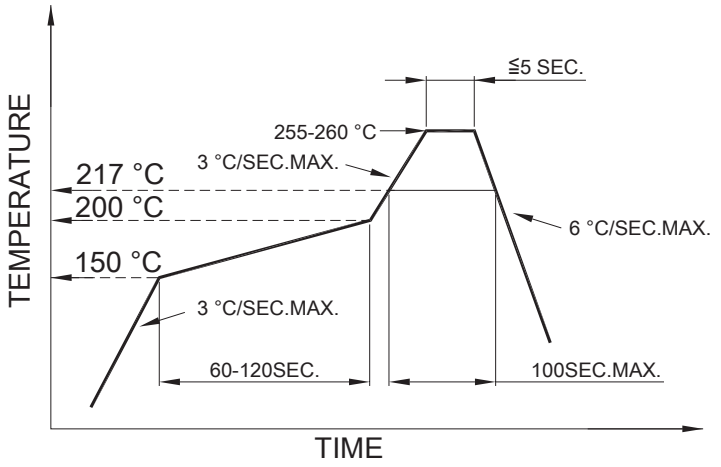
Incorrect

Recommended Reflow Soldering Profile

- **SMT Reflow Soldering Instructions**

SMT Soldering Profile

Pb free reflow soldering Profile



- We recommend the reflow temperature 245˚C / 473˚F (+/- 5˚C / 41˚F). The maximum soldering temperature should be limited to 260˚C / 500˚F.
- Number of reflow process shall be 2 time or less.

- **Soldering Iron**

Basic spec is ≦4 sec when 260˚C / 500˚F. If temperature is higher, time should be shorter (+10˚C / 50˚F →1 sec). Power dissipation of Iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230˚C /446˚F.

- **Rework**
  - Customer must finish rework within 3 sec. under 350˚C / 662˚F.
  - The head of soldering iron cannot touch copper foil.

Storage Condition

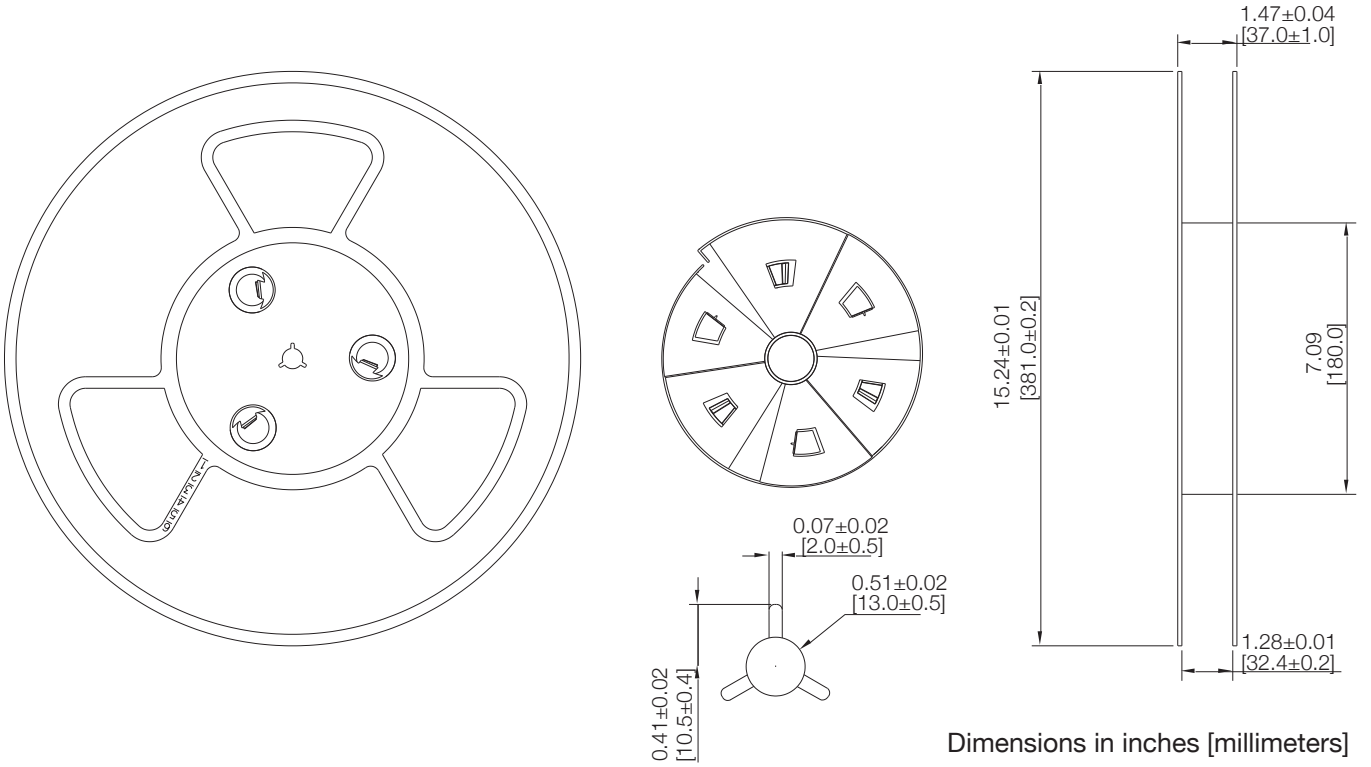
In factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION
5°C ~ 30°C	Below 60%RH

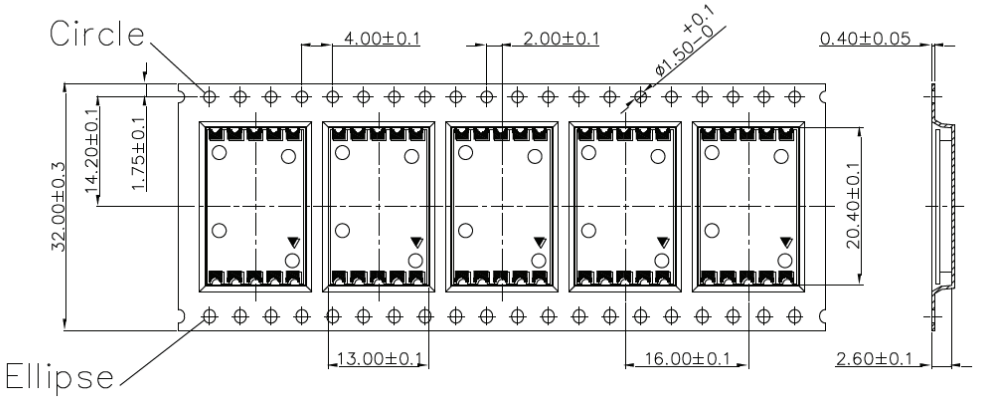
After opened and not in factory original sealed bag package

TEMPERATURE CONDITION	HUMIDITY CONDITION	STORAGE TIME
5°C ~ 30°C	Below 60%RH	Within 4 weeks (MSL as level 2a)

Tape & Reel Dimensions



Dimensions in inches [millimeters]



1300PCS / 1 REEL

Dimensions in millimeters

Compliance and Approvals

REACH COMPLIANCE · RoHS COMPLIANT · Pb-Free · INTELLECTUAL PROPERTY PATENTED