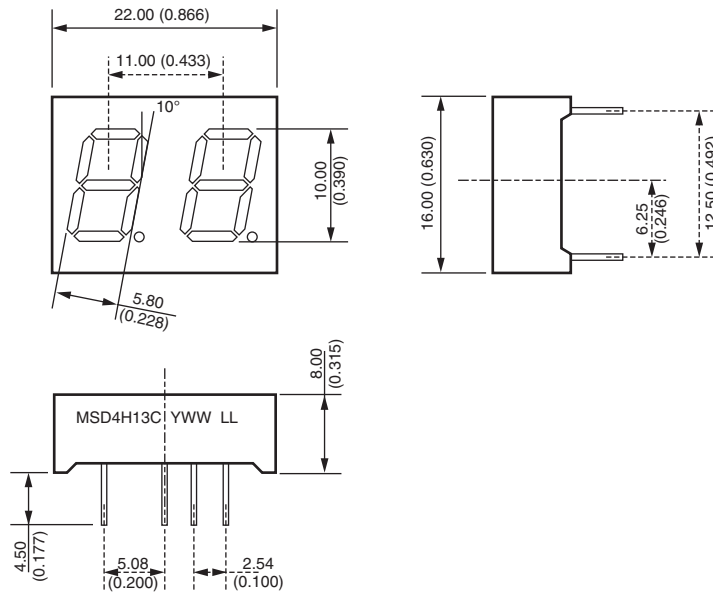


10.0mm (0.39 inch) Two Digit NUMERIC STICK DISPLAY

AllnGaP Red (632nm) MSD4H13C
Gap Green (Low Current) MSD4G13C
GaN Blue (470nm) MSD4B13C

PACKAGE DIMENSIONS



Notes:

- Dimensions are in mm (inches)
- Tolerances are ± 0.25 (0.010) unless otherwise stated.

Features

- Bright Bold Segments
- Common Anode/Cathode
- Low Power Consumption
- Low Current Capability
- Neutral Segments
- Grey Face
- Epoxy Encapsulated PCB
- High Performance
- High Reliability

Applications

- Appliances
- Automotive
- Instrumentation
- Process Control

MODELS AVAILABLE

Part Number	Color	Description	Special
MSD4H13C	AllnGaP 632nm	Two digit, Duplex, No Decimal Point, CA	Low Current
MSD4G13C	GaP 568nm	Two digit, Duplex, No Decimal Point, CA	Low Current
MSD4B13C	GaN 470nm	Two digit, Duplex, No Decimal Point, CA	Low Current

(For other color options, contact your local area Sales Manager)

10.0mm (0.39 inch) Two Digit NUMERIC STICK DISPLAY

AllnGaP Red (632nm) MSD4H13C
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ABSOLUTE MAXIMUM RATINGS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Part Number Parameter	MSD4B13C	MSD4H13C	MSD4G13C	Units
Continuous Forward Current (each segment)	25	25	25	mA
Peak Forward Current ($F = 10\text{KHz}$, $D/F = 1/10$)	80	100	90	mA
Power Dissipation (P_D)	125	60	70	mW
*Derate Linearly from 25°C	0.33	0.36	0.33	mW
Reverse Voltage per Die				5 Volts
Operating and Storage Temperature Range				-40°C to $+85^\circ\text{C}$
Lead soldering time (1/16 inch from standoffs)				5 seconds @ 230°C

ELECTRO-OPTICAL CHARACTERISTICS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Part Number Parameter	MSD4B13C	MSD4H13C	MSD4G13C	Units	Test Condition
Luminous intensity⁽²⁾ (I_V)					
Minimum (Standard Current)	N/A	N/A	250	ucd	$I_F = 4\text{mA}$
Typical (Standard Current)	N/A	N/A	475	ucd	$I_F = 4\text{mA}$
Minimum (Low Current)	600	510		ucd	$I_F = 2\text{mA}$
Typical (Low Current)	1200	1000		ucd	$I_F = 2\text{mA}$
Forward Voltage (V_F)					
Typical (Standard Current)		2.05	2.10	Volts	$I_F = 20\text{mA}$
Maximum (Standard Current)		2.40	2.80	Volts	$I_F = 20\text{mA}$
Typical (Low Current)	4.2	1.80		Volts	$I_F = 2\text{mA}$
Maximum (Low Current)	4.9	2.20		Volts	$I_F = 2\text{mA}$
Peak Wavelength	430	632	568	nm	$I_F = 10\text{mA}$
Dominant Wavelength	470	624	573	nm	$I_F = 10\text{mA}$
Spectral Line 1/2 Width	65	20	30	nm	$I_F = 10\text{mA}$
Reverse B⁽³⁾. Voltage (V_R)	10	5	5	Volts	$I_R = 100\mu\text{A}$

NOTES:

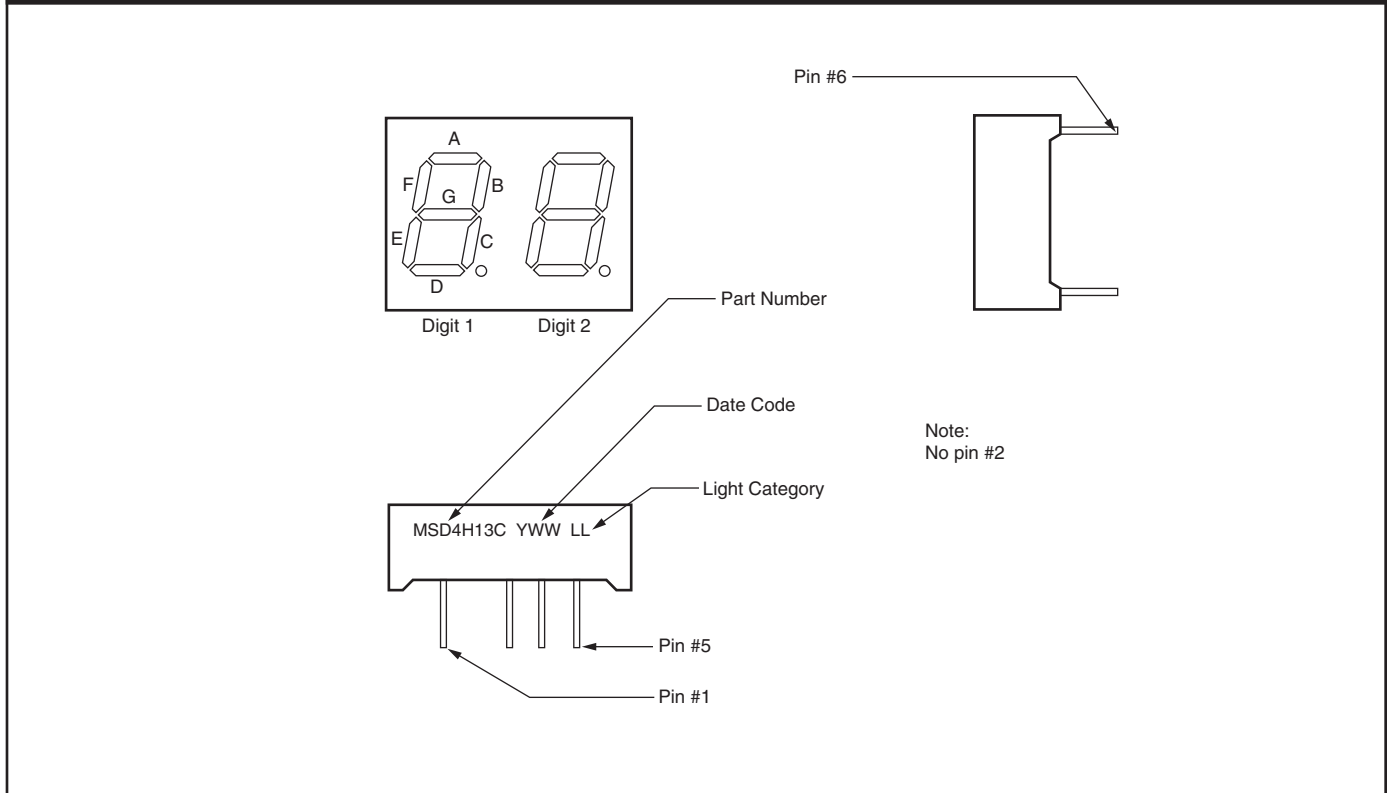
(1) Data per individual LED element

(2) Luminous intensity (ucd) = average light output per segment

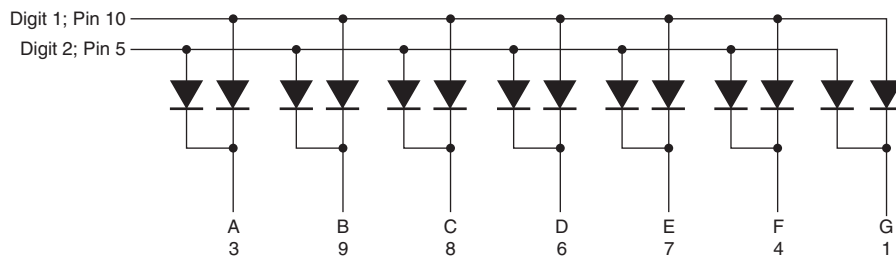
(3) B = breakdown

AllnGaP Red (632nm) MSD4H13C
Gap Green (Low Current) MSD4G13C
GaN Blue (470nm) MSD4B13C

PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



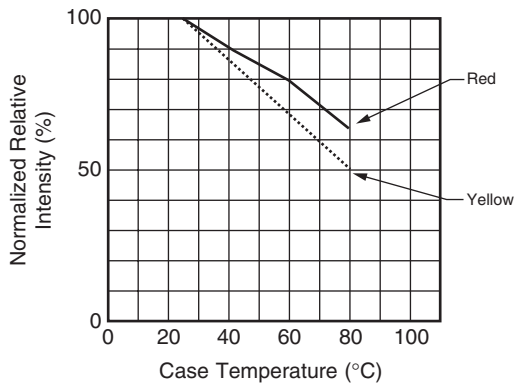
SCHEMATICS



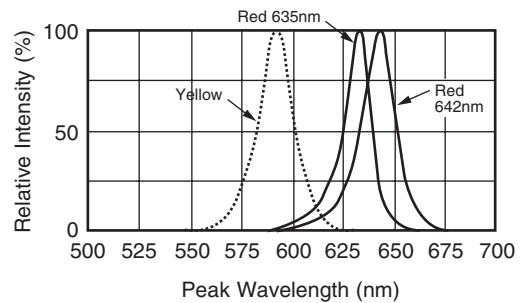
AllnGaP Red (632nm) MSD4H13C
Gap Green (Low Current) MSD4G13C
GaN Blue (470nm) MSD4B13C

GRAPHICAL DATA AllnGaP ($T_A = 25^\circ\text{C}$, unless otherwise specified)

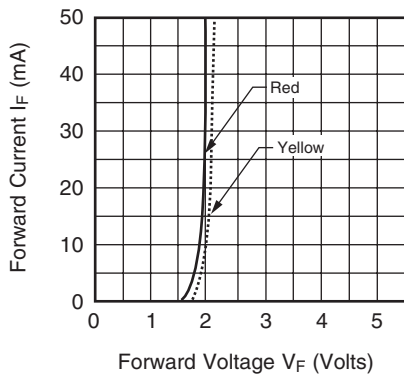
Relative Intensity vs Case Temp.



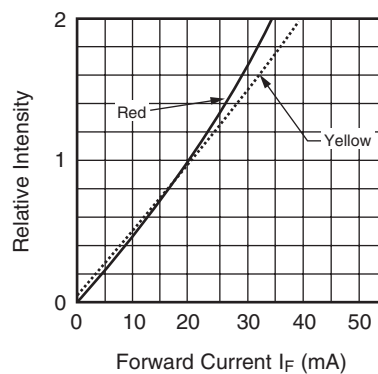
Spectral Response



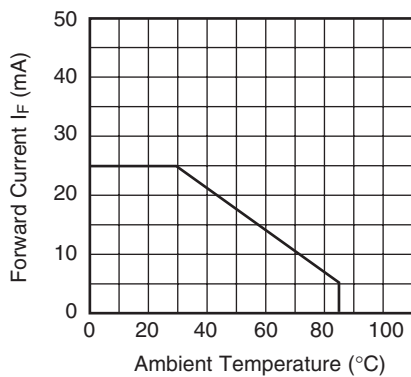
Forward Current vs Forward Voltage



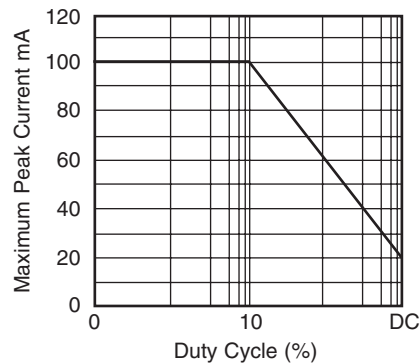
Luminous Intensity vs Forward Current



Maximum Forward Current vs Ambient Temperature

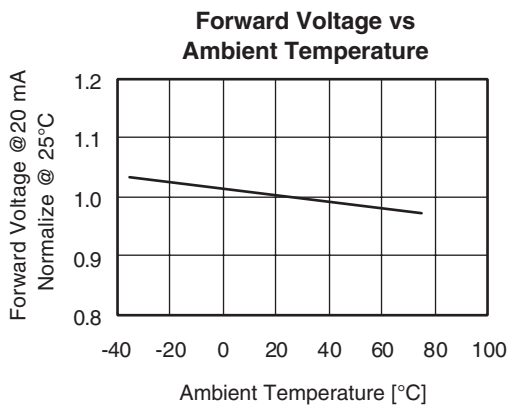
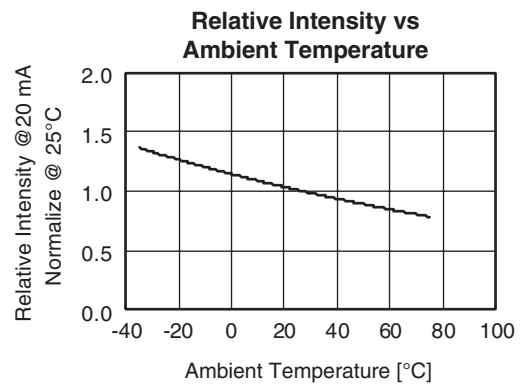
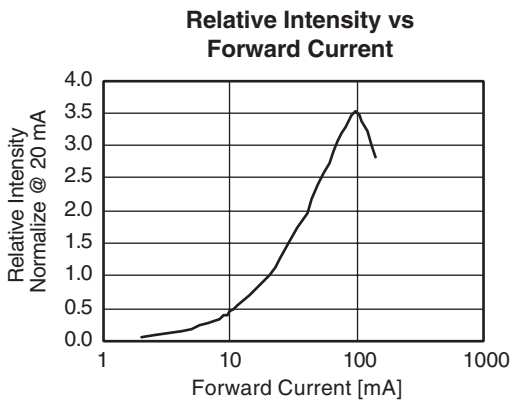
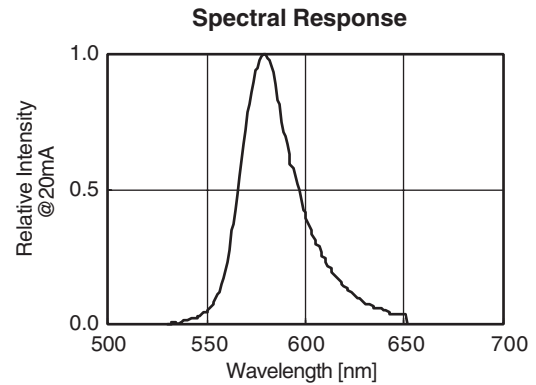
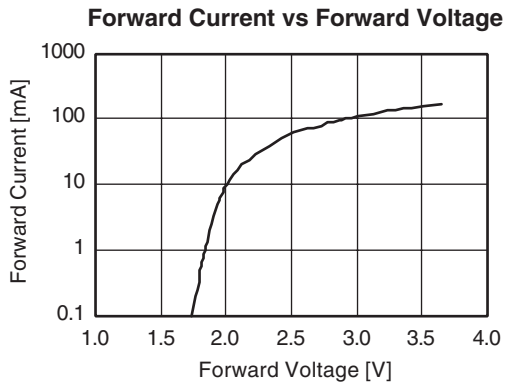


Maximum Peak Current vs Duty Cycle



AllnGaP Red (632nm) MSD4H13C
Gap Green (Low Current) MSD4G13C
GaN Blue (470nm) MSD4B13C

GRAPHICAL DATA GaP Green ($T_A = 25^\circ\text{C}$, unless otherwise specified)



AllnGaP Red (632nm) MSD4H13C
Gap Green (Low Current) MSD4G13C
GaN Blue (470nm) MSD4B13C

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.