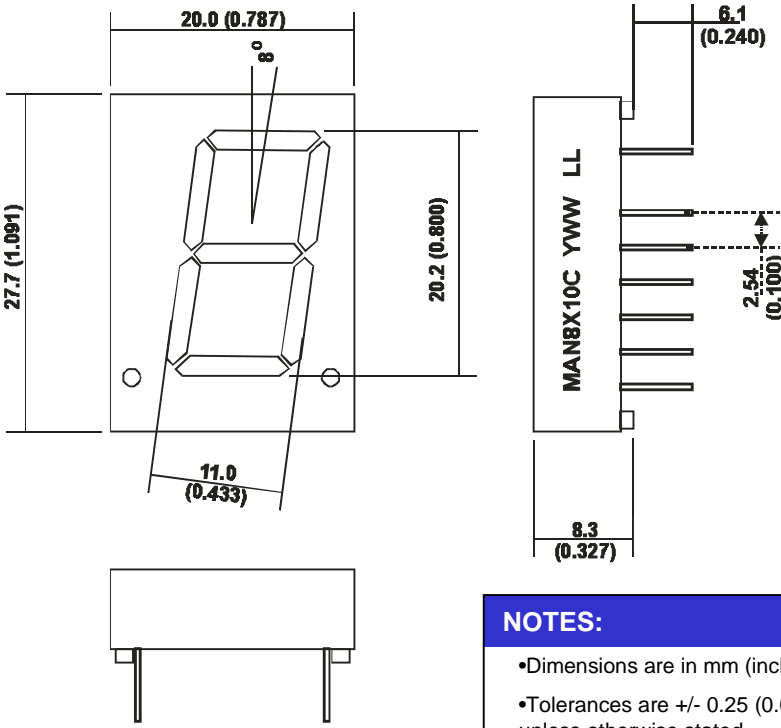


# 20mm (0.8 inch) One Digit NUMERIC STICK DISPLAY

Bright Red MAN8110C, MAN8140C  
High Efficiency Red MAN8910C, MAN8940C  
Green MAN8410C, MAN8440C

PACKAGE DIMENSIONS	FEATURES
	<ul style="list-style-type: none"> <li>•Bright Bold Segments</li> <li>•Common Anode/Cathode</li> <li>•Low Power Consumption</li> <li>•Low Current Capability</li> <li>•Neutral Segments</li> <li>•Grey Face</li> <li>•Epoxy Encapsulated PCB</li> <li>•High Performance</li> <li>•High Reliability</li> </ul>
<p><b>NOTES:</b></p> <ul style="list-style-type: none"> <li>•Dimensions are in mm (inches)</li> <li>•Tolerances are +/- 0.25 (0.010) unless otherwise stated.</li> </ul>	APPLICATIONS
	<ul style="list-style-type: none"> <li>•Appliances</li> <li>•Automotive</li> <li>•Instrumentation</li> <li>•Process Control</li> </ul>

MODELS AVAILABLE		
Part Number	Colour	Description
MAN8110C	Bright Red	Single Digit, RHDP, Common Anode
MAN8140C	Bright Red	Single Digit, RHDP, Common Cathode
MAN8410C	Green	Single Digit, RHDP, Common Anode
MAN8440C	Green	Single Digit, RHDP, Common Cathode
MAN8910C	High Efficiency Red	Single Digit, RHDP, Common Anode
MAN8Y40C	High Efficiency Red	Single Digit, RHDP, Common Cathode

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



# 20mm (0.8 inch) One Digit NUMERIC STICK DISPLAY

## ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup> ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

Part Number	MAN8110C	MAN8410C	MAN8910C	
Parameter	MAN8140C	MAN8440C	MAN8940C	Units
<b>Continuous Forward Current</b> (each segment)	15	25	25	mA
<b>Peak Forward Current</b> ( $F = 10\text{KHz}$ , $D/F = 1/10$ )	60	90	90	mA
<b>Power Dissipation (<math>P_D</math>)</b>	40	70	70	mW
<b>*Derate Linearly from <math>25^\circ\text{C}</math></b>	0.17	0.33	0.33	mW
<b>Reverse Voltage per Die</b>	5 Volts			
<b>Operating and Storage Temperature Range</b>	$-40^\circ\text{C}$ to $+85^\circ\text{C}$			
<b>Lead soldering time (1/16 inch from standoffs)</b>	5 seconds @ $230^\circ\text{C}$			

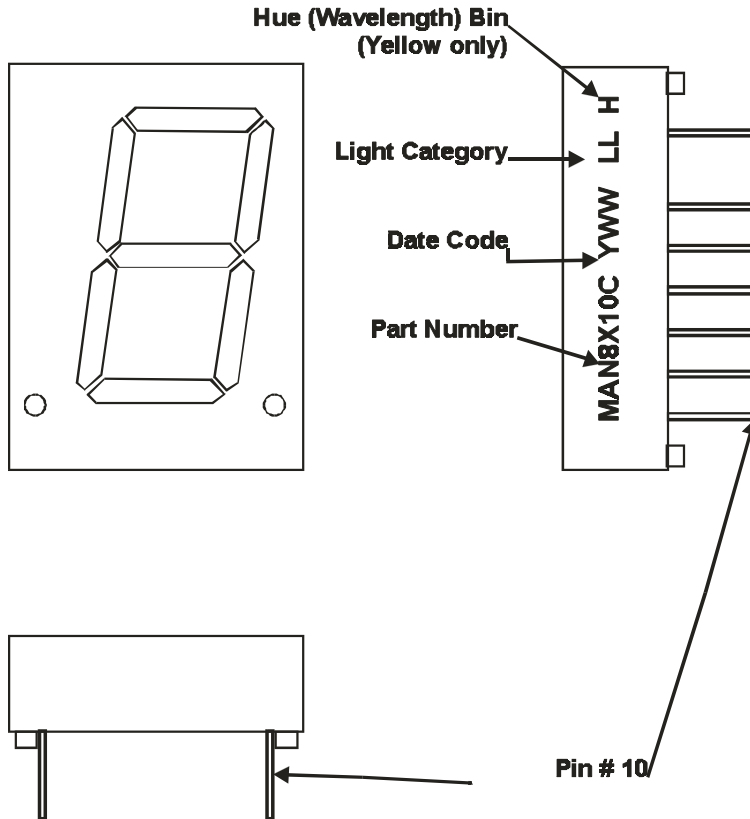
## ELECTRO-OPTICAL CHARACTERISTICS<sup>(1)</sup> ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

Part Number	MAN8110C	MAN8410C	MAN8910C		
Parameter	MAN8140C	MAN8440C	MAN8940C	Units	Test Condition
<b>Luminous intensity<sup>(2)</sup> (<math>I_V</math>)</b>					
Minimum (Standard Current)	300	800	800	ucd	$I_F = 20\text{mA}$
Typical (Standard Current)	700	2000	2000	ucd	$I_F = 20\text{mA}$
Minimum (Low Current)	Not Available				
Typical (Low Current)	Not Available				
<b>Forward Voltage (<math>V_F</math>)</b>					
Typical (Standard Current)	2.10	2.10	2.00	Volts	$I_F = 20\text{mA}$
Maximum (Standard Current)	2.80	2.80	2.80	Volts	$I_F = 20\text{mA}$
Typical (Low Current)	Not Available				
Maximum (Low Current)	Not Available				
<b>Peak Wavelength</b>	695	570	635	nm	$I_F = 20\text{mA}$
<b>Dominant Wavelength</b>	Not Available				
<b>Spectral Line 1/2 Width</b>	90	30	45	nm	$I_F = 10\text{mA}$
<b>Reverse B<sup>(3)</sup>.Voltage (<math>V_R</math>)</b>	5	5	5	Volts	$I_R = 100\mu\text{A}$

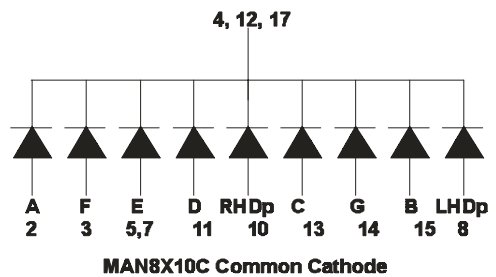
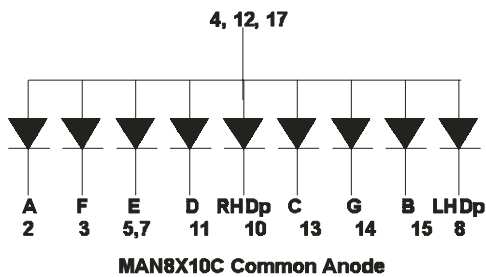
### NOTES:

- (1) Data per individual LED element
- (2) Luminous intensity (ucd) = average light output per segment
- (3) B = breakdown

## PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



## SCHEMATICS



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

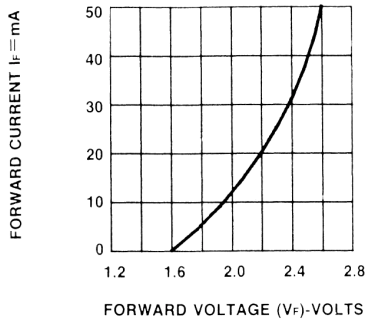


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

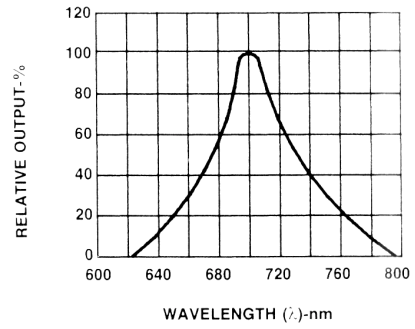


Fig.2 SPECTRAL RESPONSE

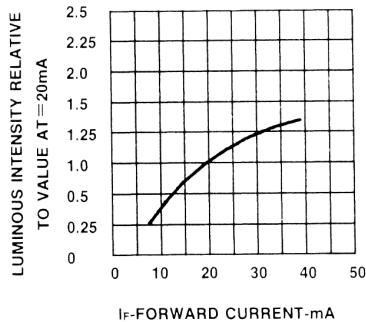


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

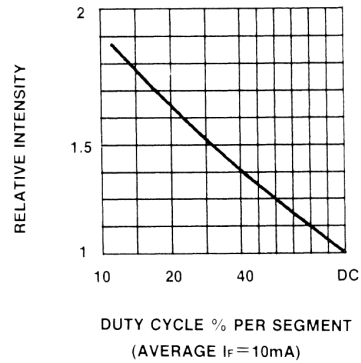


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

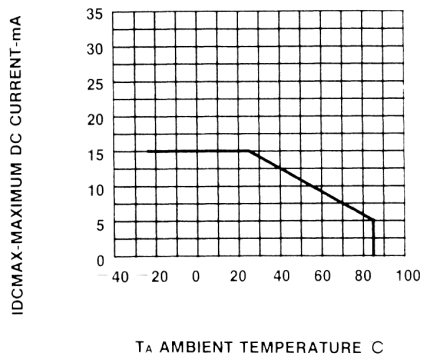


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

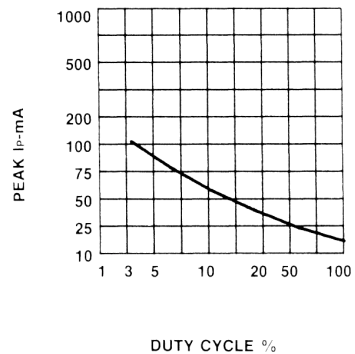


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

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

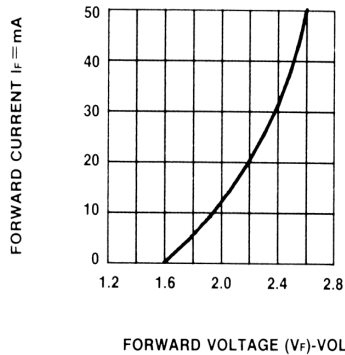


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

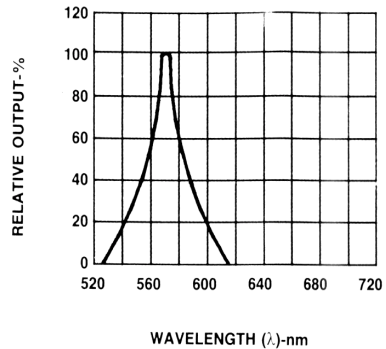


Fig.2 SPECTRAL RESPONSE

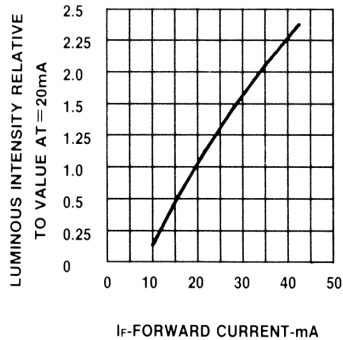


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

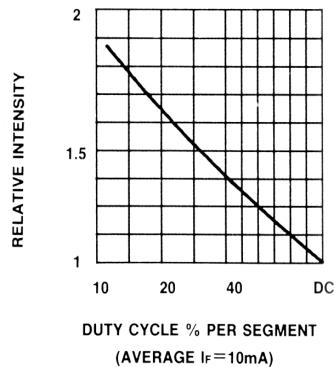


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

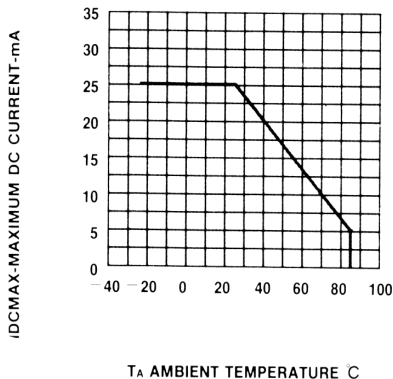


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

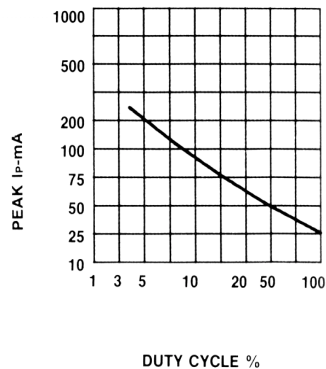


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

## GRAPHICAL DATA High Efficiency Red ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

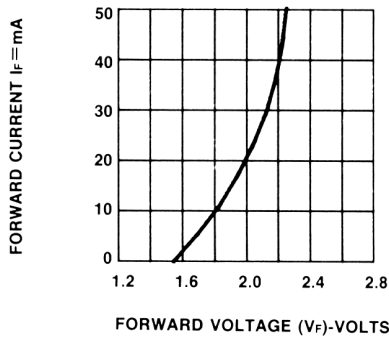


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

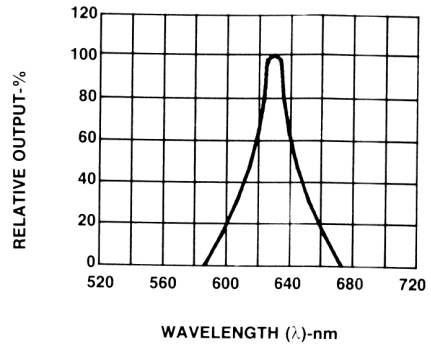


Fig.2 SPECTRAL RESPONSE

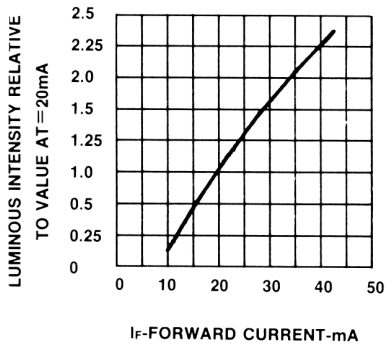


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

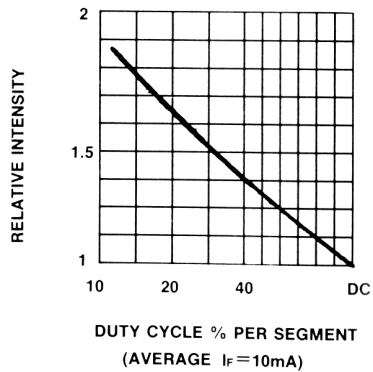


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

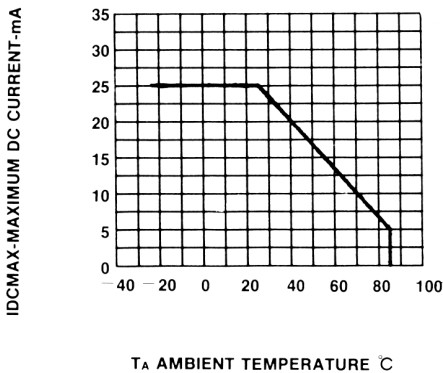


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

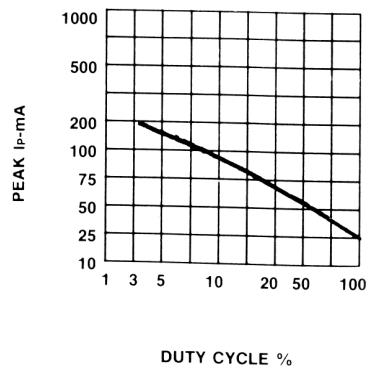


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )