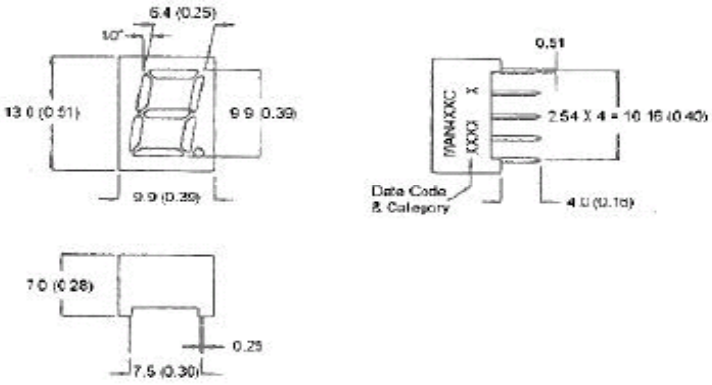
10mm (0.4 inch) Two Digit
NUMERIC STICK DISPLAY

Bright Red MAN414C, MAN415C
High Efficiency Red MAN494C, MAN495C
Green MAN444C, MAN445C

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	Colour	Description
MAN414C	Bright Red	Single Digit, RHDP, Common Anode
MAN415C	Bright Red	Single Digit, RHDP, Common Cathode
MAN444C	Green	Single Digit, RHDP, Common Anode
MAN445C	Green	Single Digit, RHDP, Common Cathode
MAN494C	High Efficiency Red	Single Digit, RHDP, Common Anode
MAN495C	High Efficiency Red	Single Digit, RHDP, Common Cathode

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

10mm (0.4 inch) Two Digit
NUMERIC STICK DISPLAY

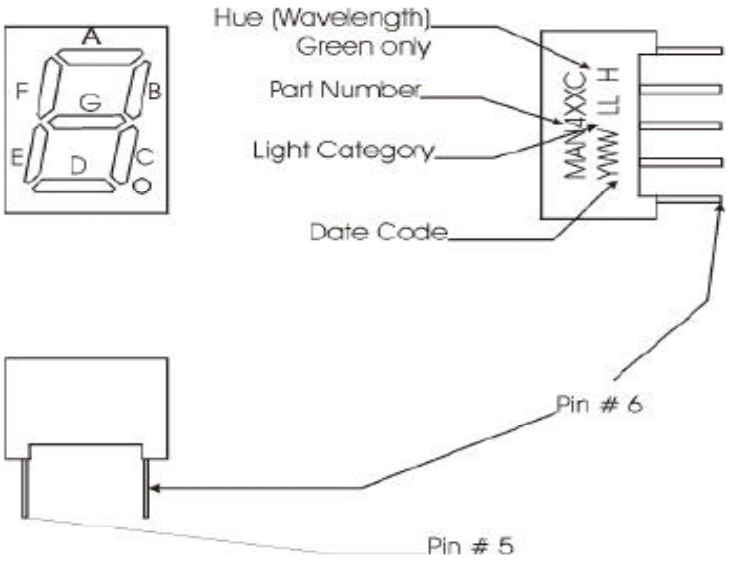
ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C, unless otherwise specified)				
Part Number Parameter	MAN414C MAN415C	MAN444C MAN445C	MAN494C MAN495C	Units
Continuous Forward Current (each segment)	15	25	25	mA
Peak Forward Current (F = 10KHz, D/F = 1/10)	60	90	90	mA
Power Dissipation (P_D)	40	70	70	mW
***Derate Linearly from 25°C**	0.17	0.33	0.33	mW
Reverse Voltage per Die				5 Volts
Operating and Storage Temperature Range				-40°C to +85°C
Lead soldering time (1/16 inch from standoffs)				5 seconds @ 230°C

ELECTRO-OPTICAL CHARACTERISTICS[1] (T_A = 25°C, unless otherwise specified)					
Part Number Parameter	MAN414C MAN415C	MAN444C MAN445C	MAN494C MAN495C	Units	Test Condition
Luminous intensity[2] **(I_V)**					
Minimum (Standard Current)	300	800	800	ucd	I_F = 20mA
Typical (Standard Current)	700	2000	2000	ucd	I_F = 20mA
Minimum (Low Current)	Not Available				
Typical (Low Current)	Not Available				
Forward Voltage (V_F)					
Typical (Standard Current)	2.10	2.10	2.00	Volts	I_F = 20mA
Maximum (Standard Current)	2.80	2.80	2.80	Volts	I_F = 20mA
Typical (Low Current)	Not Available				
Maximum (Low Current)	Not Available				
Peak Wavelength	695	570	635	nm	I_F = 20mA
Dominant Wavelength	Not Available				
Spectral Line 1/2 Width	90	30	45	nm	I_F = 10mA
Reverse B[3]**.Voltage (V_R)**	5	5	5	Volts	I_R = 100uA

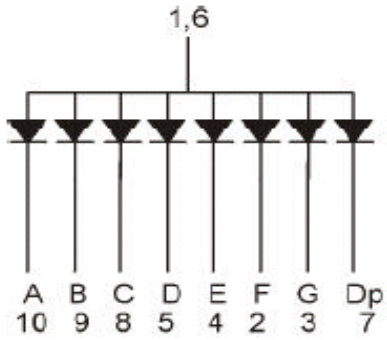
NOTES:
(1) Data per individual LED element
(2) Luminous intensity (ucd) = average light output per segment
(3) B = breakdown

10mm (0.4 inch) Two Digit
NUMERIC STICK DISPLAY

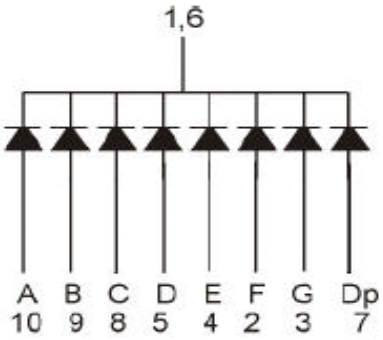
PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



SCHEMATICS



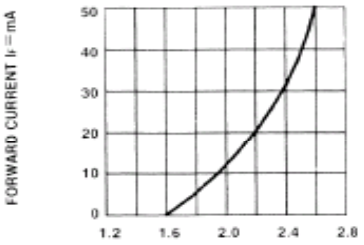
MAN4X4C
Common Anode



MAN4X5C
Common Cathode

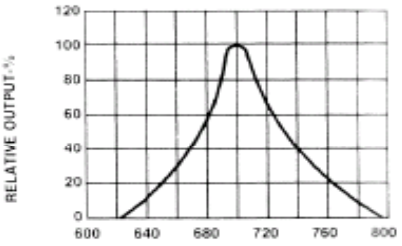
10mm (0.4 inch) Two Digit NUMERIC STICK DISPLAY

GRAPHICAL DATA Bright Red (T_A = 25°C, unless otherwise specified)



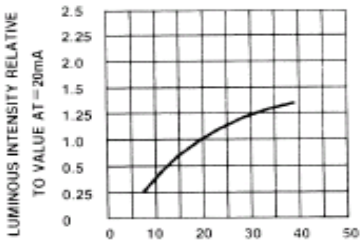
FORWARD VOLTAGE (VF)-VOLTS

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



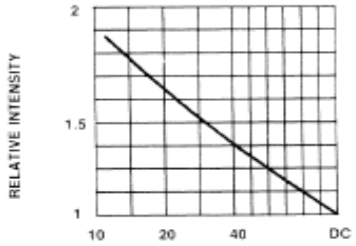
WAVELENGTH (λ)-nm

Fig.2 SPECTRAL RESPONSE



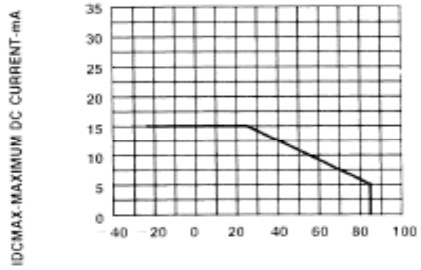
IF-FORWARD CURRENT-mA

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



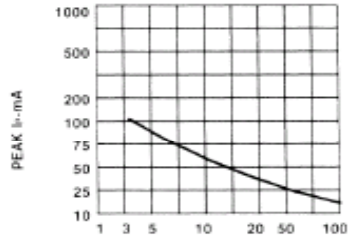
DUTY CYCLE % PER SEGMENT (AVERAGE IF = 10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



TA AMBIENT TEMPERATURE °C

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

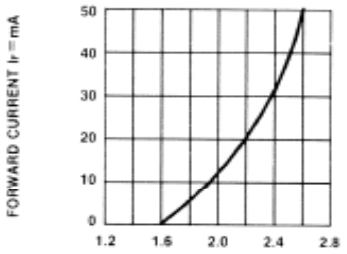


DUTY CYCLE %

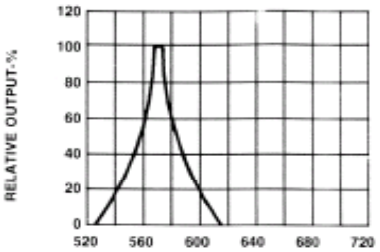
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f = 1 KHz)

10mm (0.4 inch) Two Digit NUMERIC STICK DISPLAY

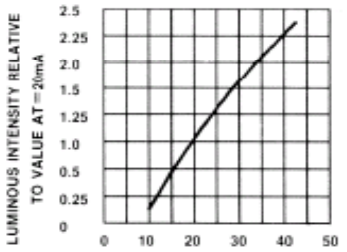
GRAPHICAL DATA Green (T_A = 25°C, unless otherwise specified)



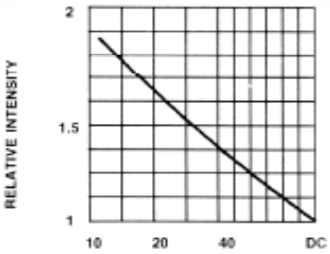
FORWARD VOLTAGE (Vf)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



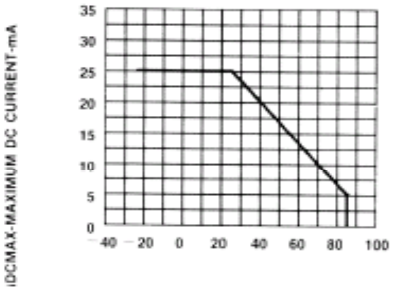
WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



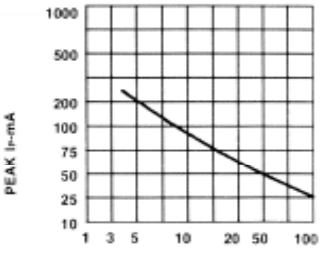
IF-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT
(AVERAGE IF=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



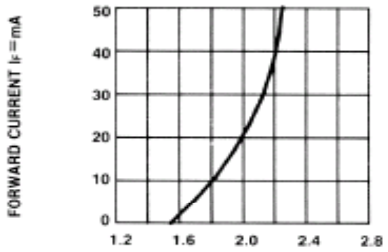
TA AMBIENT TEMPERATURE °C
Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.



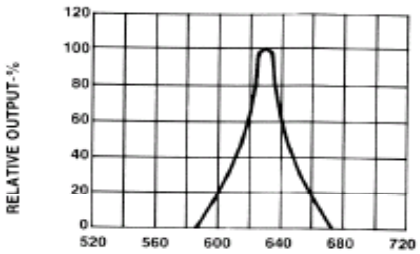
DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %
(REFRESH RATE f=1 KHz)

10mm (0.4 inch) Two Digit NUMERIC STICK DISPLAY

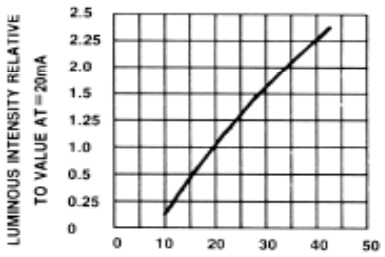
GRAPHICAL DATA High Efficiency Red(T_A = 25°C, unless otherwise specified)



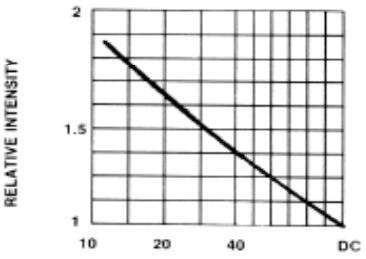
FORWARD VOLTAGE (VF)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



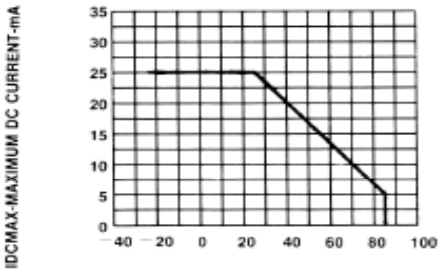
WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



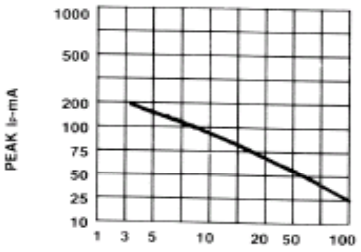
IF-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT
(AVERAGE IF=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



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



DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %
(REFRESH RATE f=1 KHz)