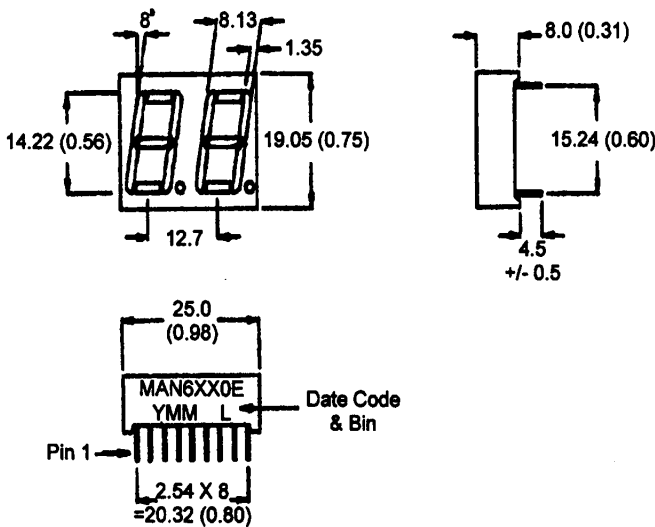


**BRIGHT RED MAN6110E, MAN6140E  
GREEN MAN6410E, MAN6440E  
HIGH EFFICIENCY RED MAN6910E, MAN6940E**

**PACKAGE DIMENSIONS**



NOTES: Dimensions are in mm (inch).  
All pins are 0.5 (0.02) diameter  
Tolerances are ± 0.25 (0.1) unless otherwise noted.

**FEATURES**

- Easy to read digits.
- Common anode or cathode.
- Low power consumption.
- Bold segments that are highly visible.
- High brightness with high contrast.
- White segments on a grey face  
For MAN64X0E and MAN61X0E.
- Red segments on a red face  
For MAN69X0E.
- Directly compatible with integrated circuits.
- Rugged plastic/epoxy construction.

**APPLICATIONS**

- Digital readout displays.
- Instrument panels.

**MODEL NUMBERS**

<u>Part number</u>	<u>Color</u>	<u>Description</u>
MAN6110E	Bright Red	Common Anode; right hand decimal
MAN6140E	Bright Red	Common Cathode; right hand decimal
MAN6410E	Green	Common Anode; right hand decimal
MAN6440E	Green	Common Cathode; right hand decimal
MAN6910E	High efficiency red	Common Anode; right hand decimal
MAN6940E	High efficiency red	Common Cathode; right hand decimal

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

**ABSOLUTE MAXIMUM RATING** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

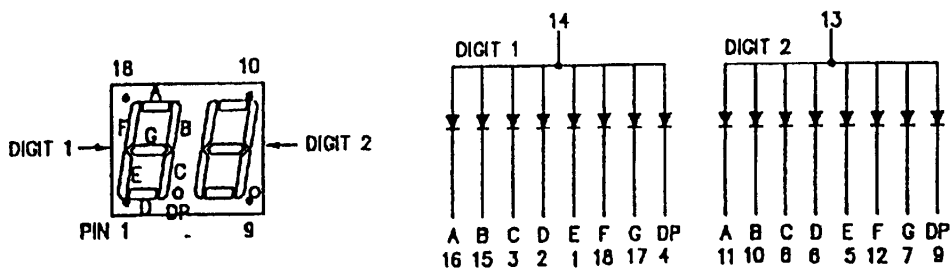
Part number	B.Red	Green	High Eff. Red	Unit
	MAN 6110E 6140E	MAN 6410E 6440E	MAN 6910E 6940E	
Continuous forward current ( $I_f$ ) Per Segment	15	30	30	mA
Peak forward current per die ( $I_p$ ) (at $f = 1.0$ KHz, Duty factor = 1/10)	50	160	160	mA
Power dissipation ( $P_D$ )	40*	100*	100*	mW
*Derate Linearly from 25°C	See graphical data attached			
Reverse voltage per dice.....				5V
Operating and Storage temperature range.....				- 40°C to +85°C
Lead soldering time (at 1/16 inch from the bottom of lamp).....				5 seconds @ 230°C

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

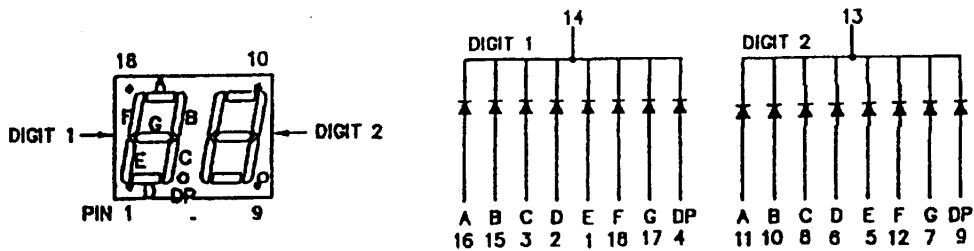
Part number	Bright Red	Green	High Eff. Red	Test Condition
	MAN 6110E 6140E	MAN 6410E 6440E	MAN 6910E 6940E	
Luminous intensity (ucd)				
minimum	300	800	800	$I_f = 10$ mA
typical	700	2000	2000	$I_f = 10$ mA
Forward voltage ( $V_f$ )				
typical	2.1	2.1	2.0	$I_f = 20$ mA
maximum	2.6	2.8	2.8	$I_f = 20$ mA
Peak wavelength (nm)	697	570	635	$I_f = 20$ mA
Spectral line half width (nm)	90	30	45	$I_f = 20$ mA
Reverse breakdown voltage ( $V_R$ )	5	5	5	$I_R = 100$ uA

**PINOUT**

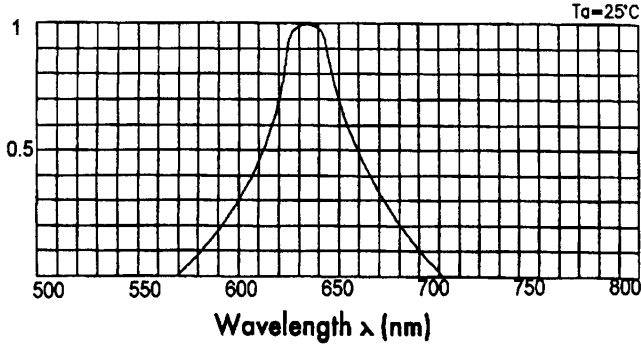
**MAN6X10E - Common Anode**



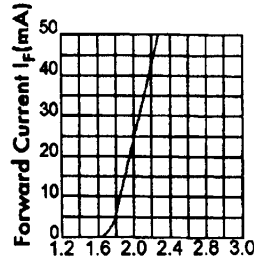
**MAN6X40E - Common Cathode**



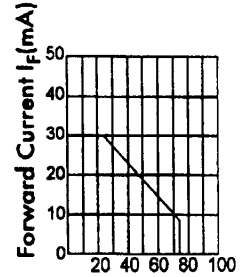
**GRAPHICAL DETAIL: Bright Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)



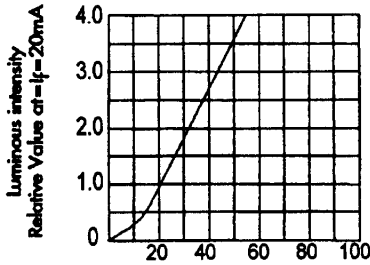
**RELATIVE INTENSITY VS. WAVELENGTH**



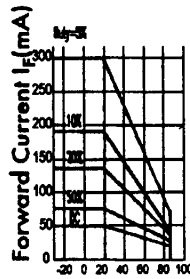
**FORWARD VOLTAGE ( $V_f$ )-volts  
FORWARD CURRENT VS.  
FORWARD VOLTAGE**



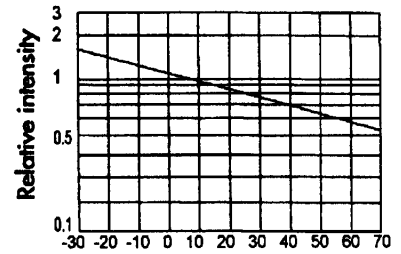
**AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )**



**$I_f$ -Forward current-mA  
RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT**

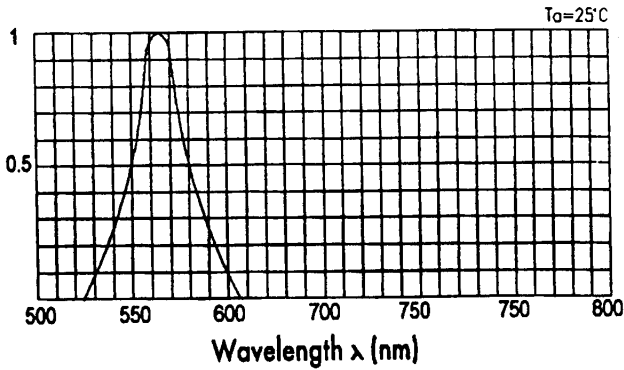


**AMBIENT TEMPERATURE ( $^\circ\text{C}$ )  
VS. FORWARD CURRENT CAPACITY**

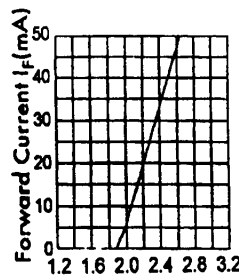


**AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )**

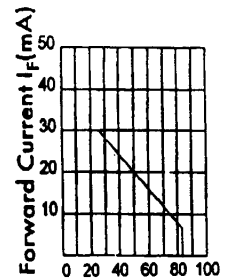
**GRAPHICAL DETAIL: Green** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)



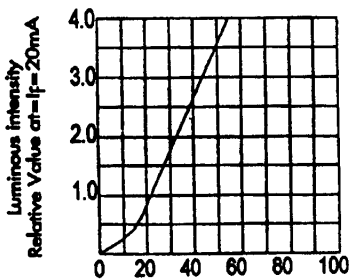
RELATIVE INTENSITY VS. WAVELENGTH



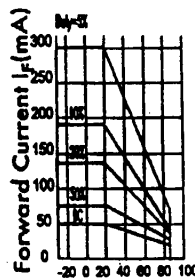
FORWARD VOLTAGE ( $V_f$ )-volts  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



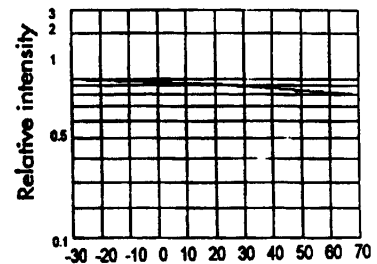
AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )



$I_f$ -Forward current-mA  
RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT

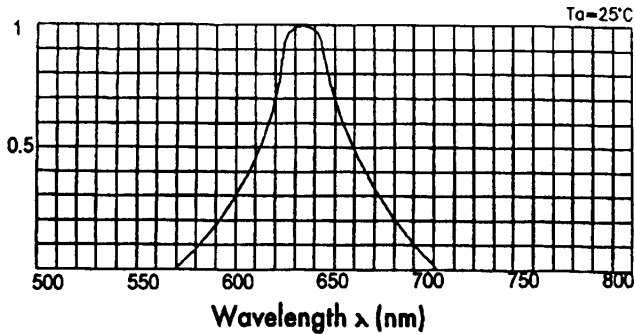


AMBIENT TEMPERATURE ( $^\circ\text{C}$ )  
VS. FORWARD CURRENT CAPACITY

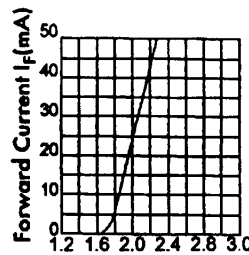


AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )

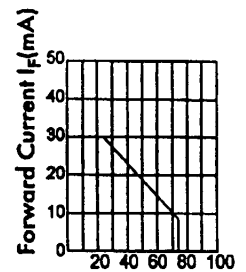
**GRAPHICAL DETAIL: High Efficiency Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)



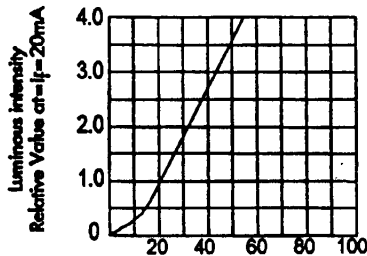
**RELATIVE INTENSITY VS. WAVELENGTH**



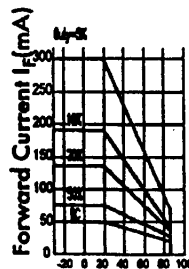
**FORWARD VOLTAGE ( $V_f$ )-volts  
FORWARD CURRENT VS.  
FORWARD VOLTAGE**



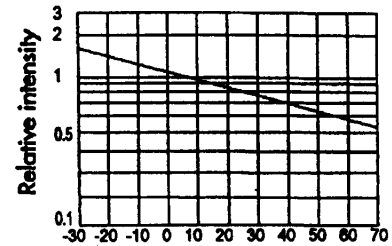
**AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )**



**$I_f$ -Forward current-mA  
RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT**



**AMBIENT TEMPERATURE ( $^\circ\text{C}$ )  
VS. FORWARD CURRENT CAPACITY**



**AMBIENT TEMPERATURE  $T_A$  ( $^\circ\text{C}$ )**

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