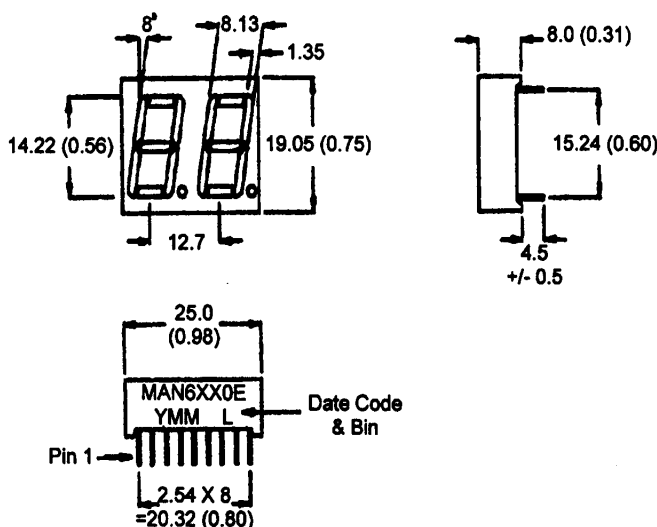


BRIGHT RED MAN6110E, MAN6140E
GREEN MAN6410E, MAN6440E
HIGH EFFICIENCY RED MAN6910E, MAN6940E

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)

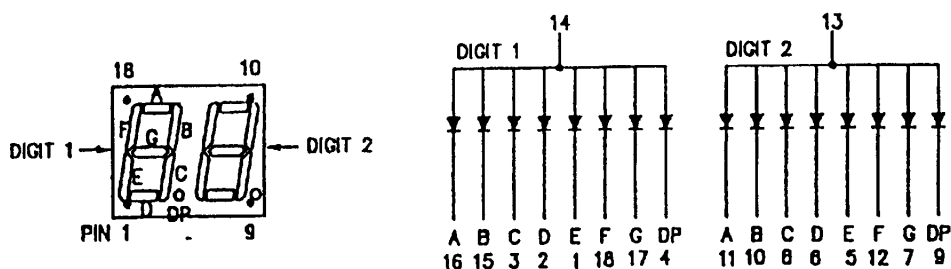
Part number	B.Red MAN 6110E 6140E	Green MAN 6410E 6440E	High Eff. Red MAN 6910E 6940E	Unit
Continuous forward current (I_f)				
Per Segment	15	30	30	mA
Peak forward current per die (I_p) (at $f = 1.0$ KHz, Duty factor = 1/10)	50	160	160	mA
Power dissipation (P_D)	40*	100*	100*	mW
*Derate Linearly from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

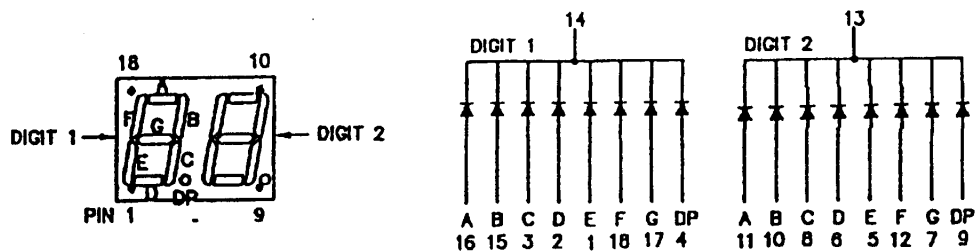
Part number	Bright Red MAN 6110E 6140E	Green MAN 6410E 6440E	High Eff. Red MAN 6910E 6940E	Test Condition
Luminous intensity (ucd)				
minimum	300	800	800	$I_f = 10$ mA
typical	700	2000	2000	$I_f = 10$ mA
Forward voltage (V_f)				
typical	2.1	2.1	2.0	$I_f = 20$ mA
maximum	2.6	2.8	2.8	$I_f = 20$ mA
Peak 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

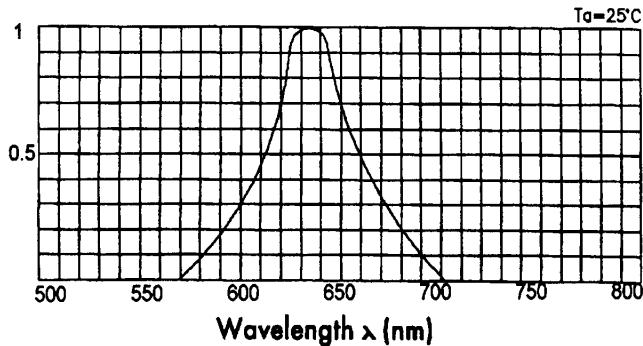
MAN6X10E - Common Anode



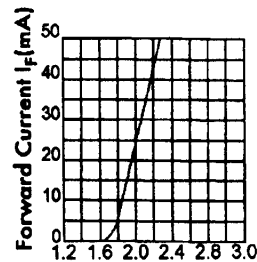
MAN6X40E - Common Cathode



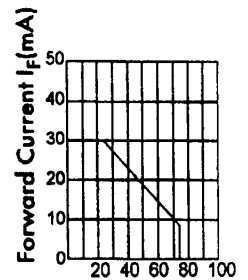
GRAPHICAL DETAIL: Bright Red ($T_A = 25^\circ\text{C}$ unless otherwise specified)



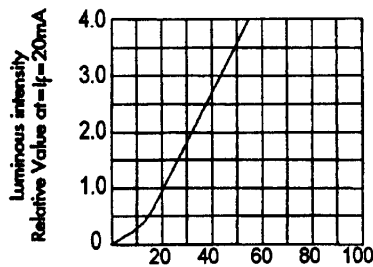
RELATIVE INTENSITY VS. WAVELENGTH



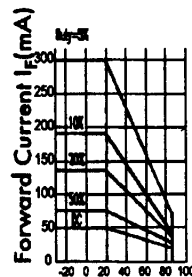
FORWARD VOLTAGE (V_F)-volts
FORWARD CURRENT VS.
FORWARD VOLTAGE



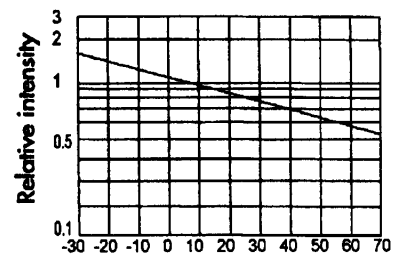
AMBIENT TEMPERATURE T_A ($^\circ\text{C}$)



I_F -Forward current-mA
RELATIVE LUMINOUS INTENSITY
VS. FORWARD CURRENT

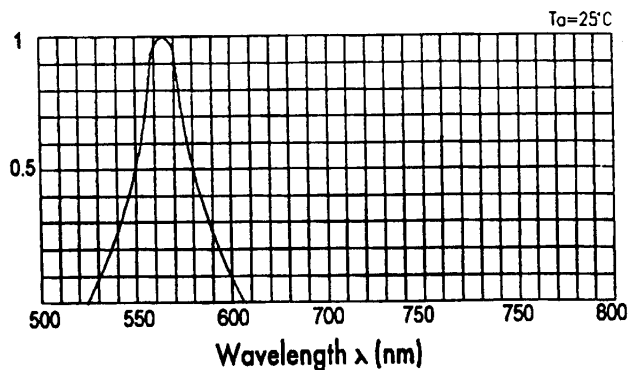


AMBIENT TEMPERATURE ($^\circ\text{C}$)
VS. FORWARD CURRENT CAPACITY

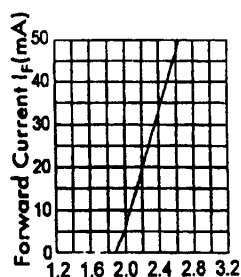


AMBIENT TEMPERATURE T_A ($^\circ\text{C}$)

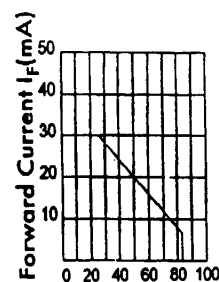
GRAPHICAL DETAIL: Green ($T_A = 25^\circ\text{C}$ unless otherwise specified)



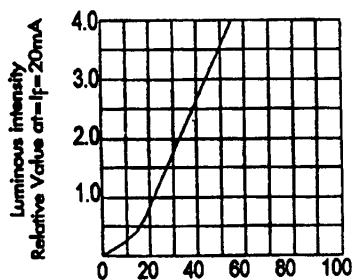
RELATIVE INTENSITY VS. WAVELENGTH



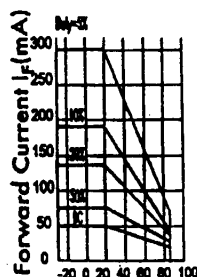
FORWARD VOLTAGE (V_f)-volts
FORWARD CURRENT VS.
FORWARD VOLTAGE



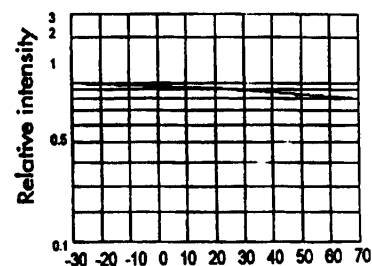
AMBIENT TEMPERATURE T_A ($^\circ\text{C}$)



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

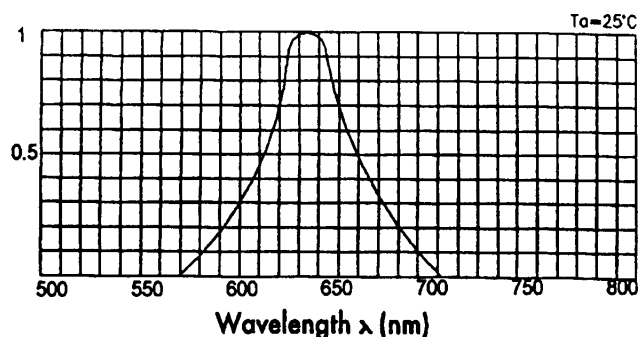


AMBIENT TEMPERATURE ($^\circ\text{C}$)
VS. FORWARD CURRENT CAPACITY

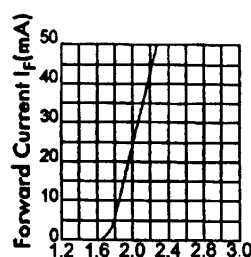


AMBIENT TEMPERATURE T_A ($^\circ\text{C}$)

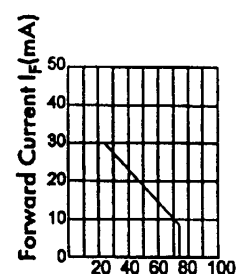
GRAPHICAL DETAIL: High Efficiency Red ($T_A = 25^\circ\text{C}$ unless otherwise specified)



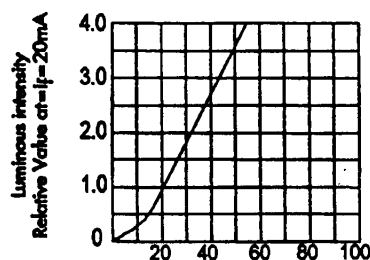
RELATIVE INTENSITY VS. WAVELENGTH



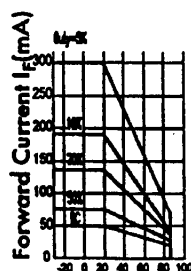
**FORWARD VOLTAGE (V_f)-volts
FORWARD CURRENT VS.
FORWARD VOLTAGE**



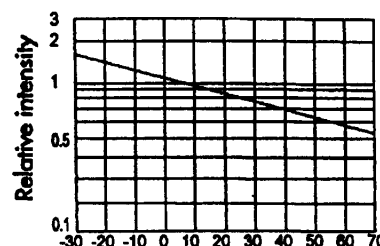
AMBIENT TEMPERATURE T_A ($^\circ\text{C}$)



**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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