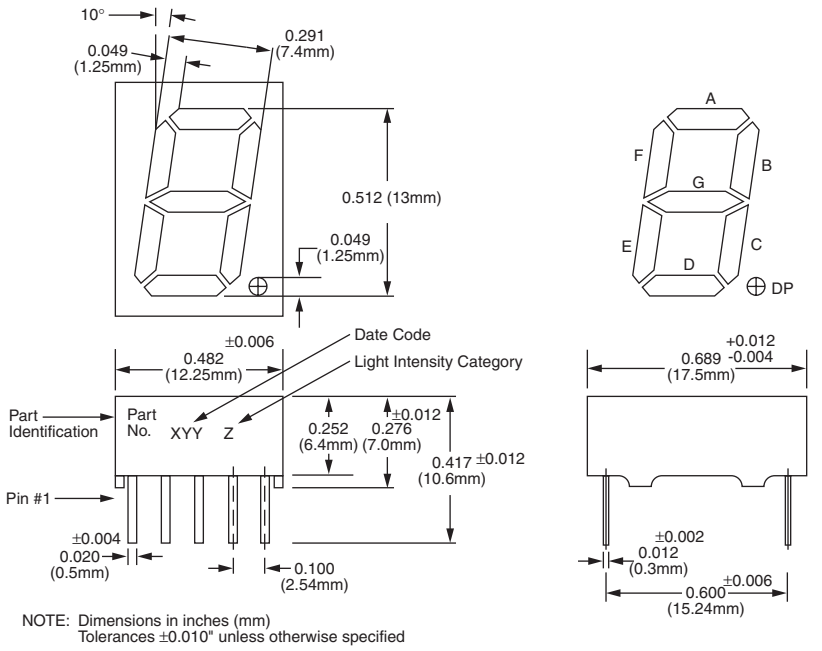
FAIRCHILD
SEMICONDUCTOR®

0.510-INCH (13MM) SEVEN SEGMENT DISPLAYS

YELLOW MAN5350/5360
GREEN MAN5450/5460
RED MAN5750/5760
HER MAN5950/5960

PACKAGE DIMENSIONS



NOTE: Dimensions in inches (mm)
Tolerances ±0.010" unless otherwise specified

DESCRIPTION

This display series is a family of large digits 0.510 inches in height. All models have right hand decimal points and are availble in common anode or common cathode configurations. All units are constructed with untinted segments on grey face to enhance ON/OFF contrast. Standard units are available in red, orange-red, green and yellow.

FEATURES

- Large, easy to read, digits
- Common anode or common cathode models
- Fast switching — excellent for multiplexing
- Low power consumption
- Bold solid segments that are highly legible
- Solid state reliability — long operation life
- Rugged plastic construction
- Directly compatible with integrated circuits
- High brightness with high contrast
- Categorized for Luminous Intensity (See Note 5)
- Wide angle viewing...150°
- Low forward voltage
- Untinted segments on grey face

APPLICATIONS

For industrial and consumer applications such as:

- Digital readout displays
- Instrument panels
- Point of sale equipment
- Digital clocks
- TV and radios

MODEL NUMBERS

Part Number	Color	Description	Pin Out Specification (See Page 5)
MAN5350	Yellow	Common Anode	A
MAN5360	Yellow	Common Cathode	B
MAN5450	Green	Common Anode	A
MAN5460	Green	Common Cathode	B
MAN5750	Red	Common Anode	A
MAN5760	Red	Common Cathode	B
MAN5950	HER	Common Anode	A
MAN5960	HER	Common Cathode	B

0.510-INCH (13MM) SEVEN SEGMENT DISPLAYS

YELLOW MAN5350/5360 RED MAN5750/5760
GREEN MAN5450/5460 HER MAN5950/5960

ELECTRO-OPTICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

Parameter	Min.	Typ.	Max.	Units	Test Condition
Yellow MAN5350/MAN5360					
Luminous Intensity, digit average (See Note 1)	820	1200 480		µcd µcd	I_F = 10 mA I_F = 5 mA
Peak emission wavelength		585		nm	I_F = 10 mA
Dominant wavelength	582		593	nm	I_F = 10 mA
Spectral line half width		40		nm	
Forward voltage		2.4	3.0	V	I_F = 20 mA
Dynamic resistance		26			I_F = 20 mA
Capacitance		35		pF	V_R = 0, f = 1MHz
Reverse current			10	µA	V_R = 6.0 V
Green MAN5450/MAN5460					
Luminous Intensity, digit average (See Note 1)	820	3000 1000		µcd µcd	I_F = 10 mA I_F = 5 mA
Peak emission wavelength		562		nm	I_F = 10 mA
Dominant wavelength	564		574	nm	I_F = 10 mA
Spectral line half width		30		nm	
Forward voltage		2.4	3.0	V	I_F = 20 mA
Dynamic resistance		12			I_F = 20 mA
Capacitance		40		pF	V_R = 0, f = 1MHz
Reverse current			10	µA	V_R = 6.0 V

0.510-INCH (13MM) SEVEN SEGMENT DISPLAYS

YELLOW MAN5350/5360 RED MAN5750/5760
GREEN MAN5450/5460 HER MAN5950/5960

ELECTRO-OPTICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)					
Parameter	**Min.**	**Typ.**	**Max.**	**Units**	**Test Condition**
Red MAN5750/MAN5760					
Luminous Intensity, digit average (See Note 1)	280	500 250		µcd µcd	I_F = 10 mA I_F = 5 mA
Peak emission wavelength		655		nm	I_F = 10 mA
Dominant wavelength		645		nm	I_F = 10 mA
Spectral line half width		20		nm	
Forward voltage		1.6	2.0	V	I_F = 20 mA
Dynamic resistance		2			I_F = 20 mA
Capacitance		35		pF	V_R = 0, f = 1MHz
Reverse current			10	µA	V_R = 6.0 V
HER MAN5950/MAN5960					
Luminous Intensity, digit average (See Note 1)	820	2500 700		µcd µcd	I_F = 10 mA I_F = 5 mA
Peak emission wavelength		635		nm	I_F = 10 mA
Dominant wavelength	615		630	nm	I_F = 10 mA
Spectral line half width		40		nm	
Forward voltage		2.0	3.0	V	I_F = 20 mA
Dynamic resistance		26			I_F = 20 mA
Capacitance		35		pF	V_R = 0, f = 1MHz
Reverse current			10	µA	V_R = 6.0 V

YELLOW MAN5350/5360 RED MAN5750/5760
GREEN MAN5450/5460 HER MAN5950/5960

ABSOLUTE MAXIMUM RATINGS

Rating	MAN5350 MAN5360	MAN5450 MAN5460	MAN5750 MAN5760	MAN5950 MAN5960
Power dissipation at 25°C ambient	600 mW	570 mW	480 mW	600 mW
Derate linearly from 50°C	-10.3 mW/°C	-12 mW/°C	-6.9 mW/°C	-8.6 mW/°C
Storage and operating temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Continuous forward current Total Per segment Decimal point	 200 mA 25 mA 25 mA	 240 mA 30 mA 30 mA	 240 mA 30 mA 30 mA	 240 mA 30 mA 30 mA
Reverse voltage Per segment Decimal point	 6.0 V 6.0 V	 6.0 V 6.0 V	 6.0 V 6.0 V	 6.0 V 6.0 V
Soldering time at 260°C (See Notes 3 and 4)	5 sec.	5 sec.	5 sec.	5 sec.

Notes:
1. The digit average Luminous Intensity is obtained by summing the Luminous Intensity of each segment and dividing by the total number of segments. Intensity will not vary more than ±33.3% between all segments within a digit.
2. The relative Luminous Intensity in this curve is normalized to the brightness at 25°C to indicate the relative efficiency over the operating temperature range.
3. Leads of the device immersed to 1/16 inch from the body. Maximum device surface temperature is 140°C.
4. For flux removal, Freon TF, Freon TE, Isoproponal or water may be used to up their boiling points.
5. All displays are categorized for Luminous Intensity. The intensity category is marked on each part as a suffix letter to the part number.

RECOMMENDED OPTICAL FILTERS

For optimum ON and OFF contrast, one of the following filters or equivalents should be used over the display:

Device Type	Filter	Device Type	Filter
MAN5350 MAN5360	Panelgraphic Yellow 25 or Amber 23 Homalite 100-1720 or 100-1726 Panelgraphic Grey 10 Homalite 100-1266 Grey	MAN5450 MAN5460	Panelgraphic Green 48 Homalite 100-1440 Green Panelgraphic Grey 10 Homalite 100-1266 Grey
MAN5750 MAN5760	Panelgraphic Red 60 Homalite 100-1605	MAN5950 MAN5960	Panelgraphic Scarlet 65 Homalite 100-1670

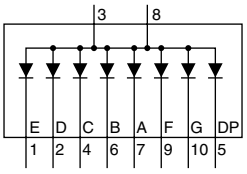
0.510-INCH (13MM) SEVEN SEGMENT DISPLAYS

YELLOW MAN5350/5360 RED MAN5750/5760
GREEN MAN5450/5460 HER MAN5950/5960

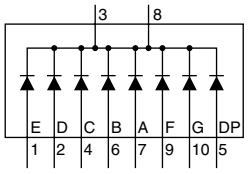
ELECTRICAL CONNECTIONS

Pin No.	A MAN5X50	B MAN5X60
1	Cathode E	Anode E
2	Cathode D	Anode D
3	Com. Anode	Com. Cathode
4	Cathode C	Anode C
5	Cathode D.P.	Anode D.P.
6	Cathode B	Anode B
7	Cathode A	Anode A
8	Com. Anode	Com. Cathode
9	Cathode F	Anode F
10	Cathode G	Anode G

INTERNAL CONNECTIONS



MAN5X50



MAN5X60

YELLOW	MAN5350/5360	RED	MAN5750/5760
GREEN	MAN5450/5460	HER	MAN5950/5960

TYPICAL CHARACTERISTIC CURVES — MAN5350/MAN5360

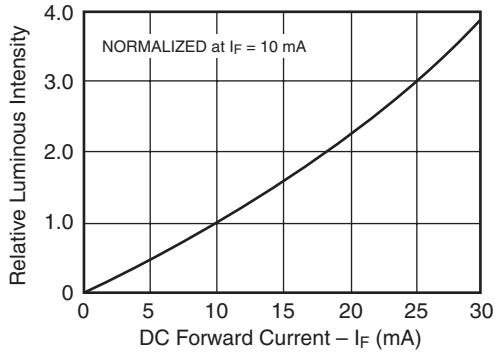


Fig. 1A. Relative Luminous Intensity vs. DC Forward Current

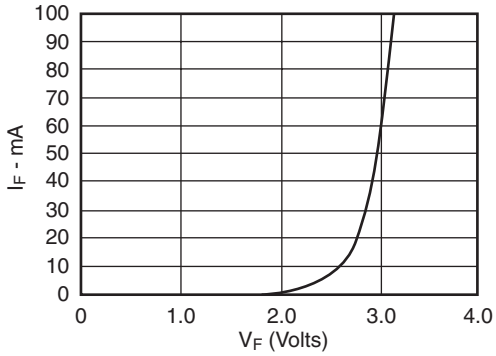


Fig. 1B. Forward Current vs. Forward Voltage

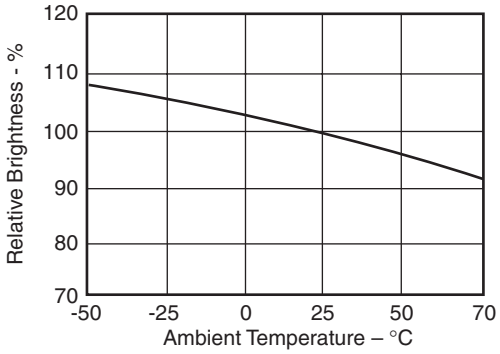


Fig. 1C. Relative Luminous Intensity vs. Temperature
(See Note 2)

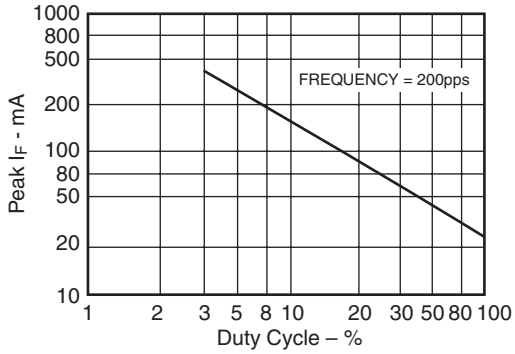


Fig. 1D. Max Peak Current vs. Duty Cycle

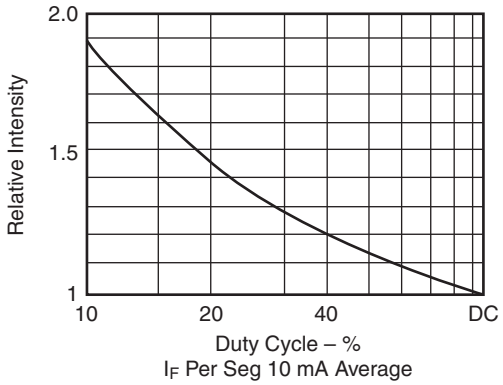


Fig. 1E. Relative Luminous Intensity vs. Duty Cycle

YELLOW	MAN5350/5360	RED	MAN5750/5760
GREEN	MAN5450/5460	HER	MAN5950/5960

TYPICAL CHARACTERISTIC CURVES — MAN5450/MAN5460

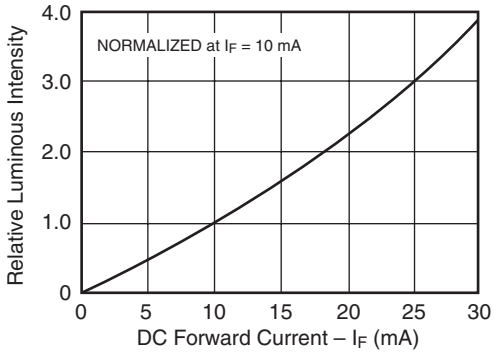


Fig. 2A. Relative Luminous Intensity vs. DC Forward Current

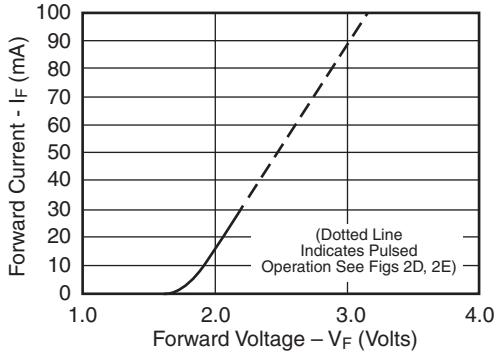


Fig. 2B. Forward Current vs.Forward Voltage

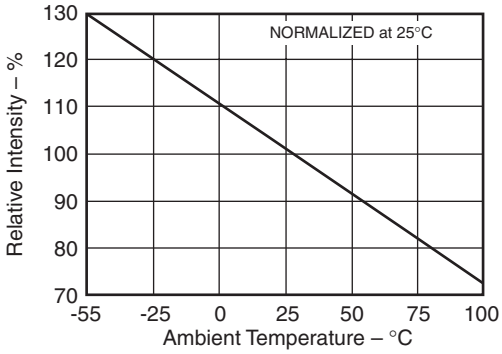


Fig. 2C. Relative Luminous Intensity vs. Temperature (See Note 2)

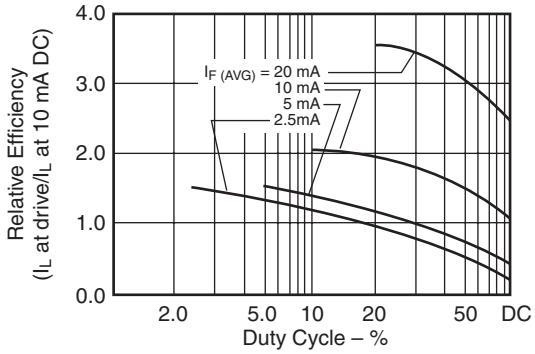


Fig. 2D. Relative Efficiency vs. Duty Cycle

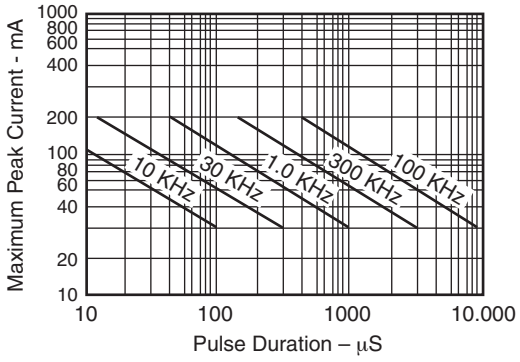


Fig. 2E. Maximum Peak Current vs. Pulse Duration

YELLOW	MAN5350/5360	RED	MAN5750/5760
GREEN	MAN5450/5460	HER	MAN5950/5960

TYPICAL CHARACTERISTIC CURVES — MAN5750/MAN5760

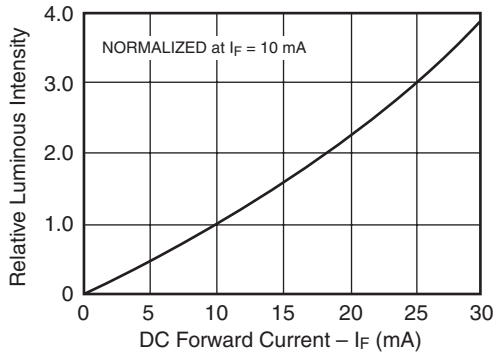


Fig. 3A. Relative Luminous Intensity vs. DC Forward Current

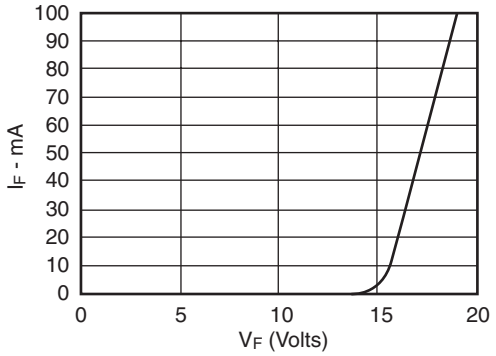


Fig. 3B. Forward Current vs. Forward Voltage

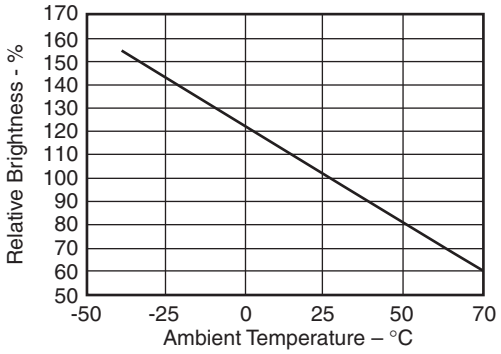


Fig. 3C. Relative Luminous Intensity vs. Temperature (See Note 2)

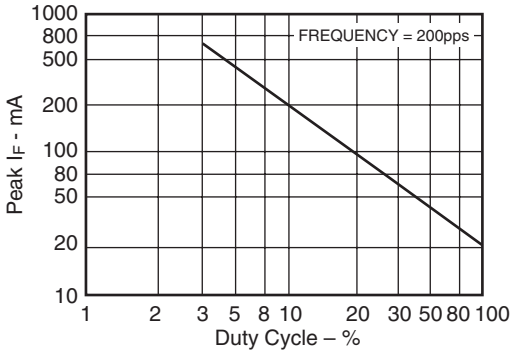


Fig. 3D. Max Peak Current vs. Duty Cycle

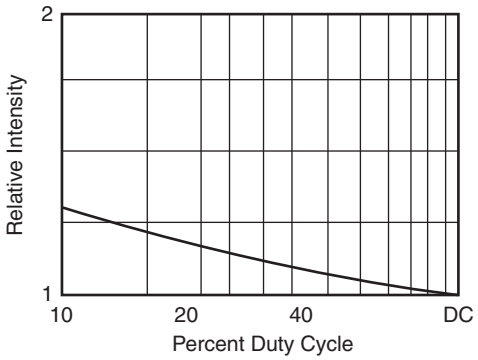


Fig. 3E. Relative Luminous Intensity vs. Duty Cycle

YELLOW	MAN5350/5360	RED	MAN5750/5760
GREEN	MAN5450/5460	HER	MAN5950/5960

TYPICAL CHARACTERISTIC CURVES — MAN5950/MAN5960

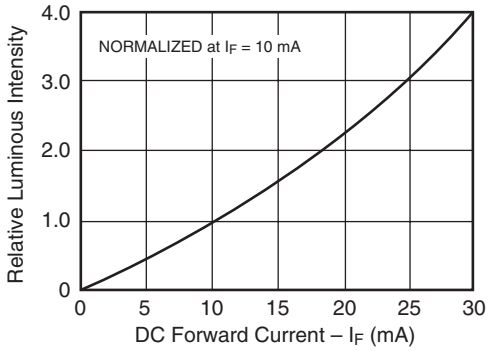


Fig. 4A. Relative Luminous Intensity vs. Forward Current

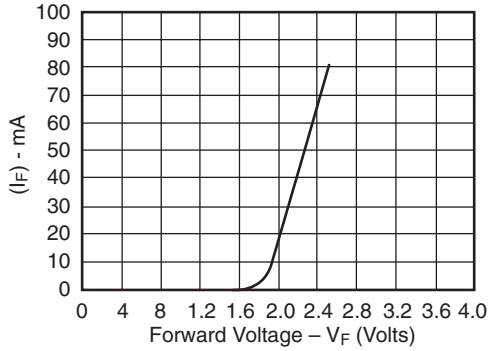


Fig. 4B. Forward Current vs. Forward Voltage

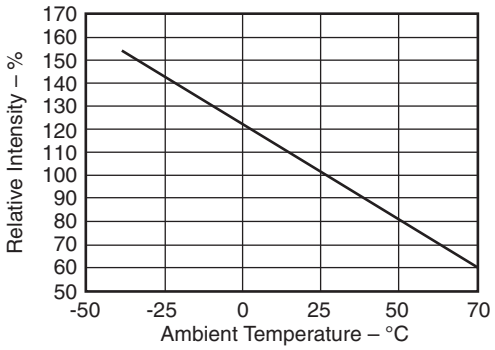


Fig. 3C. Relative Luminous Intensity vs. Temperature
(See Note 2)

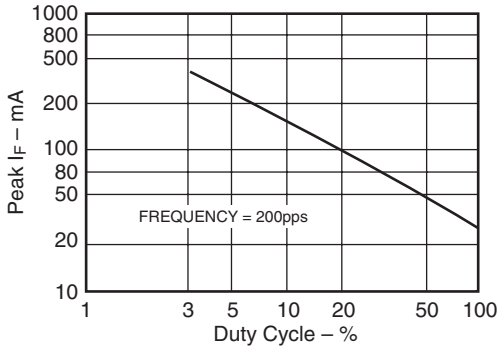


Fig. 4D. Maximum Peak Current vs. Duty Cycle

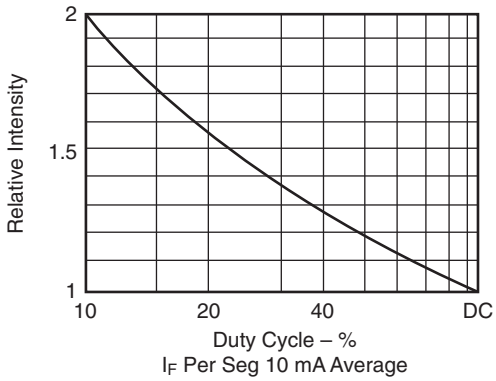


Fig. 4E. Relative Luminous Intensity vs. Duty Cycle

0.510-INCH (13MM) SEVEN SEGMENT DISPLAYS

YELLOW	**MAN5350/5360**	**RED**	**MAN5750/5760**
GREEN	**MAN5450/5460**	**HER**	**MAN5950/5960**