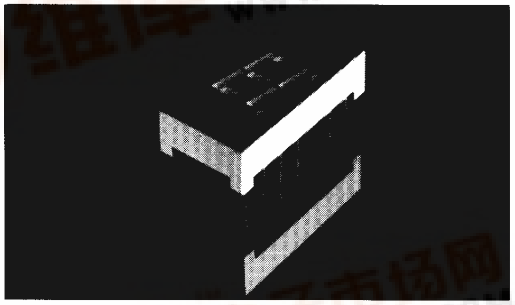
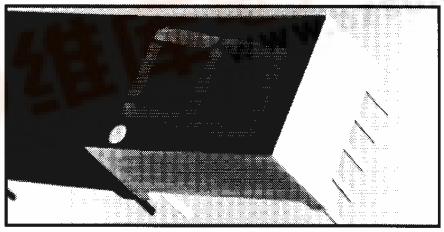
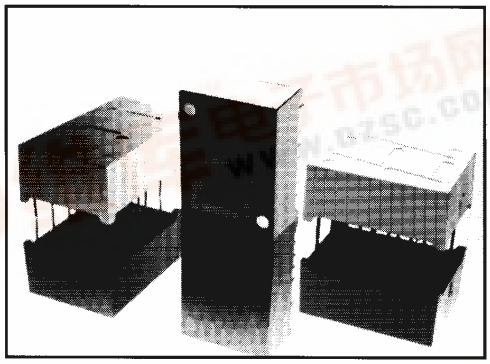
FAIRCHILD
SEMICONDUCTOR™

DOUBLE HETEROJUNCTION AlGaAs RED SUNLIGHT VIEWABLE DISPLAYS

7.6mm (0.3in) MAN32X0A
14.2mm (0.56in) MAN62X0
20.0mm (0.8in) MAN82X0







DESCRIPTION

This line of solid state LED displays uses newly developed Double Heterojunction (DH) AlGaAs/GaAs material technology. This LED material has outstanding light output efficiency over a wide range of drive currents and can either be DC or pulse driven. The color is deep red at the dominant wavelength of 637 nanometers. Viewability of up to 10 meters (MAN8200 Series) is available for applications in bright sunlight such as automotive and avionic instrumentation, portable instruments, point-of-sale terminals and gas pumps.

FEATURES

- Sunlight Viewable
  Typical intensity of 15mcd/Seg at 20mA Drive
- Capable of high drive currents
- Excellent for multiplexing long digit strings
- Three Character Sizes
  7.6mm (0.3in), 14.2mm (0.56in), 20.0mm (0.8in)
- Excellent character appearance
  Evenly lighted segments
  Wide viewing angle
  Grey body for optimum contrast
- Categorized for luminous intensity. Use of like categorizes yields a uniform display

MODEL NUMBERS

PART NO.	CHARACTER SIZE	DESCRIPTION	PACKAGE DRAWING
MAN3210A	0.3″ (7.6mm)	Common anode; right hand decimal	A
MAN3240A		Common cathode; right hand decimal	B
MAN3220A		Common anode; left hand decimal	C
MAN6260	0.56″ (14.2mm)	Common anode; right hand decimal	D
MAN6280		Common cathode; right hand decimal	E
MAN8210	0.8″ (20mm)	Common anode; right hand decimal	F
MAN8240		Common cathode; right hand decimal	G

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ELECTRICAL/OPTICAL CHARACTERISTICS AT T_A=25°C

DESCRIPTION	SYMBOL	DEVICE	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Luminous intensity/segment [1.2] (digit average)	I_v	MAN3000A Series	1 mA DC	315	600		
			5 mA DC		3600		
			20 mA Pk: 1 of 4 Duty Factor		3300		µcd
		MAN6000 Series	1 mA DC	400	700		
			5 mA DC		4200		
			20 mA Pk: 1 of 4 Duty Factor		3900		µcd
		MAN8000 Series	1 mA DC	270	500		
			5 mA DC		3500		
			20 mA Pk: 1 of 4 Duty Factor		3300		µcd
Peak wavelength	λ Peak	All Devices			650		nm
Dominant wavelength [3]	λd	All Devices			642		nm
Forward voltage/segment or DP	V_F	All Devices	I_F=1 mA I_F=5 mA I_F=20 mA Pk		1.6 1.7 1.8	2.0 2.1 2.2	V
Reverse voltage/segment or DP	V_R	All Devices	I_R=100 µA	3.0	15		V
Temp. coefficient of V_F/seg. or DP	ΔV_F/°C				−2mV		MV/°C
Thermal resistance LED junction—to—pin	RθJ-PIN	MAN3000 MAN6000 MAN8000			255 400 430		°C/W/Seg.

NOTES

1. *Case temperature of the device immediately prior to the intensity measurement is 25°C.*
2. *The digits are categorized for luminous intensity with the intensity category designated by a letter on the side of the package.*
3. *The dominant wavelength, λ_d, is derived from the CIE chromaticity diagram and is that single wavelength which defines the color of the device.*

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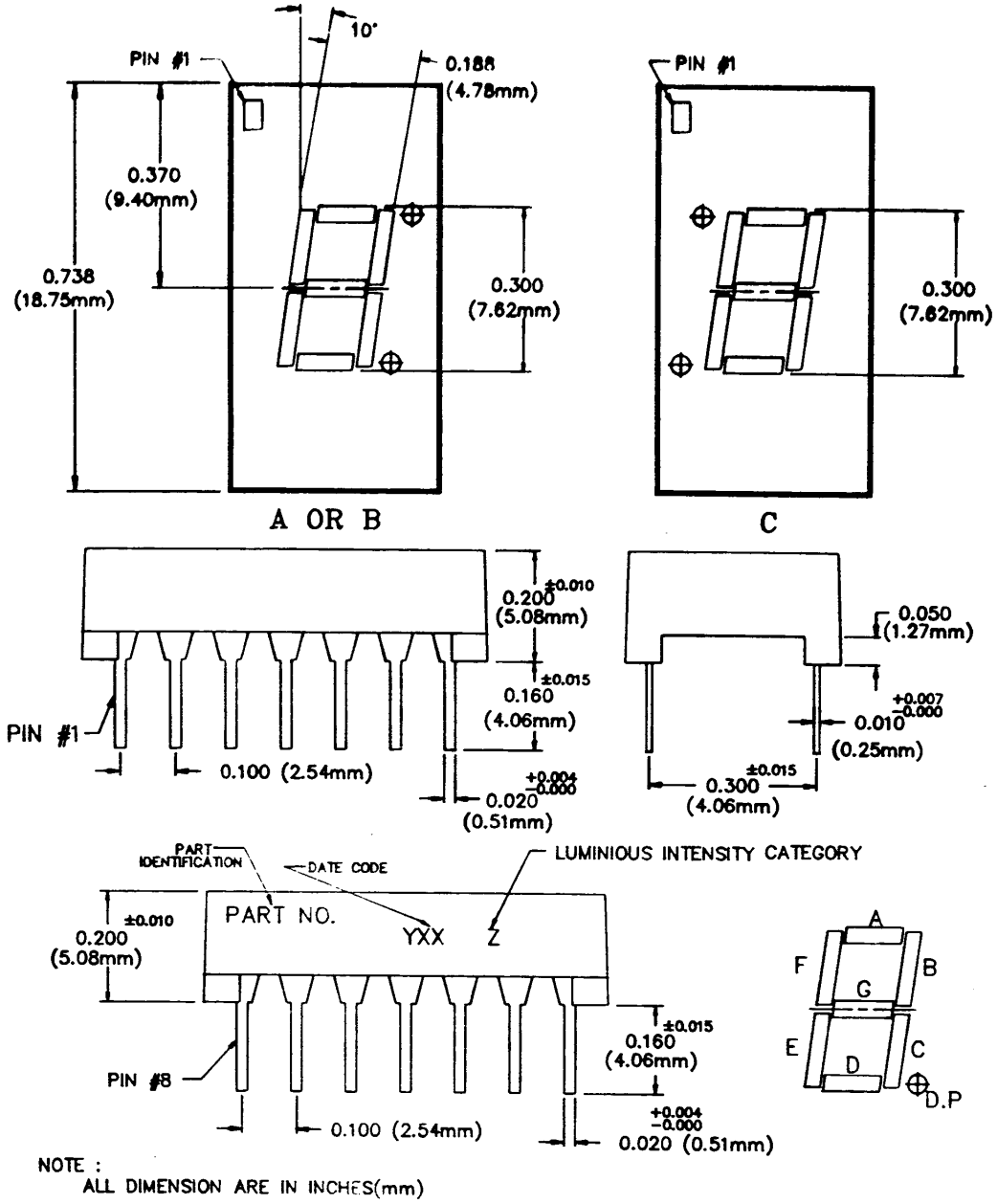
PACKAGE DIMENSIONS

MAN3200A SERIES



NOTE :
ALL DIMENSION ARE IN INCHES(mm)

C3060

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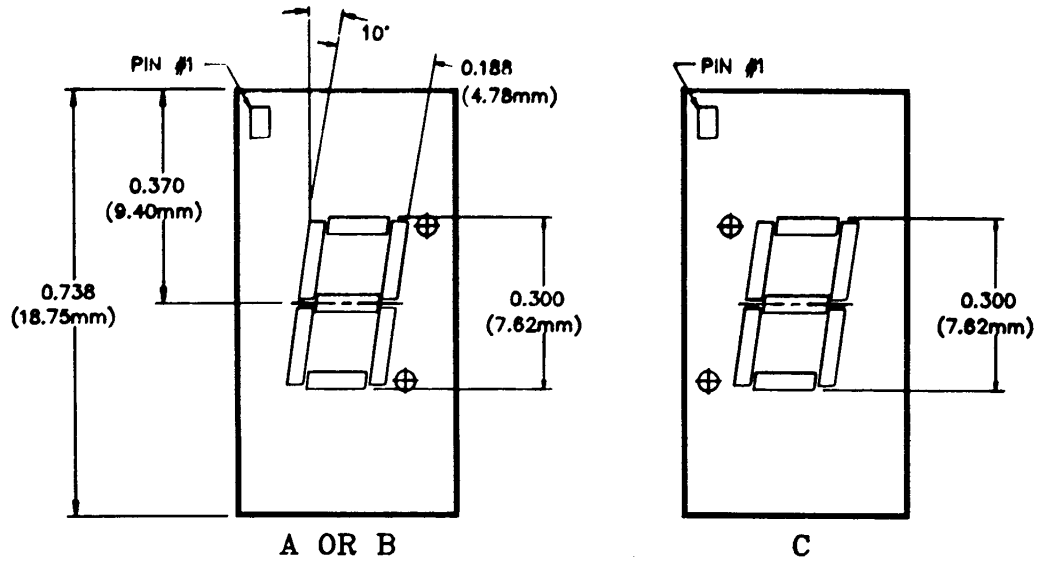
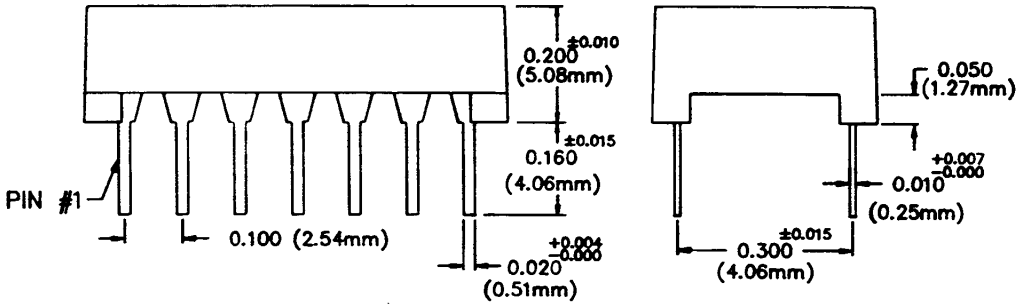
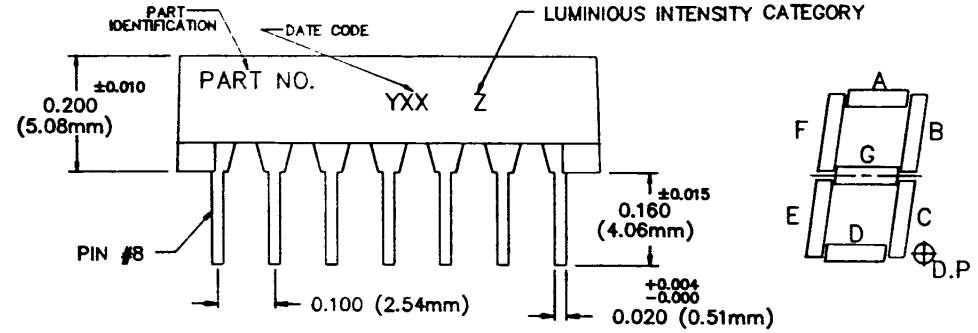
DOUBLE HETEROJUNCTION
AlGaAs RED
LOW CURRENT DISPLAYS

PACKAGE DIMENSIONS

MAN3000A SERIES







NOTE :
ALL DIMENSION ARE IN INCHES(mm)

C3060

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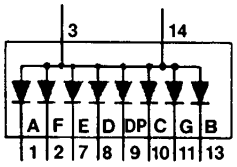
ELECTRICAL CONNECTIONS

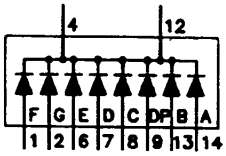
PIN NO.	A MAN3210A	B MAN3240A	C MAN3220A	D MAN6260	E MAN6280	F MAN8210	G MAN8240
1	Cathode A	Anode F	Cathode A	Cathode E	Anode E	No Connection	No Connection
2	Cathode F	Anode G	Cathode F	Cathode D	Anode D	A Cathode	A Anode
3	Common Anode	No Pin	Common Anode	Common Anode	Common Cathode	F Cathode	F Anode
4	No Pin	Common Cathode	No Pin	Cathode C	Anode C	Common Anode	Common Cathode
5	No Pin	No Pin	No Pin	Cathode D.P	Anode D.P	E Cathode	E Anode
6	No Connection	Anode E	Cathode D.P	Cathode B	Anode B	—	—
7	Cathode E	Anode D	Cathode E	Cathode A	Anode A	E Cathode	E Anode
8	Cathode D	Anode C	Cathode D	Common Anode	Common Cathode	—	—
9	Cathode D.P	Anode D.P	No Connection	Cathode F	Anode F	D Cathode	Common Cathode
10	Cathode C	No Pin	Cathode C	Cathode G	Anode G	D.P Cathode	D.P Anode
11	Cathode G	No Pin	Cathode G			D Cathode	D Anode
12	No Pin	Common Cathode	No Pin			Common Anode	Common Cathode
13	Cathode B	Anode B	Cathode B			C Cathode	C Anode
14	Common Anode	Anode A	Common Anode			G Cathode	G Anode
15						B Cathode	B Anode
16						—	—
17						Common Anode	Common Cathode
18						—	—

ELECTRICAL SCHEMATIC



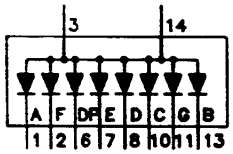
MAN3210
(A)

C3063



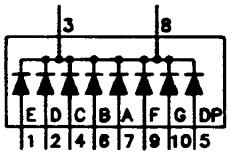
MAN3240
(B)

C3064



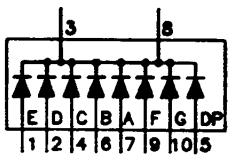
MAN3220
(C)

C3065



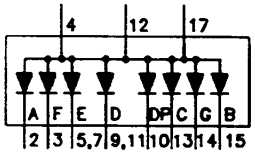
MAN6260
(D)

C3066



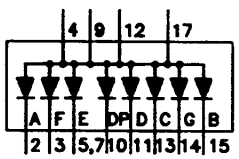
MAN6280
(E)

C3067



MAN8210
(F)

C3068



MAN8240
(G)

C3069

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.