

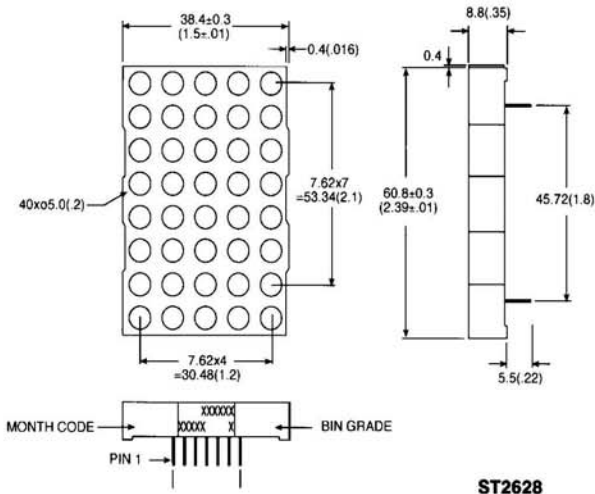


**2.3" 5 × 8  
DOT MATRIX DISPLAYS**

**YELLOW GMA 2885C GMC 2885C  
HER GMA 2985C GMC 2985C  
GREEN GMA 2485C GMC 2485C  
BICOLOR RED/GREEN GMA 2685C**

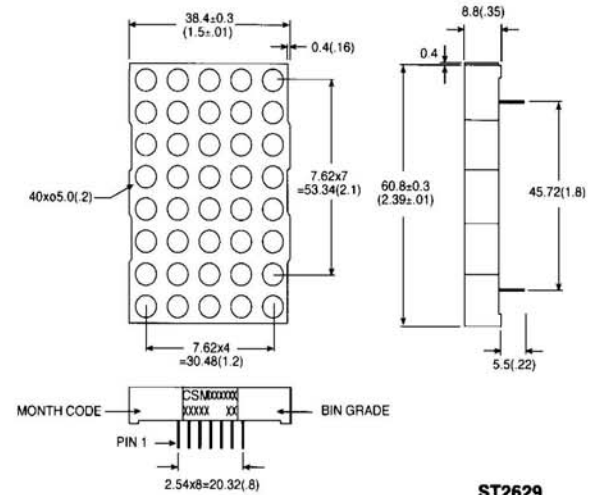
**PACKAGE DIMENSIONS**

**A. GMX2X85C**



**ST2628**

**B. GMA2685C**



**ST2629**

**DESCRIPTION**

These are 5×8 dot matrix displays with large emitting area (0.2" diameter) LED sources. The GMX2X85C series are single color displays with the exception of GMA2685C which is a bicolor of red/green displays. All displays have gray face and white dot color. Other face or dot colors are available with minimum requirement. The X in GMX denotes row anode or row cathode.

**FEATURES**

- 2.3" (58.4 mm) character height
- Low power requirement
- High contrast & brightness
- Wide viewing angle 130°
- 5 × 8 array with X-Y select
- Compatible with USASCII and EBCDIC codes
- X-Y stackable
- Choice of two matrix orientation anode or cathode column
- Easy mounting on PCB
- Categorized for luminous intensity
- Single color displays have the choice of 3 bright colors — yellow/orange/green
- Multicolor color displays are applicable to 3 bright colors — greens, orange (HER) and yellow (green and HER mixed)

- NOTES:
1. ALL PINS ARE 0.5 (.02).
  2. DIMENSIONS IN MILLIMETERS (INCH), TOLERANCE IS ±0.25 (.01) UNLESS OTHERWISE NOTED.



## 2.3" 5 × 8 DOT MATRIX DISPLAYS

<b>ABSOLUTE MAXIMUM RATING</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)				
PARAMETER	YELLOW	HER	GREEN	UNITS
Power dissipation per dot/color .....	60	70	75	mW
Peak forward current per dot/color (duty cycle 1/10, 10KHz) .....	80	100	100	mA
Continuous $I_f$ per dot/color .....	20	25	25	mA
Reverse voltage $V_R$ per dot/color .....	5	5	5	V
Operating and storage temperature range .....	-25°C to +85°C			
Soldering time at 260°C ( $\frac{1}{16}$ inch below seating plane) .....	3 sec			

<b>MODEL NUMBERS</b>						
PART NO.				DESCRIPTION	PACKAGE DIMENSION	INTERNAL CIRCUIT DIAGRAM
YELLOW	HER	GREEN	MULTI-COLOR			
GMC2885C	GMC2985C	GMC2485C		Anode column, cathode row	A	A
GMA2885C	GMA2985C	GMA2485C		Cathode column, anode row	A	B
			GMA2685C	Cathode column, anode row	B	C



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<b>ELECTRICAL/OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)					
<b>GMX 2485C</b>					
PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Average luminous intensity		3000		$\mu\text{cd}$	$I_F = 20 \text{ mA}$
Peak emission wavelength		565		nm	$I_F = 20 \text{ mA}$
Spectral line half-width		30		nm	$I_F = 20 \text{ mA}$
Forward voltage, any dot		2.1	2.8	V	$I_F = 20 \text{ mA}$
Reverse voltage, any dot			100	$\mu\text{A}$	$V_R = 5 \text{ V}$

**TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES**  
( $T_A = 25^\circ\text{C}$  Unless otherwise specified)

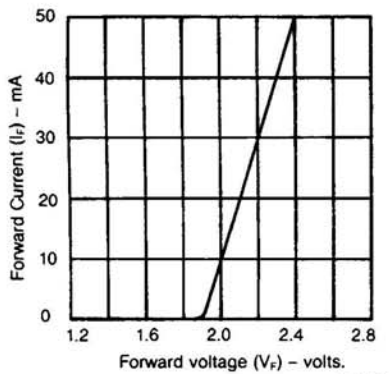


Fig. 1. Forward Current vs. Forward Voltage

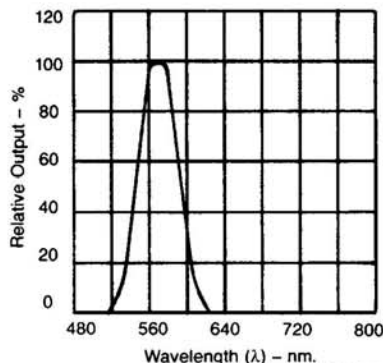


Fig. 2. Spectral Response

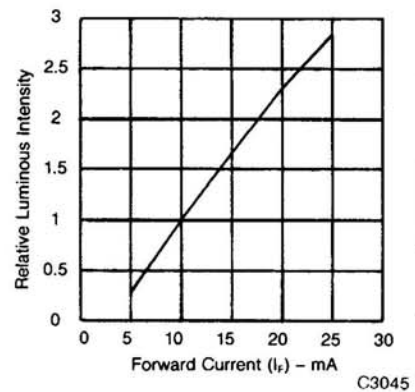


Fig. 3. Relative Luminous Intensity vs. Forward Current

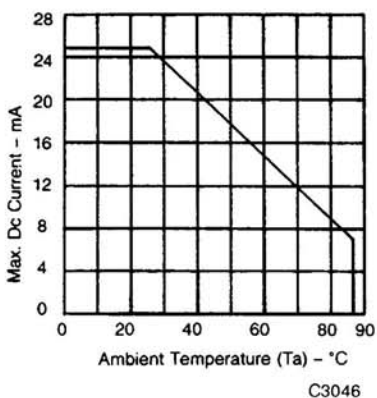


Fig. 4. Maximum Allowable DC Current Per Segment vs. A Function of Ambient Temperature

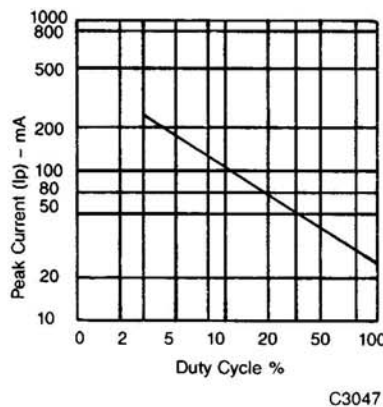


Fig. 5. Max Peak Current vs. Duty Cycle % (Refresh Rate  $f = 1 \text{ KHz}$ )

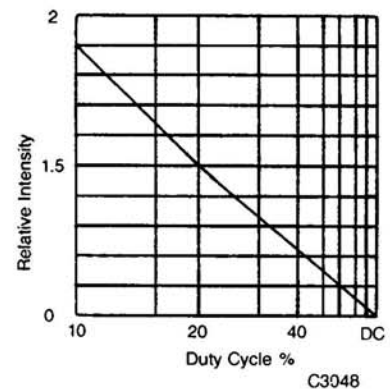


Fig. 6. Luminous Intensity vs. Duty Cycle % (Average  $I = 10 \text{ mA Per Seg.}$ )





**2.3" 5 × 8  
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<b>ELECTRICAL/OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)					
<b>GMX 2985C</b>					
PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Average luminous intensity		3000		$\mu\text{cd}$	$I_F = 20\text{ mA}$
Peak emission wavelength		635		nm	$I_F = 20\text{ mA}$
Spectral line half-width		30		nm	$I_F = 20\text{ mA}$
Forward voltage, any dot		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse voltage, any dot			100	$\mu\text{A}$	$V_R = 5\text{ V}$

**TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES**  
( $T_A = 25^\circ\text{C}$  Unless otherwise specified)

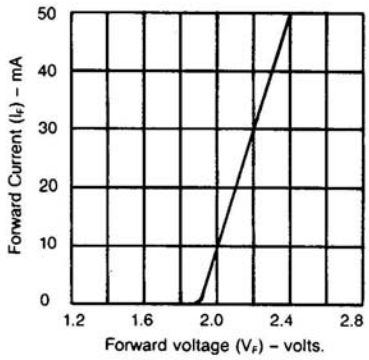


Fig. 1. Forward Current vs. Forward Voltage

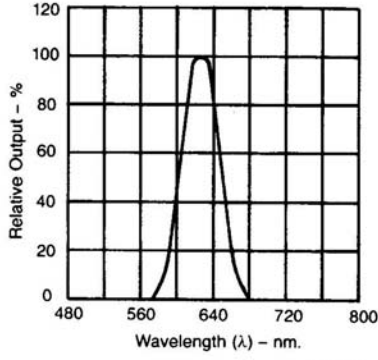


Fig. 2. Spectral Response

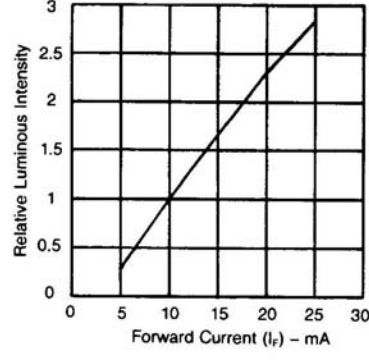


Fig. 3. Relative Luminous Intensity vs. Forward Current

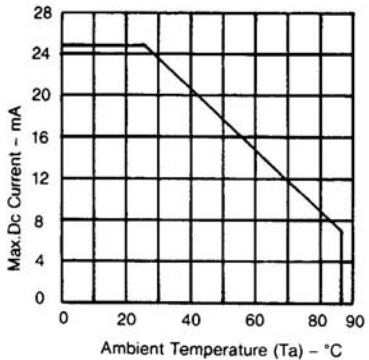


Fig. 4. Maximum Allowable DC Current Per Segment vs. Ambient Temperature

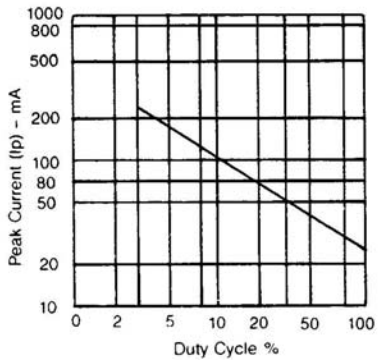


Fig. 5. Max. Peak Current vs. Duty Cycle % (Refresh Rate  $f = 1\text{ KHz}$ )

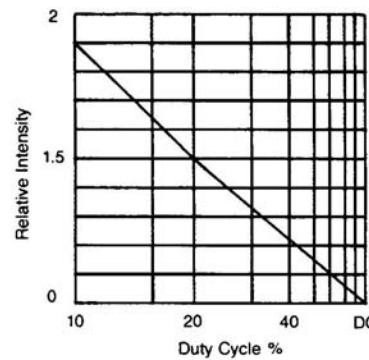


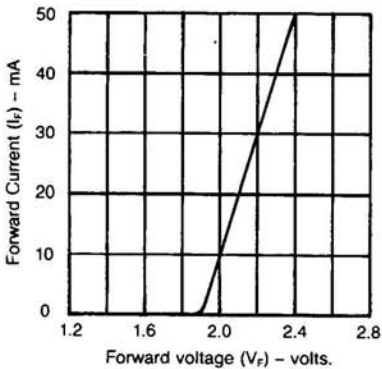
Fig. 6. Luminous Intensity vs. Duty Cycle %



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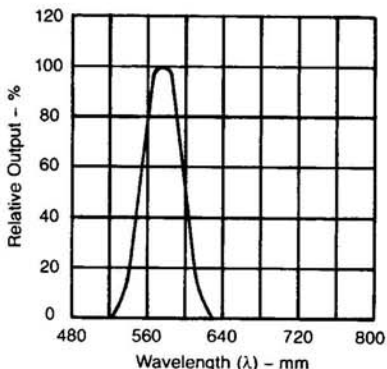
<b>ELECTRICAL/OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)					
<b>GMX 2885C</b>					
PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Average luminous intensity		3000		$\mu\text{cd}$	$I_F = 20 \text{ mA}$
Peak emission wavelength		585		nm	$I_F = 20 \text{ mA}$
Spectral line half-width		30		nm	$I_F = 20 \text{ mA}$
Forward voltage, any dot		2.1	2.8	V	$I_F = 20 \text{ mA}$
Reverse voltage, any dot			100	$\mu\text{A}$	$V_R = 5 \text{ V}$

**TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES**  
( $T_A = 25^\circ\text{C}$  Unless otherwise specified)



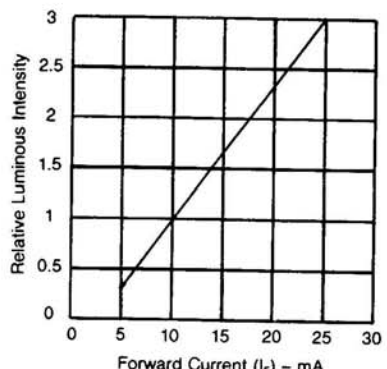
C3037

Fig. 1. Forward Current vs. Forward Voltage



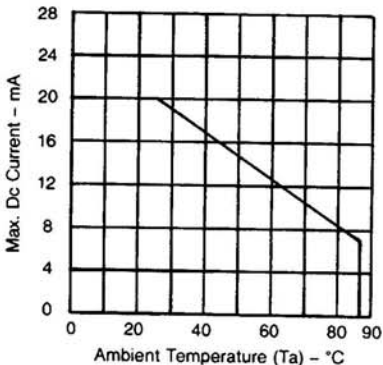
C3038

Fig. 2. Spectral Response



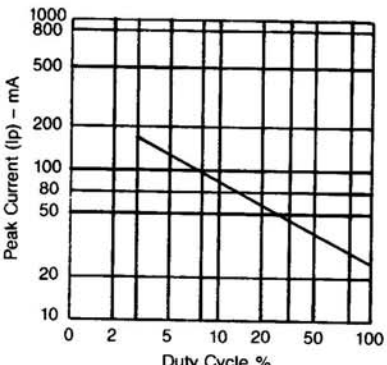
C3039

Fig. 3. Relative Luminous Intensity vs. Forward Current



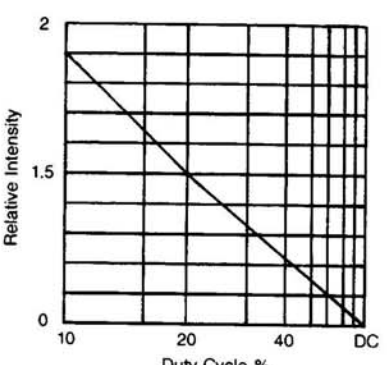
C3040

Fig. 4. Maximum Allowable DC Current Per Segment vs. Ambient Temperature



C3041

Fig. 5. Max Peak Current vs. Duty Cycle % (Refresh Rate  $f = 1 \text{ KHz}$ )



C3042

Fig. 6. Luminous Intensity vs. Duty Cycle % (Average  $I = 10 \text{ mA Per Seg.}$ )



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<b>PIN CONNECTION</b>			
<b>PIN NO.</b>	<b>GMC2X85C</b>	<b>GMA2X85C</b>	<b>GMC2685C</b>
1	Cathode row 6	Anode row 6	Cathode column 1 green
2	Cathode row 8	Anode row 8	Cathode column 2 green
3	Anode column 2	Cathode column 2	Cathode column 2 HER
4	Anode column 3	Cathode column 3	Cathode column 3 HER
5	Cathode row 5	Anode row 5	Anode row 6
6	Anode column 5	Cathode column 5	Anode row 7
7	Cathode row 7	Anode row 7	Cathode column 4 HER
8	Cathode row 3	Anode row 3	Anode row 5
9	Cathode row 1	Anode row 1	Anode row 8
10	Anode column 4	Cathode column 4	Cathode column 5 green
11	Anode column 3	Cathode column 3	Cathode column 5 HER
12	Cathode row 4	Anode row 4	Cathode column 4 green
13	Anode column 1	Cathode column 1	Anode column 3 green
14	Cathode row 2	Anode row 2	Anode row 4
15			Anode row 2
15			Anode row 1
15			Anode row 3
15			Cathode column 1 HER

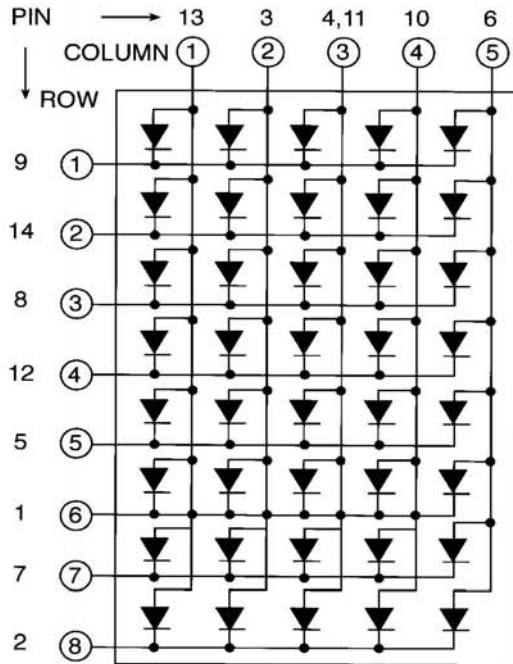




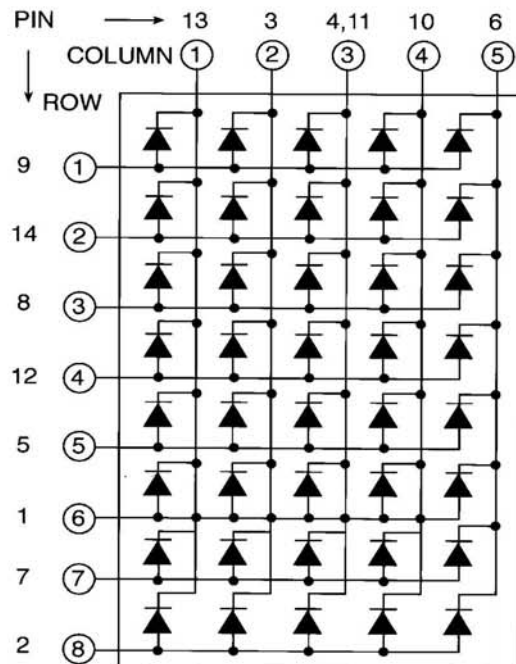
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**INTERNAL CIRCUIT DIAGRAM**

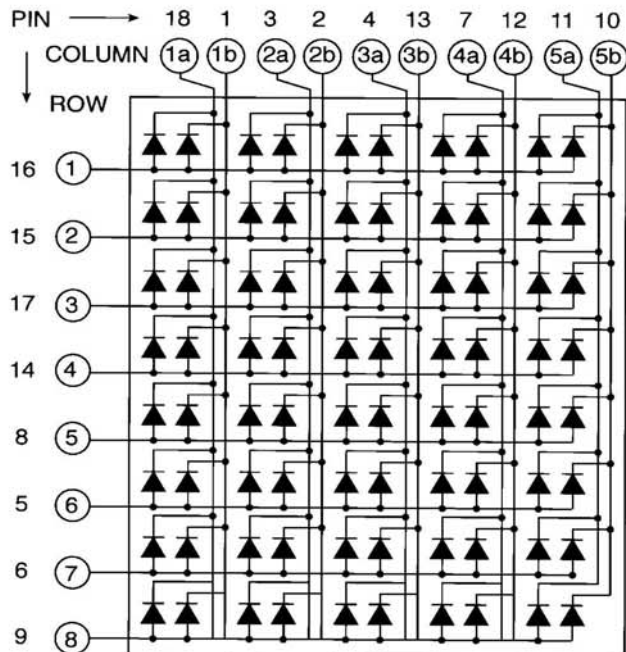
**A. GMC2X85C**



**B. GMA2X85C**



**C. GMA2685C**





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