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**FAIRCHILD****SEMICONDUCTOR™**

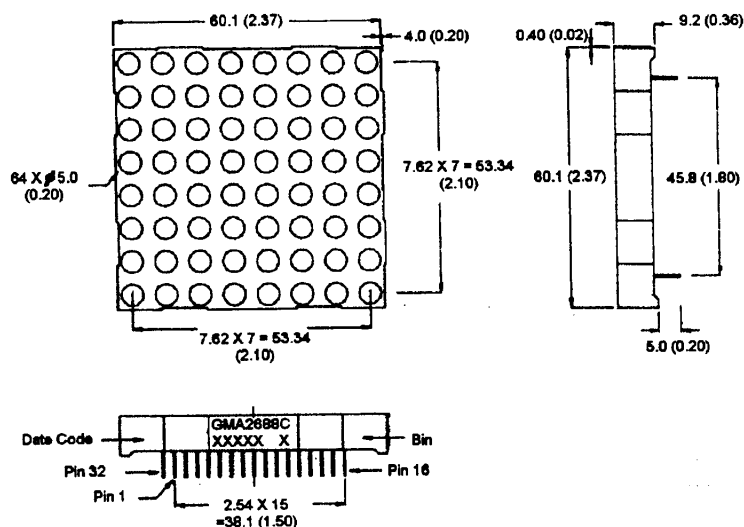
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## 2.3 INCH (58.4mm) 8 X 8 DOT MATRIX STICK DISPLAY

**HER Red / Green GMA2688C**

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### PACKAGE DIMENSIONS



### DESCRIPTION

The GMA2688C is a common anode row 8 X 8, bicolor High Efficiency Red / Green dot matrix display. It has a grey face with neutral segment color.

### FEATURES

- 2.3" ( 58.4mm) character height.
- Low power requirement.
- Wide 130° viewing angle.
- High brightness and contrast
- 8 X 8 array with X-Y select.
- X-Y stackable.
- Easy mounting on P.C. board.

**NOTE:** Dimensions are in mm (inch).  
Tolerances are  $\pm 0.25$  (0.1) unless otherwise noted.  
All pins are 0.5 (.02).

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### MODEL NUMBER

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**Part Number****GMA2688C****Colour****HER Red/Green****Description****Common anode row.**

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

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

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|                                                              | HER            | Green | Units |
|--------------------------------------------------------------|----------------|-------|-------|
| Peak forward current per segment<br>(Duty cycle 1/10, 10KHz) | 90             | 90    | mA    |
| Continous IF per segment                                     | 25             | 25    | mA    |
| Power dissipation per segment                                | 70*            | 70*   | mW    |
| *Derate linearly from 25°C                                   | 0.33           | 0.33  | mW/°C |
| Reverse voltage VR per segment                               | 5              | 5     | Volts |
| Operating and storage temperature range.....                 | -25°C to +85°C |       |       |
| Soldering time at 260°C.....                                 | 3 sec          |       |       |
| (1/16" below seating plane)                                  |                |       |       |

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

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|                                                   | HER     | Green   | Test<br>Condition    |
|---------------------------------------------------|---------|---------|----------------------|
| Luminous Intensity/Dot<br>Digit average (Typical) | 3000ucd | 3000ucd | $I_F = 20\text{mA}$  |
| Forward voltage ( $V_F$ )<br>typical              | 2.0V    | 2.1V    | $I_F = 20\text{ mA}$ |
| maximum                                           | 2.8V    | 2.8V    | $I_F = 20\text{ mA}$ |
| Peak wavelength (nm)                              | 635nm   | 570nm   | $I_F = 20\text{ mA}$ |
| Spectral line half width (nm)                     | 45nm    | 30nm    | $I_F = 20\text{mA}$  |
| Reverse breakdown voltage $V_R$                   | 5V      | 5V      | $I_R = 100\text{uA}$ |

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**PIN CONNECTION:**

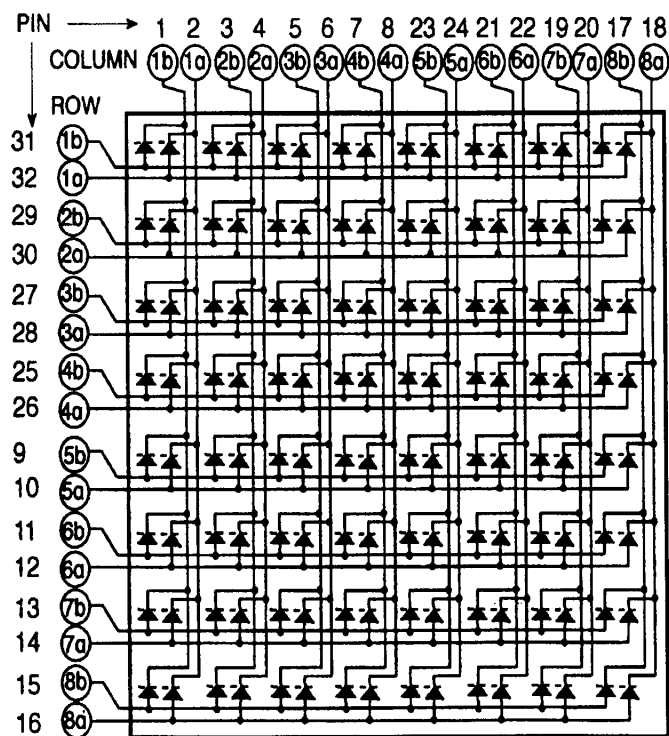
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**GMA2688C**

| Pin Number | Function          | Pin Number | Function          |
|------------|-------------------|------------|-------------------|
| 1          | Cathode Column 1b | 17         | Cathode Column 8b |
| 2          | Cathode Column 1a | 18         | Cathode Column 8a |
| 3          | Cathode Column 2b | 19         | Cathode Column 7b |
| 4          | Cathode Column 2a | 20         | Cathode Column 7a |
| 5          | Cathode Column 3b | 21         | Cathode Column 6b |
| 6          | Cathode Column 3a | 22         | Cathode Column 6a |
| 7          | Cathode Column 4b | 23         | Cathode Column 5b |
| 8          | Cathode Column 4a | 24         | Cathode Column 5a |
| 9          | Anode Row 5b      | 25         | Anode Row 4b      |
| 10         | Anode Row 5a      | 26         | Anode Row 4a      |
| 11         | Anode Row 6b      | 27         | Anode Row 3b      |
| 12         | Anode Row 6a      | 28         | Anode Row 3a      |
| 13         | Anode Row 7b      | 29         | Anode Row 2b      |
| 14         | Anode Row 7a      | 30         | Anode Row 2a      |
| 15         | Anode Row 8b      | 31         | Anode Row 1a      |
| 16         | Anode Row 8a      | 32         | Anode Row 1b      |

**Note** "a" = High Efficiency Red LED  
"b" = Green LED

**SCHEMATIC:**



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

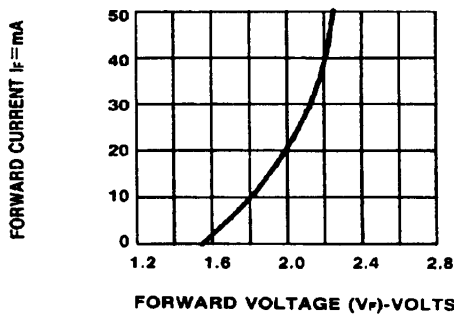


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

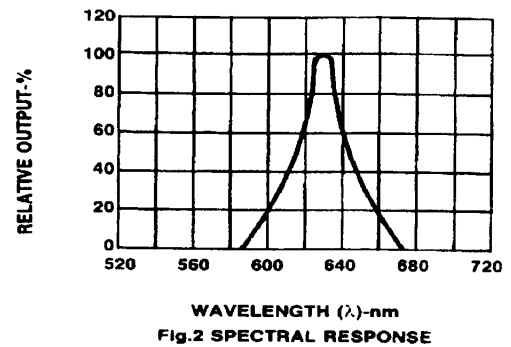


Fig.2 SPECTRAL RESPONSE

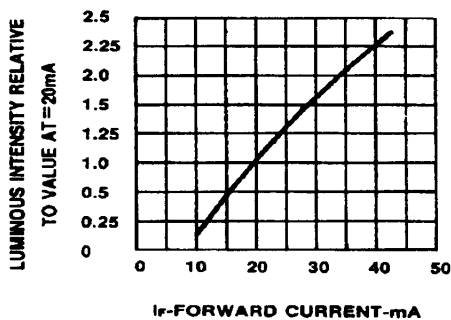


Fig.3 RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT

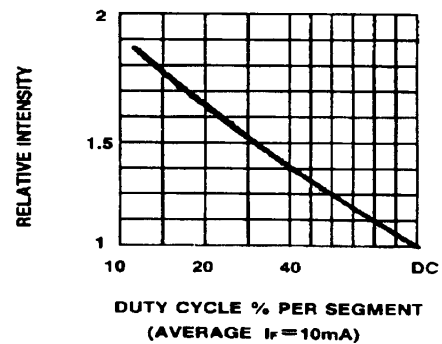


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

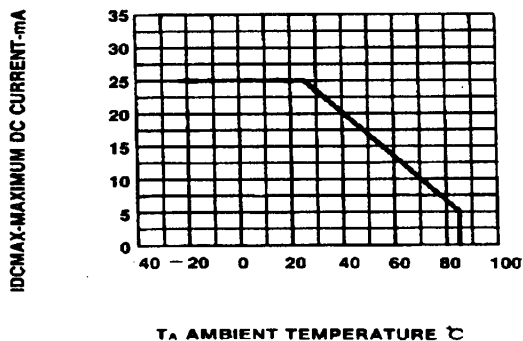


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER  
SEGMENT VS. A FUNCTION OF AMBIENT  
TEMPERATURE.

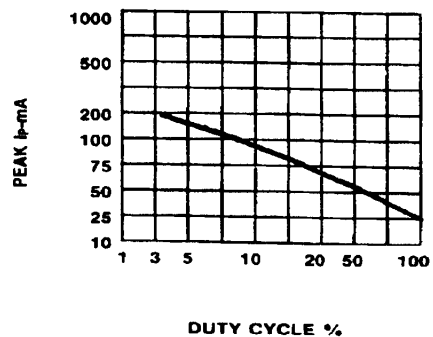


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1 \text{ KHz}$ )

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

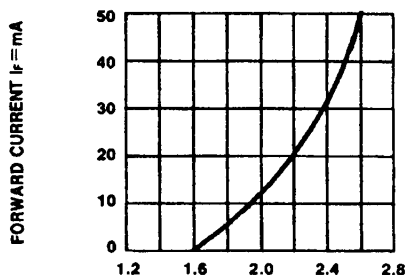


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

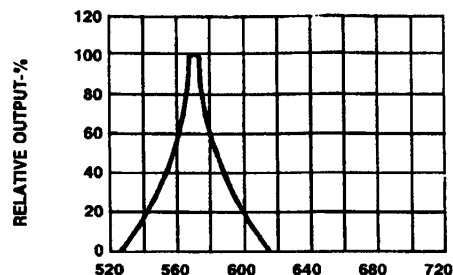


Fig.2 SPECTRAL RESPONSE

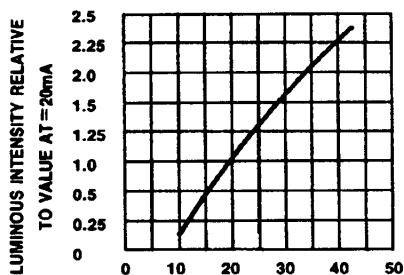


Fig.3 RELATIVE LUMINOUS INTENSITY  
VS. FORWARD CURRENT

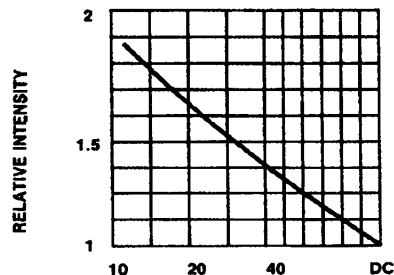


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE  
(AVERAGE  $I_F = 10\text{mA}$ )

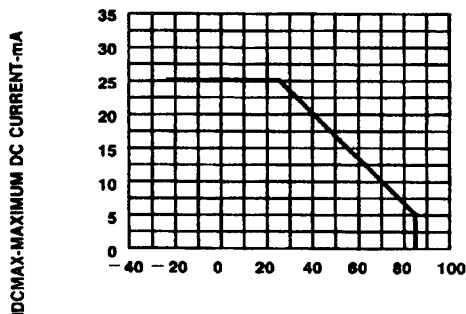


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER  
SEGMENT CS. A FUNCTION OF AMBIENT  
TEMPERATURE.

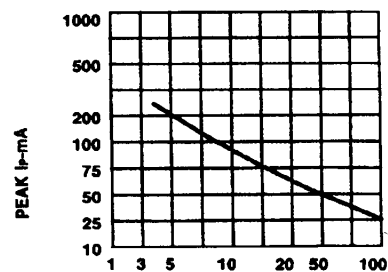


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %  
(REFRESH RATE  $f = 1\text{ KHz}$ )

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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.