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## Contact us

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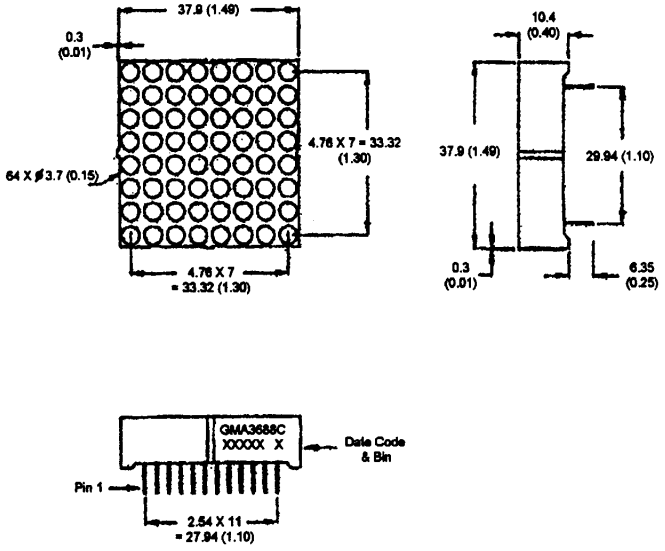
FAIRCHILD
SEMICONDUCTOR™

# 1.5 INCH (37.9mm) 8 X 8 DOT MATRIX STICK DISPLAY

## HER Red / Green GMA3688C (BI-COLOR)

## PACKAGE DIMENSIONS




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

## DESCRIPTION

The GMA3688C a common cathode column 8 X 8, bicolor High Efficiency Red / green dotmatrix display. It has a grey face with neutral segment color.

## FEATURES

1.5" ( 37.9mm) 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.

## MODEL NUMBER

| Part Number | Colour | Description |
|---|---|---|
| GMA3688C | HER Red/Green | Common anode row. |

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

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## ABSOLUTE MAXIMUM RATING ($T_A$ = 25°C unless otherwise specified)

| | HER | Green | Units |
|---|---|---|---|
| Peak forward current per segment (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°C unless otherwise specified)

| | HER | Green | Test Condition |
|---|---|---|---|
| Luminous Intensity/Dot Digit average (Typical) | 2200ucd | 1600ucd | $I_F$ = 20mA |
| Forward voltage ($V_F$) | | | |
| typical | 2.0V | 2.1V | $I_F$ = 20 mA |
| maximum | 2.8V | 2.8V | $I_F$ = 20 mA |
| Peak wavelength (nm) | 635nm | 570nm | $I_F$ = 20 mA |
| Spectral line half width (nm) | 45nm | 30nm | $I_F$ = 20mA |
| Reverse breakdown voltage $V_R$ | 5V | 5V | $I_R$ = 100uA |

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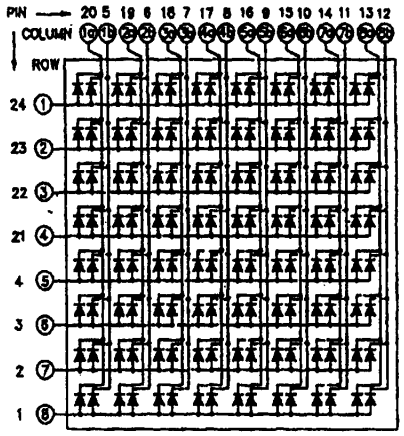
## PIN CONNECTION:

## GMA3688C

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

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

## SCHEMATIC:



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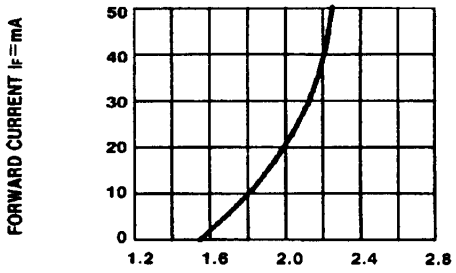
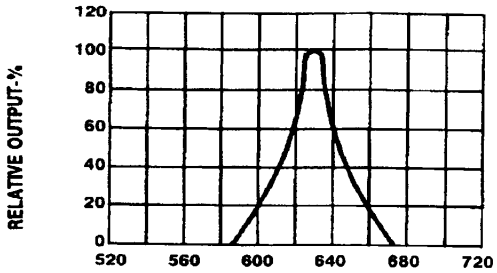
# 1.5 INCH (37.9mm) 8 X 8 DOT MATRIX STICK DISPLAY

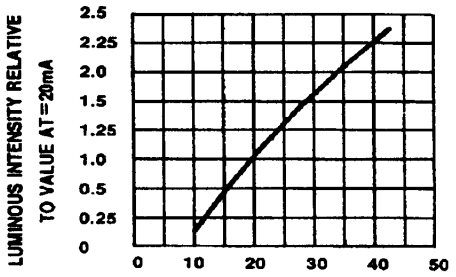
## GRAPHICAL DETAIL: High Efficiency Red ($T_A$ = 25°C unless otherwise specified)



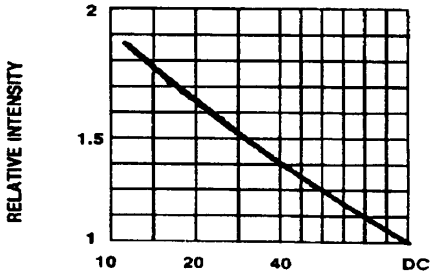

FORWARD VOLTAGE ($V_F$)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



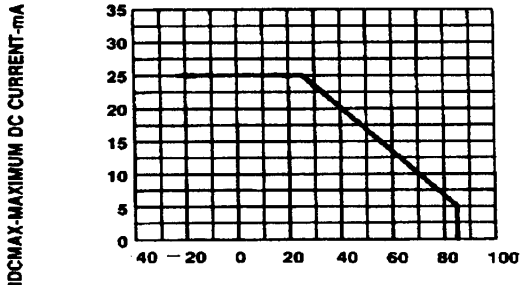

WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



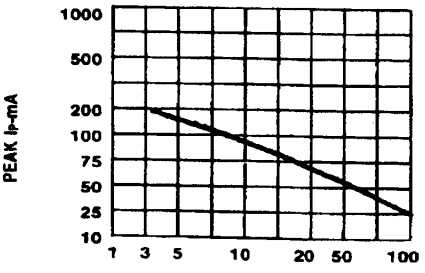

$I_F$-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT




DUTY CYCLE % PER SEGMENT
(AVERAGE $I_F$=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE




$T_A$ AMBIENT TEMPERATURE °C
Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.




DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE %
(REFRESH RATE f=1 KHz)

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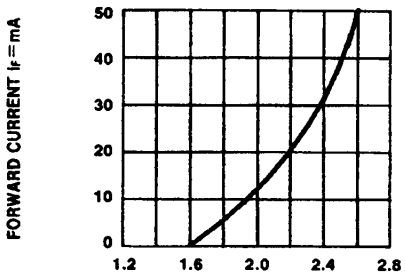
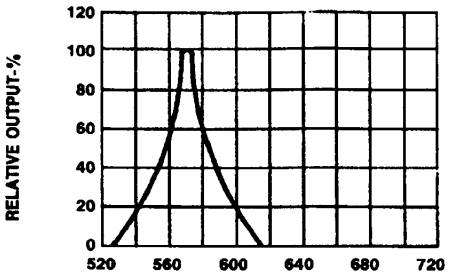
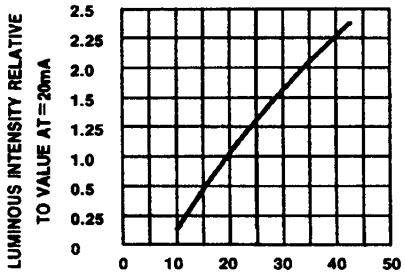
## GRAPHICAL DETAIL: Green ($T_A$ = 25°C unless otherwise specified)



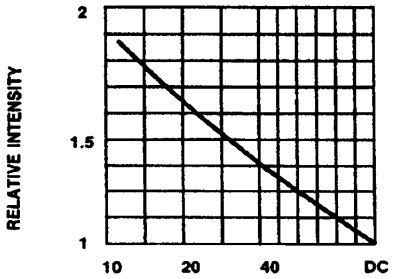

FORWARD VOLTAGE ($V_F$)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



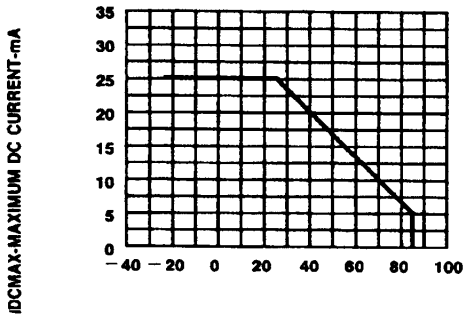

WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



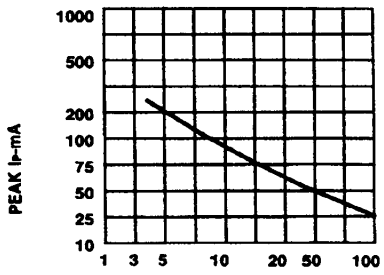

$I_F$-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT




DUTY CYCLE % PER SEGMENT (AVERAGE $I_F$=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE




$T_A$ AMBIENT TEMPERATURE °C
Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.




DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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