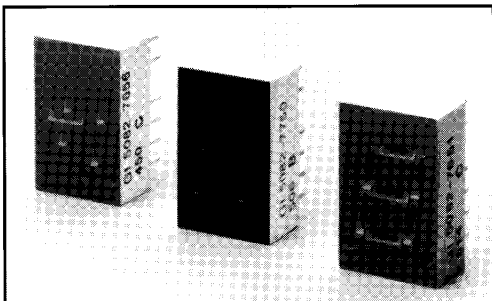


**HIGH EFFICIENCY RED 5082-7650 SERIES
RED 5082-7700 SERIES**



FEATURES

- Industry-standard 0.43-inch displays
- High Efficiency Red and standard Red models
- Left or right decimal versions
- Common anode or common cathode
- Solid state reliability — long operating life
- Impact-resistant plastic construction
- Standard 14 pin DIP configuration
- Categorized for Luminous Intensity
- Wide viewing angle...150°
- Directly compatible with integrated circuits

DESCRIPTION

The 5082-7650 and 5082-7700 Series are families of High Efficiency Red and Red seven segment LED displays with 0.43-inch digit height. For maximum ON/OFF contrast, 5082-7650 Series displays have Red face and Red segment color. 5082-7700 Series have Black face and Red segment color.

APPLICATIONS

- Instrumentation
- Point of sale terminals
- Appliances
- Digital clocks
- Industrial control equipment

MODEL NUMBERS

| PART NO. | COLOR | DESCRIPTION |
|-----------|---------------------|--------------------------------------------|
| 5082-7650 | High Efficiency Red | Common Anode; Left Hand Decimal |
| 5082-7651 | High Efficiency Red | Common Anode; Right Hand Decimal |
| 5082-7653 | High Efficiency Red | Common Cathode; Right Hand Decimal |
| 5082-7656 | High Efficiency Red | Universal Overflow ± 1; Right Hand Decimal |
| 5082-7750 | Red | Common Anode; Left Hand Decimal |
| 5082-7751 | Red | Common Anode; Right Hand Decimal |
| 5082-7756 | Red | Universal Overflow ± 1; Right Hand Decimal |
| 5082-7760 | Red | Common Cathode; Right Hand Decimal |

RECOMMENDED OPTICAL FILTER

| 5082-7650 SERIES | 5082-7750 SERIES |
|-------------------------|---------------------|
| Panelgraphic Scarlet 65 | Panelgraphic Red 60 |
| Homalite 100-1670 | Homalite 100-1605 |
| Panelgraphic Gray 10 | |
| Homalite 100-126 | |

| ELECTRO-OPTICAL CHARACTERISTICS (Per Diode at 25°C Free Air Temperature Unless Otherwise Specified) | | | | | | |
|---------------------------------------------------------------------------------------------------------------|-----------------------|------|--------------|-------|----------------------------------|--------------------------------------------------------|
| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNITS | TEST CONDITIONS |
| 5082-7650 SERIES | | | | | | |
| Luminous Intensity | I_L | 340 | 840 | | μcd | $I_F=5\text{ mA DC}$ |
| (Digit average, seven segments Notes 1, 2) | | | 3500 1765 | | μcd μcd | $I_F=20\text{ mA DC}$ $I_F=60\text{ mA pk, 1:6 DF}$ |
| Peak emission wavelength | λ_p | | 630 | | nm | |
| Spectral line halfwidth | $\Delta\lambda_{1/2}$ | | 40 | | nm | |
| Forward voltage | V_f | | 2.0 | 2.5 | V | $I_F=20\text{ mA DC}$ |
| Dynamic resistance | R_d | | 26 | | Ω | I_{FTH}, V_{FTH} |
| Capacitance | C | | 35 | | pf | $V_f=0$ |
| Reverse current | I_R | | | 100 | μA | $V_R=3.0\text{ V}$ |
| Ratio I_L (max. I_L /min. I_L) | r | | | 2.0:1 | | $I_F=20\text{ mA DC}$ |
| 5082-7750 SERIES | | | | | | |
| Luminous Intensity | I_L | 320 | 980 | | μcd | $I_F=20\text{ mA}$ |
| (Digit average, seven segments Notes 1, 2) | | | 610 | | μcd | $I_F=100\text{ mA Pk}$ 1:10 DF |
| Peak emission wavelength | λ_p | | 650 | | nm | |
| Spectral line halfwidth | $\Delta\lambda_{1/2}$ | | 20 | | nm | |
| Forward voltage | V_f | | 1.6 | 2.0 | V | $I_F=20\text{ mA}$ |
| Dynamic resistance | R_d | | 2.0 | | Ω | I_{FTH}, V_{FTH} |
| Capacitance | C | | 35 | | pf | $V_f=0$ |
| Reverse current | I_R | | | 100 | μA | $V_R=5.0\text{ V}$ |
| Ratio I_L (max. I_L /min. I_L) | r | | | 2.0:1 | | $I_F=20\text{ mA}$ |

| ABSOLUTE MAXIMUM RATINGS | | | | | |
|---------------------------------------------|-------------------------------------|-----------|-------------------------------------|------------|--|
| | HIGH EFFICIENCY RED | | RED | | |
| | 5082-7650 5082-7651 5082-7653 | 5082-7656 | 5082-7750 5082-7751 5082-7760 | 5082-7756 | |
| Power dissipation at 50°C ambient | 840 mW | 630 mW | 520 mW | 390 mW | |
| Derate linearly from 50°C | -16 mW/C° | -12 mW/C° | -6.9 mW/C° | -5.2 mW/C° | |
| Storage and operating temperature | -40°C to +85°C | | -40°C to +85°C | | |
| Continuous forward current | | | | | |
| Total | 240 mA | 180 mA | 200 mA | 150 mA | |
| Per segment or decimal point | 30 mA | 30 mA | 25 mA | 25 mA | |
| Reverse voltage | | | | | |
| Per segment or decimal point | 3 V | 3 V | 3 V | 3 V | |
| Soldering time at 260°C (See Notes 4 and 5) | 3 sec. | 3 sec. | 3 sec. | 3 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 excluding decimal points. Intensity will not vary more than $\pm 33.3\%$ between all segments within a digit. |
| 2. | All displays are categorized for Luminous Intensity. The Intensity category is marked on each part as a suffix letter to the part number. |
| 3. | Intensity adjusted for smaller areas of the "+" and decimal points. |
| 4. | Leads immersed to 1/16 inch from the body of the device. Maximum unit surface temperature is 140°C. |
| 5. | For flux removal, use Freon TF, Freon TE, Isoproponal, or water up to their boiling points. |

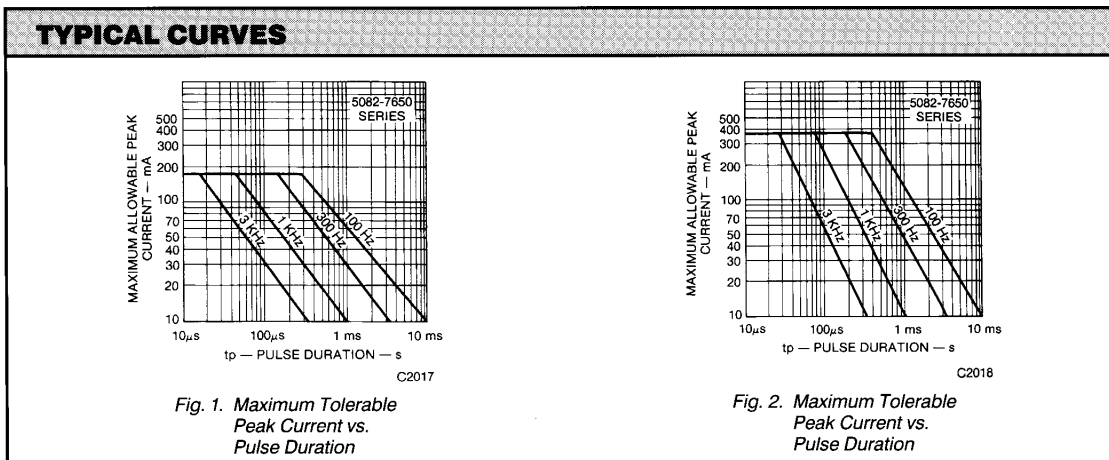
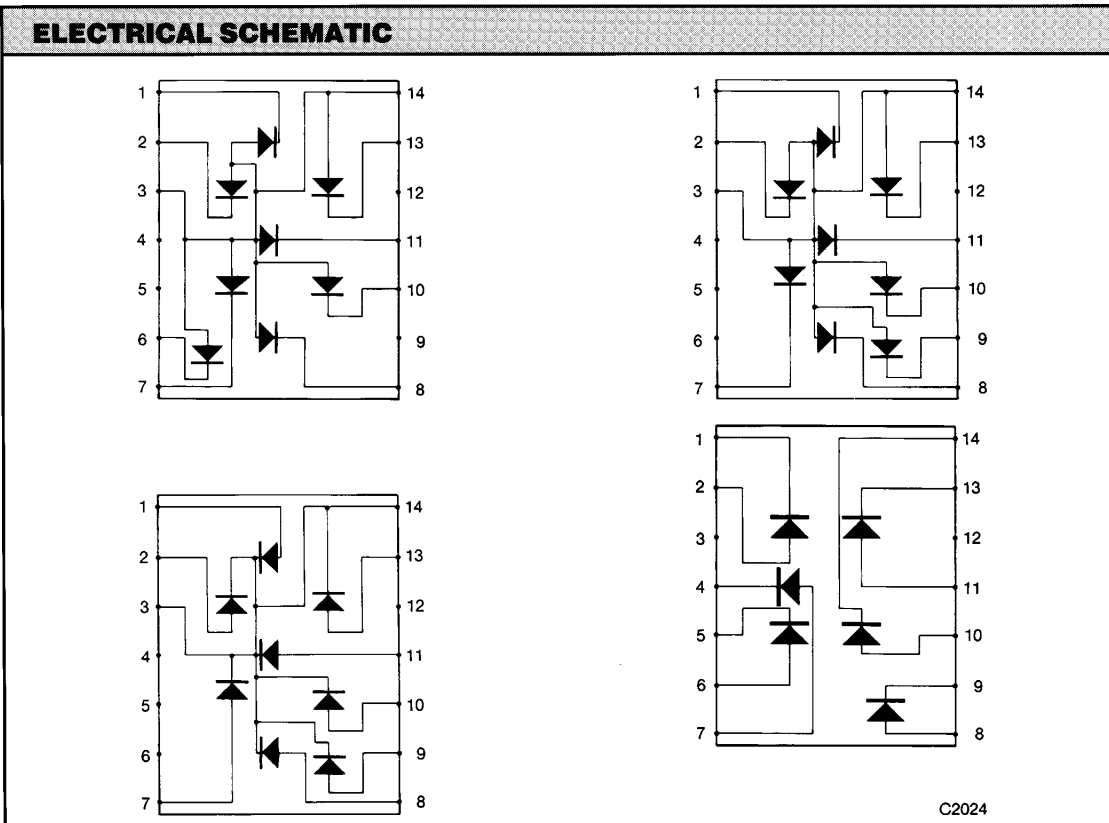
| TYPICAL THERMAL CHARACTERISTICS | | | | |
|-------------------------------------------------------|------------|------------|--------------------------|-----------------------|
| | 5082-765X | 5082-775X | SYMBOL | TEST CONDITIONS |
| Thermal resistance junction to ambient | 280°C/W | 280°C/W | θ_{JA} | |
| Wavelength temperature coefficient (case temp.) | 0.1 nm/°C | 0.3 nm/°C | $\Delta\lambda/\Delta T$ | $I_f = 20 \text{ mA}$ |
| Forward voltage temperature coefficient | -2.2 mV/°C | -1.6 mV/°C | $\Delta V_f/\Delta T$ | $I_f = 2 \text{ mA}$ |

PACKAGE DIMENSIONS

NOTE: DIMENSIONS IN MILLIMETERS (INCHES).
TOLERANCES ± 0.25 (± 0.010) UNLESS OTHERWISE INDICATED.

C2023

| PIN NO. | ELECTRICAL CONNECTIONS | | | |
|---------|------------------------|-----------------|-----------------|-----------------|
| | A | B | C | D |
| | 5082-7650/-7750 | 5082-7651/-7751 | 5082-7653/-7760 | 5082-7656/-7756 |
| 1 | Cathode A | Cathode A | Anode A | Cathode D |
| 2 | Cathode F | Cathode F | Anode F | Anode D |
| 3 | Common Anode | Common Anode | Common Cathode | No Pin |
| 4 | No Pin | No Pin | No Pin | Cathode C |
| 5 | No Pin | No Pin | No Pin | Cathode E |
| 6 | Cathode D.P. | No Connection | No Connection | Anode E |
| 7 | Cathode E | Cathode E | Anode E | Anode C |
| 8 | Cathode D | Cathode D | Anode D | Anode D.P. |
| 9 | No Connection | Cathode D.P. | Anode D.P. | Cathode D.P. |
| 10 | Cathode C | Cathode C | Anode C | Cathode B |
| 11 | Cathode G | Cathode G | Anode G | Cathode A |
| 12 | No Pin | No Pin | No Pin | No Pin |
| 13 | Cathode B | Cathode B | Anode B | Anode A |
| 14 | Common Anode | Common Anode | Common Cathode | Anode B |



TYPICAL CHARACTERISTIC CURVES (Cont'd)

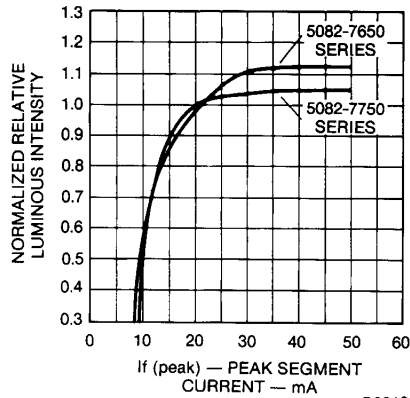


Fig. 3. Relative Efficiency (Average Luminous Intensity Per Unit Current) vs. Peak Current Per Segment

C2019

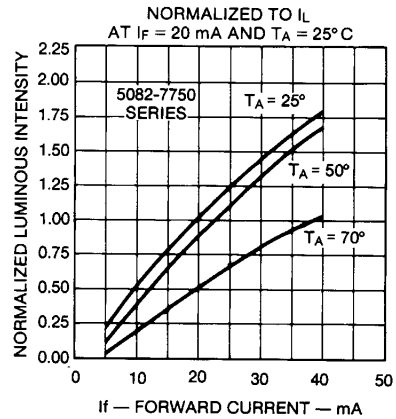


Fig. 4. Normalized Luminous Intensity vs. Forward Current Over Temperature

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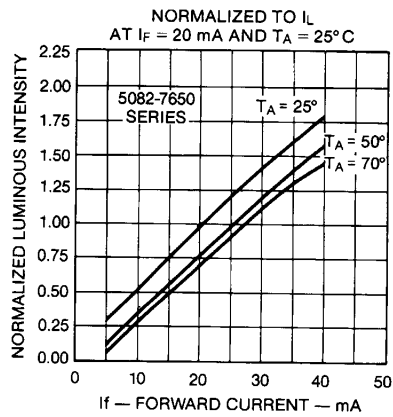


Fig. 5. Normalized Luminous Intensity vs. Forward Current Over Temperature

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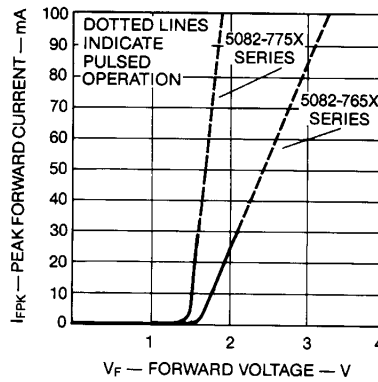


Fig. 6. Peak Forward Current vs. Forward Voltage

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0.43-INCH SEVEN SEGMENT DISPLAYS

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