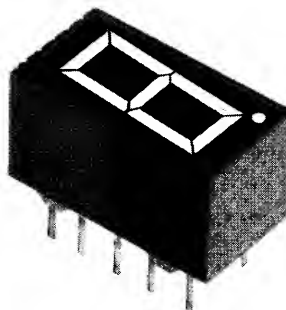


GENERAL INSTRUMENT

RED FND350 FND357 FND358
HI-BRITE RED FND360 FND367 FND368

FEATURES

- Exactly identical to displays with same part number formerly manufactured by Fairchild Optoelectronics Division.
- Compact - 10 digits in 3 in. panel width
- Right hand decimal configuration
- Wide viewing angle
- Categorized for luminous intensity
- Contrast maximized by integral filter cap
- Rugged plastic construction



APPLICATIONS

- Digital readout displays
- Instrumentation panels
- Point of sales terminals
- Business and office equipment

DESCRIPTION

The FND350, FND360, FND357, FND367 are RED GaAsP seven segment LED displays with a 0.362-inch digit height. The FND358, FND368 are RED GaAsP ± 1 LED displays with nominal 0.362-inch digit height in common-cathode configuration. These displays are for applications where the viewer is within fifteen feet of the panel.

MODEL NUMBERS

PART NUMBER	COLOR	DESCRIPTION
FND350	RED	Common Anode Seven Segment Display
FND357	RED	Common Cathode Seven Segment Display
FND358	RED	Common Cathode ± 1 Overflow Display
FND360	Hi-Brite RED	Common Anode Seven Segment Display
FND367	Hi-Brite RED	Common Cathode Seven Segment Display
FND368	Hi-Brite RED	Common Cathode ± 1 Overflow Display

ABSOLUTE MAXIMUM RATINGS

	FND350/357 FND360/367	FND358 FND368
Power dissipation @ 25°C ambient.	400mW	250mW
Derate linearly from 25°C	-6.5mW/°C	-4mW/°C
Storage and operating temperature	-25°C to +85°C	-25°C to +85°C
Continuous Forward Current		
Total	200mA	125mA
Per segment or decimal point	25mA	25mA
Reverse Voltage		
Per segment or decimal point	3.0 V	3.0 V
Soldering Time @ 260°C (see note 1)	5.0 sec	5.0 sec

Displays

FND350 FND357 FND358 FND360 FND367 FND368

ELECTRO-OPTICAL CHARACTERISTICS (25°C Free Air Temperature Unless Otherwise Specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITION
Luminous Intensity (digit average; per diode. See note 2)	I_L				μcd	$I_F = 20 \text{ mA}$
FND350, 357, 358		240	450			
FND360, 367, 368		590	900		μcd	$I_F = 20 \text{ mA}$
Luminous Intensity Matching (exclusive of d.p.)	$\Delta I_L / I_{LAV}$					
Segment to segment			± 33		%	$I_F = 20 \text{ mA}$
Within one Light Category			± 20		%	$I_F = 20 \text{ mA}$
Viewing Angle to Half Intensity	$\theta_{1/2}$		± 27		deg	$I_F = 20 \text{ mA}$
Peak Wavelength	λ_p		665		nm	$I_F = 20 \text{ mA}$
Forward Voltage (per diode)	V_F		1.7	2.0	V	$I_F = 20 \text{ mA}$
Reverse Breakdown Voltage	V_{BR}	3.0	12		V	$I_F = 1.0 \text{ mA}$
Dynamic Resistance (per diode)	R_d		1.7		ohm	$V_F \text{ (th)} = 1.67 \text{ V}$ $I_F \text{ (th)} = 5 \text{ mA}$
Capacitance (per diode)	C		23		pF	$V = 0$

TYPICAL THERMAL CHARACTERISTICS

Thermal resistance junction to free air Wavelength
Wavelength temperature coefficient (case temp)
Forward voltage temperature coefficient

300° C/W
0.3 nm/° C
-1.6mV/° C

SYMBOL

θ_{JA}
 $\Delta\lambda/\Delta T$
 $\Delta V_F/\Delta T$

TYPICAL CURVES

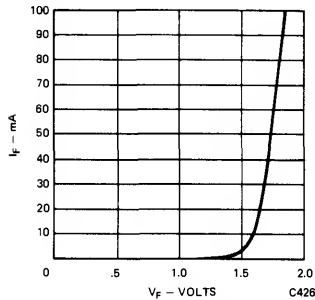


Fig. 1. - Forward Current vs. Forward Voltage

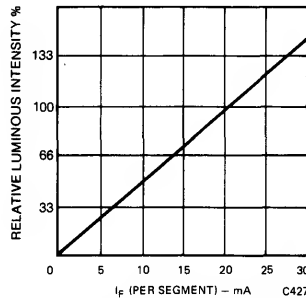


Fig. 2. - Luminous Intensity vs. Forward Current

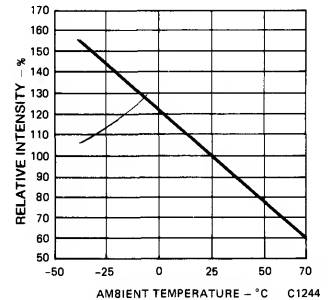


Fig. 3. - Luminous Intensity vs. Temperature

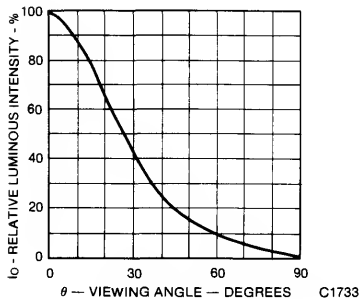


Fig. 4. - Angular Distribution of Luminous Intensity

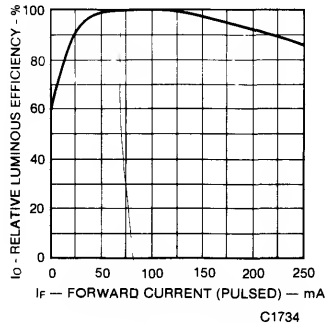


Fig. 5. - Relative Luminous Efficiency (mcd per mA) vs. Peak Current per Segment

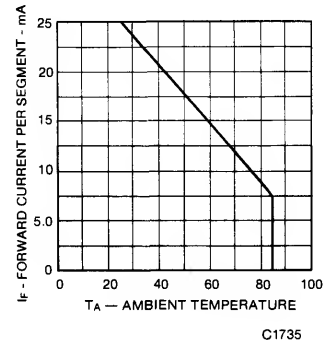


Fig. 6. - Maximum Average Current Rating vs. Ambient Temperature

FND350 FND357 FND358 FND360 FND367 FND368

RECOMMENDED OPTICAL FILTER

For optimum ON and OFF contrast, one of the following filters or equivalents should be used over the display:

AMBIENT
DIM
25 - 75 fc

MODERATE
75 - 200 fc

BRIGHT
200 - 1000 fc

OPTICAL FILTER

Long Pass 70% transmission 655nm
SGL Homalite H100 - 1650 LR-72
Rohm & Haas 2423
Panelgraphics Ruby RED #60
Chequers Engraving #118
3M Co. R6510
RED Long Pass, 45% Transmission 655nm
SGL Homalite H100-1650 LR-92
Chequers Engraving #112
Panelgraphics Dark RED #63
3M Co. Purple P7710
Neutral Gray 18 - 26% transmission 655nm
SGL Homalite H100 - 1266
Chequers Engraving #105
3M Co. ND0220
Panelgraphics Gray #10 T=23%
Gray #15 T=17%
Rohm & Haas 2074

PACKAGE OUTLINES

Notes

All dimensions in inches and millimeters (parentheses)
Tolerance unless specified = $\pm .015$ ($\pm .381$)

