

Green GaP Yellow Super GaAsP Amber Super GaAsP 0.50 Inch ± 1 LED Displays

Optoelectronic Products

FND531, FND538 FND541, FND548 FND551, FND558

General Description

The FND531 and FND538 are Green GaP ± 1 LED displays with a nominal 0.50-inch character height. The FND541 and FND548 are yellow Super GaAsP ± 1 LED displays with a nominal 0.50-inch character height. The FND551 and FND558 are amber Super GaAsP ± 1 LED displays with a nominal 0.50-inch character height. These displays are for applications where the viewer is within 20 feet of the display.

**Fits Standard Sockets With 0.6-Inch Pin Row
Intensity Code Marking for Uniform Displays
Maximized Contrast Ratio With Integral Lens Cap
Maximized Use of Digit Face**

**Ideal Companions to FND Series 7-Segment
LED Displays**

FND531/FND538 With FND530/FND537

FND541/FND548 With FND540/FND547

FND551/FND558 With FND550/FND557

FND531—Common Cathode, Right-Hand

Decimal Point, Green

FND538—Common Anode, Right-Hand

Decimal Point, Green

FND541—Common Cathode, Right-Hand

Decimal Point, Yellow

FND548—Common Anode, Right-Hand

Decimal Point, Yellow

FND551—Common Cathode, Right-Hand

Decimal Point, Amber

FND558—Common Anode, Right-Hand

Decimal Point, Amber

Absolute Maximum Ratings

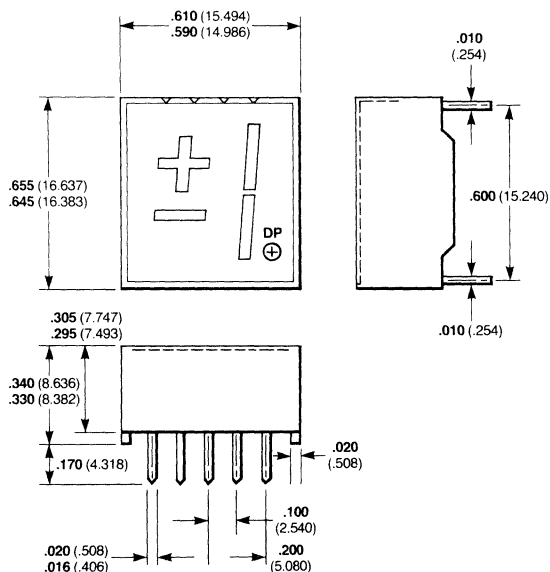
Maximum Temperature and Humidity

Storage Temperature	-25°C to +85°C
Operating Temperature	-25°C to +85°C
Pin Temperature (Soldering, 5 s)	260°C
Relative Humidity at 60°C	90%

Maximum Voltage and Currents

V_R	Reverse Voltage	3.0 V
I_F	Average Forward dc Current / Segment or Decimal Point	20 mA
I_{pk}	Peak Forward Current / Segment or Decimal Point (100 μ s pulse width) 1000 pps, $T_A = 25^\circ\text{C}$	80 mA

Package Outline



Notes

All dimensions in inches **bold** and millimeters (parentheses).
For polarity indication the surface is ribbed.

The unlit LED segments cannot necessarily be seen through the lens cap.

Lens cap color is red for red LED.

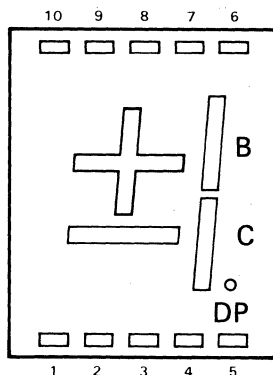
Pins 3 and 8 are common.

All dimensions are $\pm .015$ (± 0.381).

Connection Diagram Typical Electrical Characteristics

FND531, FND538 FND541, FND548 FND551, FND558

Connection Diagram
(Top View)



Pin	FND531 FND541 FND551	FND538 FND548 FND558
1	Minus	Minus
2	Cathode $\pm$	Anode $\pm$
3	Segment C	Segment C
4	Cathode 1/DP	Anode 1/DP
5	Decimal Point	Decimal Point
6	Segment B	Segment B
7	Cathode 1/DP	Anode 1/DP
8	Cathode $\pm$	Anode $\pm$
9	Plus	Plus
10	NC	NC

Electrical and Radiant Characteristics $T_A = 25^\circ\text{C}$

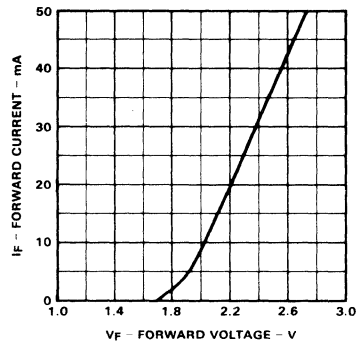
Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
V_F	Forward Voltage		2.2	3.2	V	$I_F = 20\text{ mA}$
BV_R	Reverse Voltage Breakdown	3.0			V	$I_R = 1.0\text{ mA}$
I_O	Axial Luminous Intensity Average each Segment					
	FND531, FND538	600	2000		μcd	$I_F = 20\text{ mA}$
	FND541, FND548	700	2000		μcd	$I_F = 20\text{ mA}$
	FND551, FND558	700	2000		μcd	$I_F = 20\text{ mA}$
$\theta_{1/2}$	Viewing Angle to Half Intensity		± 30		degrees	
λ_{pk}	Peak Wavelength					
	FND531, FND538		565		nm	$I_F = 20\text{ mA}$
	FND541, FND548		570		nm	$I_F = 20\text{ mA}$
	FND551, FND558		635		nm	$I_F = 20\text{ mA}$
L_O	Average Segment Luminance		104		ftL	$I_F = 20\text{ mA}$
ΔI_O	Intensity Matching Segment-to-Segment		± 33		%	$I_F = 20\text{ mA}$
	Intensity Matching Within One Intensity Glass		± 20		%	$I_F = 20\text{ mA}$

Typical Electrical Characteristic Curves

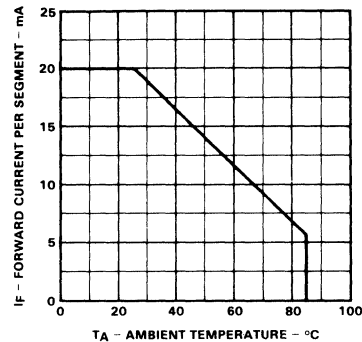
**FND531, FND538
FND541, FND548
FND551, FND558**

3

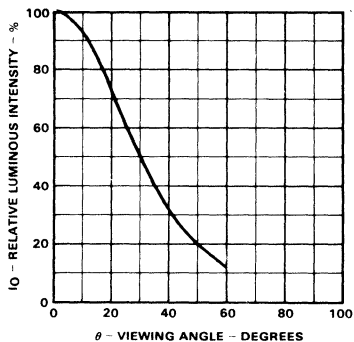
Forward Current vs Forward Voltage



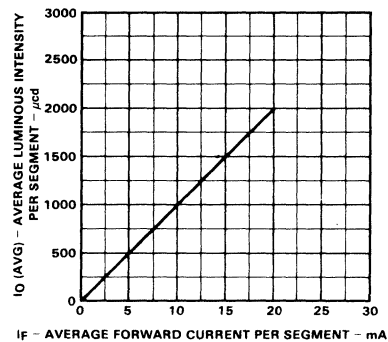
**Maximum Average Current Rating
vs Ambient Temperature**



Angular Distribution of Luminous Intensity



**Average Luminous Intensity
vs Average Forward Current**



Emission Spectrum

