



## Technical Data Sheet 0.39" Single Digit Displays

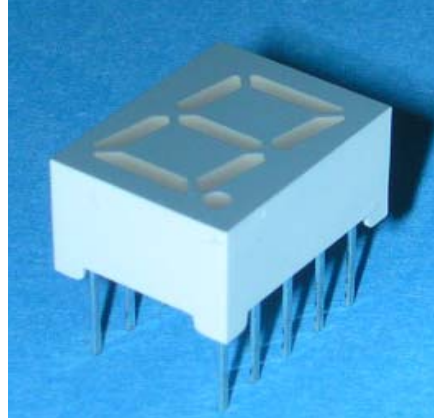
### ELS-431GWA

#### ■ Features :

- Industrial standard size.
- Low power consumption.
- Categorized for luminous intensity.
- Pb free

#### ■ Descriptions :

- The ELS-431 series is a large 10.0 mm (0.39")high seven segment display designed for viewing distances up to 7 meters.
- These displays provide excellent reliability in bright ambient light.
- These devices are made with white segments and gray surface.



#### ■ Applications :

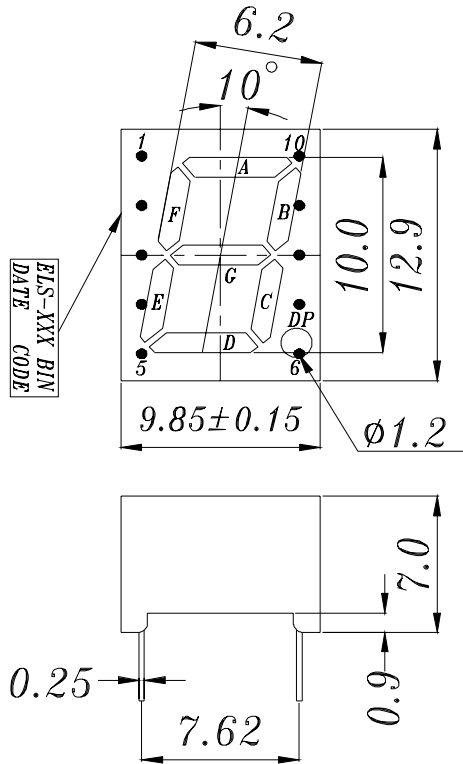
- Audio equipment
- Instrument panels
- Digital read out display

PART NO.	Chip	
	Material	Emitted Color
ELS-431GWA	GaP	Green

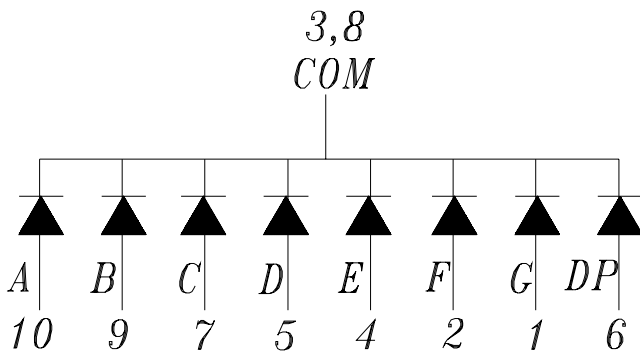
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**ELS-431GWA**

**Package Dimensions**



- COMMON CATHODE*
- 1 ANODE G
  - 2 ANODE F
  - 3 COMMON CATHODE
  - 4 ANODE E
  - 5 ANODE D
  - 6 ANODE DP
  - 7 ANODE C
  - 8 COMMON CATHODE
  - 9 ANODE B
  - 10 ANODE A



- Notes:**
- All dimensions are in millimeters, tolerance is 0.25mm unless otherwise noted.
  - Above specification may be changed without notice.
- Supplier will reserve authority on material change for above specification.

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■ Absolute maximum ratings at Ta = 25°C :

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	30	mA
Operating Temperature	T <sub>opr</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +100	°C
Soldering Temperature	T <sub>sol</sub>	260 ± 5	°C
Power Dissipation	P <sub>d</sub>	100	mW
Peak Forward Current(Duty 1/10 @ 1KHZ)	I <sub>F(Peak)</sub>	160	mA

■ Electronic optical characteristics :

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Per segment	I <sub>v</sub>	1.05	3.20	----	mcd	I <sub>F</sub> =10mA
	Per decimal point		0.45	1.0	----		
Peak Wavelength		λ <sub>p</sub>	----	565	----	nm	I <sub>F</sub> =20mA
Dominant Wavelength		λ <sub>d</sub>	----	570	----	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth		Δλ	----	30	----	nm	I <sub>F</sub> =20mA
Forward Voltage		V <sub>F</sub>	1.7	2.1	2.4	V	I <sub>F</sub> =20mA
Reverse Current		I <sub>R</sub>	----	----	10	μA	V <sub>R</sub> =5V

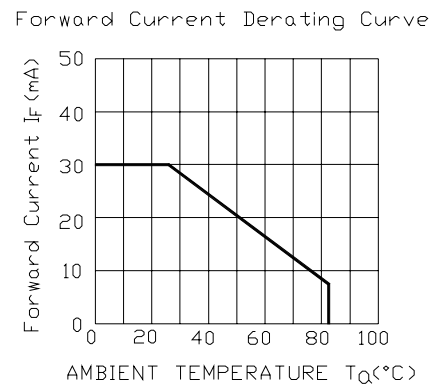
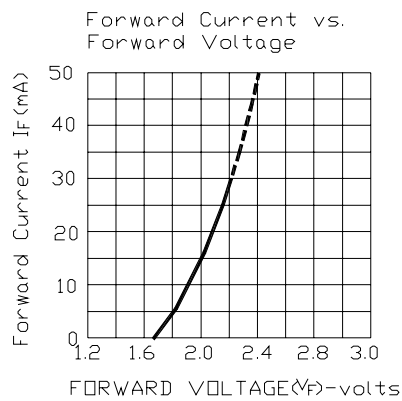
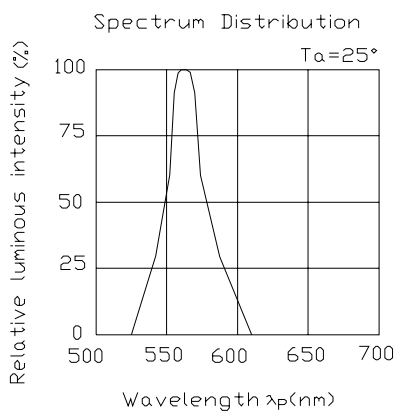


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■ Typical Electro-Optical Characteristic Curves:

GHIP Material:Gap  
Emitted Color:Yellow Green





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■ Reliability test items and conditions:

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 SEC	76 PCS	0/1
2	Temperature Cycle	H : +85°C 30min ∫ 5 min L : -55°C 30min	50 CYCLE	76 PCS	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	50 CYCLE	76 PCS	0/1
4	High Temperature Storage	TEMP : 100°C	1000 HRS	76 PCS	0/1
5	Low Temperature Storage	TEMP : -55°C	1000 HRS	76 PCS	0/1
6	DC Operating Life	IF = 10 mA	1000 HRS	76 PCS	0/1
7	High Temperature / High Humidity	85°C/85% RH	1000 HRS	76 PCS	0/1