Multidigit LED Numeric Displays

Features:

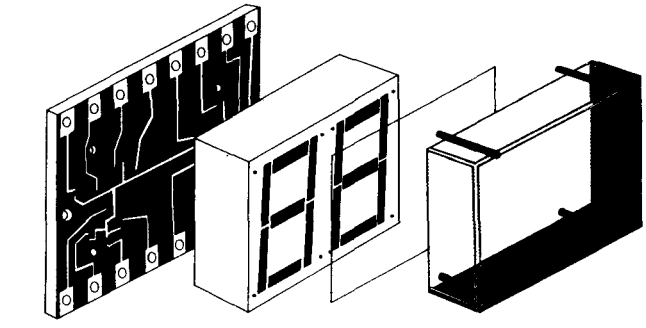
National Semiconductor offers a wide range of red multidigit GaAsP LED reflective displays, in 0.3", 0.5" and 0.7" formats. The series provides the designer with an effective, easy to implement answer to the need for an inexpensive large numeric display.

- The end stackability of the 2-digit and 4-digit displays allows for a wide range of options for applications requiring additional digits.
- Prematched light intensity of digits within each display is guaranteed to insure uniform brightness.
- PCB mounting decreases overall cost per digit and allows for easier board mounting.
- The optical design of this series affords an easy-to-read display with a wide viewing angle and excellent ON-OFF contrast.

The products listed are standard items designed to meet the majority of your needs for an inexpensive numeric display. The modular construction of these displays offers a great deal of flexibility in display format and drive considerations through modification of the PC board design. If you have a volume application not met by one of the standard product configurations listed, contact the National Sales Office nearest you for a custom LED display designed to your needs.

Applications

- Industrial controls
- Data terminals
- Test equipment
- Point of sale
- Mini-computer readout
- Home consumer application



Device Type	Digit Size	Format	Drive	Digit Intensity (Typ)	Forward Voltage (Typ)	Package Code
NSN373 **NSN374** **NSN381** **NSN382**	0.3"	88 No DP 88 No DP 8.8. 8.8.	Common Cathode—Direct Common Anode—Direct Common Cathode—Multiplexed Common Anode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NM
NSN581 **NSN582** **NSN583** **NSN584**	0.5"	8.8. 8.8. 8.8. 8.8.	Common Cathode—Multiplexed Common Anode—Multiplexed Common Cathode—Direct Common Anode—Direct	1.6 mcd	1.7V @ 10 mA peak	NN
NSN781* **NSN782***	0.7"	8.8. 8.8.	Common Cathode—Multiplexed Common Anode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NO
NSB3881 **NSB3882**	0.3"	8.8.8.8. 8.8.8.8.	Common Cathode—Multiplexed Common Anode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NP
NSB5382 **NSB5388** **NSB5881** **NSB5882**	0.5"	+1.8.8.8. +1.8.8.8. ** 8.8.8.8. 8.8.8.8.	Common Anode—Multiplexed Common Cathode—Multiplexed Common Cathode—Multiplexed Common Anode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NR NS NR NR
NSB7881* **NSB7882***	0.7"	8.8.8.8. 8.8.8.8.	Common Cathode—Multiplexed Common Anode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NT
NSB5931	0.5"	8.8.8.8.8.8.	Common Cathode—Multiplexed	1.6 mcd	1.7V @ 10 mA peak	NU

*Not recommended for new design. **Note different package.

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SEGMENT, POLARITY, DIGIT a=Anode c=Cathode

Pin No.	NSN373	NSN374	NSN381	NSN382	NSN581	NSN582	NSN583	NSN584	NSN781	NSN782	NSB3881	NSB3882	NSB5382	NSB5388	NSB5881	NSB5882	NSB5931	NSB7881	NSB7882
1	Ga1*	Gc1	Ga	Ec	Ga	Gc	Ea1	Ec1	Ga	Gc	NC	NC	Ac	Ga1	Aa	Ac	c1	NC	NC
2	Ea1	Ec1	Ea	a1	c1	a1	NC	NC	c1	a1	Ea	Ec	NC	Gc1	NC	NC	c2	NC	NC
3	Da1	Dc1	NC	NC	Ea	Ec	Da1	Dc1	Ea	E	c1	a1	Dc	Ha1***	Da	Dc	c3	NC	NC
4	Ca1	Cc1	c1	Cc	NC	NC	DPa1	Cc1	NC	NC	NC	NC	a1	Jc1***	c1	a1	Aa	c1	a1
5	Ga2	Gc2	Da	a2	NC	NC	Ca1	DPc1	NC	NC	NC	NC	Jc1	DPa1	NC	NC	Fa	Fa	Fc
6	Ea2	Ec2	c2	Dc	NC	NC	Ga2	Gc2	NC	NC	c2	a2	Hc1	DPa2	NC	NC	Ba	c2	a2
7	Da2	Dc2	DPa	DPc	Da	Dc	Ea2	Ec2	NC	NC	Da	Dc	a2	DPa3	c2	a2	Ga	Ca	Cc
8	Ca2	Cc2	Ca	Gc	DPa	DPc	Da2	Dc2	NC	NC	Ga	Gc	Cc	DPa4	Ca	Cc	c4	DPa	DPc
9	c1 & 2**	a1&2	Ba	Bc	Ca	Cc	DPa2	Cc2	Da	Dc	NC	NC	NC	Da	NC	NC	Da	Ga	Gc
10	Ba2	Bc2	NC	NC	c2	a2	Ca2	DPc2	c2	a2	c3	a3	a3	Ca	c3	a3	Ca	Ea	Ec
11	Aa2	Ac2	NC	NC	Ba	Bc	c1&2	a1&2	DPa	DPc	Ba	Bc	Bc	Ba	Ba	Bc	Ea	c3	a3
12	Fa2	Fc2	NC	NC	NC	NC	Ba2	Bc2	Ca	Cc	Aa	Ac	Fc	Aa	Fa	Fc	DPa	Ba	Bc
13	Ba1	Bc1	Aa	Ac	NC	NC	Aa2	Ac2	Ba	Bc	Fa	Fc	Ec	Ea	Ea	Ec	c5	Aa	Ac
14	Aa1	Ac1	NC	NC	NC	NC	Fa2	Fc2	NC	NC	c4	a4	a4	Fa	c4	a4	c6	c4	a4
15	Fa1	Fc1	Fa	Fc	NC	NC	Ba1	Bc1	NC	NC	DPa	DPc	DPc	Ga	DPa	DPc		Da	Dc
16	NC	NC	NC	NC	NC	NC	Aa1	Ac1	NC	NC	Ca	Cc	Gc	c1	Ga	Gc			
17					Aa	Ac	NC	NC	NC	NC				c2					
18					Fa	Fc	Fa1	Fc1	Aa	Ac				NC					
19					NC	NC	NC	NC	NC	NC				c3					
20					NC	NC	Ga1	Gc1	NC	NC				c4					
21									NC	NC									
22									NC	NC									
23									Fa	Fc									
24									NC	NC									
PKG	NM	NM	NM	NM	NN	NN	NN	NN	NO	NO	NP	NP	NR	NS	NR	NR	NU	NT	NT

*ANODE G OF DIGIT 1
**COMMON CATHODE OF DIGITS 1 AND 2
***SEGMENTS H&J (VERTICAL BAR OF + SIGN) INT. CONN. IN SERIES

Electrical and Optical Characteristics $T_A = 25°C$

Parameter	Conditions	Min	Typ	Max	Units
Segment Light Intensity	10 mA/Seg.	0.10	0.20		mcd
Digit and DP Light Intensity	10 mA/Seg.	0.80	1.6		mcd
Segment Forward Voltage	10 mA/Seg.		1.7	2.0	V
Segment Reverse Voltage	100 μA/Seg.	3.0	8.0		V
Peak Wavelength			660		nm
Spectral Width, Half-Intensity			40		nm
Viewing Angle, Off Axis			60		degrees
Intensity Matching	10 mA/Seg. Avg.		±33		%

Absolute Ratings

Average Current/Segment	20 mA max
Peak Current/Segment	75 mA max
Reverse Voltage/Segment	3.0V max
Operating and Storage Temperature	−20°C to +70°C
Relative Humidity at 35°C	98%
Terminal Temperature (Soldering, 5 seconds)	230°C

See application note #AN-170, outlining mounting techniques for these displays