

DS8863,DS8963

DS8863 DS8963 MOS-to-LED 8-Digit Driver



Literature Number: SNOSBM9A

DS8863/DS8963 MOS-to-LED 8-Digit Driver

General Description

The DS8863 and DS8963 are designed to be used in conjunction with MOS integrated circuits and common-cathode LED's in serially addressed multi-digit displays.

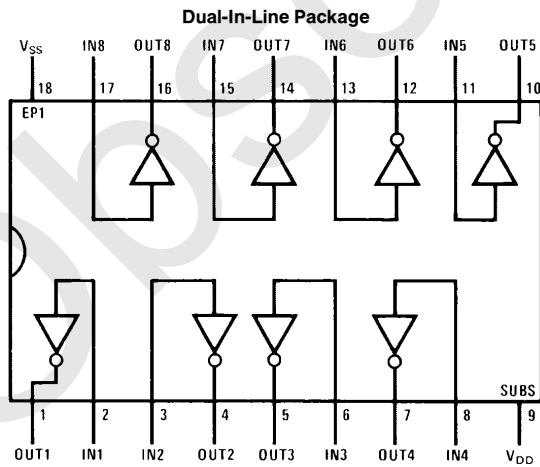
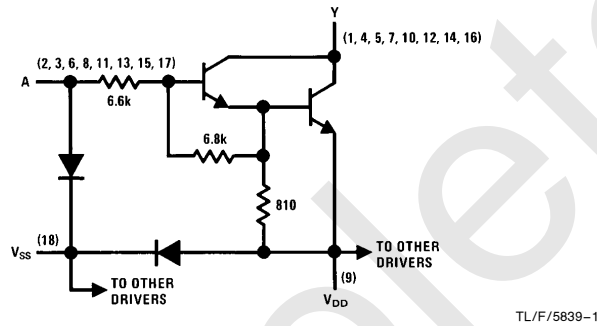
The DS8863 is an 8-digit driver. Each driver is capable of sinking up to 500 mA.

The DS8963 is identical to the DS8863 except it is intended for operation at up to 18V.

Features

- 500 mA sink capability per driver, DS8863, DS8963
- MOS compatibility (low input current)
- Low standby power
- High gain Darlington circuits

Schematic and Connection Diagrams



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Order Number DS8863N or DS8963N
See NS Package Number N18A

Absolute Maximum Ratings

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

	DS8863	DS8963		DS8863	DS8963
Input Voltage Range (Note 1)	-5V to V _{SS}	-5V to V _{SS}	Collector (Output) Current		
Collector (Output) Voltage (Note 2)	10V	18V	Each Collector (Output)	500 mA	500 mA
Collector (Output)-to-Input Voltage	10V	18V	All Collectors (Output)	600 mA	600 mA
Emitter-to-Ground Voltage (V _i ≥ 5V)			Continuous Total Dissipation	800 mW	800 mW
Emitter-to-Input Voltage			Operating Temperature Range	0°C to +70°C	0°C to +70°C
Voltage at V _{SS} Terminal With Respect to Any Other Device Terminal	10V	18V	Storage Temperature Range	-65°C to +150°C	
			Maximum Power Dissipation at 25°C		
			Molded Package	1563 mW†	1563 mW†
			Lead Temperature (Soldering, 4 sec.)	260°C	260°C
			†Derate molded package 12.5 mW/°C above 25°C.		

Electrical Characteristics V_{SS} = 10V, T_A = 0°C to +70°C unless otherwise noted

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V _{OL}	Low Level Output Voltage	V _{IN} = 7V, I _{OUT} = 500 mA T _A = 25°C			1.5	V
					1.6	V
I _{OH}	High Level Output Current	V _{OH} = 10V* I _{IN} = 40 μA V _{IN} = 0.5V			250	μA
					250	μA
I _I	Input Current at Maximum Input Voltage	V _{IN} = 10V, I _{OL} = 20 mA			2	mA
I _{SS}	Current into V _{SS} Terminal				1	mA

*18V for the DS8963

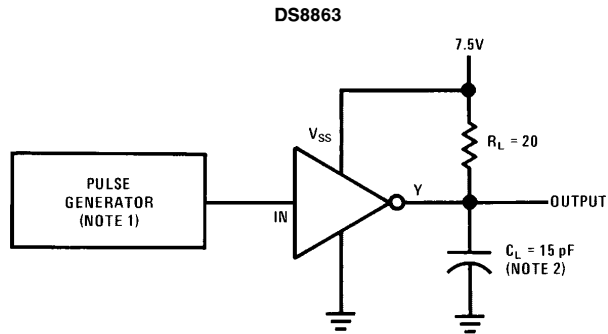
Switching Characteristics V_{SS} = 7.5V, T_A = 25°C

Symbol	Parameter	Conditions	Min	Typ	Max	Units
t _{PLH}	Propagation Delay Time, Low-to-High Level Output	V _{IH} = 8V, R _L = 20Ω, C _L = 15 pF		300		ns
t _{PHL}	Propagation Delay Time, High-to-Low Level Output			30		ns

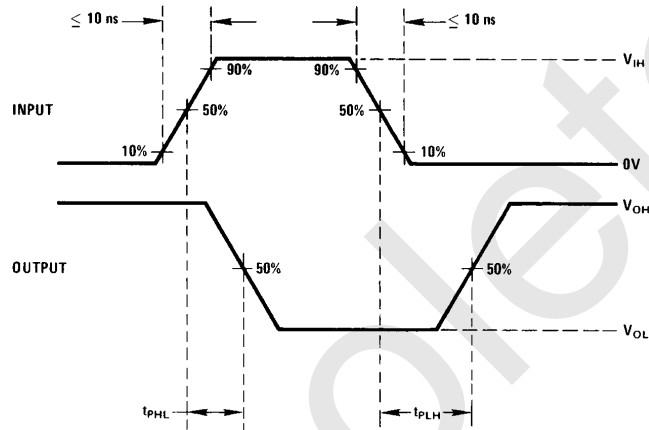
Note 1: The input is the only device terminal which may be negative with respect to ground.

Note 2: Voltage values are with respect to network ground terminal unless otherwise noted.

AC Test Circuits and Waveforms



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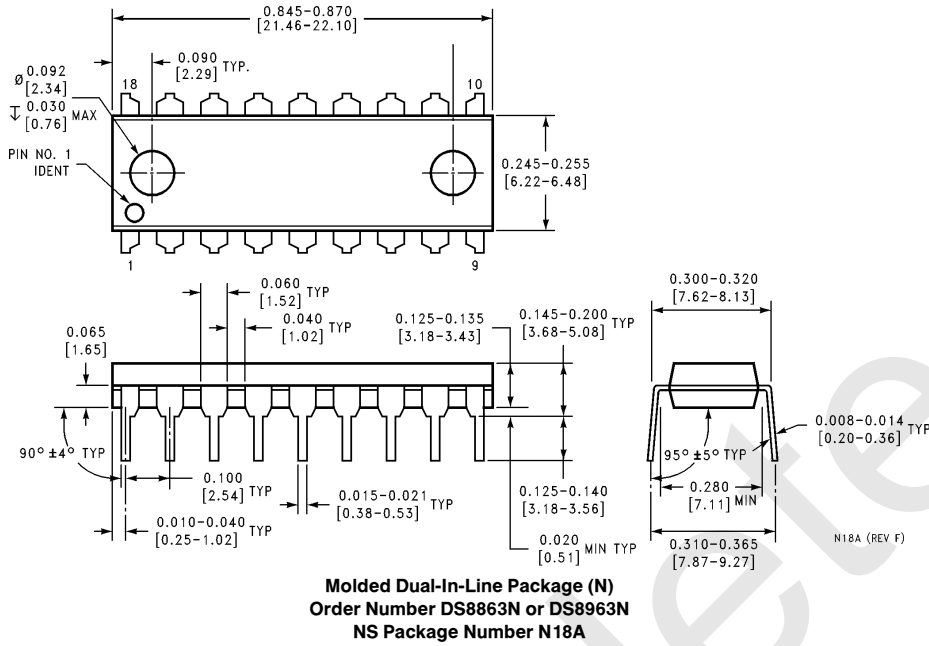


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Note 1: The pulse generator has the following characteristics: $Z_{OUT} = 50\Omega$, PRR = 100 KHz, $t_W = 1\mu\text{s}$.

Note 2: C_L includes probe and jig capacitance.

Physical Dimensions inches (millimeters)



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