Level Translators/Buffers

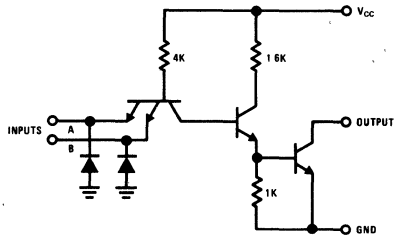
DM7810/DM8810 quad 2-input TTL-MOS interface gate
DM7811/DM8811 quad 2-input TTL-MOS interface gate
DM7812/DM8812 TTL-MOS hex inverter

general description

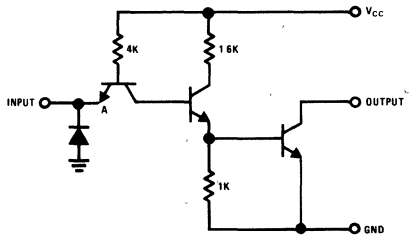
These Series 54/74 compatible gates are high output voltage versions of the DM5401/DM7401 (SN5401/SN7401), DM5403/DM7403 (SN5403/SN7403), and DM5405/DM7405 (SN5405/SN7405). Their open-collector outputs may be "pulled-up" to +14 volts in the logical "1" state thus providing guaranteed interface between TTL and MOS logic levels.

In addition the devices may be used in applications where it is desirable to drive low current relays or lamps that require up to 14 volts.

schematic and connection diagrams

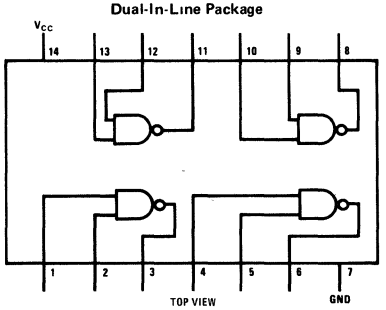


DM7810/DM8810, DM7811/DM8811



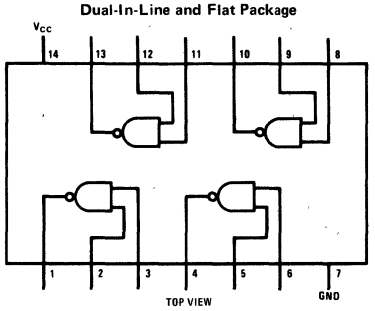
DM7812/DM8812

Dual-In-Line Package



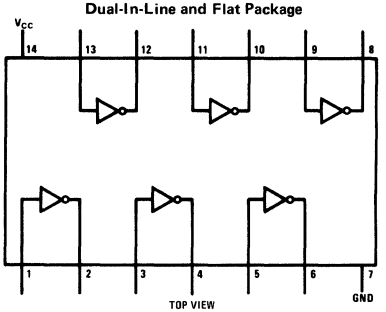
DM7810/DM8810

Dual-In-Line and Flat Package



DM7811/DM8811

Dual-In-Line and Flat Package



DM7812/DM8812

ORDER NUMBER	SEE PKG	ORDER NUMBER	SEE PKG	ORDER NUMBER	SEE PKG
DM7810J	16	DM7810N	22	DM7811W	27
DM7811J	16	DM7811N	22	DM7812W	27
DM7812J	16	DM7812N	22	DM8811W	27
DM8810J	16	DM8810N	22	DM8812W	27
DM8811J	16	DM8811N	22		
DM8812J	16	DM8812N	22		

absolute maximum ratings

V_{CC}	7V
Input Voltage	5.5V
Output Voltage	14V
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 10 seconds)	300°C

operating conditions

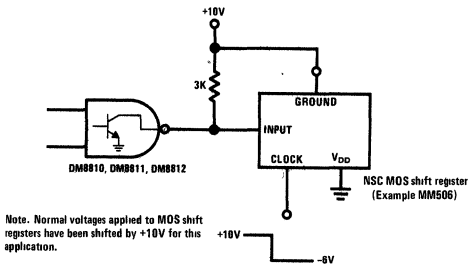
	MIN	MAX	UNITS
Supply Voltage (V_{CC})			
DM78XX	4.75	5.25	V
DM88XX	4.75	5.25	V
Temperature (T_A)			
DM78XX	−55	+125	°C
DM88XX	0	+70	°C

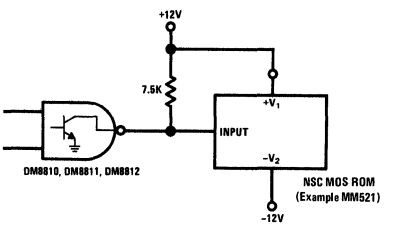
electrical characteristics (Note 1)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Diode Clamp Voltage	V_{CC} = 5.0V, T_A = 25°C I_{IN} = −12 mA			−1.5	V
Logical "1" Input Voltage	V_{CC} = Min	2.0			V
Logical "0" Input Voltage	V_{CC} = Min			0.8	V
Logical "1" Output Current	V_{CC} = Min V_{IN} = 0.8V V_{OUT} = 10V V_{IN} = 0.0V			250 40	μA μA
Logical "1" Output Breakdown Voltage	V_{CC} = Min, V_{IN} = 0V I_{OUT} = 1 mA	14			V
Logical "0" Output Voltage	V_{CC} = Min, V_{IN} = 2.0V I_{OUT} = 16 mA			0.4	V
Logical "1" Input Current	V_{CC} = Max, V_{IN} = 2.4V			40	μA
Logical "1" Input Current	V_{CC} = Max, V_{IN} = 5.5V			1	mA
Logical "0" Input Current	V_{CC} = Max, V_{IN} = 0.4V			−1.6	mA
Supply Current — Logical "0" (Each Gate)	V_{CC} = Max, V_{IN} = 5.0V		3.0	5.1	mA
Supply Current — Logical "1" (Each Gate)	V_{CC} = Max, V_{IN} = 0V		1.0	1.8	mA
Propagation Delay Time to a Logical "0", t_{pd0}	V_{CC} = 5.0V, T_A = 25°C C_{OUT} = 15 pF, R_L = 1k	4	12	18	ns
Propagation Delay Time to a Logical "1", t_{pd1}	V_{CC} = 5.0V, T_A = 25°C C_{OUT} = 15 pF, R_L = 1k	18	29	45	ns

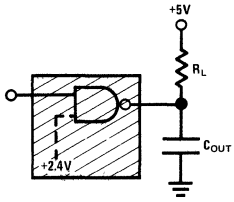
Note 1: Unless otherwise specified min/max limits apply across the −55°C to +125°C temperature range for the DM78XX and across the 0°C to 70°C range for the DM88XX. All typicals are given for V_{CC} = 5.0V and T_A = 25°C.

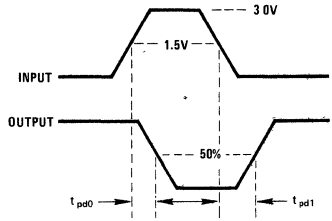
typical applications





ac test circuit and switching time waveforms





f = 1 MHz
$t_r = t_f$ = 10 ns
PW = 100 ns