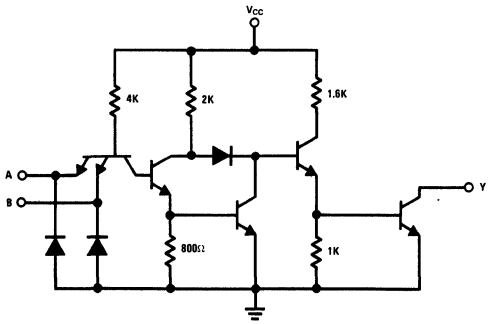
# Level Translators/Buffers

## DM7819/DM8819 quad 2-input TTL-MOS AND gate

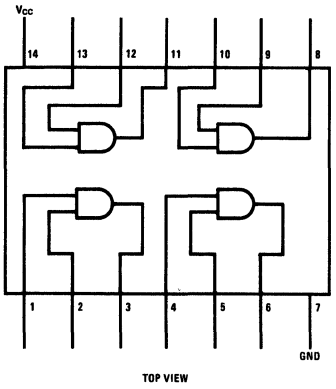
### general description

The DM7819 is the high output voltage version of the SN5409. Its 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.

### schematic and connection diagrams




**Dual-In-Line and Flat Package**




TOP VIEW

**Order Number DM7819J or DM8819J**
**See Package 16**
**Order Number DM7819N or DM8819N**
**See Package 22**
**Order Number DM7819W or DM8819W**
**See Package 27**

## absolute maximum ratings (Note 1)

| | |
|---|---|
| Supply Voltage | 7.0V |
| Input Voltage | 5.5V |
| Output Voltage | 5.5V |
| Storage Temperature Range | −65°C to +125°C |
| Lead Temperature (Soldering, 10 sec) | 300°C |

## operating conditions

| | MIN | MAX | UNITS |
|---|---|---|---|
| Supply Voltage ($V_{CC}$) | | | |
| DM7819 | 4.5 | 5.5 | V |
| DM8819 | 4.75 | 5.25 | V |
| Temperature ($T_A$) | | | |
| DM7819 | −55 | +125 | °C |
| DM8819 | 0 | 70 | °C |

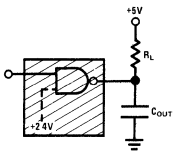
## electrical characteristics (Note 2)

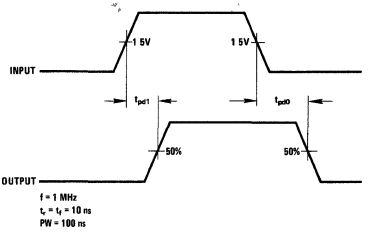
| PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Logical "1" Input Voltage | $V_{CC}$ = Min | 2 0 | | | V |
| Logical "0" Input Voltage | $V_{CC}$ = Min | | | 0 8 | V |
| Logical "1" Output Current | $V_{CC}$ = Min, $V_{IN}$ = 2 0V, $V_{OUT}$ = 10V | | | 40.0 | μA |
| | $V_{CC}$ = Min, $V_{IN}$ = 4.5V, $V_{OUT}$ = 14V | | | 1.0 | mA |
| Logical "0" Output Voltage | $V_{CC}$ = Min, $V_{IN}$ = 0.8V, $I_{OUT}$ = 16 mA | | | 0 4 | V |
| Logical "1" Input Current | $V_{CC}$ = Max, $V_{IN}$ = 2.4V | | | 40.0 | μA |
| | $V_{CC}$ = Max, $V_{IN}$ = 5.5V | | | 1 0 | mA |
| Logical "0" Input Current | $V_{CC}$ = Max, $V_{IN}$ = 0.4V | | | −1.6 | mA |
| Supply Current — Logical "1" | $V_{CC}$ = Max, $V_{IN}$ = 5V | | 11 0 | 21.0 | mA |
| Logical "0" | $V_{CC}$ = Max, $V_{IN}$ = 0V | | 20 0 | 33.0 | mA |
| Input Clamp Voltage | $V_{CC}$ = 5.0V, $T_A$ = 25°C, $I_{IN}$ = −12 mA | | | −1.5 | V |
| Propagation Delay to a Logical "0" $t_{pd0}$ | | | | | |
| DM7819 / DM8819 | $V_{CC}$ = 5.0V, $T_A$ = 25°C | | 16.0 | 24.0 | ns |
| Propagation Delay to a Logical "1" $t_{pd1}$ | | | | | |
| DM7819 / DM8819 | $V_{CC}$ = 5.0V, $T_A$ = 25°C | | 16.0 | 32.0 | ns |

**Note 1:** "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed Except for "Operating Temperature Range" they are not meant to imply that the devices should be operated at these limits The table of "Electrical Characteristics" provides conditions for actual device operation

**Note 2:** Unless otherwise specified min/max limits apply across the −55°C to +125°C temperature range for the DM7819 and across the 0°C to 70°C range for the DM8819 All typicals are given for $V_{CC}$ = 5 0V and $T_A$ = 25°C

## ac test circuit and switching time waveforms




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