Display Drivers

DM75493 quad LED segment driver

general description

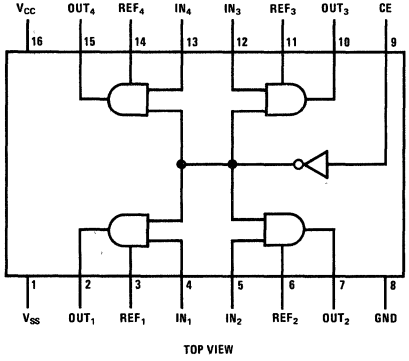
The DM75493 is a quad LED segment driver. It is designed to interface between MOS IC's and LED's. An external resistor is required for each segment to drive the output current which is approximately equal to $0.7V/R_L$ and is relatively constant, independent of supply variations. Blanking can be achieved by taking the chip enable (CE) to a logical "1" level.

features

- Low voltage operation
- Low input current for MOS compatibility
- Low standby power
- Display blanking capability
- Output current regulation
- Quad high gain circuits

logic and connection diagram

Dual-In-Line Package

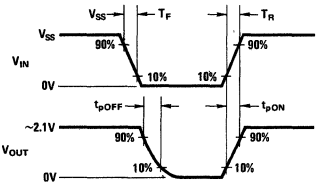


TOP VIEW

Order Number DM75493J
See Package 17

Order Number DM75493N
See Package 23

switching time waveforms



truth table

CE	V_{IN}	I_{OUT}
0	1	ON
0	0	OFF
1	X	OFF

X = Don't care

6

absolute maximum ratings (Note 1)

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

operating conditions

	MIN	MAX	UNITS
Supply Voltage			
V_{CC}	3.2	8.8	V
V_{SS}	6.5	8.8	V
Temperature, T_A	0	+70	°C

electrical characteristics ($V_{SS} \geq V_{CC}$)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Current into V_{CC} Terminal (I_{CC})	V_{CC} = 8.8V, V_{SS} = 8.8V, All Other Pins to GND			40	μA
Current into V_{SS} Terminal (I_{SS})	V_{SS} = 8.8V, All Other Pins to GND			40	μA
	V_{REF} = 2.15V, V_{IN} = 8 8V, V_{CE} = 8.8V through 100kΩ, R_L = 50Ω		0 5	1.5	mA
	V_{REF} = Open, V_{OUT} = Open, R_L = 50Ω, V_{CC} = 3.2V, V_{CE} = 0V, V_{IN} = 8.8V			1.4	mA
Chip Enable Current (I_{CE})	V_{CE} = 8.8V, V_{CC} = 8.8V, V_{SS} = 8.8V, All Other Pins to GND			2.1	mA
Input Current (I_{IN})	V_{IN} = 8 8V, V_{CE} = 0V, V_{REF} = 0V, V_{OUT} = 0V			3.2	mA
	V_{IN} = 8.8V, V_{CE} = 8 8V, V_{REF} = 0V, V_{OUT} = 0V			3 6	mA
Output Leakage Current (I_{OL})	V_{CE} = 0V, V_{REF} = 0V, V_{OUT} = 0V, V_{IN} = 8 8V through 100kΩ, Measure Current to GND			100	μA
	V_{CE} = 6.5V through 1.0kΩ, V_{IN} = 3 8V, V_{REF} = 0V, V_{OUT} = 0V, Measure Current to GND			200	μA
Current into Reference Terminal (I_{REF})	V_{SS} = 6.5V, V_{REF} = 2.15V, R_L = 50Ω, I_{CE} = 80μA, V_{IN} = 6.5V through 1.0kΩ, V_{CC} = 3.2V	−8.0	13		mA
	V_{REF} = 2.15V, V_{CE} = 0V, R_L = 50Ω, V_{IN} = 8 8V		16	−20	mA
Propagation Delay to a Logical "0" from Input to Output ($t_{pd\,OFF}$)	T_A = 25°C, See AC Test Circuits		170	300	ns
Propagation Delay to a Logical "1" from Input to Output ($t_{pd\,ON}$)	T_A = 25°C, See AC Test Circuits		11	100	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 0°C to +70°C range for the DM75493. All typicals are given for V_{CC} = 5.0V and T_A = 25°C.

Note 3: All currents into device pins shown as positive, out of device pins as negative, all voltages referenced to ground unless otherwise noted. All values shown as max or min on absolute value basis.

ac test circuits