

## Serially Interfaced, 8-Digit LED Display Drivers

The MAX7219 is compact, serial input/out-put common-cathode display drivers that interface microprocessors ( $\mu$ Ps) to 7-segment numeric LED displays of up to 8 digits, bar-graph displays, or 64 individual LEDs. Included on-chip are a BCD code-B decoder, multiplex scan circuitry, segment and digit drivers, and an 8x8 static RAM that stores each digit. Only one external resistor is required to set the segment current for all LEDs.

### Features

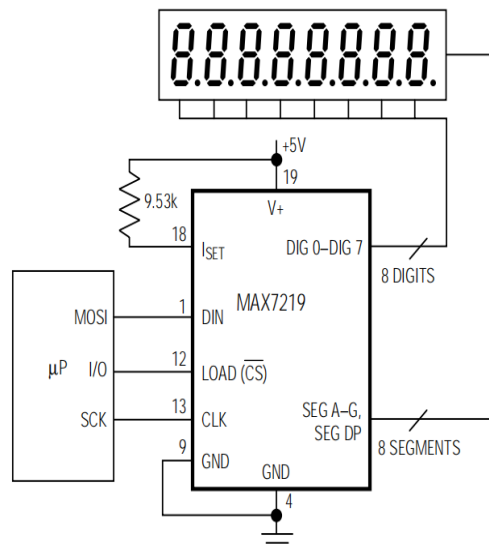
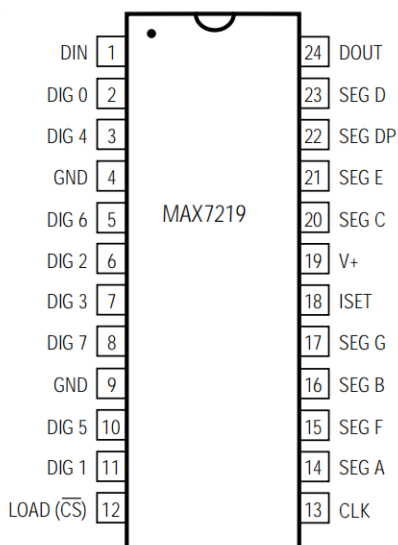
- 10MHz Serial Interface
- Individual LED Segment Control
- Decode/No-Decode Digit Selection
- 150 $\mu$ A Low-Power Shutdown (Data Retained)?Digital and Analog Brightness Control
- Display Blanked on Power-Up
- Drive Common-Cathode LED Display
- Slew-Rate Limited Segment Drivers

### Applications

- Bar-Graph Displays
- 7-Segment Displays
- Industrial Controllers
- Panel Meters
- LED Matrix Displays

### Pin Configuration

TOP VIEW



## Absolute Maximum Ratings

### Voltage (with respect to GND)

V+	-0.3V to 6V
DIN, CLK, LOAD, $\overline{CS}$	-0.3V to 6V
All Other Pins	-0.3V to (V+ + 0.3V)

### Current

DIG0–DIG7 Sink Current	500mA
SEGA–G, DP Source Current	100mA

### Continuous Power Dissipation (T<sub>A</sub> = +85°C)

Narrow Plastic DIP	0.87W
Wide SO	0.76W
Narrow Cerdip	1.1W

## ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Operating Supply Voltage	V+		4.0		5.5	V
Shutdown Supply Current	I+	All digital inputs at V+ or GND, T <sub>A</sub> = +25°C			150	μA
Operating Supply Current	I+	R <sub>SET</sub> = open circuit			8	mA
		All segments and decimal point on, I <sub>SEG_</sub> = -40mA		330		
Display Scan Rate	f <sub>OSC</sub>	8 digits scanned	500	800	1300	Hz
Digit Drive Sink Current	I <sub>DIGIT</sub>	V+ = 5V, V <sub>OUT</sub> = 0.65V	320			mA
Segment Drive Source Current	I <sub>SEG</sub>	T <sub>A</sub> = +25°C, V+ = 5V, V <sub>OUT</sub> = (V+ - 1V)	-30	-40	-45	mA
Segment Drive Current Matching	ΔI <sub>SEG</sub>			3.0		%

## Typical Operating Characteristics

