LM393N
DUAL DIFFERENTIAL COMPARATORS

Electrical Characteristics at specified free-air temperature, V_{CC}=5V (unless otherwise noted)

Parameter	Test Condition		Min	Typ.	Max	Unit
V_{IO} Input offset voltage	V_{CC}-5V to 30V $V_{IC}=V_{ICR}$min, V_O=1.4V	25°C Full Range		2	5 9	mV
I_{IO} Input offset current	V_O=1.4V	25°C Full Range		5	50 150	nA
I_{IB} Input bias current	V_O=1.4V	25°C Full Range		-25	-250 -400	nA
V_{ICR} Common-mode input voltage range **		25°C Full Range	0 to V_{CC}-1.5 0 to V_{CC}-2			V
A_{VD} Large-Signal differential voltage amplification	V_{CC}=15V, V_O=1.4V to 11.4V, $R_L \geq 15k\Omega$ to V_{CC}	25°C	50	200		V / mV
I_{OH} High-level output current	V_{OH}=5V, V_{ID}=1V V_{OH}=30V, V_{ID}=1V	25°C Full Range		0.1	50 1	nA μA
V_{OL} Low-level output voltage	I_{OL}=4mA, V_{ID}= -1V	25°C Full Range		150	400 700	mV
I_{OL} Low-level output current	V_{OL}=1.5V, V_{ID}= -1V	25°C	6			mA
I_{CC} Supply current	$R_L=\infty$ V_{CC}=5V V_{CC}=30V	25°C Full Range		0.8	1 2.5	mA

Full range (MIN to MAX), for the LM393 is 0°C to 70°C. All Characteristics are measured with zero common mode input voltage unless otherwise specified.

**The voltage at either input or common-mode should not be allowed to go negative by more than 0.3V. The upper end of the common-mode voltage range is V_{cc}+ -1.5V, but either or both Inputs can go to 30V without damage.

Switching characteristics, V_{CC}=5V, T_A=25°C

Parameter	Test Condition		Min	Typ.	Max	Unit
Response Time	R_L Connected to 5V through 5.1kΩ, C_L=15pF* See Note I	100-mV input step with 5-mV overdrive TTL-Level input step		1.3 0.3		μS

*CL includes probe and Jig capacitance.

Note 1: The response time specified is the interval between the input step function and the instant when the output crosses 1.4V.