

FEATURES

- Wide range of supply voltages
- Low supply current drain independent of the supply voltage.
- Low input biasing current
- Low input offset current
- Low input offset voltage
- Input common-mode voltage range includes GND
- Differential input voltage range equal to the power supply voltage
- Low output saturation voltage
- Output voltage compatible with TTL, MOS and CMOS logic

DIP-8 PKG

**ORDERING INFORMATION**

Device	Package
LM393GN	DIP-8

DESCRIPTION

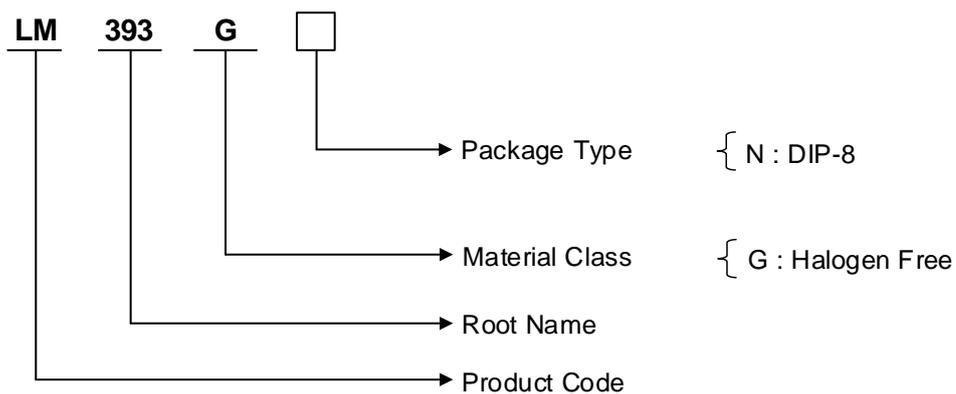
The LM393G consists of two independent voltage comparators. These were designed specifically to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage. The outputs can be connected to other open-collector outputs to achieve wired-AND relationships.

ABSOLUTE MAXIMUM RATING

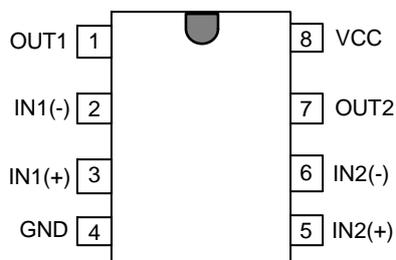
CHARACTERISTIC	SYMBOL	Value	UNIT
Supply Voltage	V_{CC}	+36 or ± 18	V
Input Differential Voltage	V_{IDR}	36	V
Input Voltage Range	V_{ICR}	-0.3 to 36	V
Operating Ambient Temperature Range	T_{OPR}	-40 to 125	$^{\circ}C$
Storage Temperature Range	T_{STG}	-65 to 150	$^{\circ}C$

ORDERING INFORMATION

Package	Order No.	Description	Supply As	Status
DIP-8	LM393GN	Dual Differential Comparators, Halogen-Free	Tube	Active



PIN CONFIGURATION



DIP-8

ELECTRICAL CHARACTERISTICSAt specified free-air temperature, $V_{CC}=5V$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS*	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	2	5	mV
		Full range		9	
I_{IO} Input offset current	$V_O=1.4V$	25 °C	5	50	nA
		Full range		150	
I_{IB} Input bias current	$V_O=1.4V$	25 °C	-25	-250	nA
		Full range		-400	
V_{ICR} (Note1) Common-mode input voltage range		25 °C	0	$V_{CC}-1.5$	V
		Full range	0	$V_{CC}-2.0$	
V_{OL} Low-level output voltage	$I_{OL}=4mA$, $V_{ID}=-1V$	25 °C	150	400	mV
		Full range		700	
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	$V_{OH}=5V$, $V_{ID}=1V$	25 °C	0.1	50	nA
	$V_{OH}=30V$, $V_{ID}=1V$	Full range		1	uA
I_{OL} Low-level output current	$V_{OL}=1.5V$, $V_{ID}=-1V$	25 °C	6		mA
I_{CC} Supply current	$R_L=\infty$, $V_{CC}=5V$	25 °C	0.8	1	mA
	$R_L=\infty$, $V_{CC}=30V$	Full range		2.5	

Note 1. 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 $V_{CC}-1.5V$.

2. All characteristics are measured with zero common-mode input voltage unless otherwise specified. Temperature full range is $-40^\circ C$ to $+125^\circ C$.

SWITCHING CHARACTERISTICS, $V_{CC}=5V$, $T_A=25^\circ C$

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Response time	R_L connected to 5V through 5.1k, $C_L=15pF^*$ (Note1)	100mV input step with 5-mA overdrive	1.3		us
		Full range	0.3		

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

REVISION NOTICE

The description in this datasheet can be revised without any notice to describe its electrical characteristics properly.