Dual DIFFERENTIAL COMPARATOR

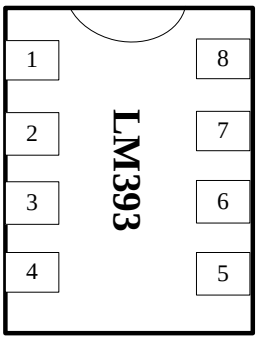
Description

The LM393 consists of two independent voltage comparators, designed specifically to operate from a single power supply over a wide voltage range .

Features

* Signal or dual supply operation
*Wide operating supply range (Vcc=2V~36V)
*Input common-mode voltage includes ground
*Low supply current drain Icc=0.8mA(typ)
*Open collector outputs for wired and connection
*Low input bias current ibias=25nA(typ)
*Low output saturation voltage
*Output compatible with TTL,DTL,and CMOS logic system

Pin Assignment



Pin No	Name
1	OUT1
2	IN1(-)
3	IN1(+)
4	Gnd
5	IN2(+)
6	IN2(-)
7	OUT2
8	Vcc

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Rating	Unit
Supply Voltage	Vcc	±18 or 36	V
Differential input voltage	$V_{I(DIFF)}$	36	V
Power Dissipation	Pd	570	mW
Input voltage	V_I	-0.3~36	V
Operating Temperature	Topr	0~70	℃
Storage Temperature	Tstg	-65~+150	℃

ELECTRICAL CHARACTERISTICS
(Vcc=5V,All voltage referenced to GND unless otherwise specified a=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input offset voltage	V_{IO}	Vcm=0 to Vcc-1.5 Vo(p)=1.4V,Rs=0		±1.5	±5	mV
Input offset current	I_{IO}			±2.3	±50	nA
Input bias current	Ib			57	250	nA
Input Common Mode Voltage Range	$V_{I(R)}$		0		Vcc-1.5	V
Supply current	Icc	Vcc=5V,RL=∞		1.1	2	mA
		Vcc=30V,RL=∞			2.5	mA
Large signal voltage gain	Gv	Vcc=15V,RL>15kΩ to Vcc Vo=1.4V to 11.4V	50	200		V/mV
Large Signal Response Time	tres	Vi=TTL logic wing Vref=1.4V,VRL=5V,RL=5.1KO		350		nS
Response Time	tres	VRL=5V,RL=5.1KO		1400		nS

ELECTRICAL CHARACTERISTICS

(Vcc=5V,All voltage referenced to GND unless otherwise specified a=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Sink Current	Isink	Vi(-)>1V,Vi(+)=0V,Vo(p)<1.5V	6	18		mA
Output Saturation Voltage	Vsat	Vi(-)>1V,Vi(+)=0V,Isink=4mA		140	400	mV
Output Leakage Current	Ileakage	Vi(+)=1V,Vi(-)=0V Vo(p)=5V		0.1		uA
		Vi(+)=1V,Vi(-)=0V Vo(p)=30V			1	uA
Differential Input voltage	VI(diff)				36	V