

# LM393

# LINEAR INTEGRATED CIRCUIT

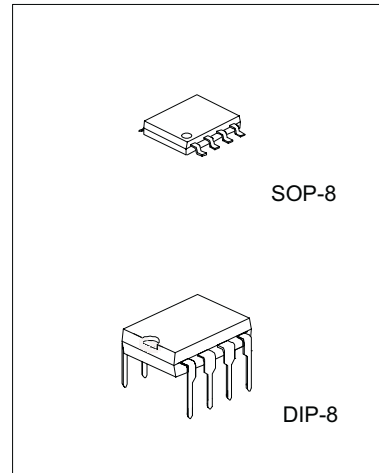
## DUAL DIFFERENTIAL COMPARATOR

### DESCRIPTION

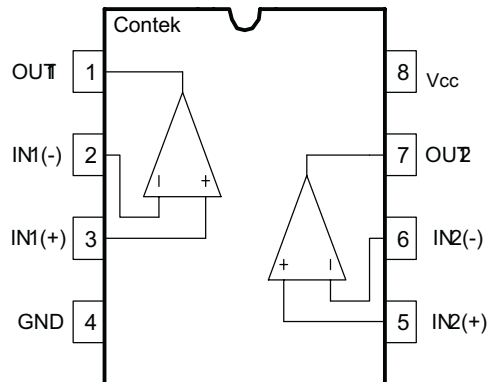
The Contek LM393 consists of two independent voltage comparators, designed specifically to operate from a single power supply over a wide voltage range.

### FEATURES

- \*Single or dual supply operation.
- \*Wide operating supply range ( $V_{cc}=2V\sim 36V$  or  $\pm 1$  to  $\pm 18V$ ).
- \*Input common-mode voltage includes ground.
- \*Low supply current drain  $I_{CC}=0.8mA$ (Typical).
- \*Low input bias current  $I_{bias}=25nA$ (Typical).
- \*Output compatible with TTL, DTL, and CMOS logic system.



### PIN CONFIGURATIONS



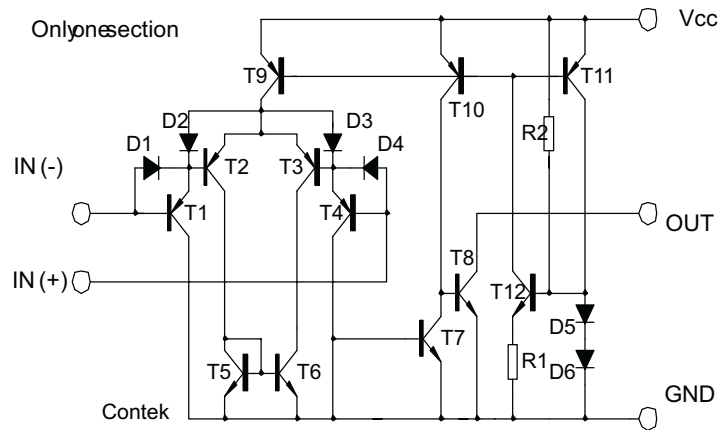
Contek Microelectronics Co.,Ltd.

<http://www.contek-ic.com> E-mail:sales@contek-ic.com

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## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS (Ta=25 C )

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	+ - 18 OR 36	V
Differential Input Voltage	VIDiff)	36	V
Input Voltage	VI	-0.3~36V	V
Power Dissipation	Pd	570	mW
Operating Temperature	Topr	0 to +70	C
Storage Temperature	Tstg	-65 to 150	C

## ELECTRICAL CHARACTERISTICS (Vcc=5.0V, Ta=25 C, All voltage referenced to GND unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	Vio	VCM=0 to Vcc-1.5 Vo(p)=1.4V, Rs=0		+1.0	+5.0	mV
Input Offset Current	Iio			+5	+50	nA
Input Bias Current	Ib			65	250	nA
Input Common-Mode Voltage Range	VI(R)		0		Vcc-1.5	V
Supply Current	Icc	RL=		0.6	1.0	mA
		RL= , Vcc=30V		0.8	2.5	mA
Large Signal Voltage Gain	Gv	Vcc=15V, RL>15kΩ	50	200		V/mV
Large Signal Response Time	tres	Vi=TTL logic wing Vref=1.4V, VRL=5V, RL=5.1k Ω		350		ns
Response Time	tres	VRL=5V, RL=5.1kΩ		1400		ns
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	160	400		mV
Output Leakage Current	Ileakage	VI(+)=1V, VI(-)=0, Vo(p)=5V	0.10			nA



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TYPICAL PERFORMANCE CHARACTERISTICS

