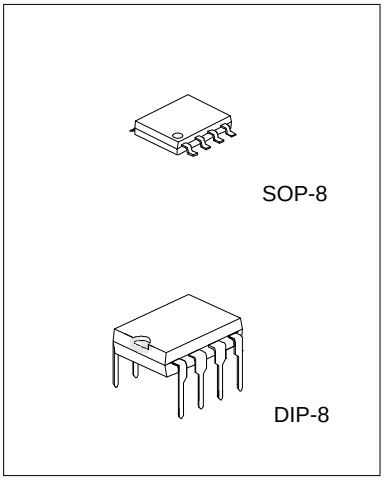
UTC LM393 LINEAR INTEGRATED CIRCUIT

DUAL DIFFERENTIAL COMPARATOR



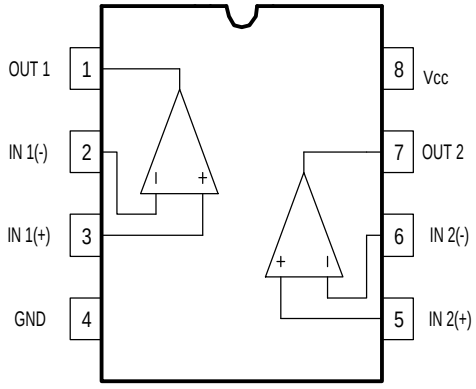
DESCRIPTION

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

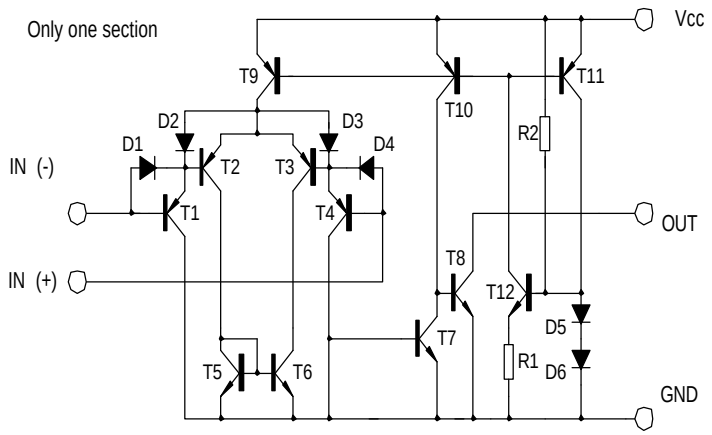
FEATURES

*Single or dual supply operation.
*Wide operating supply range
(Vcc=2V~36V or +- 1 to +- 18V).
*Input common-mode voltage includes ground.
*Low supply current drain ICC=0.8mA(Typical).
*Low input bias current Ibias=25nA(Typical).
*Output compatible with TTL, DTL, and CMOS logic system.

PIN CONFIGURATIONS



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	V_{IO}	VCM=0 to Vcc-1.5 Vo(p)=1.4V,Rs=0		+-1.0	+-5.0	mV
Input Offset Current	I_{IO}			+-5	+-50	nA
Input Bias Current	Ib			65	250	nA
Input Common-Mode Voltage Range	$V_{I(R)}$		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=5.1kΩ		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 Vo(p)=30V		0.1	 1.0	 nA μA

TYPICAL PERFORMANCE CHARACTERISTICS

Fig.1 supply current

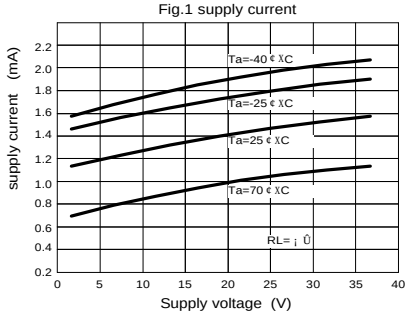


Fig.2 Input current

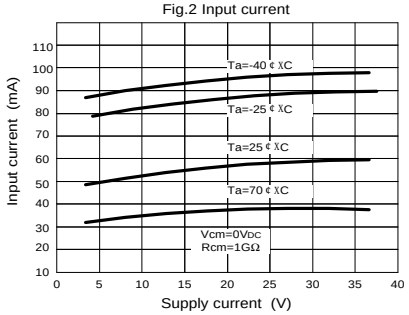


Fig.3 Output saturation voltage

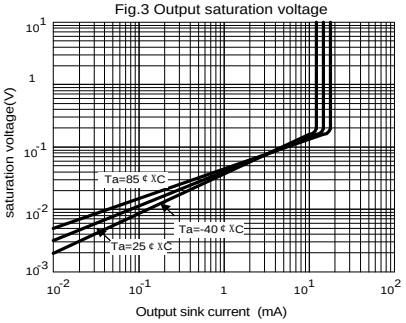


Fig.4 Reponse time for various input overdrive negative transition

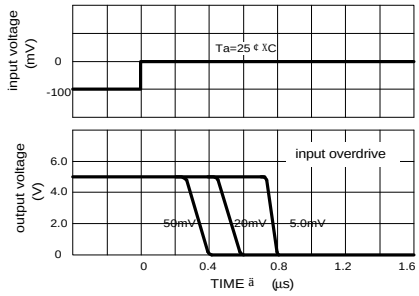


Fig.5 Reponse time for various input overdrive positive transition

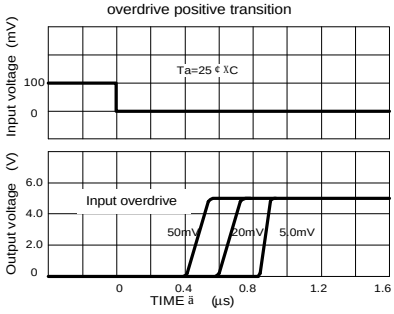


Fig.6

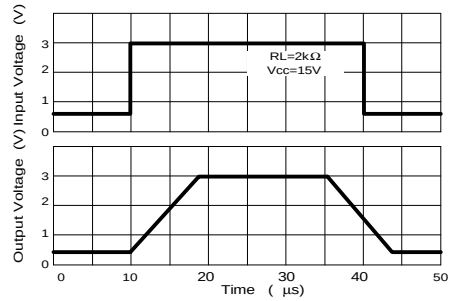


Fig.7 voltage Follower pulse response (small signal)

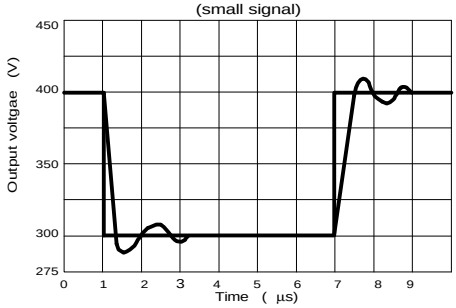


Fig.8 Large signal Frequency Response

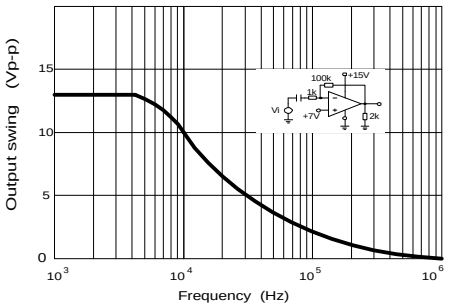


Fig.9 Output Characteristics current sourcing

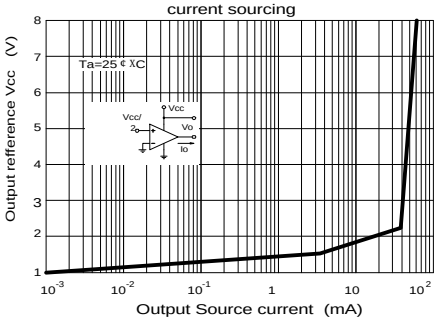


Fig.10 Output Characteristics Current sinking

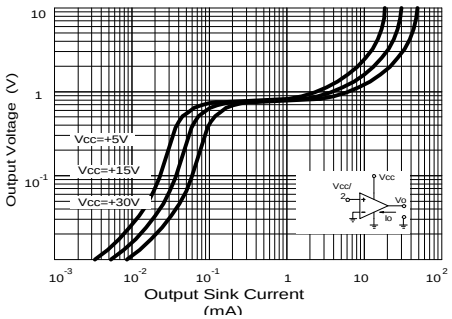


Fig.11 Current Limiting