

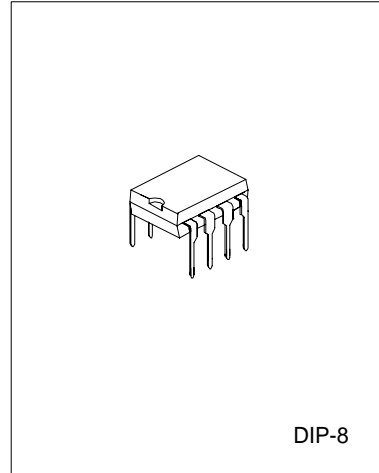
DUAL DIFFERENTIAL COMPARATOR

DESCRIPTION

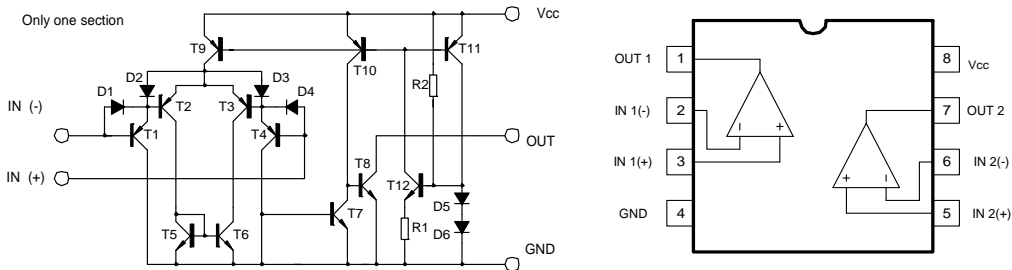
The UTC393 consists of two independent voltage comparators designed specifically to operate from a single power supply over a wide voltage range.

FEATURES

- *Single or dual supply operation
- *Wide operating supply range
($V_{cc}=2V\sim 36V$ or ± 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



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS($T_a=25^{\circ}C$)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{cc}	± 18 OR 36	V
Differential input voltage	$V_i(\text{diff})$	36	V
Input Voltage	V_I	-0.3~36V	V
Power Dissipation	P_d	570	mW
Operating Temperature	T_{opr}	0 to +70	$^{\circ}C$
Storage Temperature	T_{stg}	-65 to 150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS(V_{CC}=5.0V, T_a=25°C, All voltage referenced to GND unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Input offset voltage	V _{IO}	V _{CM} =0 to V _{CC} -1.5 V _{O(p)} =1.4V, R _S =0		±1.0	±5.0	mV
Input offset current	I _{IO}			±5	±50	nA
Input Bias current	I _B			65	250	nA
Input Common-mode voltage range	V _{I(R)}		0		V _{CC} -1.5	V
Supply Current	I _{CC}	R _L =∞		0.6	1.0	mA
		R _L =∞, V _{CC} =30V		0.8	2.5	mA
Large signal Voltage Gain	G _V	V _{CC} =15V, R _L >15kΩ	50	200		V/mV
Large signal response time	t _{res}	V _i =TTL logic wing V _{ref} =1.4V, V _{RL} =5V, R _L =5.1kΩ		350		ns
Response time	t _{res}	V _{RL} =5V, R _L =5.1kΩ		1400		ns
Output sink current	I _{sink}	V _{i(-)} >1V, V _{i(+)} =0V, V _{O(p)} <1.5V	6	18		mA
Output saturation voltage	V _{sat}	V _{i(-)} >1V, V _{i(+)} =0V, I _{sink} =4mA	160	400		mV
output leakage current	I _{leakage}	V _{i(+)} =1V, V _{i(-)} =0, V _{O(p)} =5V	0.10			nA

TYPICAL CHARACTERISTICS PERFORMANCE

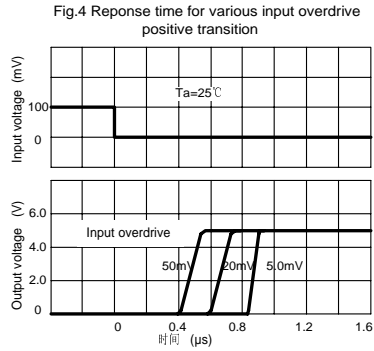
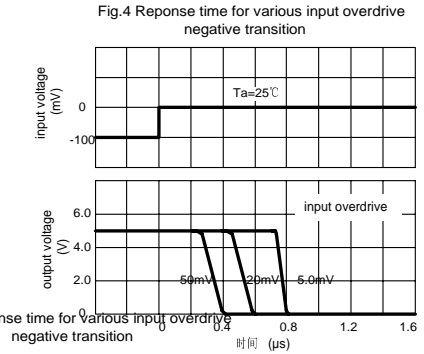
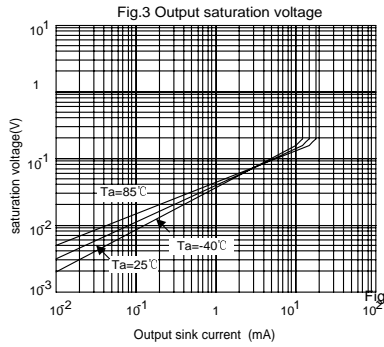
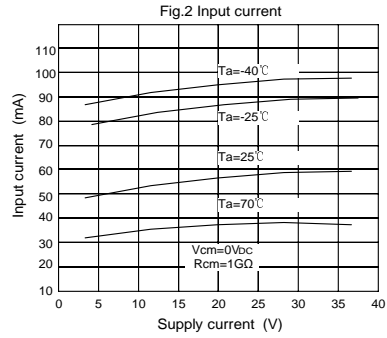
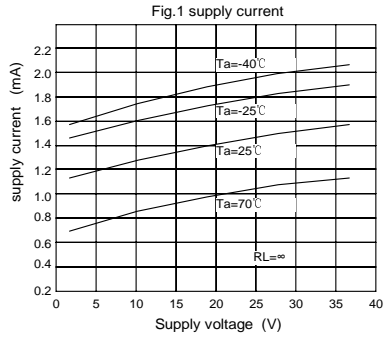


Fig.7

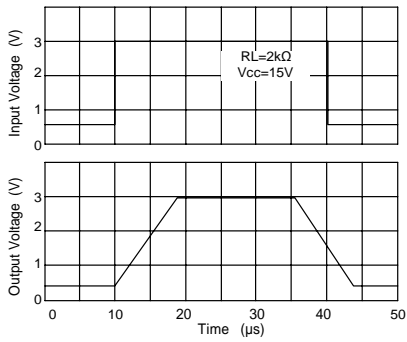


Fig.8 voltage Follower pulse response (small signal)

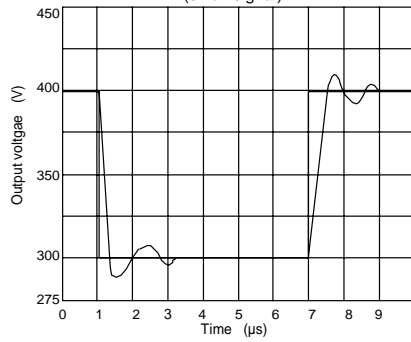


Fig.9 Large signal Frequency Response

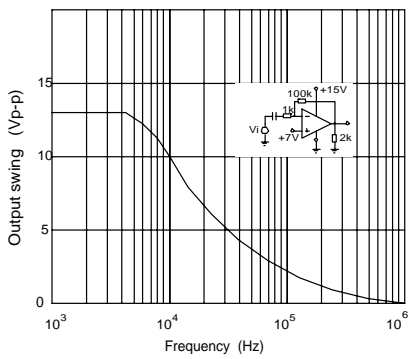


Fig.10 Output Characteristics current sourcing

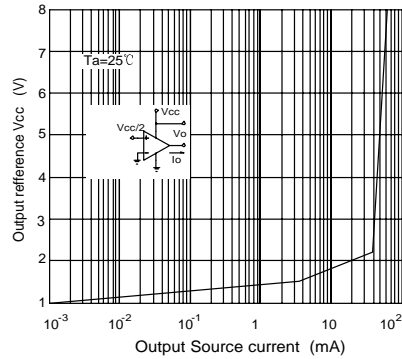


Fig.11 Output Characteristics Current sinking

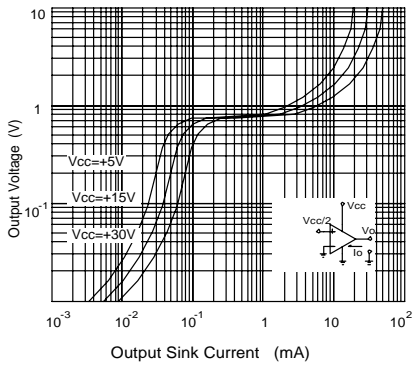
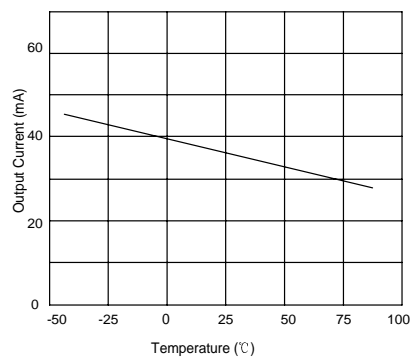


Fig.12 Current Limiting



Attach

Revision History

Data	REV	Description	Page
	1.0	Original	
2005.05.19	1.1	Revise the title	1