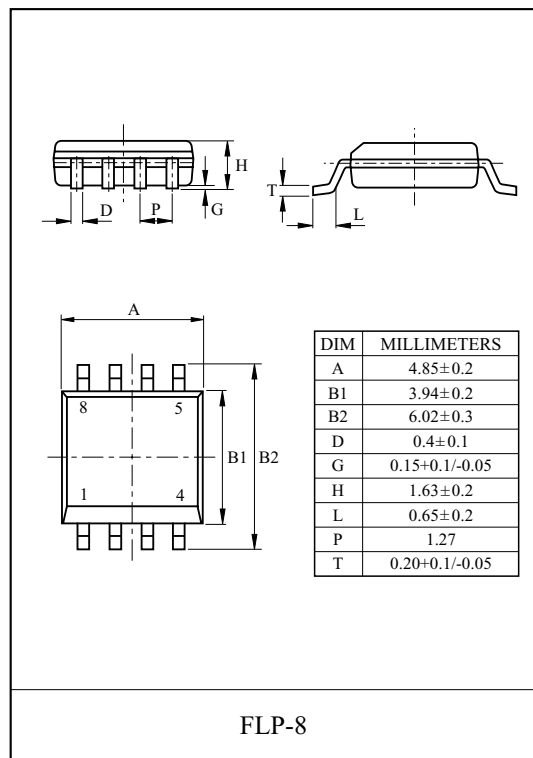


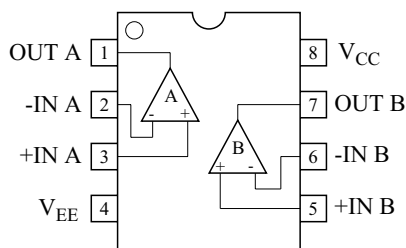
DUAL COMPARATOR

FEATURES

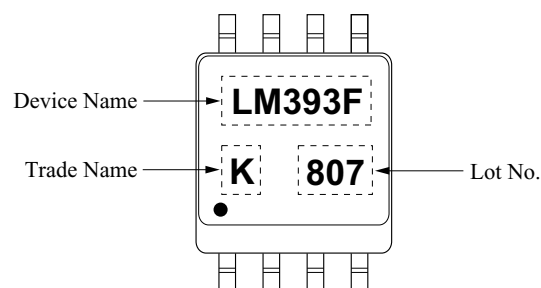
- Be Possible to Operate at the Wide Range Single or Two Supply Voltage
- Low Supply Current : $I_{CC}=0.8\text{mA(Typ.)}$
- Low Input Bias Current $I_{IB}=25\text{nA(Typ.)}$
- Low Input Offset Voltage : $V_{IO}=1\text{mV(Typ.)}$
- Wide Common Mode Input Voltage : $0V_{DC}$ to $V_{CC}-1.5V_{DC}$
- Output is Compatible with TTL, DTL, MOS and C-MOS
- Output is Open Collector and Wired-OR Possible
- Wide Operating Supply Range
($V_{CC}=2V\sim 36V$ or $\pm 1 \sim \pm 18V$)



PIN CONNECTION (TOP VIEW)



MARKING

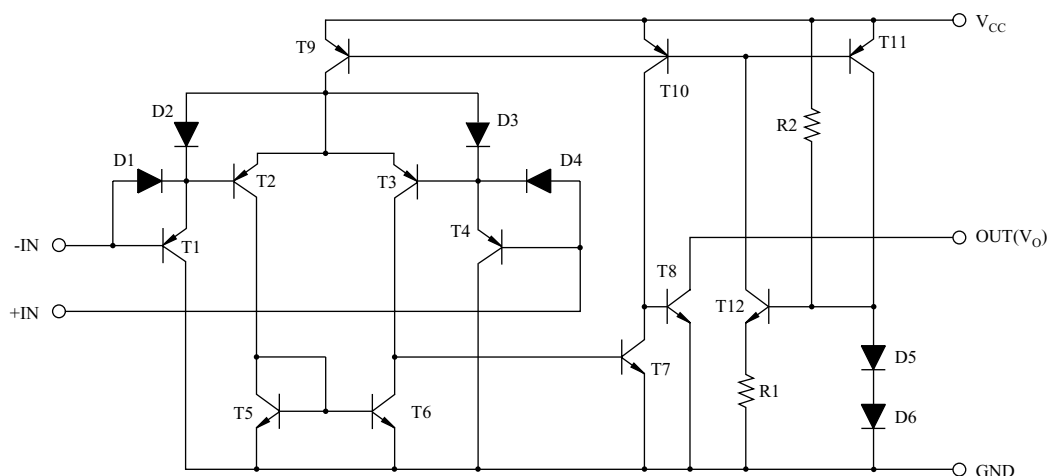


MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	$\pm 18, 36$	V
Differential Input Voltage	$V_{I(DIFF)}$	$\pm 18, 36$	V
Input Voltage	V_I	-0.3 36	V
Power Dissipation	P_D	240	mW
Operating Temperature	T_{OPR}	-40 85	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 150	$^\circ\text{C}$

LM393F

EQUIVALENT CIRCUIT



ELECTRICAL CHARACTERISTICS ($V_{CC}=5V$, $V_{EE}=GND$, $T_a=25^{\circ}C$, unless otherwise specified)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$V_{CM}=0V$ to $V_{CC}-1.5V$ $V_{O(p)}=1.4V$, $R_S=0\Omega$	-	1	5	mV
Output Saturation Voltage	V_{SAT}	$V_{I(-)}>1V$, $V_{I(+)}=0V$, $I_{SINK}=4mA$	-	160	400	mV
Input Offset Current	I_{IO}	-	-	5	50	nA
Input Bias Current	I_{IB}	-	-	25	250	nA
Common Mode Input Voltage	$V_{I(CM)}$	$V_{CC}=30V$	0	-	$V_{CC}-1.5$	V
Large Signal Voltage Gain	G_V	$V_{CC}=15V$, $R_L \geq 15k\Omega$	50	200	-	V/mV
Supply Current	I_{CC}	$R_L=\infty$, $V_{CC}=30V$	-	0.8	2.5	mA
		$R_L=\infty$	-	0.6	1.0	mA
Output Sink Current	I_{SINK}	$V_{I(-)}>1V$, $V_{I(+)}=0V$, $V_{O(p)}<1.5V$	6	18	-	mA
Output Leakage Current	I_{LEAK}	$V_{I(+)}>1V$, $V_{I(-)}=0V$	$V_{O(p)}=5V$	-	0.1	nA
			$V_{O(p)}=30V$	-	1.0	μA
Large Signal Response Time	t_{RSP}	V_{IN} =TTL Logic Wing $V_{REF}=1.4V$, $V_{RL}=5V$, $R_L=5.1k\Omega$	-	350	-	ns
Response Time	t_{rsp}	$V_{RL}=5V$, $R_L=5.1k\Omega$	-	1400	-	ns

Fig. 1 Supply Current vs Supply Voltage

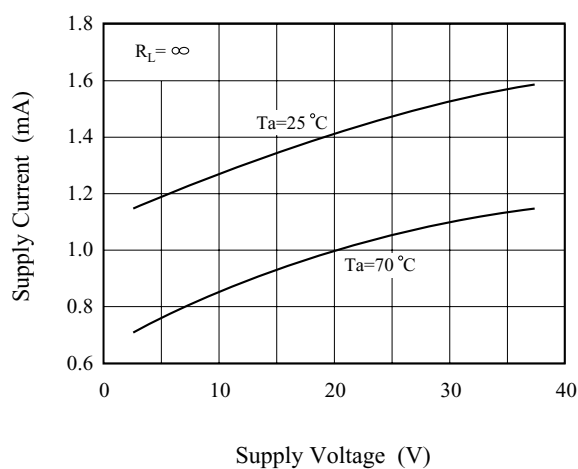


Fig. 2 Input Current vs Supply Voltage

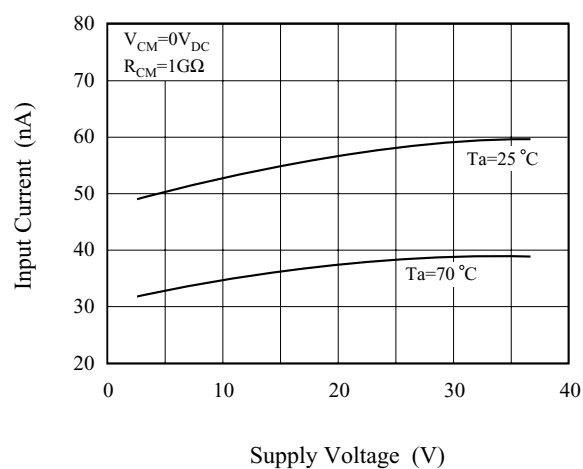


Fig. 3 Output Saturation Voltage vs Output Sink Current

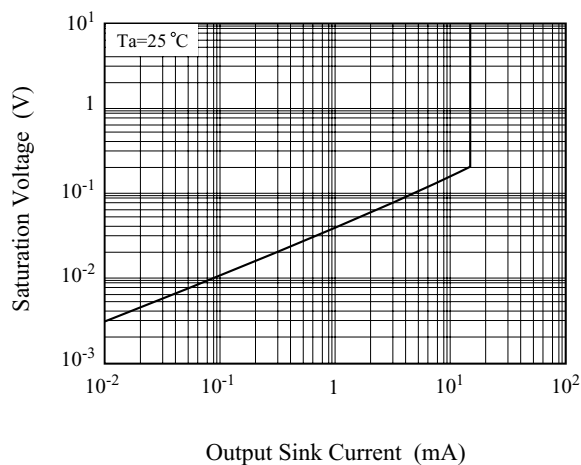


Fig. 4 Reponse Time for Various Input Overdrive Negative Transition

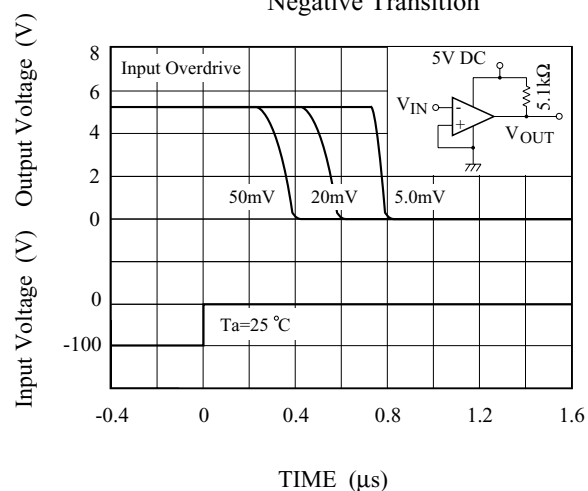


Fig. 5 Reponse Time for Various Input Overdrive Positive Transition

