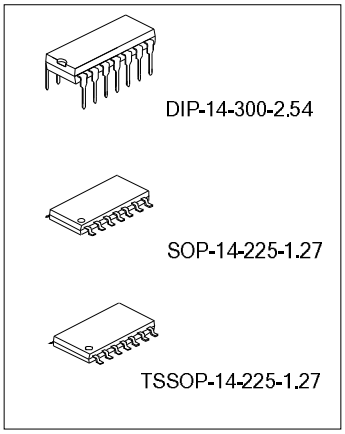
UTC339 LINEAR INTEGRATED CIRCUIT

QUAD DIFFERENTIAL COMPARATOR



DESCRIPTION

The UTC339 consists of four 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)
*Input common-mode voltage includes ground
*Low supply current drain ICC=0.8mA(Typical)
*Open collector outputs for wired and connection
*Low input bias current Ibias=25nA(Typical)
*Low output saturation voltage
*Output compatible with TTL ,DTL, and CMOS logic system

ORDERING INFORMATION

Device	Package
UTC339	DIP-14-300-2.54
UTC339E	SOP-14-225-1.27
UTC339V	TSSOP-14-225-0.65

ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

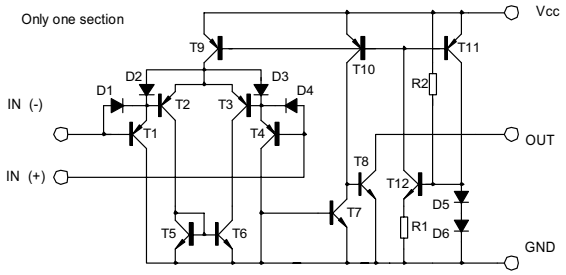
Characteristic	Symbol	Value	Unit
Supply Voltage	Vcc	±18 OR 36	V
Differential input voltage	VIDiff)	36	V
Input Voltage	VI	-0.3~36V	V
Power Dissipation	Pd	570	mW
Operating Temperature	Topr	0 to +70	°C
Storage Temperature	Tstg	-65 to 150	°C

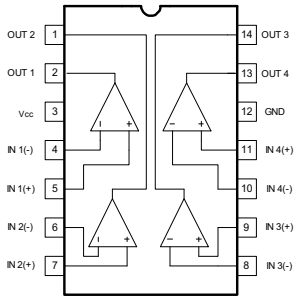
ELECTRICAL CHARACTERISTICS

(Vcc=5.0V, Ta=25℃,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 Vcc-1.5 Vo(p)=1.4V,Rs=0		±1.5	±5.0	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	R_L=∞		1.1	2.0	mA
Large signal Voltage Gain	G_V	Vcc=15V,R_L>15kΩ	50	200		V/mV
Large signal response time	tres	Vi=TTL logic wing Vref=1.4V,V_{RL}=5V,R_L=5.1kΩ		350		ns
Response time	tres	V_{RL}=5V,R_L=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	140	400		mV
output leakage current	Ileakage	VI(+)=1V,VI(-)=0	20	40		mA
Differential input voltage	VI(diff)				36	V

BLOCK DIAGRAM





TYPICAL CHARACTERISTICS PERFORMANCE

Fig.1 supply current

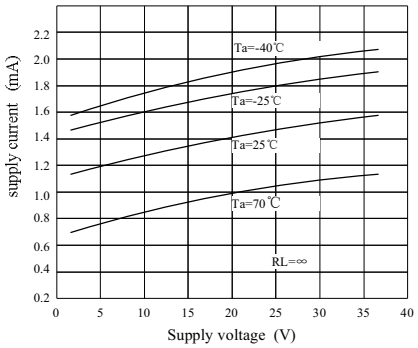


Fig.2 Input current

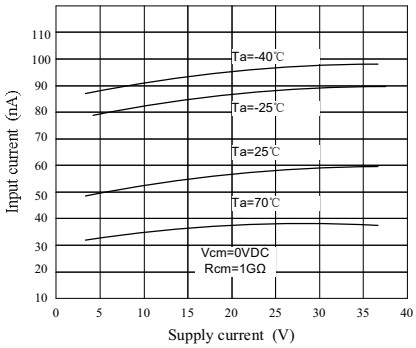


Fig.3 Output saturation voltage

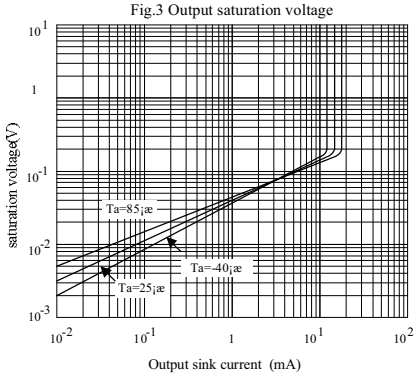


Fig.4 Reponse time for various input overdrive negative transition

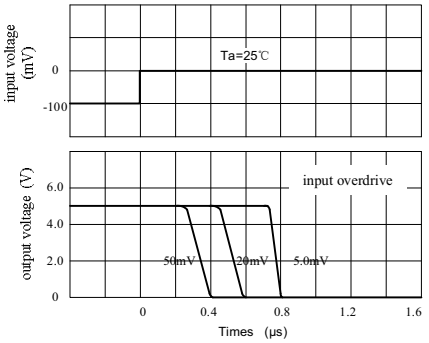


Fig.4 Reponse time for various input overdrive positive transition

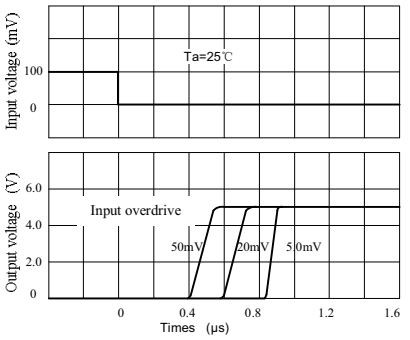


Fig.7

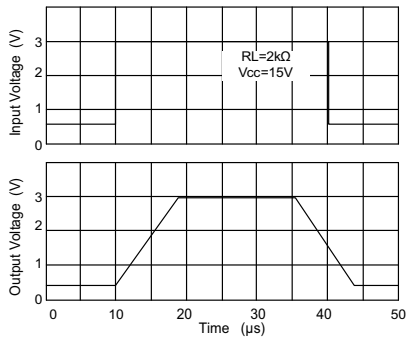


Fig.8 voltage Follower pulse response (small signal)

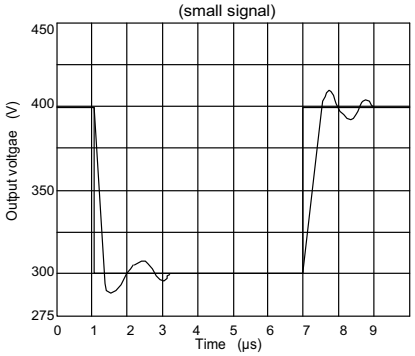


Fig.9 Large signal Frequency Response

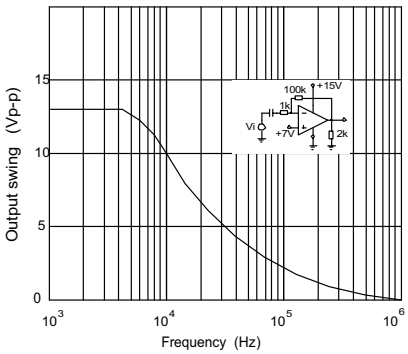


Fig.10 Output Characteristics current sourcing

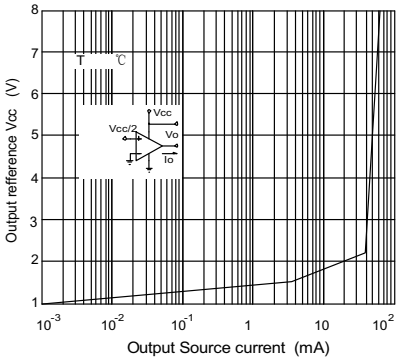


Fig.11 Output Characteristics Current sinking

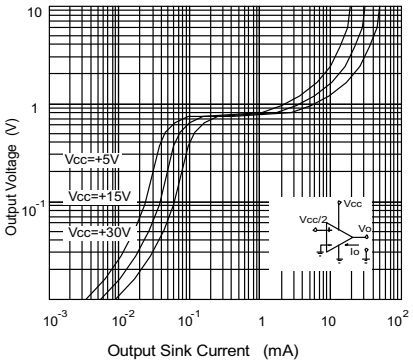
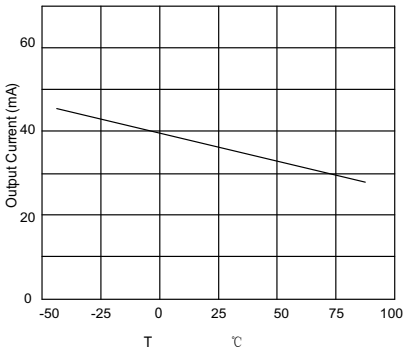
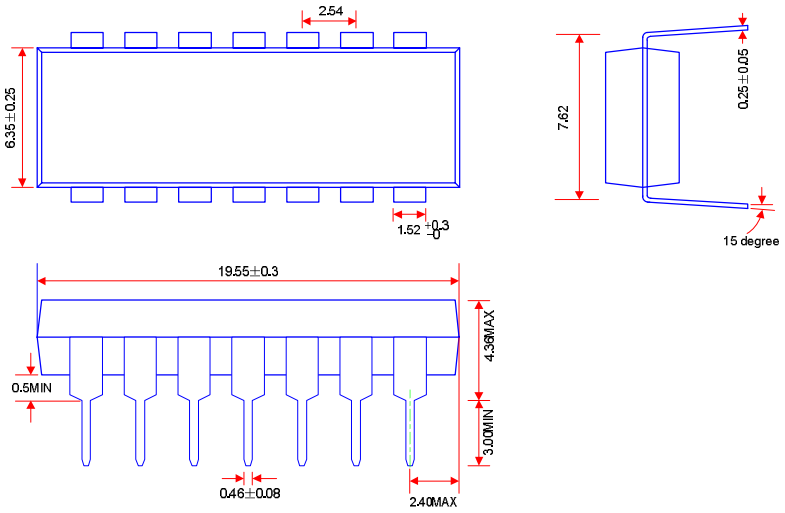


Fig.12 Current Limiting

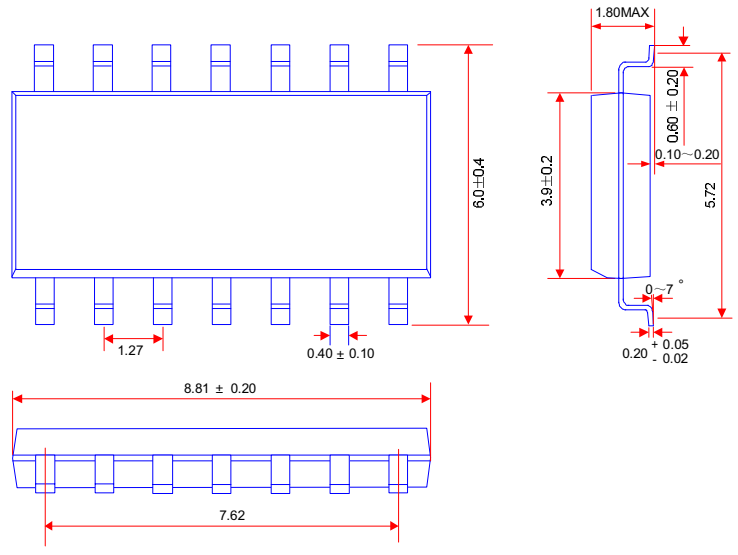


PACKAGE OUTLINE

DIP-14-300-2.54 UNIT: mm

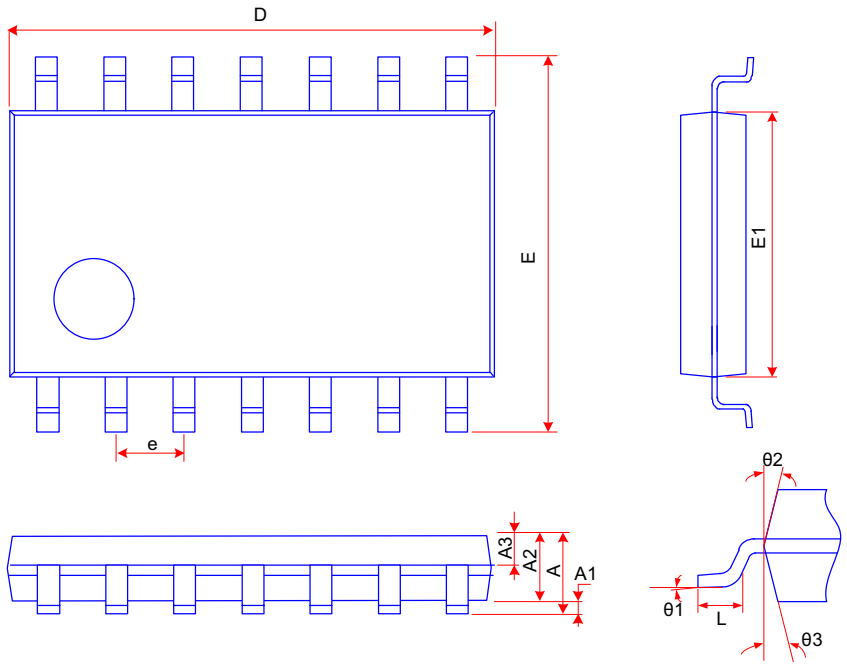


SOP-14-225-1.27 UNIT: mm



PACKAGE OUTLINE(CONTINUED)

TSSOP-14-225-0.65 UNIT: mm



Symbol	Min (mm)	Nom(mm)	Max(mm)	Symbol	Min(mm)	Nom(mm)	Max(mm)
A	-	-	1.20	L	0.45	0.60	0.75
A1	0.05	-	0.15	e	0.65BSC		
A2	0.90	1.00	1.05	θ1	0°	-	8°
A3	0.34	0.44	0.54	θ2	10°	12°	14°
D	4.86	4.96	5.06	θ3	10°	12°	14°
E	6.20	6.40	6.60				
E1	4.30	4.40	4.50				

Attach

Revision History

Data	REV	Description	Page
	1.0	Original	
2005.12.01	1.1	Add “PACKAGE OUTLINE DIP-14,SOP-14”	5
2006.03.29	1.2	Add “PACKAGE OUTLINE TSSOP-14-225-0.65” Revise” Figure2”	6 3