■ General Description

The S-75L86ANC is an EXCLUSIVE OR GATE fabricated by utilizing advanced silicon-gate CMOS technology which provides the inherent benefit of CMOS low power consumption to achieve operation by only a couple of batteries (1 to 3V).
The internal circuitry has buffered outputs to ensure high noise immunity and output stability.
Input voltage is allowed to be applied even if power voltage is not supplied because no diode is inserted between an input pin and VCC.
This allows for interfaces between power supplies of different voltage, output level conversion from 3 V to 1 V and battery backup applications.

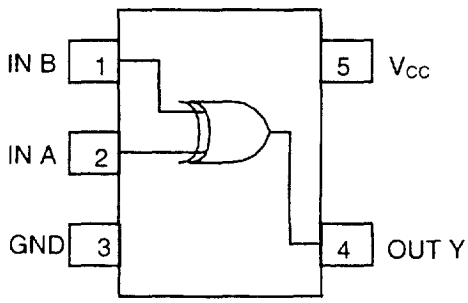
■ Features

- Wide power supply range: 1 V to 3.6 V
- Low current consumption: 1.0 μA max. (at 3.6 V, 25°C)
- Typical propagation delay: tpd = 7 ns (at 3 V)
- High noise immunity: V_{NIH}=V_{NIL}=28% V_{CC} min.
- Power down protection: All pins
- Very small plastic package: SC-88A

■ Applications

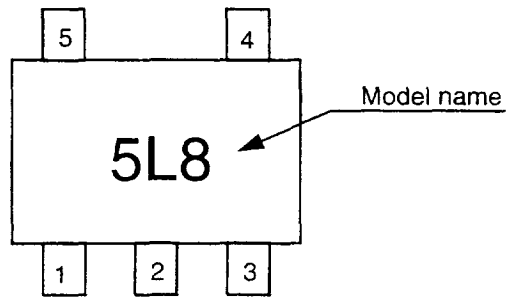
- Personal computers, peripherals
- Cellular phones
- Cameras
- Games

■ Pin Assignment



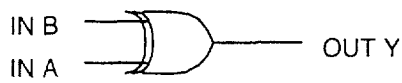
(Top view)

■ Marking



(Top view)

■ Logic Diagram



True Values

A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

■ Ordering

Delivery form: Taping only
Model name: S-75L86ANC-5L8-T2

■ Absolute Maximum Ratings

Ta=25°C

Item	Symbol	Ratings	Unit
Power Supply Voltage	V_{CC}	-0.5 to +5.0	V
Input Voltage	V_{IN}	-0.5 to +5.0	V
Output Voltage	V_{OUT}	-0.5 to V_{CC}+0.5	V
Input Parasitic Diode Current	I_{IK}	-20	mA
Output Parasitic Diode Current	I_{OK}	±20	mA
Output Current	I_{OUT}	±12.5	mA
V_{CC}/GND Current	I_{CC}	±25	mA
Power Dissipation	P_D	200	mW
Storage Temp. Range	Tstg	-65 to +150	°C
Lead Temperature (10 sec.)	TL	260	°C

■ Recommended Operating Conditions

Parameter	Symbol	Standard	Unit
Power Voltage	V_{CC}	1 to 3.6	V
Input Voltage	V_{IN}	0 to 3.6	V
Output Voltage	V_{OUT}	0 to V_{CC}	V
Op. Temp. Range	Topr	-40 to +85	°C
Input Rise and Fall Time	dt/dv	0 to 1000 (V_{CC}=1.0 V)	ns
		0 to 500 (V_{CC}=2.0 V)	
		0 to 400 (V_{CC}=3.0 V)	

■ DC Characteristics

Parameter		Sym.	Conditions		Ta=25°C				Ta=-40 to 85°C		Unit
					V_{CC}	MIN.	TYP.	MAX.	MIN.	MAX.	
Input Voltage	"H" level	V_{IH}			1.0	0.75	—	—	0.75	—	V
					1.5	1.05	—	—	1.05	—	
					3.0	2.10	—	—	2.10	—	
	"L" level	V_{IL}			1.0	—	—	0.25	—	0.25	
					1.5	—	—	0.45	—	0.45	
					3.0	—	—	0.90	—	0.90	
Output Voltage	"H" level	V_{OH}	V_{IN}=V_{IH} or V_{IL}	I_{OH}=-20μA	1.0	0.9	1.0	—	0.9	—	V
					1.5	1.4	1.5	—	1.4	—	
					3.0	2.9	3.0	—	2.9	—	
				I_{OH}=-1mA	1.5	1.07	1.23	—	0.99	—	
				I_{OH}=-2.6mA	3.0	2.61	2.68	—	2.55	—	
	"L" level	V_{OL}	V_{IN}=V_{IH} or V_{IL}	I_{OL}=20μA	1.0	—	0	0.1	—	0.1	
					1.5	—	0	0.1	—	0.1	
					3.0	—	0	0.1	—	0.1	
				I_{OL}=1mA	1.5	—	0.23	0.31	—	0.37	
				I_{OL}=2.6mA	3.0	—	0.23	0.31	—	0.33	
Input Current		I_{IN}	V_{IN}=V_{CC} or GND		3.6	—	—	±0.1	—	±1.0	μA
Current Consump.		I_{CC}	V_{IN}=V_{CC} or GND		3.6	—	—	1.0	—	10.0	μA

■ AC Characteristics

C_L=15pf, Input tr=tf=6ns, V_{CC}=3.3±0.3V, Ta=25°C (unless otherwise specified)

Parameter	Sym.	Measurement Conditions	MIN.	TYP.	MAX.	Unit
Output Rise/Fall Time	t_{TLH}, t_{THL}		—	4.0	8.0	ns
Propagation Delay Time	t_{pLH}, t_{pHL}		—	6.0	9.0	

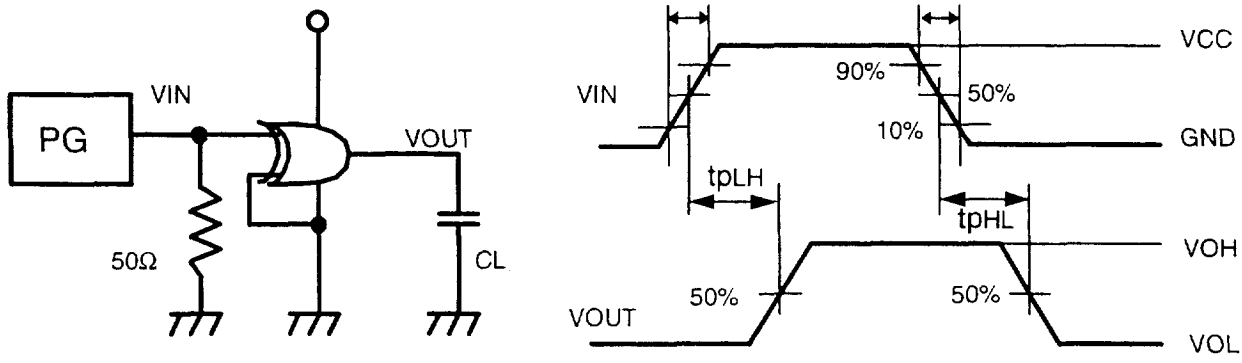
C_L=25pf, Input tr=tf=6ns (unless otherwise specified)

Parameter	Sym.	Measurement Conditions	Ta=25°C			Ta=-40 to 85°C		Unit
		V_{CC}(V)	Min.	Typ.	Max.	Min.	Max.	
Output Rise/Fall Time	t_{TLH} t_{THL}	1.0	—	35	70	—	90	ns
		1.5	—	15	25	—	30	
		3.0	—	7	10	—	14	
Propagation Delay Time	t_{pLH} t_{pHL}	1.0	—	30	60	—	75	
		1.5	—	15	25	—	30	
		3.0	—	7	10	—	14	
Input Capacitance	C_{IN}		—	5	10	—	10	pF
Equiv. Int. Capacitance	C_{PD}	Note[1]	—	10	—	—	—	pF

Note[1] C_{PD} is the no-load equivalent capacitance inside the circuitry. Refer to the measurement circuit shown below.
Current consumption is averaged by the following equation.

$I_{CC(opr)}=C_{PD} \cdot V_{CC} \cdot fin+I_{CC}$

Measurement Circuit



Remark: No-load output during measurement of current consumption.

■ Input Pin Equivalent Circuit