IL34C86

Differential line receiver.

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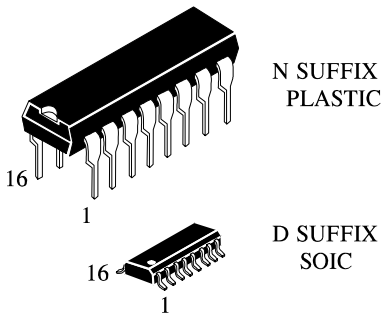
Microcircuit IL34C86 consists of four differential line receivers and is a microcircuit that meets international standards of data transmission RS-422, RS-423, and it is widely used in data transmission nets, particularly in a unit for local loop of ATS.

Functions implemented

This device carries out comparing inputs with low differential signal of 200mV and gives on output full signal with load carrying capacity of ±6mÀ, and also has hysteresis to improve noise margin.



Designation
Of microcircuit in package
IL34C86N Plastic DIP
IL34C86D SOIC
T_A from minus 40
to plus 85 °C
for all packages

Truth table

Enable	input	output
L	X	Z
H	$V_{ID} \geq V_{TH}$ (max)	H
H	$V_{ID} \leq V_{TH}$ (max)	L
H	Open*	H

V_{ID} – difference of inputs A2-A1, or B2-B1, or C2-C1, or D2-D1.
V_{TH} – minimum differential input voltage.
Open* – no signals delivered to inputs.

Purpose of pins

[1] of pin	Symbol	Purpose
01	A1	Input of receiver A
02	A2	Input of receiver A
03	A	Output of receiver A
04	En A/C	input of switching outputs of A and C receivers into the third state
05	C	Output of receiver C
06	C2	2 Input of receiver C
07	C1	1 Input of receiver C
08	GND	General pin
09	D1	1 Input of receiver D.
10	D2	2 Input of receiver D.
11	D	Output of receiver D.
12	En B/D	input of switching outputs of B and D receivers into the third state
13	B	Output of receiver B.
14	B2	2 Input of receiver C
15	B1	1 Input of receiver C
16	V_{CC}	Pin of power supply from source of voltage

L – Low voltage level
H – High voltage level
X – any level of voltage
Z – the third state of output .

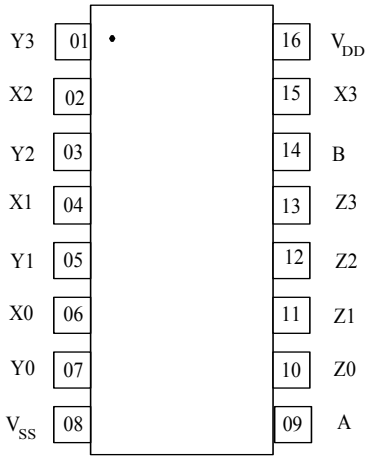


Figure 2 Designation of pins in package

Figure 3. Block diagram of microcircuit.

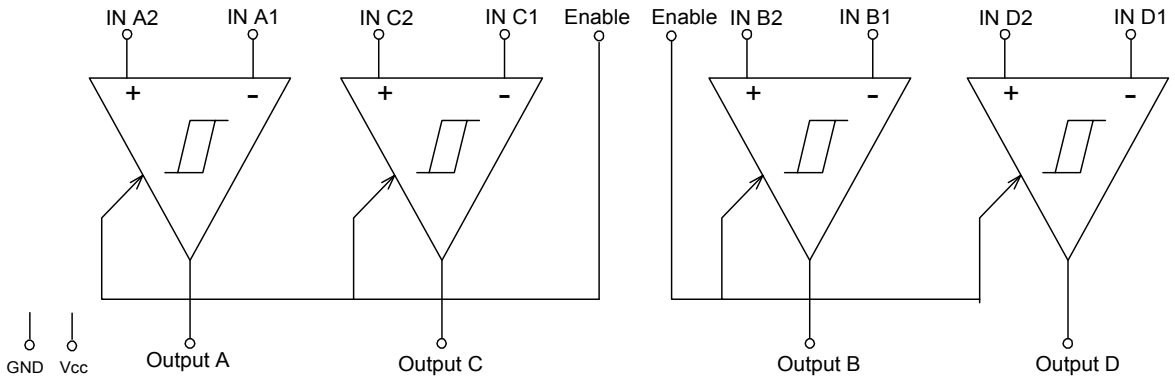


Table 1 – Limiting and extreme parameters

Parameter	Symbol	Limiting mode		Extreme mode		Units of measurement
		min	**max**	**min**	**max**	
Supply voltage	V_{CC}	4.50	5.50	—	7	V
Input voltage	V_{CM}	—	—	-14	14	
differential input voltage	V_{DIFF}	—	—	-14	14	
Voltage on input Enable	V_{IN}	—	—	—	7	
Output current	—	—	—	-25	+25	mÀ
transition time when switching in, switching off on input Enable	t_r, t_f	—	500	—	—	nñ
Dissapated power DIP	P_D	—	—	—	1645*	mW
SO		—	—	—	1190*	
Operation temperature	T_A	-40	+85	—	—	°Ñ
Storage temperature	T_{STG}	—	—	-65	+150	
Temperature of soldering, 4ñ	T_L	—	—	—	260	

* - at increasing temperature higher than 25°Ñ P_D decreased on 13.89mW/°C for DIP package and on 9.80mW/°C for SO package.

INTEGRAL

Table 2 -Electric parameters *T= -40⁰ ÷ +85⁰C*

parameter	symbol	conditions of measurement	standard		units of measurement
			min	max.	
Minimum differential input voltage	V_{TH}	-7V < V_{Cm} < +7V	-200	200	mV
input resistance	R_{IN}	V_{IN} = -7V, +7V (the rest inputs on "ground")	5.0	10	kÎhm
input current	I_{IN}	V_{IN} = -10V (the rest inputs on"ground") V_{IN} = +10V (the rest inputs on "ground")	— —	+1.5 -2.5	mÀ
minimum output voltage of high level	V_{OH}	V_{CC} = 4.5V, V_{DIFF} = +1V, I_{OUT} = -6.0hmÀ	3.8	—	V
maximum output voltage of low level	V_{OL}	V_{CC} = 5.5V, V_{DIFF} = -1V, I_{OUT} = +6.0hmÀ	—	0.3	
minimum input voltage of high level on input Enable	V_{IH}	—	2.0	—	V
maximum input voltage of low level on input Enable	V_{IL}	—	—	0.8	
maximum output current of the third state	I_{OZ}	V_{OUT} = V_{CC} or 0V	—	±0.5	µÀ
maximum input current on input Enable	I_I	V_{IN} = V_{CC} or 0V	—	±1.0	µÀ
consumption current	I_{CC}	V_{CC} = 5.5V, V_{DIFF} = +1V	—	23	mÀ
time of propagation delay at switching off, switching on	t_{PLH}, t_{PHL}	C_L = 50pF, V_{DIFF} = 2.5V, V_{Cm} = 0V	—	30	nñ
Transition time when switching in, switching off	t_{RISE}, t_{FALL}	C_L = 50pF, V_{DIFF} = 2.5V, V_{Cm} = 0V	—	9	
time of the third state propagation delay on input Enable	t_{PLZ}, t_{PHZ}	C_L = 50pF, V_{DIFF} = 2.5V, R_L = 1000kÎhm	—	18	
time of the third state propagation delay on input Enable	t_{PZL}, t_{PZH}	C_L = 50pF, V_{DIFF} = 2.5V, R_L = 1000kÎhm	—	21	

Figure 4 – Time diagram of signals at changing dynamic parameters t_{PLH}, t_{PHL}, t_{TLH}, t_{THL}, t_{PZH}, t_{PHZ}, t_{PZL}, t_{PLZ}