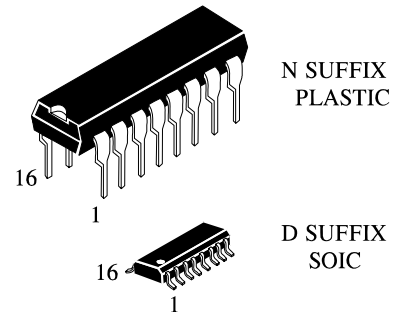


Microcircuit DS3486 consists of four differential line receivers and is a microcircuit that meets international standards of data transmission RS-422, RS-423, and it is widely used in data transmission nets, particularly in a unit for local loop of ATS.

#### 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  $\pm 6\text{mA}$ , and also has hysteresis to improve noise margin.



**Designation  
Of microcircuit in package**  
 DS3486N Plastic DIP  
 DS3486M SOP

#### Truth table

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

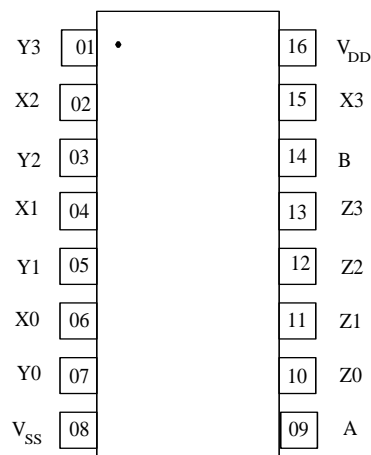
#### ORDERING INFORMATION

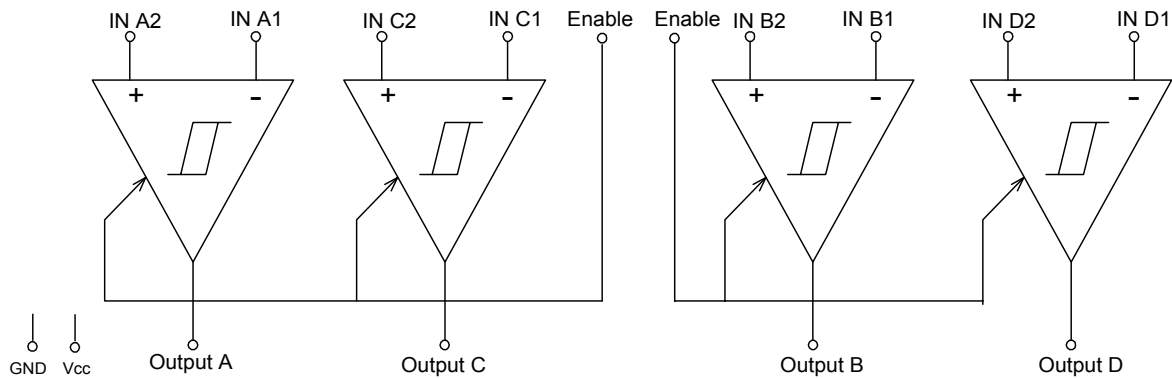
DEVICE	Package Type	MARKING	Packing	Packing Qty
DS3486N	DIP16L	DS3486	TUBE	1000pcs/box
DS3486M/TR	SOP16L	DS3486	REEL	2500pcs/reel

**Purpose of pins**

# 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 <sub>CC</sub>	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**

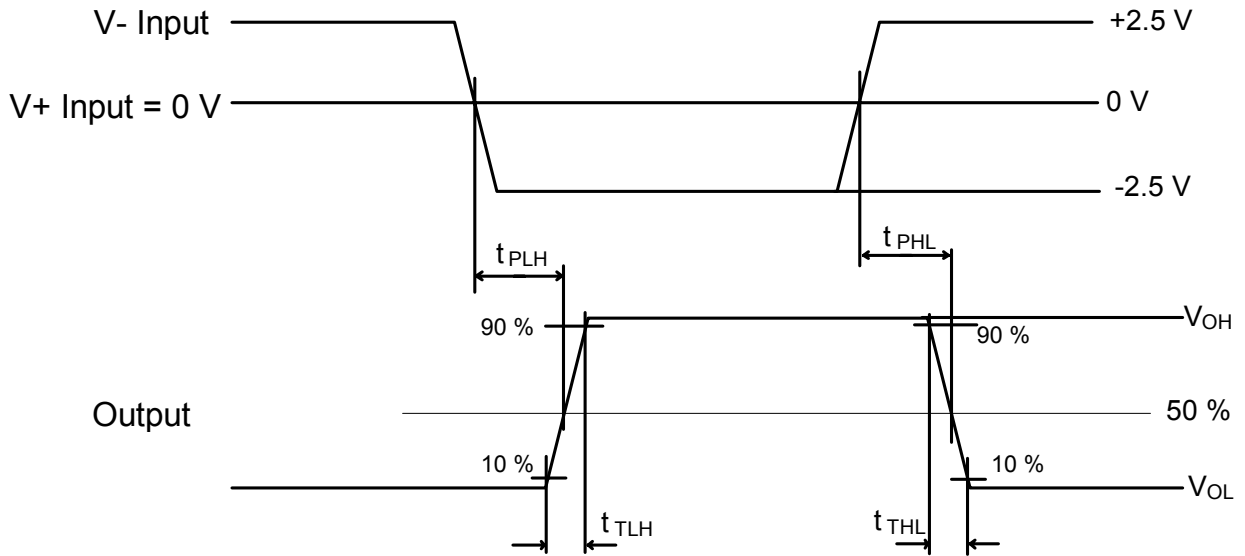
Parameter	Symbol	Limiting mode		Extreme mode		Units of measurement
		min	max	min	max	
Supply voltage	$V_{CC}$	4.50	5.50	—	7	V
Input voltage	$V_{CM}$	—	—	-14	14	
differential input voltage	$V_{DIFF}$	—	—	-14	14	
Voltage on input Enable	$V_{IN}$	—	—	—	7	
Output current	—	—	—	-25	+25	mA
transition time when switching in, switching off on input Enable	$t_r, t_f$	—	500	—	—	nñ
Dissipated 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.

**Table 2 -Electric parameters**
 **$T = -40^{\circ} \div +85^{\circ}C$** 

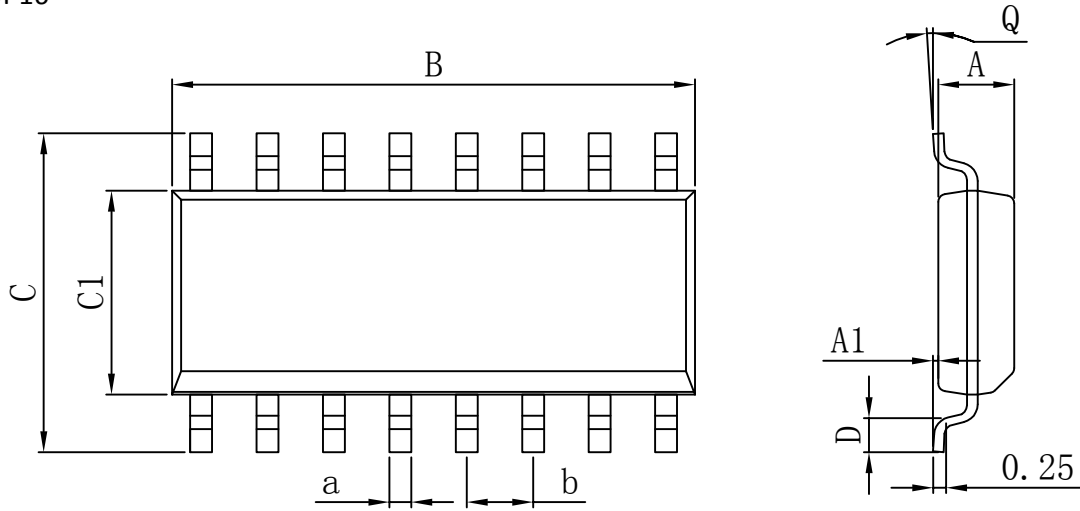
Parameter	Symbol	Conditions of measurement	standard		Units of measurement
			min	max.	
Minimum differential input voltage	$V_{TH}$	$-7V < V_{Cm} < +7V$	-200	200	mV
input resistance	$R_{IN}$	$V_{IN} = -7V, +7V$ (the rest inputs on "ground")	5.0	10	k $\Omega$ m
input current	$I_{IN}$	$V_{IN} = -10V$ (the rest inputs on "ground")	—	+1.5	mA
		$V_{IN} = +10V$ (the rest inputs on "ground")	—	-2.5	
minimum output voltage of high level	$V_{OH}$	$V_{CC} = 4.5V, V_{DIFF} = +1V, I_{OUT} = -6.0mA$	3.8	—	V
maximum output voltage of low level	$V_{OL}$	$V_{CC} = 5.5V, V_{DIFF} = -1V, I_{OUT} = +6.0mA$	—	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 $0V$	—	$\pm 0.5$	$\mu A$
maximum input current on input Enable	$I_I$	$V_{IN} = V_{CC}$ or $0V$	—	$\pm 1.0$	$\mu A$
consumption current	$I_{CC}$	$V_{CC} = 5.5V, V_{DIFF} = +1V$	—	23	mA
time of propagation delay at switching off, switching on	$t_{PLH}, t_{PHL}$	$C_L = 50pF, V_{DIFF} = 2.5V, V_{Cm} = 0V$	—	30	ns
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	$t_{PLZ}, t_{PHZ}$	$C_L = 50pF, V_{DIFF} = 2.5V, R_L = 1000k\Omega$	—	18	
time of the third state propagation delay on input Enable	$t_{PZL}, t_{PZH}$	$C_L = 50pF, V_{DIFF} = 2.5V, R_L = 1000k\Omega$	—	21	

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



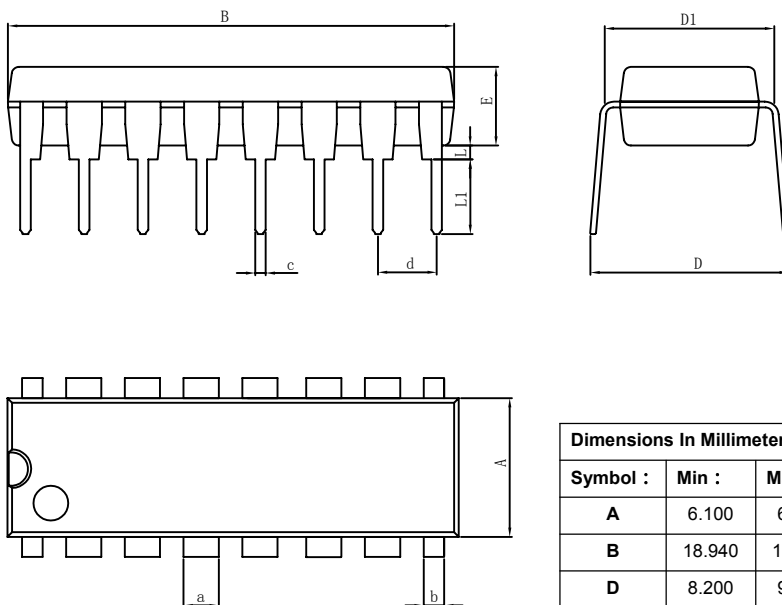
**PACKAGE**

**SOP16**



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	1.225	1.570	D	0.400	0.950
A1	0.100	0.250	Q	0°	8°
B	9.800	10.00	a	0.420 TYP	
C	5.800	6.250	b	1.270 TYP	
C1	3.800	4.000			

**DIP16**



Dimensions In Millimeters					
Symbol :	Min :	Max :	Symbol :	Min :	Max :
A	6.100	6.680	L	0.500	0.800
B	18.940	19.560	a	1.524 TYP	
D	8.200	9.200	b	0.889 TYP	
D1	7.42	7.820	c	0.457 TYP	
E	3.100	3.550	d	2.540 TYP	
L	0.500	0.800			

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