

Interface IC of data serial transfer with one supply voltage

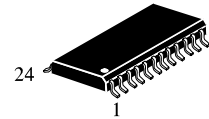
Interface transceivers of serial data as per RS - 232 MAX207 standard with one supply voltage and transmitter bipolar output voltage formed by the embedded voltage multiplication oscillator on 4 external capacitances equal to 0,1mkF, corresponding to EIA/TIA-232E, V.28 standards, are purposed for application in up-to-date high-performance calculating systems, high-speed electronic devices with high reliability of information exchange between remote objects.

Functions:

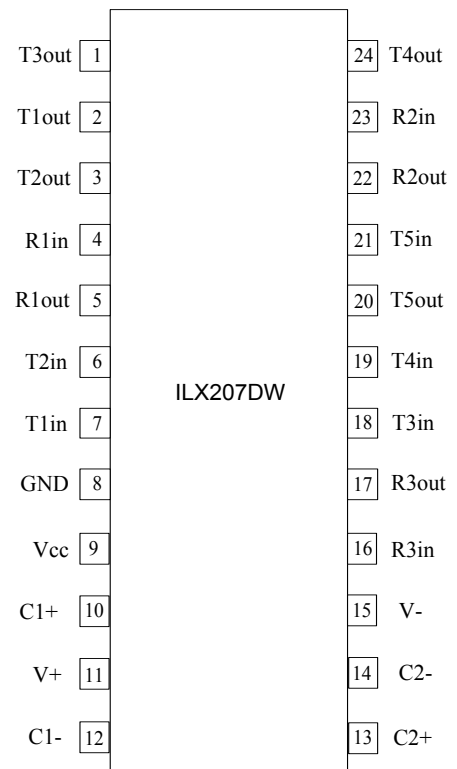
- 5 transmitters and 3 receivers of serial data as per RS – 232 standards

Truth table

Inputs	Outputs
R_{IN}, T_{IN}	R_{OUT}, T_{OUT}
H	L
L	H
Note - H – high voltage level; L – low voltage level	

**Packaged IC marking**

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 T_A = from -40 to 85 °C**Figure 1 – Symbols of pins in package**

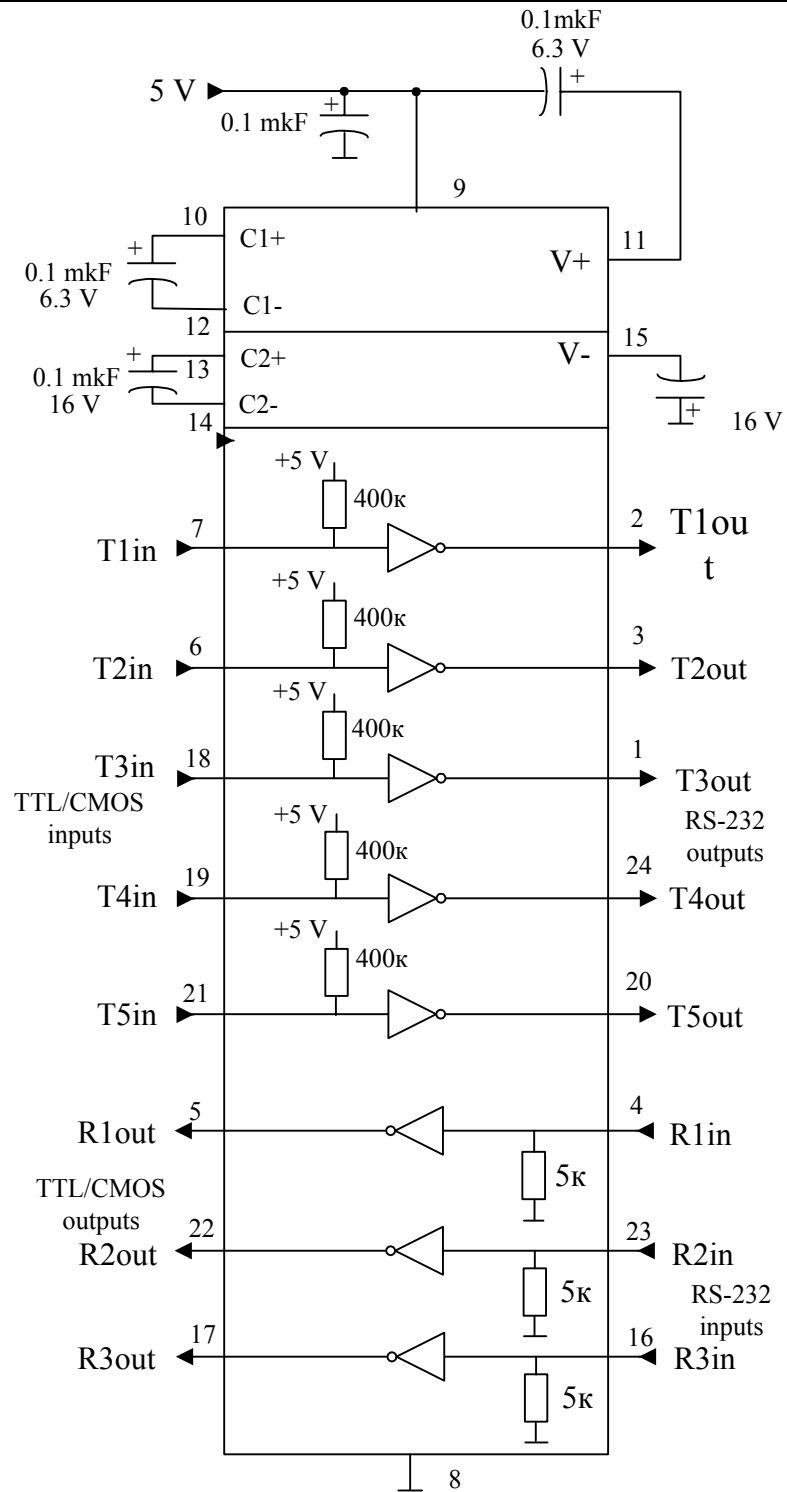


Figure 2 - Block-diagram

Pin description

Pin number	Pin name	Symbol
01	Transmitter data output (levels RS – 232)	T3 _{OUT}
02	Transmitter data output (levels RS – 232)	T1 _{OUT}
03	Transmitter data output (levels RS – 232)	T2 _{OUT}
04	Receiver data input (levels RS – 232)	R1 _{IN}
05	Receiver data output (levels TTL/CMOS)	R1 _{OUT}
06	Transmitter data input (levels TTL/CMOS)	T2 _{IN}
07	Transmitter data input (levels TTL/CMOS)	T1 _{IN}
08	Common output	GND
09	Supply output from voltage source	V _{CC}
10	Output of external capacitance of positive voltage multiplication block	C1+
11	Output of multiplication block positive voltage	V+
12	Output of external capacitance of positive voltage multiplication block	C1-
13	Output of external capacitance of negative voltage multiplication block	C2+
14	Output of external capacitance of negative voltage multiplication block	C2-
15	Output of multiplication block negative voltage	V-
16	Receiver data input (levels RS – 232)	R3 _{IN}
17	Receiver data output (levels TTL/CMOS)	R3 _{OUT}
18	Transmitter data input (levels TTL/CMOS)	T3 _{IN}
19	Transmitter data input (levels TTL/CMOS)	T4 _{IN}
20	Transmitter data output (levels RS – 232)	T5 _{OUT}
21	Transmitter data input (levels TTL/CMOS)	T5 _{IN}
22	Receiver data output (levels TTL/CMOS)	R2 _{OUT}
23	Receiver data input (levels RS – 232)	R2 _{IN}
24	Transmitter data output (levels RS – 232)	T4 _{OUT}

Absolute maximum ratings

Symbol	Parameter	Rate		Unit
		min	max	
V_{CC}	Supply voltage	-0.3	6.0	V
V-	Transmitter low output voltage	0.3	-14	
V+	Transmitter high output voltage	$V_{CC} - 0.3\text{ V}$	14	
VTIN	Transmitter input voltage	-0.3	$V+ + 0.3\text{ V}$	
VRIN	Receiver input voltage	-30	30	
PPK	Dissipated power (for copper frame)	-	941	mW
ISC	Transmitter short-circuit output current		continuously	mA
Ta	Ambient temperature	-60	150	°C

Maximum ratings

Symbol	Parameter	Rate		Unit
		min	max	
V _{CC}	Supply voltage	4.5	5.5	V
V-	Transmitter low output voltage	-5.0	-	
V+	Transmitter high output voltage	5.0		
VTIN	Transmitter input voltage	0	V _{CC}	
VRIN	Receiver input voltage	-30	30	
ISC	Transmitter short-circuit output current	-	±60	mA
Ta	Ambient temperature	-40	85	°C

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Static parameters

Symbol	Parameter	Test conditions	Rate				Unit
			25°C		от -40 до 85 °C		
			min	max	min	max	
I _{cc}	Consumption current static	V _{CC} = 5.5 В V _{IL} = 0 В	-	20	-	28*	mA
Receiver electrical parameters							
V _h	Hysteresis voltage	V _{CC} = 5.0 В	0.2	0.9	0.2	1.0	V
V _{on}	On voltage	V _{on} ≤ 0.1 В I _{OL} ≤ 20 mA	-	2.4	-	2.3	
V _{off}	Off voltage	V _o ≥ V _{CC} - 0.1 В I _{OH} ≤ -20 mA	0.8	-	0.9	-	
V _{OL}	Low output voltage	I _{OL} = 1.6 mA V _{CC} = 4.5 В V _{IH} = 2.4 В	-	0.3	-	0.4	
V _{OH}	High output voltage	I _{OH} = -1.0 mA V _{CC} = 4.5 В V _{IL} = 0.8 В	3.6	-	3.5	-	
R _i	Input resistance	V _{CC} = 5.0 В	3.0	7.0	-		kOhm
Transmitter electrical parameters							
V _{OL}	Low output voltage	V _{CC} = 4.5 В V _{IH} = 2.0 В R _L = 3.0 kOhm	-	-5.2	-	-5.0	V
V _{OH}	High output voltage	V _{CC} = 4.5 В V _{IL} = 0.8 В R _L = 3.0 kOhm	5.2	-	5.0	-	
I _{IL}	Low input current	V _{CC} = 5.5 В V _{IL} = 0 В	-	170	-	200	mA
I _{SC}	Short-circuit output current	V _{CC} = 5.5 В V _O = 0 В V _{IL} = 0 В		-50		-60	
		V _{CC} = 5.5 В V _O = 0 В V _{IH} = V _{CC}		50		60	
R _O	Output resistance	V _{CC} =V+=V-= 0 В V _O = ±2 В	350	-	300	-	Ohm
SR	Speed of output front change	V _{CC} = 5.0 В, C _L = 50-1000 pF R _L = 3-7 kOhm	3.0	30	-		V/mksec
ST	Information transmission speed	V _{CC} = 4.5 В, R _L = 3 kOhm, C _L = 1000 pF, t _{lw} = 7 mksec	140	-	120		Kbit/sec

Dynamic parameters ($t_{LH} = t_{HL} \leq 10 \text{ nsec}$)

Symbol	Parameter	Test conditions	Rate				Unit
			25°C		from -40 to 85°C		
			min	max	min	max	



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t_{PHLR} (t_{PLHR})	Signal propagation delay time when switching on (off)	$V_{CC} = 4.5 \text{ V}$ $C_L = 150 \text{ pF}$ $V_{IL} = 0 \text{ V}$ $V_{IH} = 3.0 \text{ V}$	-	9.7	-	10.0	mksec
t_{PHLT} (t_{PLHT})	Signal propagation delay time when switching on (off)	$V_{CC} = 4.5 \text{ V}$ $C_L = 2500 \text{ pF}$ $V_{IL} = 0 \text{ V}$ $V_{IH} = 3.0 \text{ V}$ $R_L = 3 \text{ k}\Omega$		5.0*		6.0*	
* Parameter ratings will be specified during experimental design							

Timing diagrams when measuring IC dynamic parameters

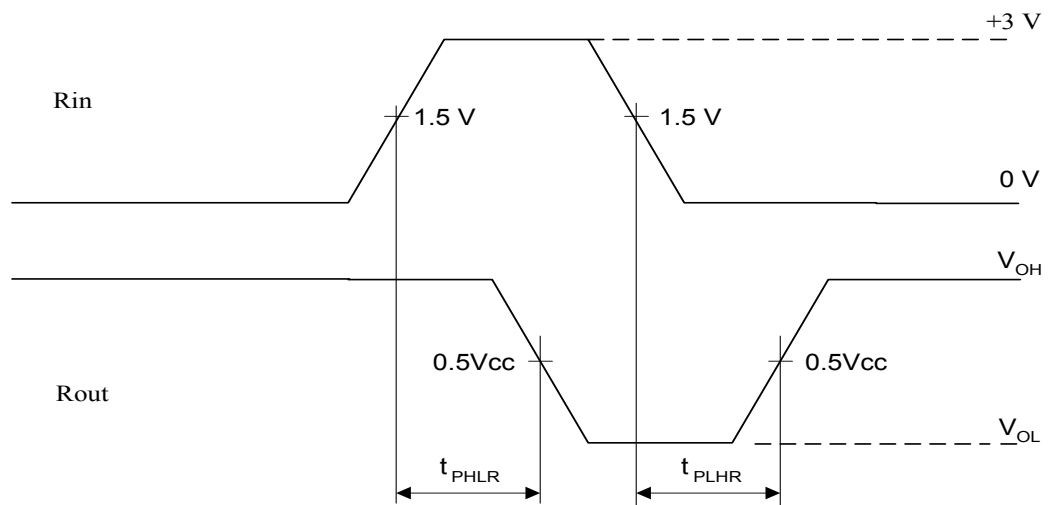


Figure 3- Timing diagram when measuring propagation delay time when switching on t_{PHLR} , propagation delay time when switching off t_{PLHR}

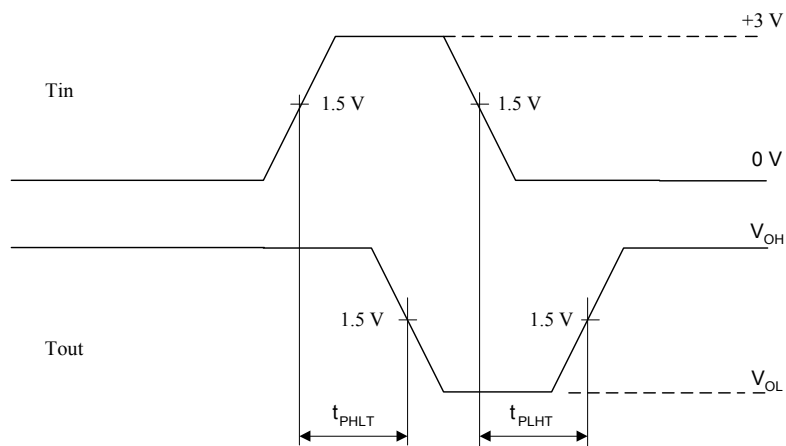


Figure 4 – Timing diagram when measuring propagation delay time when switching on t_{PHLT} , propagation delay time when switching off t_{PLHT}

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Sign	Dimensions, mm	
	MIN	MAX
A	15.20	15.60
B	7.40	7.60
C	2.35	2.65
D	0.33	0.51
F	0.40	1.27
G	1.27	
H	9.53	
J	0°	8°
K	0.10	0.30
M	0.23	0.32
P	10.0	10.65
R	0.25	0.75

