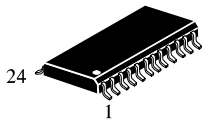
Interface IC of data serial transfer with one supply voltage

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



Packaged IC marking
ILX207DW SOIC
T_A = from -40 to 85 °C

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	

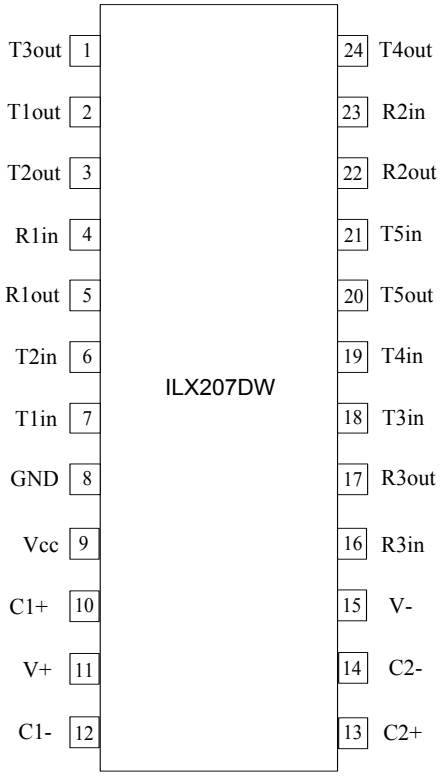


Figure 1 – Symbols of pins in package

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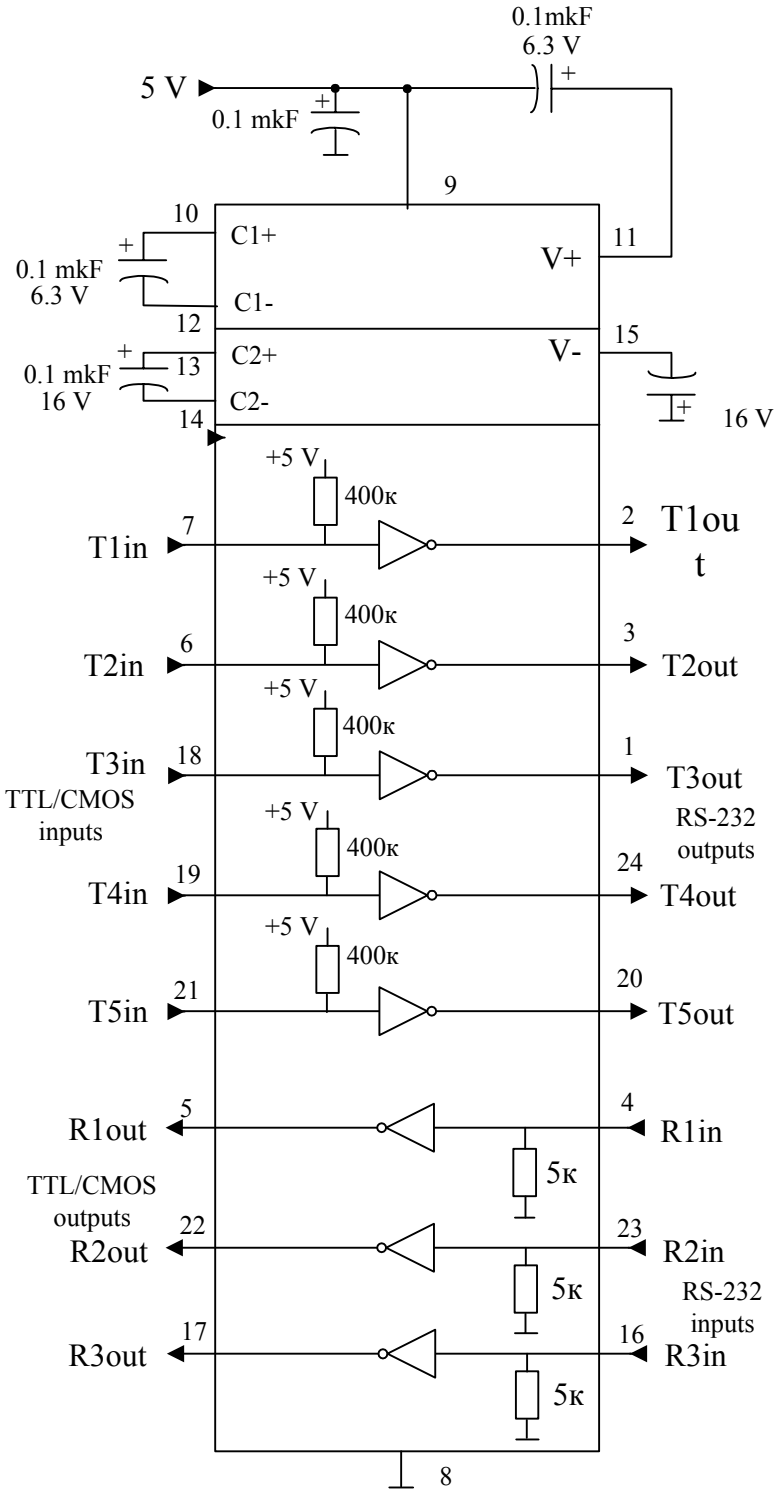

Figure 2 - Block-diagram

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 V	14	
VTIN	Transmitter input voltage	-0.3	V+ + 0.3 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

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 B V_{IL} = 0 B	-	20	-	28*	mA
Receiver electrical parameters							
Vh	Hysteresis voltage	V_{CC} = 5.0 V	0.2	0.9	0.2	1.0	V
Von	On voltage	Von ≤ 0.1 V I_{OL} ≤ 20 mkA	-	2.4	-	2.3	
Voff	Off voltage	Vo ≥ V_{CC} - 0.1 V I_{OH} ≤ -20 mkA	0.8	-	0.9	-	
V_{OL}	Low output voltage	I_{OL} = 1.6 mA V_{CC} = 4.5 V V_{IH} = 2.4 V	-	0.3	-	0.4	
V_{OH}	High output voltage	I_{OH} = -1.0 mA V_{CC} = 4.5 V V_{IL} = 0.8 V	3.6	-	3.5	-	
R_I	Input resistance	V_{CC} = 5.0 V	3.0	7.0	-		kOhm
Transmitter electrical parameters							
V_{OL}	Low output voltage	V_{CC} = 4.5 V V_{IH} = 2.0 V R_L = 3.0 kOhm	-	-5.2	-	-5.0	V
V_{OH}	High output voltage	V_{CC} = 4.5 V V_{IL} = 0.8 V R_L = 3.0 kOhm	5.2	-	5.0	-	
I_{IL}	Low input current	V_{CC} = 5.5 V V_{IL} = 0 V	-	170	-	200	mkA
I_{SC}	Short-circuit output current	V_{CC} = 5.5 V V_O = 0 V V_{IL} = 0 V		-50		-60	mA
		V_{CC} = 5.5 V V_O = 0 V V_{IH} = V_{CC}		50		60	
R_O	Output resistance	V_{CC}=V+=V-= 0 V V_O = ±2 V	350	-	300	-	Ohm
SR	Speed of output front change	V_{CC} = 5.0 V, C_L = 50-1000 pF R_L = 3-7 kOhm	3.0	30	-		V/mksec
ST	Information transmission speed	V_{CC} = 4.5 V, R_L = 3 kOhm, C_L = 1000 pF, t_W = 7 mksec	140	-	120		Kbit/sec

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

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

t_{PHLR} (t_{PLHR})	Signal propagation delay time when switching on (off)	V_{CC} = 4.5 V C_L = 150 pF V_{IL} = 0 V V_{IH} = 3.0 V	-	9.7	-	10.0	mksec
t_{PHLT} (t_{PLHT})	Signal propagation delay time when switching on (off)	V_{CC} = 4.5 V C_L = 2500 pF V_{IL} = 0 V V_{IH} = 3.0 V R_L = 3 kOhm		5.0*		6.0*	

* Parameter ratings will be specified during experimental design

Timing diagrams when measuring IC dynamic parameters

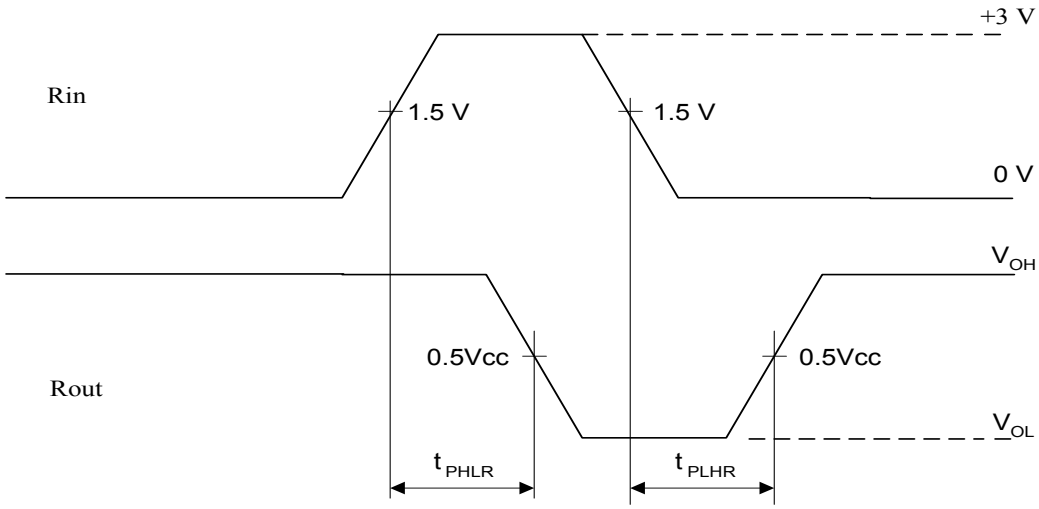

Figure 3- Timing diagram when measuring propagation delay time when switching on t_{PHLR}, propagation delay time when switching off t_{PLHR}

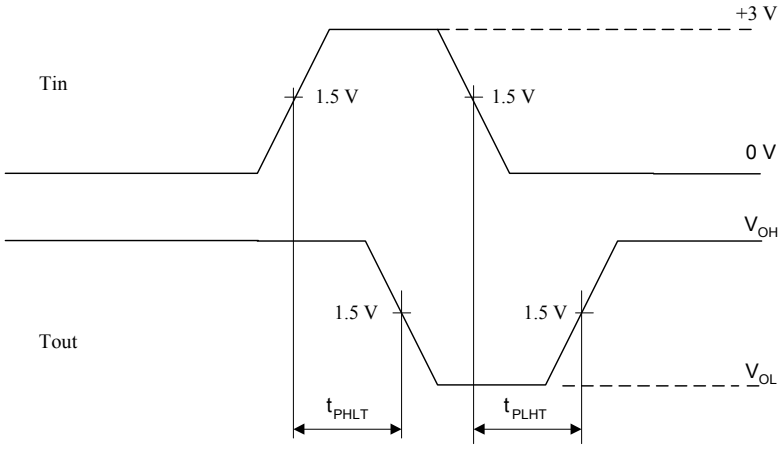

Figure 4 – Timing diagram when measuring propagation delay time when switching on t_{PHLT}, propagation delay time when switching off t_{PLHT}

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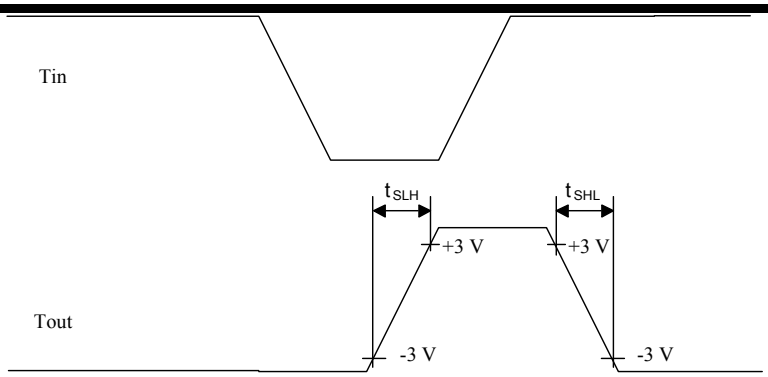


Figure 5 – Timing diagram of signals when measuring speed of output voltage SR change

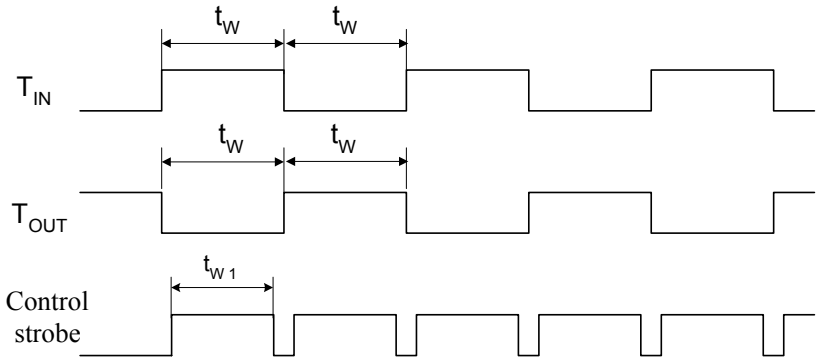
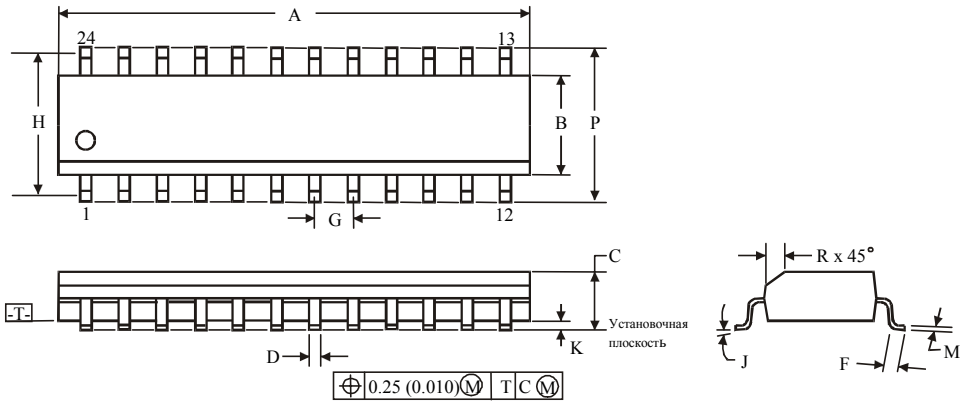


Figure 6 – Timing diagram of signals when measuring speed of information ST transmission

Package overall dimensions

4322.24-A



Note:

1. Overall dimensions A and B are specified without taking fin and metal protuberances into consideration.
2. Presence of fin and metal protuberances for A – up to 0.15 mm (0.006) for side; for B – up to 0.25 mm (0.010) for side.

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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