

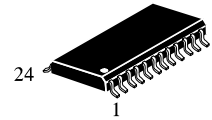
ILX208DW

Interface IC of data serial transfer with one supply voltage

Interface transceivers of serial data as per RS - 232 MAX208 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:

4 transmitters and 4 receivers of serial data as per RS – 232 standards



Packaged IC marking

ILX208DW 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

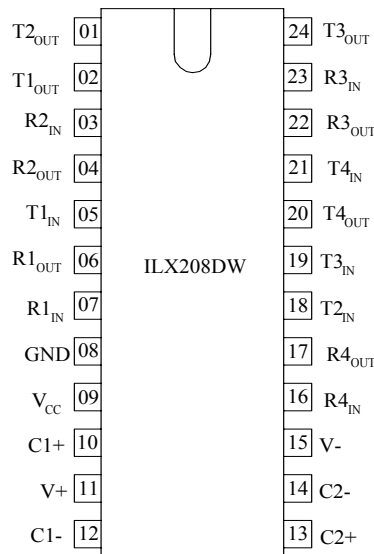


Figure 1 – Symbols of pins in package

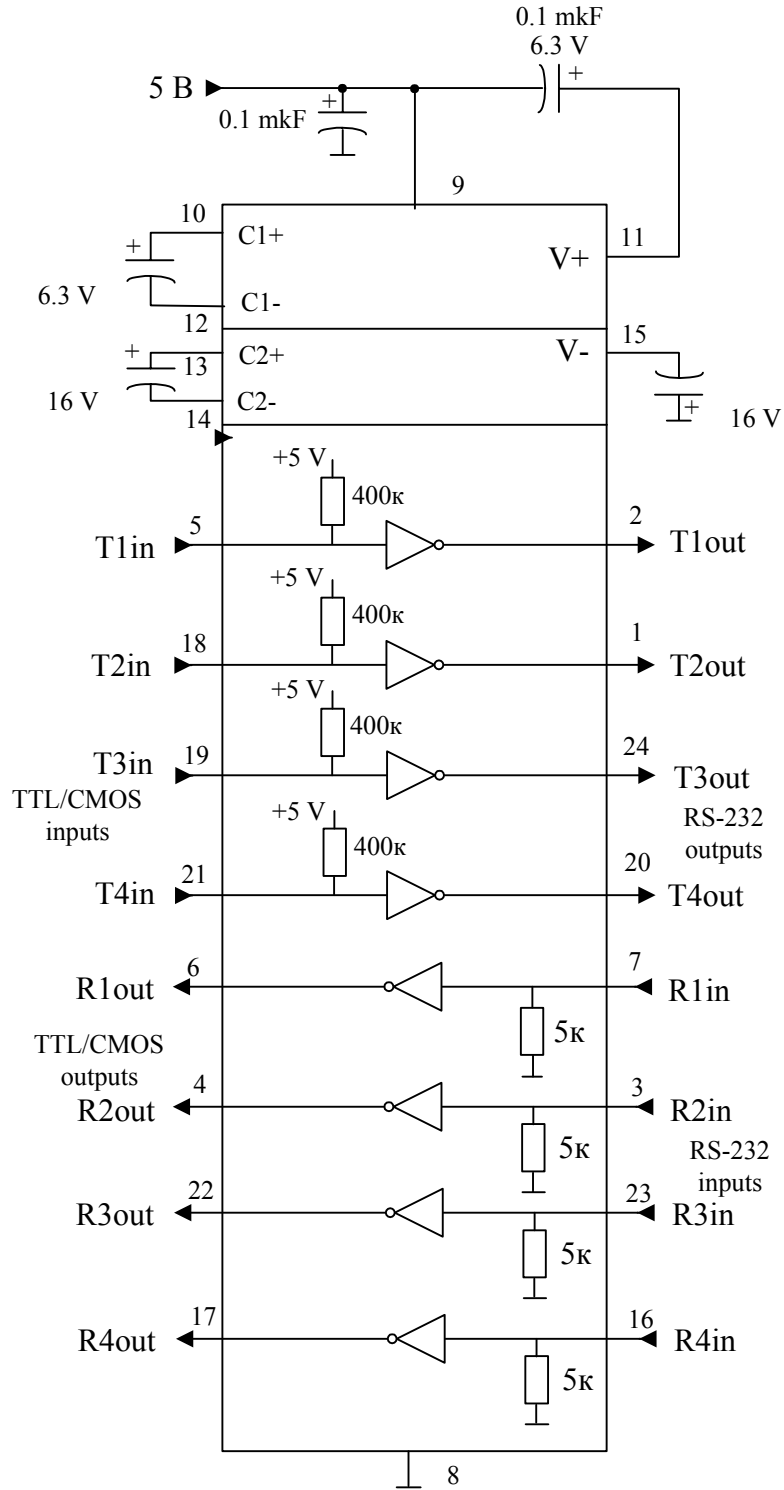


Figure 2 – Block diagram

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Pin description

Pin number	Pin name	Symbol
01	Transmitter data output (levels RS – 232)	T2 _{OUT}
02	Transmitter data output (levels RS – 232)	T1 _{OUT}
03	Receiver data input (levels RS – 232)	R2 _{IN}
04	Receiver data output (levels RS – 232)	R2 _{OUT}
05	Transmitter data input (levels TTL/CMOS)	T1 _{IN}
06	Receiver data output (levels RS – 232)	R1 _{OUT}
07	Receiver data input (levels RS – 232)	R1 _{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)	R4 _{IN}
17	Receiver data output (levels TTL/CMOS)	R4 _{OUT}
18	Transmitter data input (levels TTL/CMOS)	T2 _{IN}
19	Transmitter data input (levels TTL/CMOS)	T3 _{IN}
20	Transmitter data output (levels RS – 232)	T4 _{OUT}
21	Transmitter data input (levels TTL/CMOS)	T4 _{IN}
22	Receiver data output (levels TTL/CMOS)	R3 _{OUT}
23	Receiver data input (levels RS – 232)	R3 _{IN}
24	Transmitter data output (levels RS – 232)	T3 _{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

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Static parameters

Symbol	Parameter	Test conditions	Rate				Unit
			25°C		from -40 to 85 °C		
			min	max	min	max	
I_{CC}	Consumption current static	$V_{CC} = 5.5 \text{ V}$ $V_{IL} = 0 \text{ V}$	-	20	-	28*	mA

Receiver electrical parameters^a

V_h	Hysteresis voltage	$V_{CC} = 5.0 \text{ V}$	0.2	0.9	0.2	1.0	V
V_{on}	On voltage	$V_{on} \leq 0.1 \text{ V}$ $I_{OL} \leq 20 \text{ mA}$	-	2.4	-	2.3	
V_{off}	Off voltage	$V_o \geq V_{CC} - 0.1 \text{ V}$ $I_{OH} \leq -20 \text{ mA}$	0.8	-	0.9	-	
V_{OL}	Low output voltage	$I_{OL} = 1.6 \text{ mA}$ $V_{CC} = 4.5 \text{ V}$ $V_{IH} = 2.4 \text{ V}$	-	0.3	-	0.4	
V_{OH}	High output voltage	$I_{OH} = -1.0 \text{ mA}$ $V_{CC} = 4.5 \text{ V}$ $V_{IL} = 0.8 \text{ V}$	3.6	-	3.5	-	
R_i	Input resistance	$V_{CC} = 5.0 \text{ V}$	3.0	7.0	-	-	kOhm

Transmitter electrical parameters

V_{OL}	Low output voltage	$V_{CC} = 4.5 \text{ V}$ $V_{IH} = 2.0 \text{ V}$ $R_L = 3.0 \text{ kOhm}$	-	-5.2	-	-5.0	V
V_{OH}	High output voltage	$V_{CC} = 4.5 \text{ V}$ $V_{IL} = 0.8 \text{ V}$ $R_L = 3.0 \text{ kOhm}$	5.2	-	5.0	-	
I_{IL}	Low input current	$V_{CC} = 5.5 \text{ V}$ $V_{IL} = 0 \text{ V}$	-	170	-	200	MkA
I_{sc}	Short-circuit output current	$V_{CC} = 5.5 \text{ V}$ $V_o = 0 \text{ V}$ $V_{IL} = 0 \text{ V}$		-50		-60	mA
		$V_{CC} = 5.5 \text{ V}$ $V_o = 0 \text{ V}$ $V_{IH} = V_{CC}$		50		60	
R_o	Output resistance	$V_{CC} = V_+ = V_- = 0 \text{ V}$ $V_o = \pm 2 \text{ V}$	350	-	300	-	Ohm
SR	Speed of output front change	$V_{CC} = 5.0 \text{ V}$, $C_L = 50\text{-}1000 \text{ pF}$ $R_L = 3\text{-}7 \text{ kOhm}$	3.0	30	-	-	V/mksec
ST	Information transmission speed	$V_{CC} = 4.5 \text{ V}$, $R_L = 3 \text{ kOhm}$, $C_L = 1000 \text{ pF}$, $t_w = 7 \text{ mksec}$	140	-	120	-	Kbit/sec
ST	Information transmission speed	$V_{CC} = 4.5 \text{ V}$, $R_L = 3 \text{ kOhm}$, $C_L = 1000 \text{ pF}$, $t_w = 7 \text{ mksec}$	140	-	120	-	Kbit/sec

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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	
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)	$V_{CC} = 4.5 \text{ V}$ $C_L = 2500 \text{ pF}$ $V_{IL} = 0 \text{ V}$ $V_{IH} = 3.0 \text{ V}$ $R_L = 3 \text{ kOhm}$		5.0*		6.0*	

* Parameter ratings will be specified during experimental design

Timing diagrams when measuring IC dynamic parameters

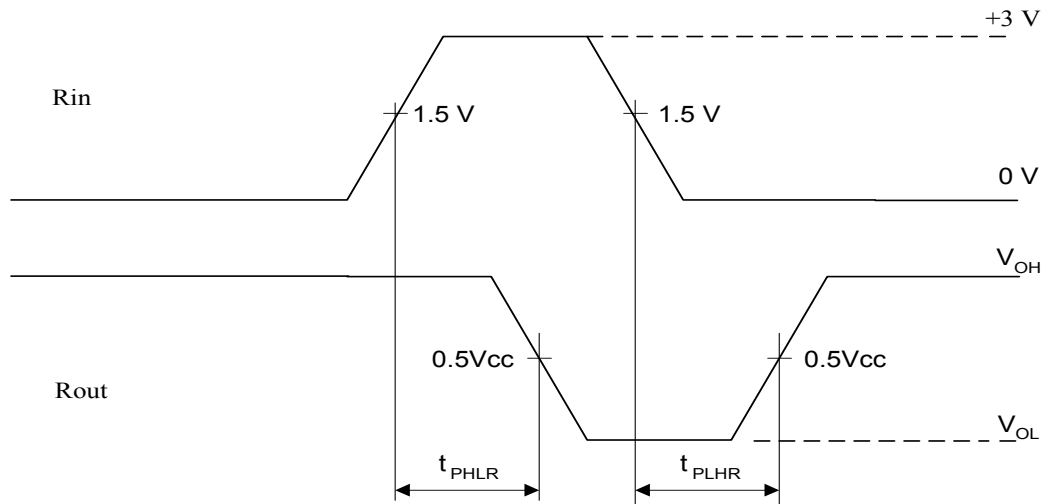


Figure 3 - Timing diagram when measuring propagation delay time when switching on t_{PHLR} , propagation delay time when switching off t_{PLHR}

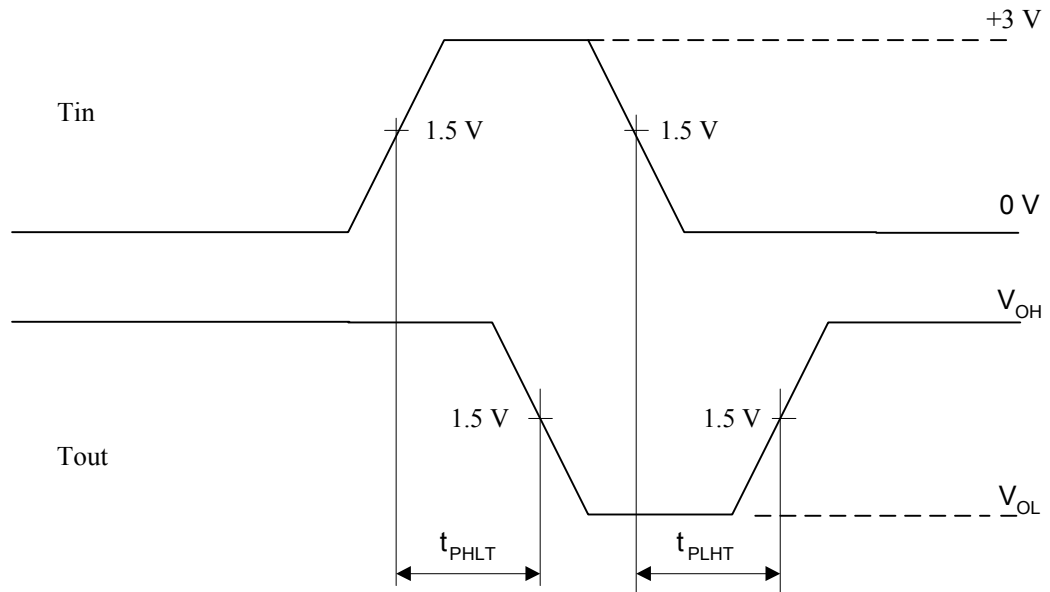


Figure 4 – Timing diagram when measuring propagation delay time when switching on t_{PHLT} , propagation delay time when switching off t_{PLHT}

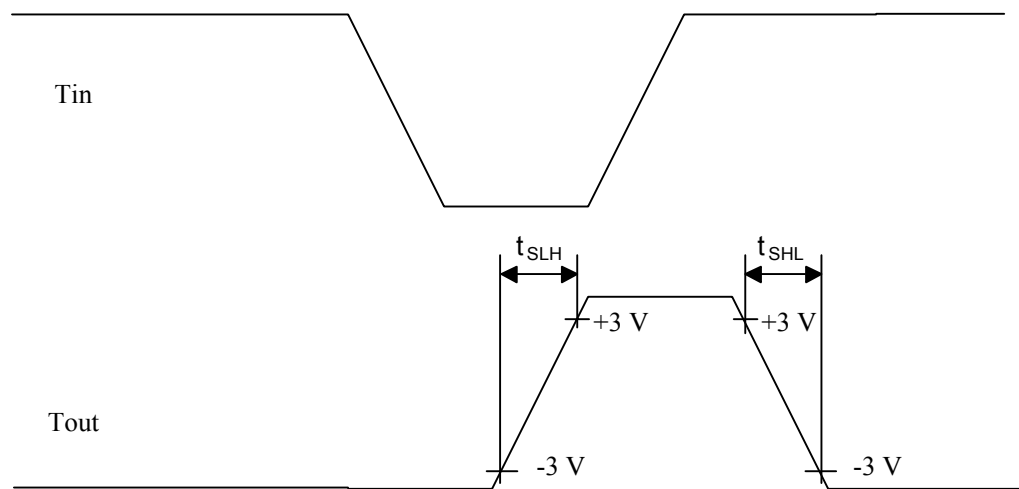


Figure 5 – Timing diagram of signals when measuring speed of output voltage SR change

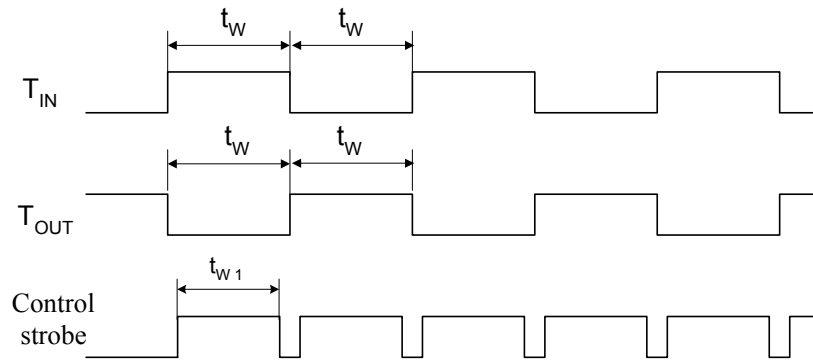
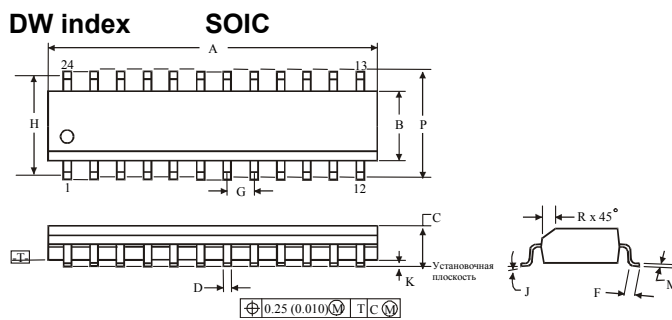


Figure 6 – Timing diagram of signals when measuring speed of information ST transmission

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.

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