



CD232

5V Dual-Channel 120kbps RS-232 Line Driver/Receiver

Version: Rev 1.0.0 Date: 2025-6-25

Features ■■

- Output voltage levels are compatible with
- Supply voltage : 5V
- Low input current: 1.0 μ A; 0.1 μ A at TA= 25°C
- Output current 24mA
- Latching current not less than 450mA at TA=
- Enhanced ESD Specifications:
 - ±15kV IEC61000-4-2 Air Discharge
 - ±8kV IEC61000-4-2 Contact Discharge

Application ■■

- Computers
- Peripherals
- Modems
- Printers
- Instruments

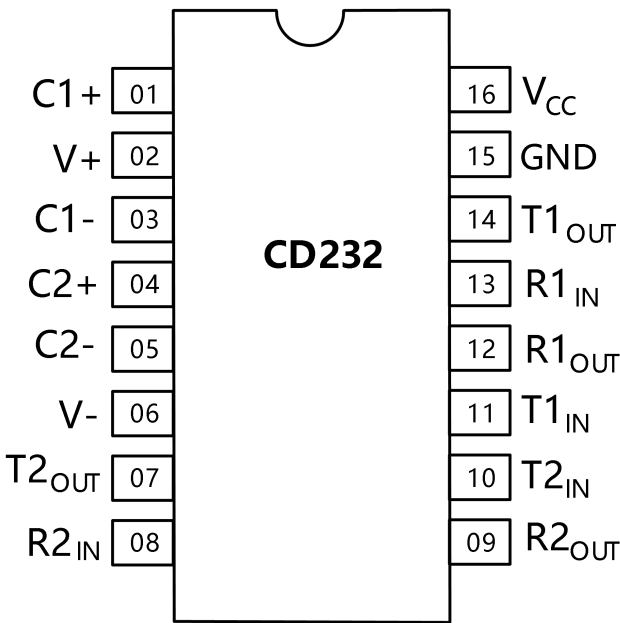
Description ■■

CD232 is purposed for application in high-performance information processing systems and control devices of wide application.

Contents

Features	- 1 -
Application	- 1 -
Description	- 1 -
Pin Configurations	- 3 -
Pin Description	- 3 -
Absolute Maximum Ratings	- 4 -
Recommended Operating Conditions	- 4 -
Electrical Characteristics	- 5 -
Capacitance	- 7 -
Timing diagram when measuring IC dynamic parameters	- 7 -
Package Outline Dimensions	- 9 -
Package/Ordering Information	- 10 -
Revision Log	- 11 -

Pin Configurations



Inputs	Outputs
R _{IN} , T _{IN}	ROVT, TOVT
H	L
L	H
Note: H – voltage high level; L – low voltage level	

Pin Description

PIN N°	SYMBOL	NAME AND FUNCTION
01	C1+	Output of external capacitance of positive voltage multiplier unit
02	V+	Output of positive voltage of multiplier unit
03	C1-	Output of external capacitance of positive voltage multiplier unit
04	C2+	Output of external capacitance of negative voltage multiplier unit
05	C2-	Output of external capacitance of negative voltage multiplier unit
06	V-	Output of negative voltage of multiplier unit
07	T2OUT	Output of transmitter data (levels RS– 232)
08	R2IN	Input of receiver data (levels RS – 232)
09	R2OUT	Output of receiver data (levels TTL/KMOS)

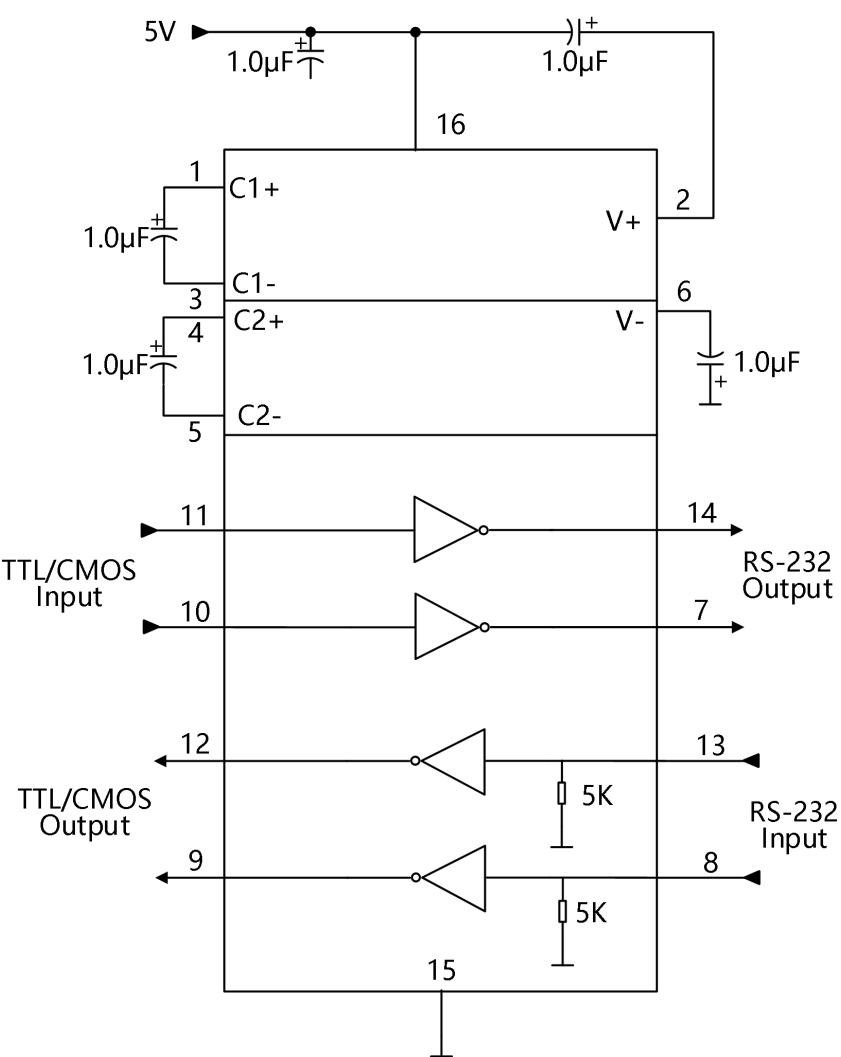
10	T2IN	Input of transmitter data (levels TTL/KMOS)
11	T1IN	Input of transmitter data (levels TTL/KMOS)
12	R1OUT	Output of receiver data (levels TTL/KMOS)
13	R1IN	Input of receiver data (levels RS – 232)
14	T1OUT	Output of transmitter data (levels RS – 232)
15	GND	Common output
16	VCC	Supply output of voltage source

Absolute Maximum Ratings

Symbol	Parameter	Rate		Unit
		Min	Max	
V _{CC}	Supply voltage	-0.3	6.0	V
V ₊	Transmitter high output voltage	V _{CC} -0.3	14	
V ₋	Transmitter low output voltage	-0.3	-14	
V _{TIN}	Transmitter input voltage	-0.3	V ₊ +0.3	
V _{RIN}	Receiver input voltage	-30	30	
P _D	Dissipated power DIP – package SO – package	-	842	mW
			762	
I _{SC}	Output current of transmitter short circuit	-	Continu-ously	mA
T _s	Storage temperature	-60	150	°C

Recommended Operating Conditions

Symbol	Parameter	Rate		Unit
		Min	Max	
V _{CC}	Supply voltage	4.5	5.5	V
V ₊	Transmitter output high voltage	5.0	-	
V ₋	Transmitter output low voltage	-5.0	-	
V _{TIN}	Transmitter input voltage	0	V _{CC}	
V _{RIN}	Receiver input voltage	-30	30	
I _{SC}	Transmitter short circuit output current	-	±60	mA
T _A	Ambient temperature	-40	125	°C



Electrical Characteristics

Symbol	Parameter	Test conditions	Rate				Unit
			25°C		-40°C to 125°C		
			Min	Max	Min	Max	
I _{CC}	Consumption current static	V _{CC} =5.0 V V _{IL} = 0 V	-	10.0	-	14.0*	mA
Receiver electrical parameters							
V _H	Hysteresis voltage	V _{CC} =5.0 V	0.2	0.9	0.2	1.0	V
V _{ON}	On (operation) voltage	V _O ≤0.1 V I _{OL} ≤20uA	-	2.4	-	2.3	

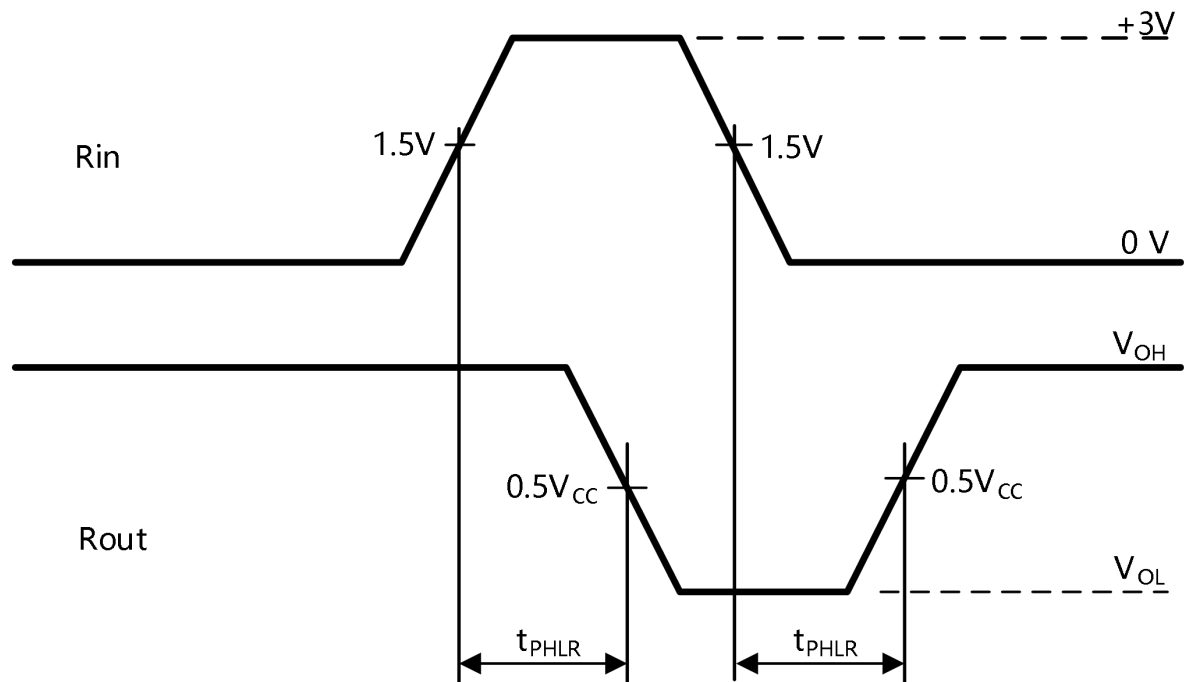
V_{OFF}	Off (dropout) voltage	$V_O \geq V_{CC} - 0.1 \text{ V}$ $I_{OH} \leq -20 \mu\text{A}$	0.8	-	0.9	-	
V_{OL}	Output low voltage	$I_{OL} = 3.2 \text{ mA}$ $V_{CC} = 4.5 \text{ V}$ $V_{IH} = 2.4 \text{ V}$	-	0.3	0.4		
V_{OH}	Output high voltage	$I_{OH} = -1.0 \text{ mA}$ $V_{CC} = 4.5 \text{ V}$ $V_{IL} = 0.8 \text{ V}$	3.6	-	3.5	-	
R_i	Input resistance	$V_{CC} = 5.0 \text{ V}$	3.0	7.0	3.0	7.0	kOhm
Transmitter electrical parameters							
V_{OL}	Output low 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}	Output high 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}	Input low current	$V_{CC} = 5.5 \text{ V}$ $V_{IL} = 0 \text{ V}$	-	-1.0	-	-10.0	μA
I_{IH}	Input high current	$V_{CC} = 5.5 \text{ V}$ $V_{IH} = V_{CC}$	-	1.0	-	10.0	
SR	Speed of output front change	$V_{CC} = 5.0 \text{ V}$ $C_L = 50 - 1000 \text{ pF}$ $R_L = 3.0 - 7.0 \text{ kOhm}$	3.0	30	2.7	27	V/ μs
R_O	Output resistance	$V_{CC} = V_+ = V_- = 0 \text{ V}$ $V_O = 2 \text{ V}$	350	-	300	-	Ohm
I_{SC}	Short circuit output current	$V_{CC} = 5.5 \text{ V}$ $V_O = 0 \text{ V}$ $V_I = V_{CC}$ $V_I = 0 \text{ V}$		-50 50		-60 60	mA
ST	Speed of information transmission	$V_{CC} = 4.5 \text{ V}$ $C_L = 1000 \text{ pF}$ $R_L = 3.0 \text{ kOhm}$ $T_W = 7 \mu\text{s}$ (for extreme $-T_W = 8 \mu\text{s}$)	140	-	120	-	kbps
Dynamic parameters							
T_{PHLR} (T_{PLHR})	Signal propagation delay time when switching on (off)	$V_{CC} = 4.5 \text{ V}$ $C_L = 150 \text{ pF}$ $V_{IL} = 0 \text{ V}$ $V_{IH} = 3.0 \text{ V}$ $T_{LH} = T_{HL} \leq 10 \text{ ns}$	-	9.7	-	10	

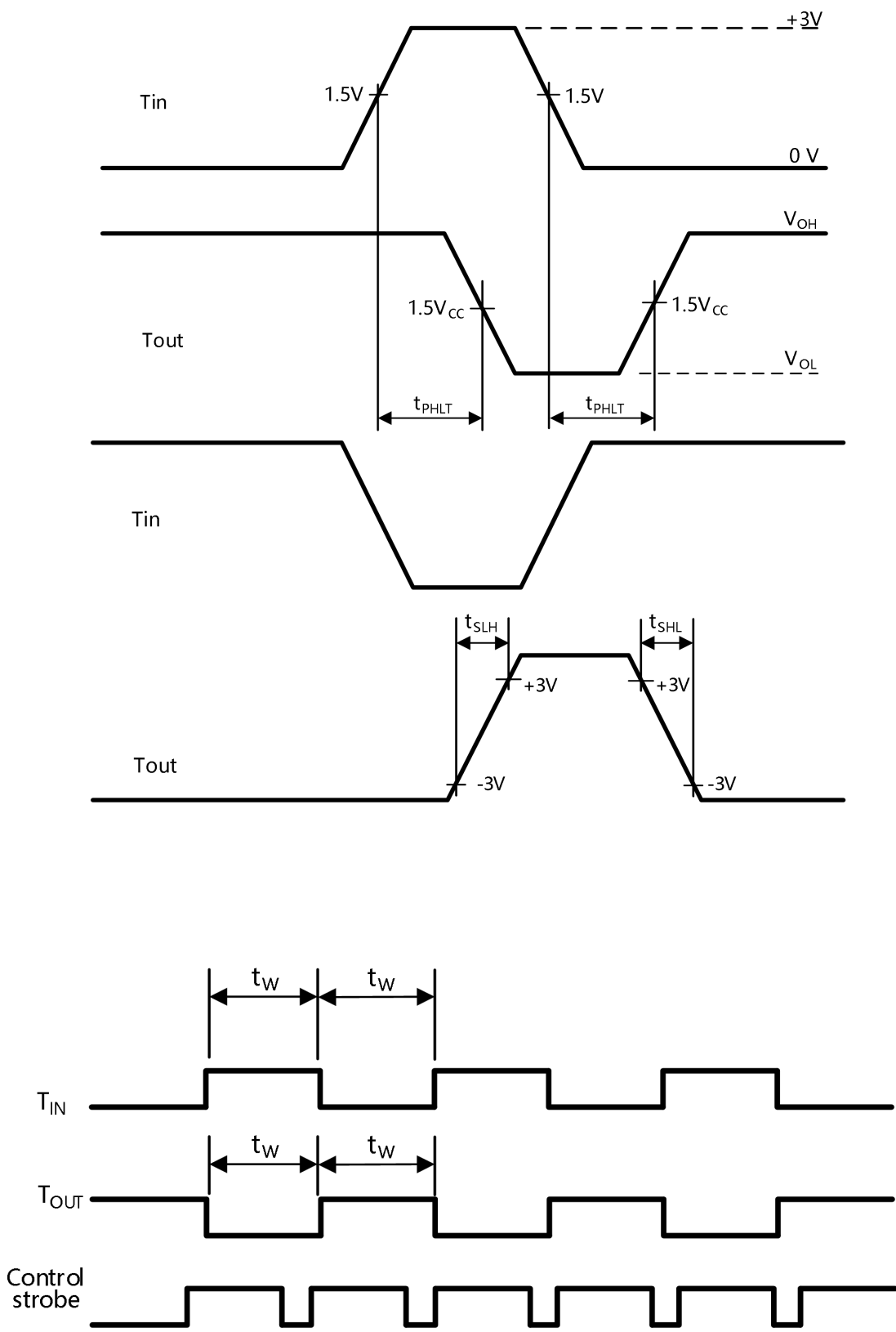
T_{PHLT} (T_{PLHT})	Signal propagation delay time when switching on (off)	$V_{CC} = 4.5V$ $C_L = 2500pF$ $V_{IL} = 0V$ $V_{IH} = 3.0V$ $R_L = 3k\Omega$ $T_{LH} = T_{HL} \leq 10ns$	-	5.0*	6.0*	us
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Capacitance

Symbol	Parameter	VCC,	Rate	Unit
C_{IN}	Input capacitance	5.0	9.0	pF
C_{PD}	Dynamic capacitance		90	

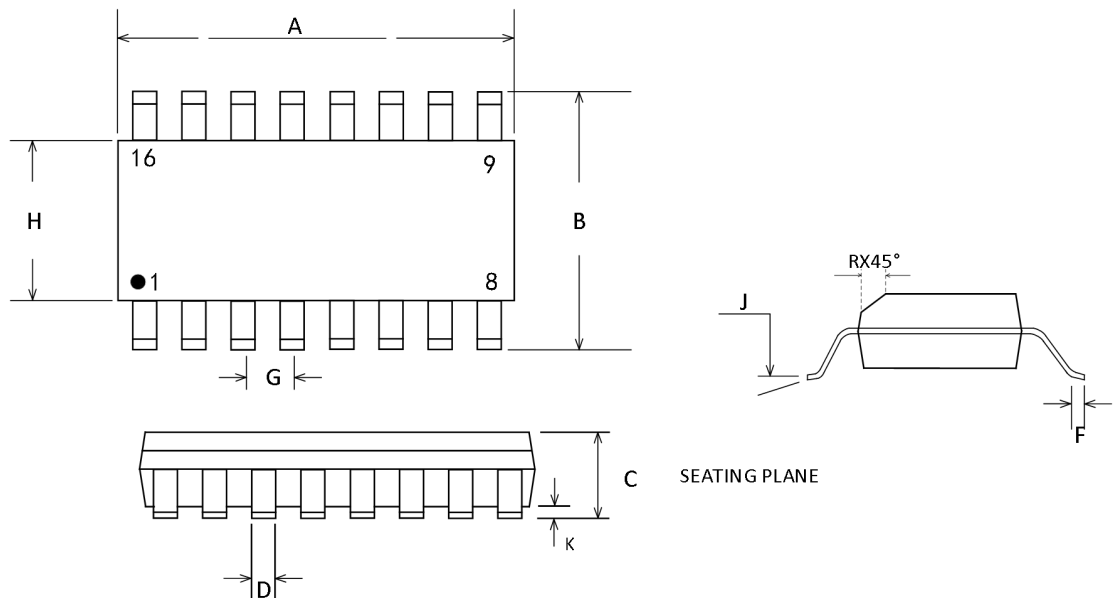
Timing diagram when measuring IC dynamic parameters





Package Outline Dimensions

SOP-16



Symbol	Dimensions ,mm	
	Min	Max
A	9.80	9.98
B	5.80	6.20
C	1.52	1.72
D	0.33	0.51
F	0.40	1.27
G	1.27BSC	
H	3.81	3.99
J	0°	8°
K	0.10	0.25
R	0.25	0.5

Package/Ordering Information

MODEL	TEMPERATURE	PACKAGE DESCRIPTION	PACKAGE OPTION
CD232AS16	-40°C~125°C	SOP-16	Tape and Reel, 2500
CD232AS16-RL	-40°C~125°C	SOP-16	Tape and Reel, 3000
CD232AS16-REEL	-40°C~125°C	SOP-16	Tape and Reel, 4000

Revision Log

Version	Revision date	Change content	Reason for Change	Modified by	Reviewed By	Note
V1.0	2025.6.25	Initial version	Regular update	WW	LYL	