



CDuD1200_CDuD1201

Dual-Channel Digital Isolator

Version: Rev 1.0.0 Date: 2025-8-14

Features ■■

- 2.5V~5.5V power supply
- Isolation voltage is 3kV RMS
- The CMTI of common mode
- transient suppression was up to 100KV/uS
- 2.1V undervoltage protection
- Maximum signal transmission is 90Mbps
- Transmission latency is as low as 11ns
- Pulse width distortion was as low as 5ns
- Default output options for high level (H) and low
- Operating temperature support from -40°C to +85°C

Application ■■

- Industrial control
- Grid relay protection device
- Isolated power control
- Replace Optocoupler
- Industrial motor control
- Solar inverter

Description ■■

The CDuD120X series is a high-speed 2-channel digital isolator. Integrated high-performance capacitive isolation technology. The maximum signal transmission rate is up to 90Mbps, with small pulse width distortion. The device can withstand a high isolation voltage and meets the conventional one Test Specifications (UL Standards). No requirements for the external electromagnetic field environment.

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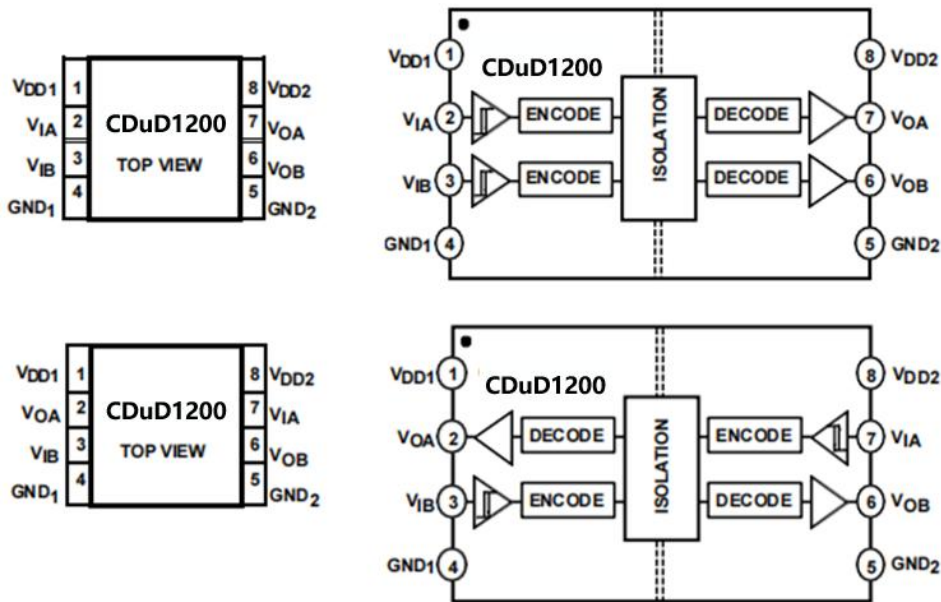
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Pin Configurations

Product Model	Function	Default
CDMuD1201L	Double Direction	Default output is low
CDMuD1201H	Double Direction	Default output is High
CDMuD1200L	Single Direction	Default output is low
CDMuD1200H	Single Direction	Default output is High



Truth Table

CDuD1200H, CDuD1201H Truth Table

VIA Input	VIB Input	VDD1 Status	VDD2 Status	VOA Output	VOB Output
H	H	Power on	Power on	H	H
L	L	Power on	Power on	L	L
H	L	Power on	Power on	H	L
L	H	Power on	Power on	L	H
X	X	Not Power on	Power on	H	H
X	X	Power on	Not Power on	X	X

CDuD1200L, CDuD1201L Truth Table

VIA Input	VIB Input	VDD1 Status	VDD2 Status	VOA Output	VOB Output
H	H	Power on	Power on	H	H
L	L	Power on	Power on	L	L
H	L	Power on	Power on	H	L
L	H	Power on	Power on	L	H
X	X	Not Power on	Power on	L	L
X	X	Power on	Not Power on	X	X

Absolute Maximum Ratings

Parameters	Range
VCC	-0.3~6V
I/O service voltage	GND- 0.3 to VCC + 0.5V
IOport maximum output current	±50mA
Junction temperature	-50°C to +150°C
Storage temperature	-40°C to +85°C
Junction temperature	150°C
HBM	±3000V
MM	±500V

Recommended Operationing Condition

Parameter	Condition	Min	Typ	Max	Unit
Supply Voltage		2.5	--	5.5	V
Logic input is a high level		0.7xVDD			V
Logic low level					0.3xVDD
Rated electrolyte isolation voltage	For 1 mimute	3000			V RMS
Minmum external creepage distance	Measure input to output,the shortest distance along the shell	3.9			mm
Minimum gap bewteen	The shortest distance of each	3.9			mm

PCB layers	layer of PCB power domain				
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Insulation Certification

Item	Electrical safety standard	Description
1	UL 1577	Standard for safety: Optical isolators
2	IEC 60601-1	Medical electrical equipment-Part 1: General requirements for basic safety and essential performance
3	IEC 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use-Part1: General requirements
4	IEC 60950-1	Information technology equipment-Safety -Part 1: General requirements
5	GB 4943.1-2011	Information technology equipment-Safety -Part 1: General Requirements
6	DIN VDE V 0884-11(VDE V 0884-11):2017-01	Magnetic and capacitive coupler for basic and reinforced isolation

Electrical characteristics

Performance parameters under 2.5V power supply (At T_A = -40°C to 85°C, V_{DD1}=V_{DD2}=2.5V)

Parameter	Symbol	Min	Typ	Max	Test Condition	Units
Data rate	DR	--	90	--		Mbps
High to low transmission latency	t _{PHL}	--	13	17	50% input to 50% output	ns
Low to high transmission latency	t _{PLH}	--	13	17	50% input to 50% output	ns
Channel matching	t _M	--	--	3		ns
Pulse distortion	PWD	--	--	6		ns
Output up time	tr	1.5	2	3	Output rise time, 10%~90% 10pF load	ns
Output drop time	tf	1.5	2	3	Lower up time, 90%~10% 10pF load	ns
CBMuD1200 Quiescent Current & Dynamic Current						
Power static current	I _{DD1(Q)}	--	1.43	2.2	Input/Output floating	mA/channel
	I _{DD2(Q)}	--	3.27	4.9	Input/Output floating	mA/channel
Dynamic power	I _{DD1(D)}	--	2.48	3.7	The input signal is 1MHz,C _L =10pF	mA/channel

current (2Mbps)	$I_{DD2(D)}$	--	3.64	5.5	The input signal is 1MHz, $C_L=10pF$	mA/channel
Dynamic power current (20Mbps)	$I_{DD1(D)}$	--	2.52	3.8	The input signal is 10MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	5.70	8.6	The input signal is 10MHz, $C_L=10pF$	mA/channel
Dynamic power current (60Mbps)	$I_{DD1(D)}$	--	2.62	3.9	The input signal is 30MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	6.91	10.4	The input signal is 30MHz, $C_L=10pF$	mA/channel
CBMuD1201 Quiescent Current & Dynamic Current						
	$I_{DD1(Q)}$	--	1.53	2.3	Input/Output floating	mA/channel
	$I_{DD2(Q)}$	--	1.56	2.3	Input/Output floating	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.11	3.2	The input signal is 1MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	1.64	2.5	The input signal is 1MHz, $C_L=10pF$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.34	3.5	The input signal is 10MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	2.13	3.2	The input signal is 10MHz, $C_L=10pF$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.43	3.6	The input signal is 30MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	3.20	4.8	The input signal is 30MHz, $C_L=10pF$	mA/channel
Input Currents	I_{IA}, I_{IB}	-10	+0.01	+10	$0V \leq V_{IA}, V_{IB} \leq (V_{DD1} \text{ or } V_{DD2})$	μA
Logic High Input Threshold	V_{IH}	1.8	--	2.5	--	V
Logic Low Input Threshold	V_{IL}	0	--	0.6	--	V
Logic High Output Voltages	V_{OAH}, V_{OBH}	2.3	2.45	--	$I_{OH} = -1mA$	V
Logic Low Output Voltages	V_{OAL}, V_{OBL}	--	00.5	0.2	$I_{OL} = 1mA$	V

Performance parameters under 3.3V power supply (At $T_A = -40^{\circ}C$ to $85^{\circ}C$, $V_{DD1}=V_{DD2}=3.3V$)

Parameter	Symbol	Min	Typ	Max	Test Condition	Units
Data rate	DR	--	90	--		Mbps
High to low transmission latency	t_{PHL}	--	11	15	50% input to 50% output	ns
Low to high transmission latency	t_{PLH}	--	11	15	50% input to 50% output	ns
Channel matching	t_M	--	--	3		ns
Pulse distortion	PWD	--	--	6		ns
Output up time	t_r	1.5	2	3	Output rise time, 10%~90% 10pF load	ns
Output drop time	t_f	1.5	2	3	Lower up time, 90%~10% 10pF load	ns
CBMuD1200 Quiescent Current & Dynamic Current						

Power static current	$I_{DD1(Q)}$	--	1.44	2.2	Input/Output floating	mA/channel
	$I_{DD2(Q)}$	--	3.29	4.9	Input/Output floating	mA/channel
Dynamic power current (2Mbps)	$I_{DD1(D)}$	--	2.51	3.8	The input signal is 1MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	3.78	5.7	The input signal is 1MHz, $C_L=10pF$	mA/channel
Dynamic power current (20Mbps)	$I_{DD1(D)}$	--	2.55	3.8	The input signal is 10MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	6.55	9.8	The input signal is 10MHz, $C_L=10pF$	mA/channel
Dynamic power current (60Mbps)	$I_{DD1(D)}$	--	2.68	4	The input signal is 30MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	8.26	12.4	The input signal is 30MHz, $C_L=10pF$	mA/channel

CBMuD1201 Quiescent Current & Dynamic Current

Power static current	$I_{DD1(Q)}$	--	1.54	2.3	Input/Output floating	mA/channel
	$I_{DD2(Q)}$	--	1.58	2.4	Input/Output floating	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.13	3.2	The input signal is 1MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	1.67	2.5	The input signal is 1MHz, $C_L=10pF$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.32	3.5	The input signal is 10MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	2.32	3.5	The input signal is 10MHz, $C_L=10pF$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.45	3.7	The input signal is 30MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	3.74	5.6	The input signal is 30MHz, $C_L=10pF$	mA/channel
Input Currents	I_{IA}, I_{IB}	-10	+0.01	+10	$0V \leq V_{IA}, V_{IB} \leq (V_{DD1} \text{ or } V_{DD2})$	μA
Logic High Input Threshold	V_{IH}	2.3	--	3.3	--	V
Logic Low Input Threshold	V_{IL}	0	--	0.8	--	V
Logic High Output Voltages	V_{OAH}, V_{OBH}	3.0	3.2	--	$I_{OH} = -2mA$	V
Logic Low Output Voltages	V_{OAL}, V_{OBL}	--	0.1	0.3	$I_{OL} = 2mA$	V

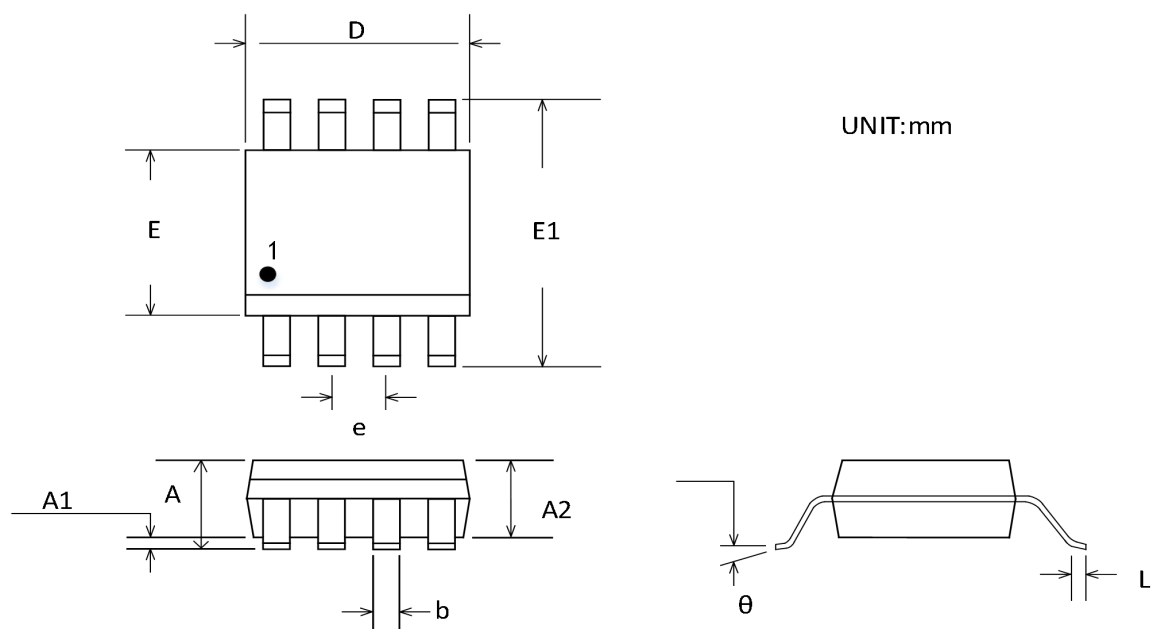
Performance parameters under 5V power supply (At $T_A = -40^{\circ}C$ to $85^{\circ}C$, $V_{DD1}=V_{DD2}=5V$)

Parameter	Symbol	Min	Typ	Max	Test Condition	Units
Data rate	DR	--	90	--		Mbps
High to low transmission latency	t_{PHL}	--	11	15	50% input to 50% output	ns
Low to high transmission latency	t_{PLH}	--	11	15	50% input to 50% output	ns
Channel matching	t_M	--	--	3		ns
Pulse distortion	PWD	--	--	6		ns
Output up time	tr	1.5	2	3	Output rise time, 10%~90% 10pF	ns

					load	
Output drop time	tf	1.5	2	3	Lower up time, 90%~10% 10pF load	ns
CBMuD1200 Quiescent Current & Dynamic Current						
Power static current	I _{DD1(Q)}	--	1.48	2.2	Input/Output floating	mA/channel
	I _{DD2(Q)}	--	3.33	5	Input/Output floating	mA/channel
Dynamic power current (2Mbps)	I _{DD1(D)}	--	2.54	3.8	The input signal is 1MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	4.05	6.1	The input signal is 1MHz, C _L =10pF	mA/channel
Dynamic power current (20Mbps)	I _{DD1(D)}	--	2.63	3.9	The input signal is 10MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	8.07	12.1	The input signal is 10MHz, C _L =10pF	mA/channel
Dynamic power current (60Mbps)	I _{DD1(D)}	--	2.85	4.3	The input signal is 30MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	10.35	15.5	The input signal is 30MHz, C _L =10pF	mA/channel
CBMuD1201 Quiescent Current & Dynamic Current						
Power static current	I _{DD1(Q)}	--	1.59	2.4	Input/Output floating	mA/channel
	I _{DD2(Q)}	--	1.63	2.4	Input/Output floating	mA/channel
Dynamic power	I _{DD1(D)}	--	2.37	3.6	The input signal is 1MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	1.76	2.6	The input signal is 1MHz, C _L =10pF	mA/channel
Dynamic power	I _{DD1(D)}	--	2.28	3.4	The input signal is 10MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	2.68	4	The input signal is 10MHz, C _L =10pF	mA/channel
Dynamic power	I _{DD1(D)}	--	2.49	3.7	The input signal is 30MHz, C _L =10pF	mA/channel
	I _{DD2(D)}	--	4.72	7.1	The input signal is 30MHz, C _L =10pF	mA/channel
Input Currents	I _{IA} , I _{IB}	-10	+0.01	+10	0 V ≤ V _{IA} , V _{IB} ≤ (V _{DD1} or V _{DD2})	μA
Logic High Input Threshold	V _{IH}	3.5	--	5	--	V
Logic Low Input Threshold	V _{IL}	0	--	1.25	--	V
Logic High Output Voltages	V _{OAH} , V _{OBH}	4.6	4.8	--	I _{OH} = -4mA	V
Logic Low Output Voltages	V _{OAL} , V _{OBL}	--	0.2	0.4	I _{OL} = 4mA	V

Package Outline Dimensions

SOP-8



Symbol	Dimensions In Millimeters	
	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.310	0.510
D	4.800	5.000
E	3.800	4.000
E1	5.800	6.200
e	1.270 BSC	
L	0.400	1.270
θ	0°	8°

Package/Ordering Information

MODEL	TEMPERATURE	PACKAGE DESCRIPTION	PACKAGE OPTION
CDuD1200LAS8	-40°C~85°C	SOP-8	Tape and reel,2500
CDuD1200LAS8-RL	-40°C~85°C	SOP-8	Tape and reel,3000
CDuD1200LAS8-REEL	-40°C~85°C	SOP-8	Tape and reel,4000
CDuD1200HAS8	-40°C~85°C	SOP-8	Tape and reel,2500
CDuD1200HAS8-RL	-40°C~85°C	SOP-8	Tape and reel,3000
CDuD1200HAS8-REEL	-40°C~85°C	SOP-8	Tape and reel,4000
CDuD1201LAS8	-40°C~85°C	SOP-8	Tape and reel,2500
CDuD1201LAS8-RL	-40°C~85°C	SOP-8	Tape and reel,3000
CDuD1201LAS8-REEL	-40°C~85°C	SOP-8	Tape and reel,4000
CDuD1201HAS8	-40°C~85°C	SOP-8	Tape and reel,2500
CDuD1201HAS8-RL	-40°C~85°C	SOP-8	Tape and reel,3000
CDuD1201HAS8-REEL	-40°C~85°C	SOP-8	Tape and reel,4000

Revision Log

Version	Revision date	Change content	Reason for Change	Modified by	Reviewed By	Note
V1.0	2025.8.14	Initial version	Regular update	WW	LYL	