

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 level (L)
- Operating temperature support from -40°C to +85°C

Application

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

Description

The CBMuD120X 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. No requirements for the external electromagnetic field environment.

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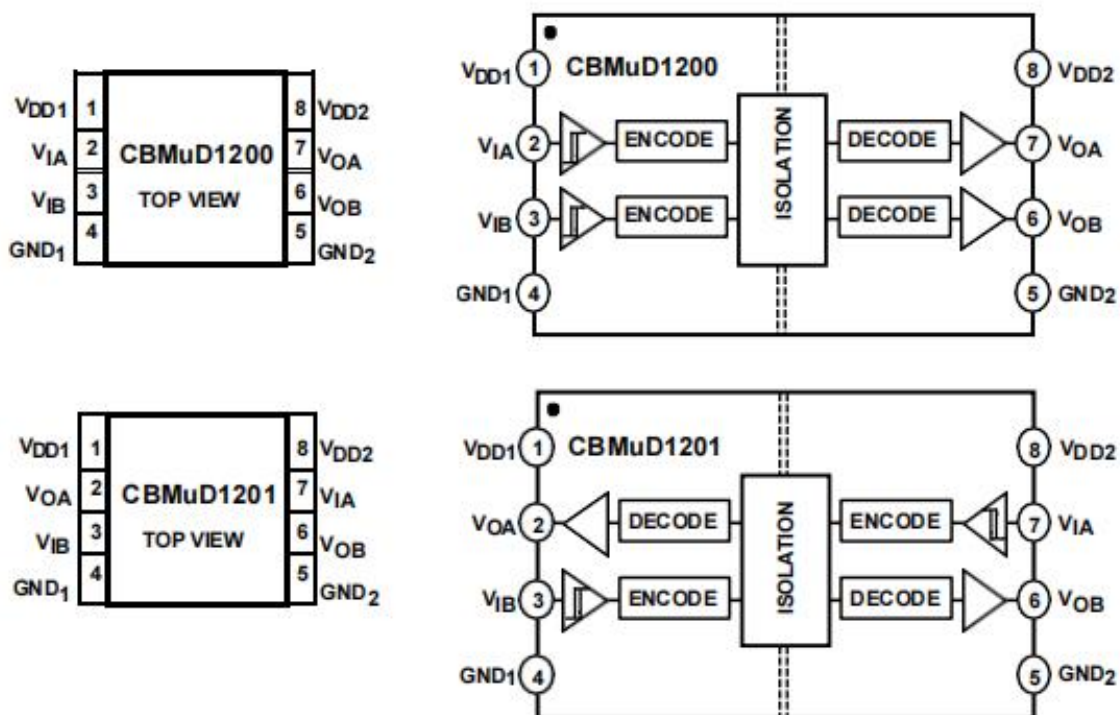
Revision Log

Version	Revision date	Change content	Reason for Change	Modified by	Reviewed By	Note
V1.0	2024.12.25	Adjust the lower limit of the product's IDD parameters.	Regular update	WW	LYL	
V1.1	2025.5.6	Increase the product's static parameters.	Regular update	WW	LYL	
V1.2	2025.8.11	Update the product's characteristics parameters.	Error update	WW	LYL	

Product selection, pin assignment and block diagram

Product model	Function definition	Default output
CBMuD1201L	Two-way	The default output is low
CBMuD1201H	Two-way	The default output is high
CBMuD1200L	One-way	The default output is low
CBMuD1200H	One-way	The default output is high

Product selection



pin assignment and block diagram

Truth Table

CBMuD1200H, CBMuD1201H 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 powered on	Power on	H	H
X	X	Power on	Not powered on	X	X

CBMuD1200L, CBMuD1201L 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 powered on	Power on	L	L
X	X	Power on	Not powered on	X	X

Absolute Maximum Ratings ⁽¹⁾

Symbol	Parameters	Min	Max	Units
VCC	Supply Voltage	-0.3	6	V
V _{IO}	I/O Supply Voltage	GND-0.3	VCC+0.5	--
I _O	I/Oport maximum output current	-50	+50	mA
T _J	Junction Temperature	--	150	°C
T _S	Storage Temperature	50	150	°C

ESD

Symbol	Parameters	Value	Unit
ESD_HBM	Human Body Model, per ANSI/ESDA/JEDEC JS-001	±3000	V
ESD_CDM	Charged Device Model, per JEDEC specification JESD22-C101	±500	V

According to the following standards, insulation certification has been passed and safety has been confirmed.

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 $T_A = -40^{\circ}\text{C}$ to 85°C , $V_{DD1}=V_{DD2}=2.5\text{V}$)

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	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	$I_{DD1(Q)}$	--	1.43	2.2	Input/Output floating	mA/channel
	$I_{DD2(Q)}$	--	3.27	4.9	Input/Output floating	mA/channel
Dynamic power current (2Mbps)	$I_{DD1(D)}$	--	2.48	3.7	The input signal is 1MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	3.64	5.5	The input signal is 1MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power current (20Mbps)	$I_{DD1(D)}$	--	2.52	3.8	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	5.70	8.6	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power current (60Mbps)	$I_{DD1(D)}$	--	2.62	3.9	The input signal is 30MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	6.91	10.4	The input signal is 30MHz, $C_L=10\text{pF}$	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, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	1.64	2.5	The input signal is 1MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.34	3.5	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	2.13	3.2	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power	$I_{DD1(D)}$	--	2.43	3.6	The input signal is 30MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	3.20	4.8	The input signal is 30MHz, $C_L=10\text{pF}$	mA/channel

Input Currents	I_{IA}, I_{IB}	-10	+0.01	+10	$0\text{ V} \leq V_{IA}, V_{IB} \leq (V_{DD1} \text{ or } V_{DD2})$	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	--	$I_{OH} = -1\text{mA}$	V
Logic Low Output Voltages	V_{OAL}, V_{OBL}	--	00.5	0.2	$I_{OL} = 1\text{mA}$	V

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

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, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	3.78	5.7	The input signal is 1MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power current (20Mbps)	$I_{DD1(D)}$	--	2.55	3.8	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	6.55	9.8	The input signal is 10MHz, $C_L=10\text{pF}$	mA/channel
Dynamic power current (60Mbps)	$I_{DD1(D)}$	--	2.68	4	The input signal is 30MHz, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	8.26	12.4	The input signal is 30MHz, $C_L=10\text{pF}$	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, $C_L=10\text{pF}$	mA/channel
	$I_{DD2(D)}$	--	1.67	2.5	The input signal is 1MHz, $C_L=10\text{pF}$	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	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

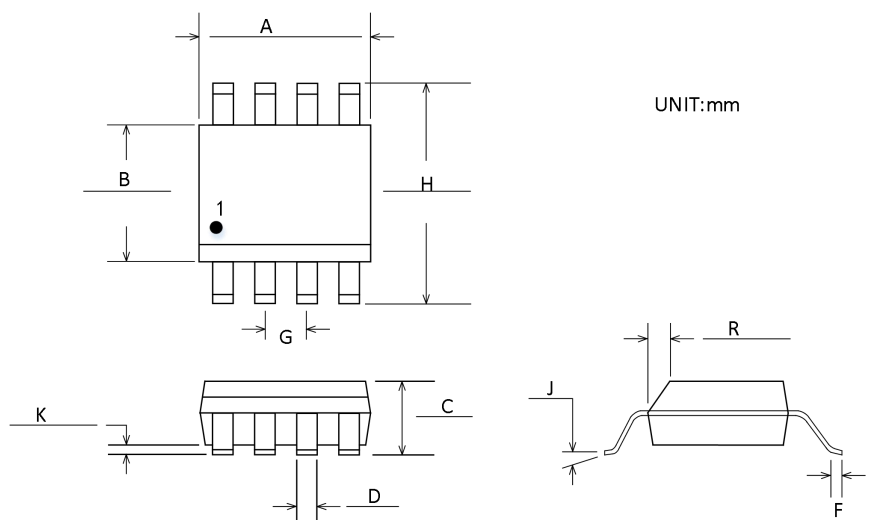
Power static current	$I_{DD1(Q)}$	--	1.48	2.2	Input/Output floating	mA/channel
	$I_{DD2(Q)}$	--	3.33	5	Input/Output floating	mA/channel
Dynamic power current (2Mbps)	$I_{DD1(D)}$	--	2.54	3.8	The input signal is 1MHz, $C_L=10pF$	mA/channel
	$I_{DD2(D)}$	--	4.05	6.1	The input signal is 1MHz, $C_L=10pF$	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	$0V \leq V_{IA}, V_{IB} \leq (V_{DD1} \text{ or } V_{DD2})$	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	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.31	0.51
F	0.40	1.27
G	1.27BSC	
H	5.80	6.20
J	0°	8°
K	0.10	0.25
R	0.25	0.50

SOP8 Package outline dimension

Package/Ordering Information

Product Type	Operating Temperature	Package	Package Marking	Number of Packages
CBMuD1200LAS8	-40°C~85°C	SOP-8	1200LA	编带和卷盘,每卷 2500
CBMuD1200LAS8-RL	-40°C~85°C	SOP-8	1200LA	编带和卷盘,每卷 3000
CBMuD1200LAS8-REEL	-40°C~85°C	SOP-8	1200LA	编带和卷盘,每卷 4000
CBMuD1200HAS8	-40°C~85°C	SOP-8	1200HA	编带和卷盘,每卷 2500
CBMuD1200HAS8-RL	-40°C~85°C	SOP-8	1200HA	编带和卷盘,每卷 3000
CBMuD1200HAS8-REEL	-40°C~85°C	SOP-8	1200HA	编带和卷盘,每卷 4000
CBMuD1201LAS8	-40°C~85°C	SOP-8	1201LA	编带和卷盘,每卷 2500
CBMuD1201LAS8-RL	-40°C~85°C	SOP-8	1201LA	编带和卷盘,每卷 3000
CBMuD1201LAS8-REEL	-40°C~85°C	SOP-8	1201LA	编带和卷盘,每卷 4000
CBMuD1201HAS8	-40°C~85°C	SOP-8	1201HA	编带和卷盘,每卷 2500
CBMuD1201HAS8-RL	-40°C~85°C	SOP-8	1201HA	编带和卷盘,每卷 3000
CBMuD1201HAS8-REEL	-40°C~85°C	SOP-8	1201HA	编带和卷盘,每卷 4000