DATASHEET

QSOP Dual-Channel Digital Isolators High Speed CE0832XXX-G Series

Preliminary

Features:

- Compliance Halogens Free
  (Br < 900 ppm, Cl < 900 ppm, Br+Cl < 1500 ppm)
- Data rate: 10M、200Mbps
- Low propagation delay: 9ns typical
- Isolation voltages 3000Vrms
- Human body model (HBM) ±8kV
- Wide temperature range: -40°C to 125°C

Description

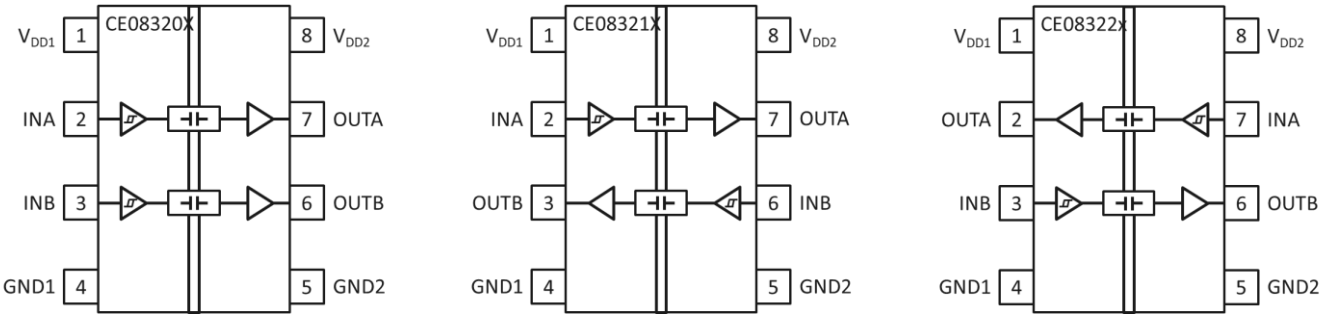
The CE0832XXX-G isolator data channels are independent。

The devices operate with the supply voltage on either side ranging from 3.0 V to 5.5 V, providing compatibility with lower voltage systems as well as enabling voltage translation functionality across the isolation barrier. The fail-safe state is available in which the outputs transition to a preset state when the input power supply is not applied.

Applications

- General-purpose multichannel isolation
- Industrial field bus isolation
- Isolation Industrial automation systems
- Isolated switch mode supplies
- Isolated ADC, DAC
- Motor control

Functional Diagram



Pin Description

NAME	PIN			DESCRIPTION
	CE08320x	CEQ8321x	CEQ8622x	
V_{DD1}	1	1	1	Power supply, side 1
V_{DD2}	8	8	8	Power supply, side 2
GND1	4	4	4	Ground , side 1
GND2	5	5	5	Ground , side 2
INA	2	2	7	Input, channel A
INB	3	6	3	Input, channel B
OUTA	7	7	2	Output, channel A
OUTB	6	3	6	Output, channel B

Truth Table

V_{IX} Input	V_{DDI} State	V_{DD2} State	Default Low V_{OX} Output	Default High V_{OX} Output	Test Conditions /Comments
L	P	P	L	L	Normal operation
H	P	P	H	H	Normal operation
NC	P	P	L	H	Default output
X*2	UP	P	L	H	Default output *3
X*2	P	UP	Z	Z	

Notes:
1. V_{IX}/V_{OX} are the input/output signals of a given channel. V_{DDI}/V_{DD2} are the supply voltages on the input/output signal sides of this given channel.
2. Input signal (V_{IX}) must be in a low state to avoid powering the given V_{DDI} through its ESD protection circuitry.
3. If the V_{DDI} goes into unpowered status, the channel outputs the default logic signal after around 1us. If the V_{DDI} goes into powered status, the channel outputs the input status logic signal after around 5us.

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{DDX}	7	V
Maximum Input Voltage	V_{IN}	V_{DD}+0.5	V
Maximum Output Voltage	V_{OUT}	V_{DD}+0.5	V
Output Current	I_O	10	mA
Isolation Voltage *1	V_{ISO}	3000	V rms
Operating Temperature	T_{OPR}	-40 ~ +125	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C
Soldering Temperature *2	T_{SOL}	260	°C

Notes:
*1 AC for 1 minute, R.H.= 40 ~ 60% R.H. In this test, pins 1 to 8 are shorted together, and pins 9 to 16 are shorted together.
*2 For 10 seconds.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{DDX}	3	5.5	V
High Level Input Voltage	V_{IH}	V_{DDX} *0.7	V_{DDX}	V
Low Level Input Voltage	V_{IL}	0	V_{DDX} *0.3	V

Electro-Optical Characteristics

V_{DD1} - V_{GND1} = V_{DD2} - V_{GND2} = 3.3V or 5V, T_A=25°C, unless otherwise noted.

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
High Level Input Voltage	V_{IH}		0.6*V_{DDX}	0.7*V_{DDX}	V	
Low Level Input Voltage	V_{IL}	0.3* V_{DDX}	0.4* V_{DDX}		V	
High Level Output Voltage	V_{OH}	V_{DDX}−0.1	V_{DDX}		V	I_O =-20uA
		V_{DDX}−0.2	V_{DDX}−0.1			I_O =-2mA
Low Level Output Voltage	V_{OL}		0	0.1	V	I_O =20uA
			0.1	0.2		I_O =2mA
Input Current per Signal Channel	I_{IN}	−10	0.5	10	μA	0 V ≤ Signal voltage ≤ V_{DD}
V_{DDX} Undervoltage Rising Threshold	V_{DDXUV+}	2.45	2.75	2.95	V	
V_{DDX} Undervoltage Falling Threshold	V_{DDXUV-}	2.30	2.60	2.75	V	
V_{DDX} Hysteresis	V_{DDXUVH}		0.15		V	
Common Mode Transient Immunity	CMTI		75	-	kV/μS	V_{CM} = 1000 V

Switching Characteristics

V_{DD1} - V_{GND1} = V_{DD2} - V_{GND2} = 3.3V or 5V, T_A=25°C, unless otherwise noted.

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
Minimum Pulse Width	PW			100	nS	
Propagation Delay	t_{PLH}、t_{PLH}	5.5		18.5	nS	
Pulse Width Distortion	PWD			3	nS	
Part to Part Propagation Delay Skew	t_{PSK}			3	nS	
Channel-to-Channel Delay Skew	t_{CSK}			2	nS	
Rising Time	T_r		1.5		nS	
Falling Time	T_f		1.5		nS	

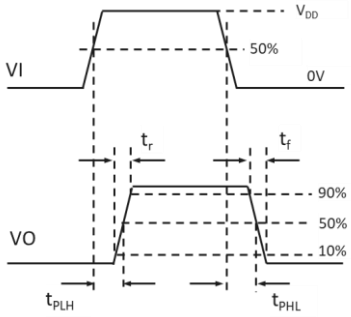
Supply Current

Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
CE08320X	I_{DD1}	0.06	0.08	0.10	mA	V_{DD}= 5V VI=0V for CE08320xL VI=5V for CE08320xH
	I_{DD2}	0.78	0.98	1.27	mA	
	I_{DD1}	0.16	0.20	0.26	mA	V_{DD}= 5V VI=5V for CE08320xL VI=0V for CE08320xH
	I_{DD2}	0.74	0.92	1.20	mA	
	I_{DD1}	0.06	0.08	0.10	mA	V_{DD}= 3.3V VI=0V for CE08320xL VI=3.3V for CE08320xH
	I_{DD2}	0.77	0.97	1.26	mA	
	I_{DD1}	0.12	0.15	0.19	mA	V_{DD}= 3.3V VI=3.3V for CE08320xL VI=0V for CE08320xH
	I_{DD2}	0.71	0.89	1.15	mA	
CE08321X	I_{DD1}	0.42	0.52	0.68	mA	V_{DD}= 5V VI=0V for CE08321xL VI=5V for CE08321xH
	I_{DD2}	0.42	0.52	0.68	mA	
	I_{DD1}	0.44	0.55	0.71	mA	V_{DD}= 5V VI=5V for CE08321xL VI=0V for CE08321xH
	I_{DD2}	0.44	0.55	0.71	mA	
	I_{DD1}	0.41	0.52	0.67	mA	V_{DD}= 3.3V VI=0V for CE08321xL VI=3.3V for CE08321xH
	I_{DD2}	0.41	0.52	0.67	mA	
	I_{DD1}	0.41	0.52	0.66	mA	V_{DD}= 3.3V VI=3.3V for CE08321xL VI=0V for CE08321xH
	I_{DD2}	0.41	0.52	0.66	mA	
CE08322X	I_{DD1}	0.42	0.52	0.68	mA	V_{DD}= 5V VI=0V for CE08322xL VI=5V for CE08322xH
	I_{DD2}	0.42	0.52	0.68	mA	
	I_{DD1}	0.44	0.55	0.71	mA	V_{DD}= 5V VI=5V for CE08322xL VI=0V for CE08322xH
	I_{DD2}	0.44	0.55	0.71	mA	
	I_{DD1}	0.41	0.52	0.67	mA	V_{DD}= 3.3V VI=0V for CE08322xL VI=3.3V for CE08322xH
	I_{DD2}	0.41	0.52	0.67	mA	
	I_{DD1}	0.41	0.51	0.66	mA	V_{DD}= 3.3V VI=3.3V for CE08322xL VI=0V for CE08322xH
	I_{DD2}	0.41	0.51	0.66	mA	

Supply Current- AC signal

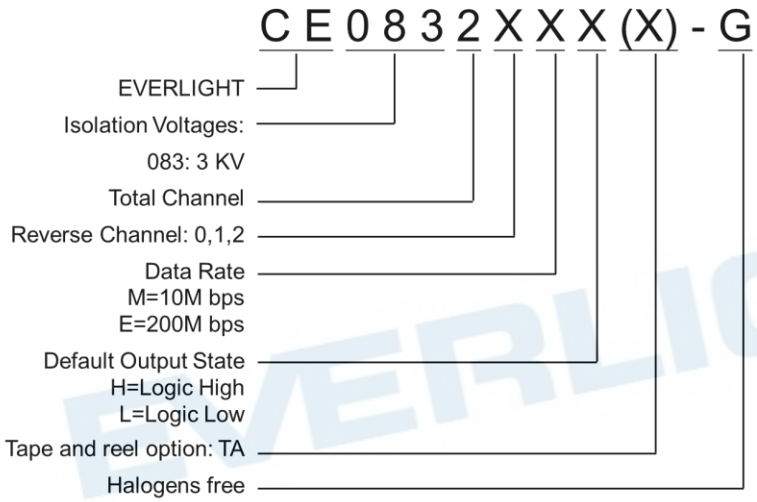
Parameter	Symbol	Min	Typ.	Max.	Unit	Condition
CE08320M	I_{DD1}(10M)		0.24	0.36	mA	V_{DD}= 5V
	I_{DD2}(10M)		1.76	2.63	mA	
	I_{DD1}(10M)		0.18	0.27	mA	V_{DD}= 3.3V
	I_{DD2}(10M)		1.43	2.14	mA	
CE08321M	I_{DD1}(10M)		0.97	1.46	mA	V_{DD}= 5V
	I_{DD2}(10M)		0.97	1.46	mA	
	I_{DD1}(10M)		0.77	1.16	mA	V_{DD}= 3.3V
	I_{DD2}(10M)		0.77	1.16	mA	
CE08322M	I_{DD1}(10M)		0.97	1.60	mA	V_{DD}= 5V
	I_{DD2}(10M)		0.97	1.60	mA	
	I_{DD1}(10M)		0.77	1.20	mA	V_{DD}= 3.3V
	I_{DD2}(10M)		0.77	1.20	mA	
CE08320E	I_{DD1}(200M)		3.72	5.95	mA	V_{DD}= 5V
	I_{DD2}(200M)		17.20	27.52	mA	
	I_{DD1}(200M)		2.16	3.46	mA	V_{DD}= 3.3V
	I_{DD2}(200M)		11.14	17.82	mA	
CE08321E	I_{DD1}(200M)		10.40	16.64	mA	V_{DD}= 5V
	I_{DD2}(200M)		10.40	16.64	mA	
	I_{DD1}(200M)		6.58	10.53	mA	V_{DD}= 3.3V
	I_{DD2}(200M)		6.58	10.53	mA	
CE08322E	I_{DD1}(200M)		10.40	16.64	mA	V_{DD}= 5V
	I_{DD2}(200M)		10.40	16.64	mA	
	I_{DD1}(200M)		6.58	10.53	mA	V_{DD}= 3.3V
	I_{DD2}(200M)		6.58	10.53	mA	

Fig. 1 Switching Time waveform measurement



Order Information

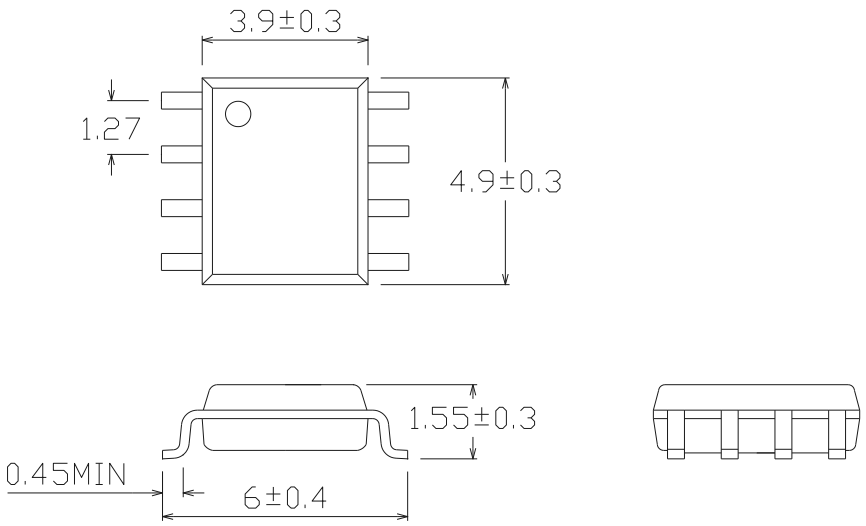
Part Number



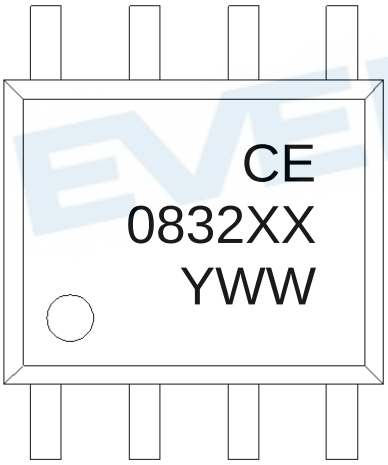
Option	Description	Packing quantity
(TA)	Surface mount lead form + TA tape & reel option	4000 units per reel

Package Dimension

(Dimensions in mm)



Device Marking



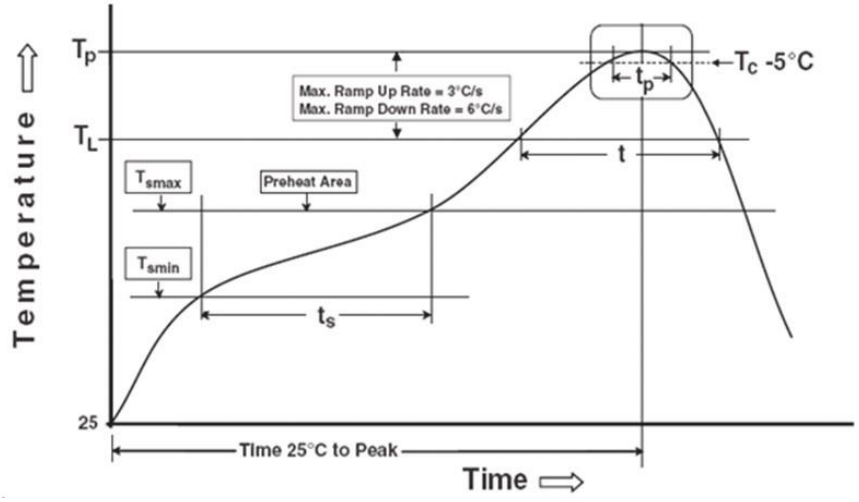
Notes

CE	denotes EVERLIGHT
032XX	denotes Device Number
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code

Precautions for Use

1. Soldering Condition

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



Note:	Reference: IPC/JEDEC J-STD-020D
Preheat	
Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200°C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max
Other	
Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-100 sec
Peak Temperature (T_P)	260°C
Time within 5 °C of Actual Peak Temperature: T_P -5°C	30 s
Ramp- Down Rate from Peak Temperature	6°C /second max.
Time 25°C to peak temperature	8 minutes max.
Reflow times	3 times

DISCLAIMER

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2. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
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