

Electrical Specifications

1. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply Voltage	VCC	-0.3 ~ +3.6	V
Input pin Voltage	MIDI IN1, MIDI IN2, SDI 1, SDI 2, SDI 3, xRESET, xUPDATE	-0.3 ~ V _{CC} +0.3	V
Output pin Voltage	MIDI OUT, SDO 1, SDO 2, SDO 3, MCK, BCK, LRCK	-0.3 ~ V _{CC} +0.3	V
Storage Temperature	---	-20 ~ +60 (Humidity ~80% : non-dew- condensation)	°C

2. Environmental Conditions

Parameter	Symbol	Value	Unit
Operating Voltage	VCC	+3.3±5%	V
Operating Temperature	T _a	0 ~ +50 (Humidity ~80% : non-dew- condensation)	°C

3. DC Characteristics

(DGND=0V, T_a= 0 ~ 50°C)

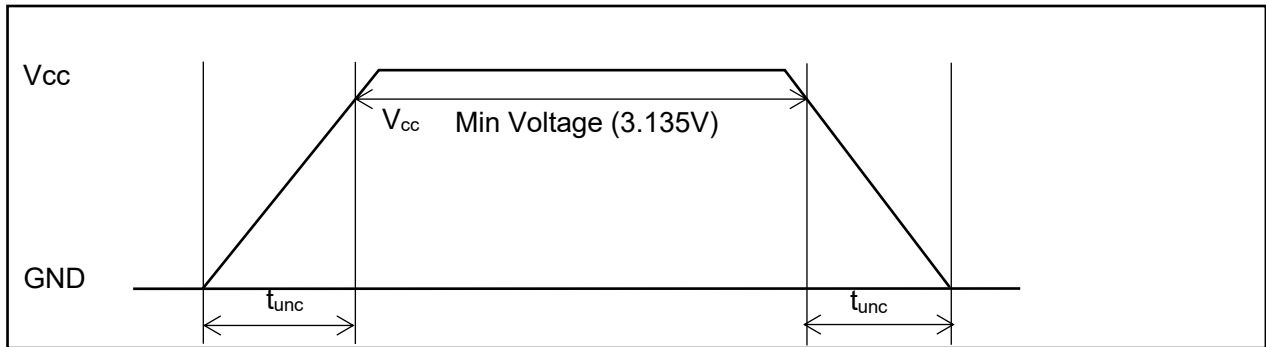
Parameter	Symbol	Condition	Value			Unit	
			Min	Typ	Max		
Power-supply voltage	VCC	---	3.135	3.3	3.465	V	
Input High Level Voltage	MIDI IN 1, MIDI IN 2, SDI 1, SDI 2, SDI 3 xRESET xUPDATE	---	VCCx0.7	-	-	V	
			2.0	-	-	V	
			2.2	-	-	V	
			2.0	-	VCC+0.3	V	
Input Low Level Voltage	MIDI IN 1, MIDI IN 2, SDI 1, SDI 2, SDI 3, xRESET, xUPDATE	---	-	-	VCC x 0.3	V	
			-	-	0.8	V	
			-	-	0.9	V	
			-0.3	-	0.8	V	
Output High Level Voltage	MIDI OUT SDO 1, SDO 2, SDO 3, MCK, BCK, LRCK	VOH	IOH=-4mA	2.48	-	-	V
Output Low Level Voltage	MIDI OUT SDO 1, SDO 2, SDO 3, MCK, BCK, LRCK	VOL	IOL=4mA	-	-	0.44	V
Current consumption	Operation	I _{CC}	---	-	-	300	mA
	Reset					50	

4. PoweOn · PowerDown Sequence

(DGND=0V, Ta= 0 ~ 50°C)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
t _{unc}	Unclear time of voltage	-	-	100	ms

※1 Please power on and power off within t_{unc}.



※2 The table shown above is recommended values, so they represent guidelines rather than strict requirements. During the rise and fall period, pin or internal states becomes undefined. Design the system so that these undefined states do not cause an overall malfunction.

5. AC Characteristics (Reset timing)

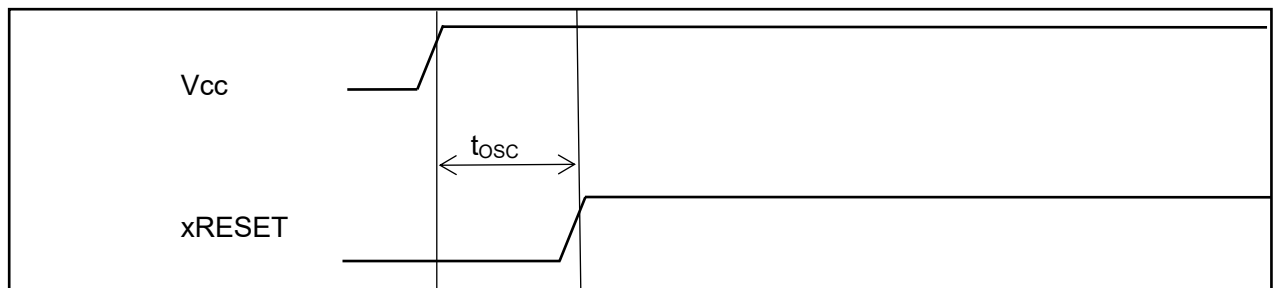
(DGND=0V, Ta= 0 ~ 50°C)

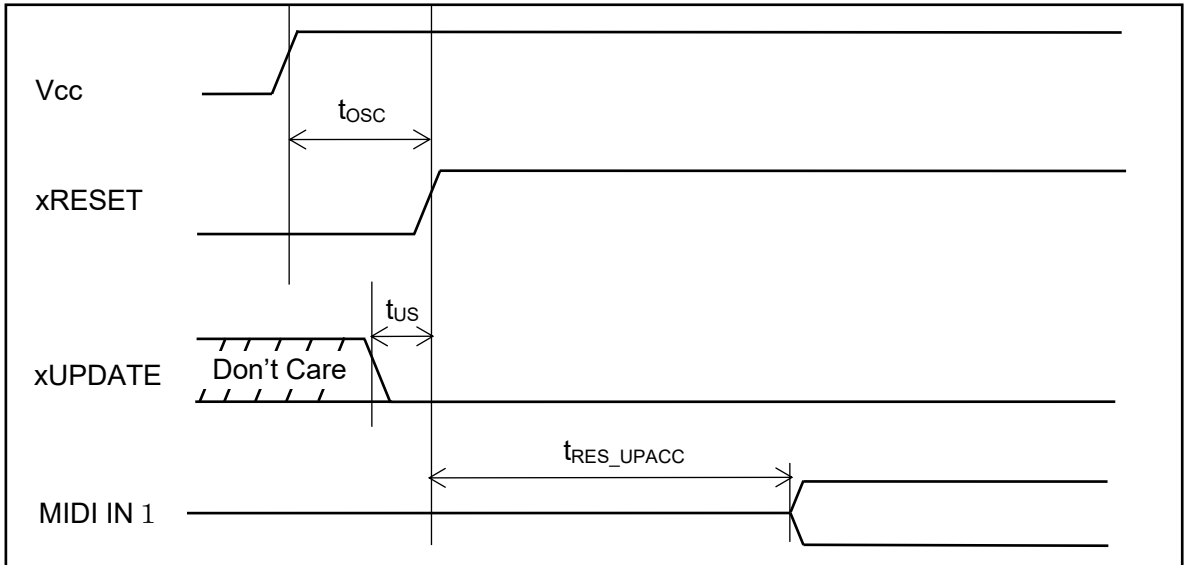
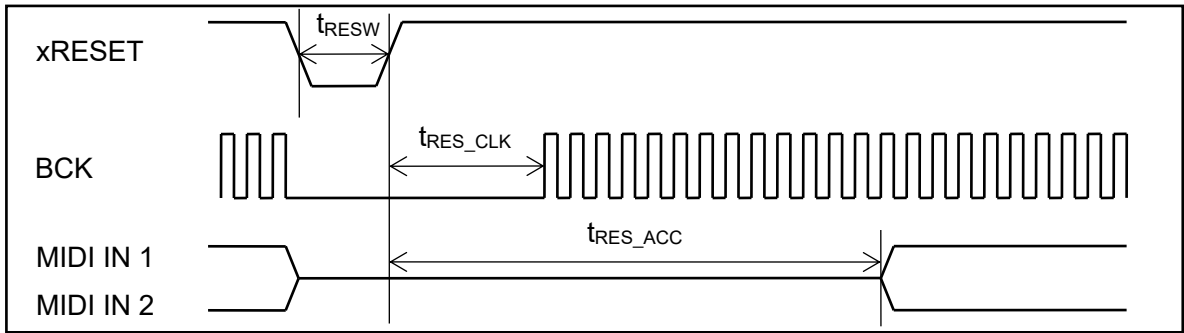
Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
t _{OSC}	Setup time of inside PLL ※1	20	-	-	ms
t _{RESW}	xRESET “Low” Pulse Width	20	-	-	ms
t _{RES_CLK}	xRESET “High” to Clock Output Time.	-	-	3.0	s
t _{RES_ACC}	xRESET “High” to MIDI Access Enable Time. ※2	-	-	5.0	s
t _{US}	xUPDATE Set-Up Time	10	-	-	ms
t _{RES_UPACC}	xRESET “High” to MIDI Access Enable Time. ※3	-	-	5.0	s

※1 Please release xRESET after t_{osc}.

※2 t_{RES_CLK} : Please do not send the MIDI.

※3 t_{RES_UPACC} : Please do not send the MIDI.





6. AC Characteristics (MIDI IN1, MIDI IN2, MIDI OUT)

(DGND=0V, Ta= 0 ~ 50°C)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
t_{RXD} (MIDI IN1, MIDI IN2)	Bit Rate of Serial Data Input	31.25k -1%	31.25k	31.25k +1%	bit/s
t_{TXD} (MIDI OUT)	Bit Rate of Serial Data Output	31.25k -1%	31.25k	31.25k +1%	bit/s

Signal System:

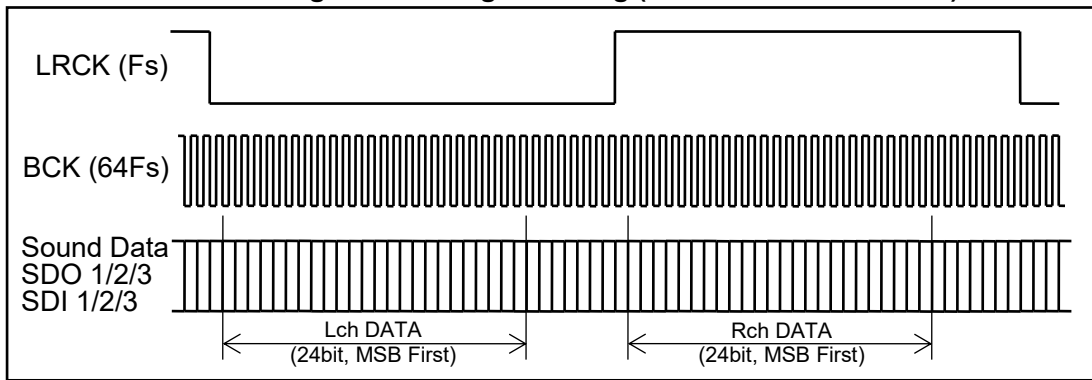
- Format : UART (Universal Asynchronous Receiver Transmitter)
- Start Bit : 1bit (L)
- Data Length : 8bit
- Stop Bit : 1bit (H)
- Parity Bit : non

7. AC Characteristics (Digital Audio Signal Timing)

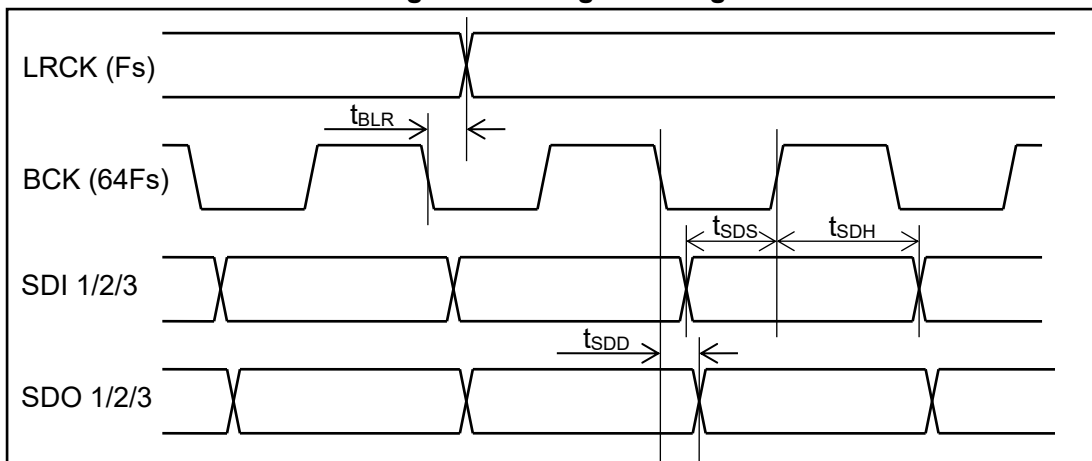
(DGND=0V, Ta= 0 ~ 50°C)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
LRCK	Fs(Sampling Rate)		32		kHz
MCK	256Fs(System Clock)		8.192		MHz
BCK	64Fs(Bit Clock)		2.048		MHz
t _{BLR}	BCK Low to LRCK Edge	-5		5	ns
t _{SDS}	SDIN Set-Up Time	3			ns
t _{SDH}	SDIN Hold Time	2			ns
t _{SDD}	BCK Low to SDOUT	-5		5	ns
t _{R(BCK)}	BCK Rise Time			9	ns
t _{F(BCK)}	BCK Fall Time			8	ns
t _{R(MCK)}	MCK Rise Time			9	ns
t _{F(MCK)}	MCK Fall Time			8	ns

Outline of digital audio signal timing (IIS Format 24bit 32KHz)



Digital audio signal timing



Digital audio signal timing (MCK)

