

AU-123 Datasheet

Integrated USB MIDI Controller IC



SPECIFICATION

- Full speed USB V2.0, minimum peripheral components required
- One MIDI IN
- Two MIDI OUTs
- Plug & Play, Windows 2000/XP/Vista/Windows7 no need to install driver
- TTL Compatible
- 5V USB bus power supply
- USB ready, IN/OUT activity LEDs
- SSOP-20 package, RoHS

PACKAGE

Package	Width		Pitch		Marking
SSOP-20	5.3mm	209mils	0.65mm	25mils	AU123T

PINOUT

Pin #	Pin Name	PinType	Pin Description
19	VCC	POWER	Positive supply for logic and I/O pins.
1,8,17	GND	POWER	Ground reference for logic and I/O pins.
5	V3	POWER	Connect with VCC to input outside power when 3.3V, Connect with 0.01uF power decoupling capacitance when 5V
9	XI	IN	Oscillator crystal input/external clock source input.
10	XO	OUT	Oscillator crystal output.
6	UD+	USB	D+ data of USB bus.
7	UD-	USB	D- data of USB bus.
20	NOS#	IN	Forbid USB device to suspend, active with low.
3	MOUT	OUT	MIDI TX, active high.
4	MIN	INPUT	MIDI RX.
2	ACT#	OUT	USB configuration finish state output, active low.
13	LEDO	OUT	MIDI TX LED, active low.
14	LEDI	OUT	MIDI RX LED, active low.
15	MUX	OUT	MIDI output channel control, low is channel 1, high is channel 2.
16	ACK	OUT	MIDI RX acknowledges, active rising edge.
11,12,18	NC	NC	Not connected.

ABSOLUTE MAXIMUM RATINGS

Name	Description	Min	Max	Units
TA	Ambient operating temperature	-40	85	°C
TS	Storage temperature	-55	125	°C
VCC	Voltage source (VCC connects to power, GND to ground)	-0.5	6.5	V
VIO	The voltage of input or output pin	-0.5	VCC+0.5	V

ELECTRICAL PARAMETERS

(test conditions: TA=25°C, VCC=5V, exclude pin connection of USB bus)

Name	Description	Min	Typical	Max	Units
VCC	Source voltage (V3 doesn't connect to VCC)	4.5	5	5.3	V
ICC	Total source current when working		12	30	mA
ISLP	Total source current when USB suspending			0.2	mA
VIL	Input Voltage LOW	-0.5		0.7	V
VIH	Input Voltage HIGH	2.0		VCC+0.5	V
VOL	Output Voltage LOW (draw 4mA current)				V
VOH	Output Voltage HIGH (output 3mA current) (Output 100uA current during chip reset)	VCC-0.5			V
IUP	Input current with pull-up resistor internal	5	150	300	uA
IDN	Input current with pull-down resistor internal	-40	-80	-300	uA
VR	Restrict voltage when power-up reset	2.3	2.6	2.9	V

FREQUENCY PARAMETERS

(test conditions: TA=25°C, VCC=5V)

Name	Description	Min	Typical	Max	Units
FCLK	Frequency of input clock in X1	11.98	12.00	12.02	MHz
TPR	Reset time of power-up		20	50	mS

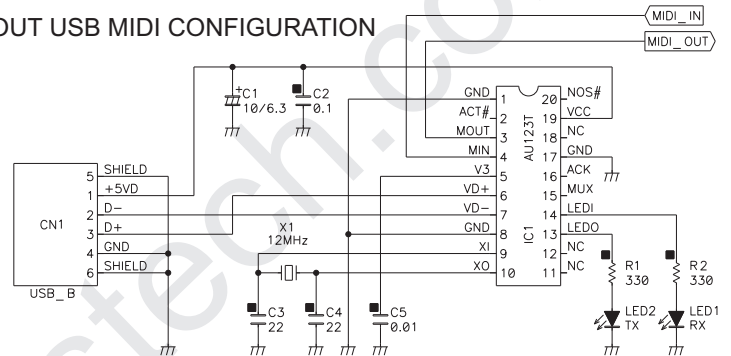
APPLICATION

REMARKS	PART NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	ORGANIC SEMICONDUCTOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	CERAMIC TUBULAR CAPACITOR
⊙	POLYESTER FILM CAPACITOR
⊙	POLYESTYLENE FILM CAPACITOR
⊙	MICA CAPACITOR
⊙	POLYPROPYLENE FILM CAPACITOR

REMARKS	PART NAME
NO MARK	CARBON FILM RESISTOR (P=5)
⊗	CARBON FILM RESISTOR (P=10)
⊗	METAL OXIDE FILM RESISTOR
⊗	METAL FILM RESISTOR
⊗	METAL PLATE RESISTOR
⊗	FIRE PROOF CARBON FILM
⊗	CEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR
⊗	CHIP RESISTOR

REMARKS	PART NAME
NO MARK	DIP INDUCTOR (P=5)
⊗	DIP INDUCTOR (P=10)

1 IN / 1 OUT USB MIDI CONFIGURATION



1 IN / 2 OUTS USB MIDI CONVERTER

