Evaluation Board for AK8136A
AKD8136A

Description

The AKD8136A is an evaluation board for AK8136A clock generator. Therefore, it is easy to evaluate the jitters and VCXO performance.

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Ordering guide

- AKD8136A

Block Diagram

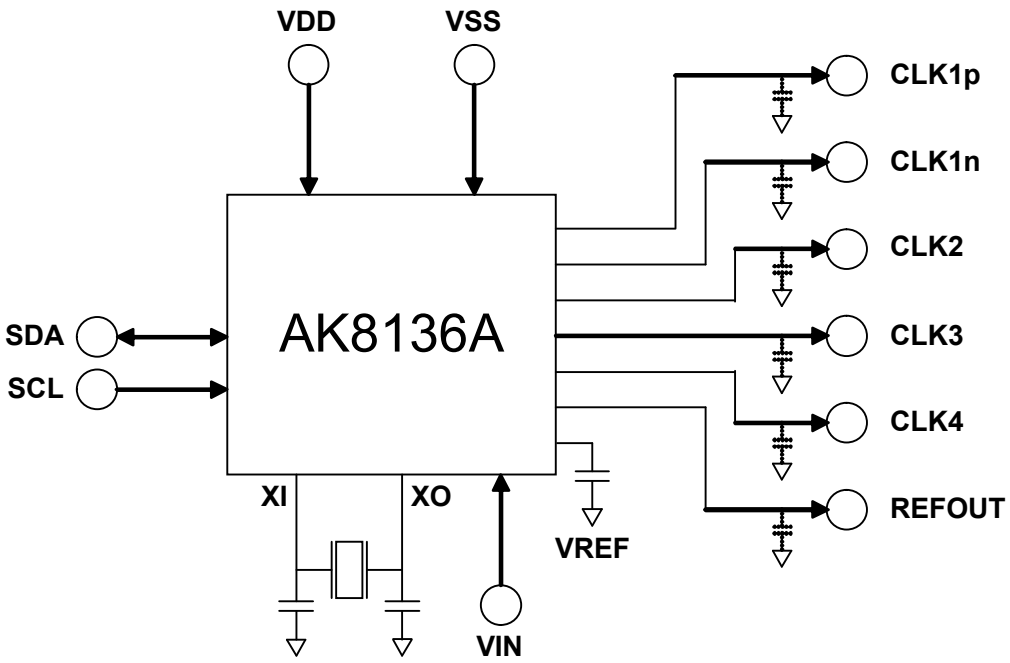


Figure 1. AK8136A Evaluation Board

Functions

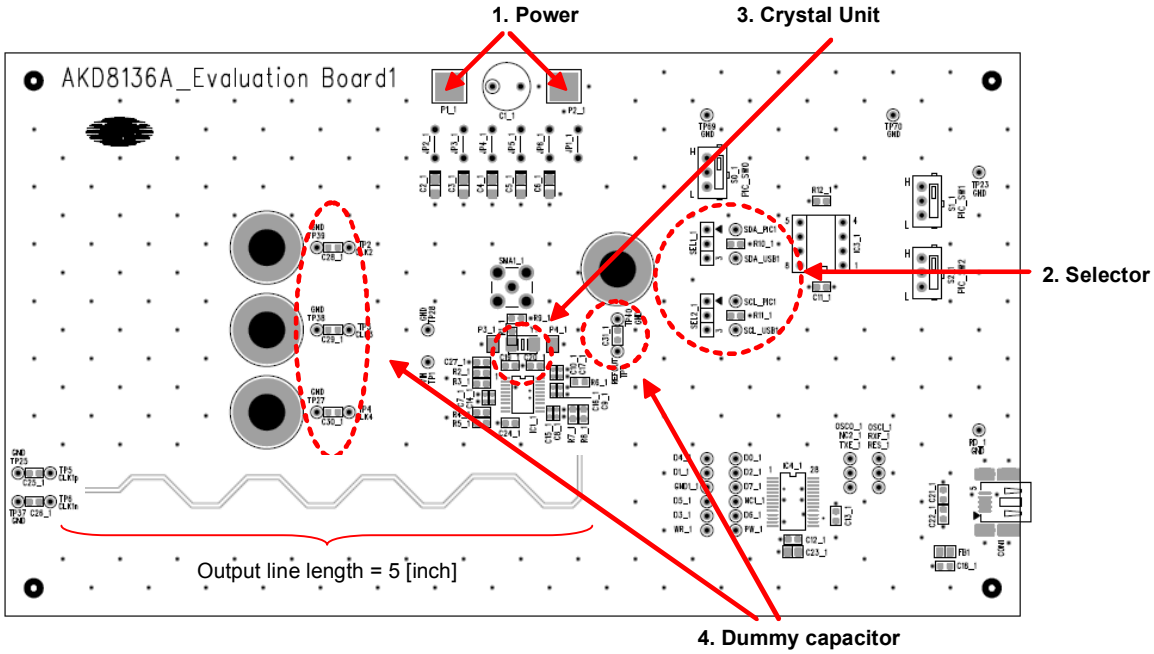


Figure 2. AKD8136A_A top view

1. Power Supply

Please connect the lead line to P1 (3.3V : TYP) and P2 (GND).

2. Selector Setting

Selector 1-2 are connected to the serial interface pins of AK8136A.
If these pins are controlled with USB interface, please keep these selectors “SDA_USB” and “SCL_USB” respectively.

Table 1. Selector Connection

Selector	Connect to:
SEL1	AK8136A Pin15 (SDA)
SEL2	AK8136A Pin16 (SCL)

3. Quartz oscillator foot pattern

C19 and C20 are the load capacitance for crystal unit. In case of external clock input, please remove these capacitors.

4. Dummy capacitor loads

There are several dummy capacitor loads, C28 through C31. It is useful to measure clock performance or current consumption by loading capacitor which is virtually assumed in the system. It is important to take line capacitance into account and it is approximately 5pF. Consequently if there is 15pF capacitance assumed in the system, another 10pF capacitor needs to be mounted. Each clock outputs from AK8136A lead to TP2, TP3, TP4 and TP7. Chassis mount test jacks for miniature probe (Tektronix 131-0258-00) are available by mounting there.

Table 2. Dummy capacitor Connection

TPn/Cn	Connect to:
TP2/C28	AK8136A Pin5 (CLK2)
TP3/C29	AK8136A Pin8 (CLK3)
TP4/C30	AK8136A Pin9 (CLK4)
TP7/C31	AK8136A Pin18 (REFOUT)

Jitter measurement

Device:AK8136A

7-9: Clock Jitter

Test Summary: Pass | Test Description: | 2 Channels Connection Model: TMDS differential clock jitter must not exceed 0.25*Tbit, re

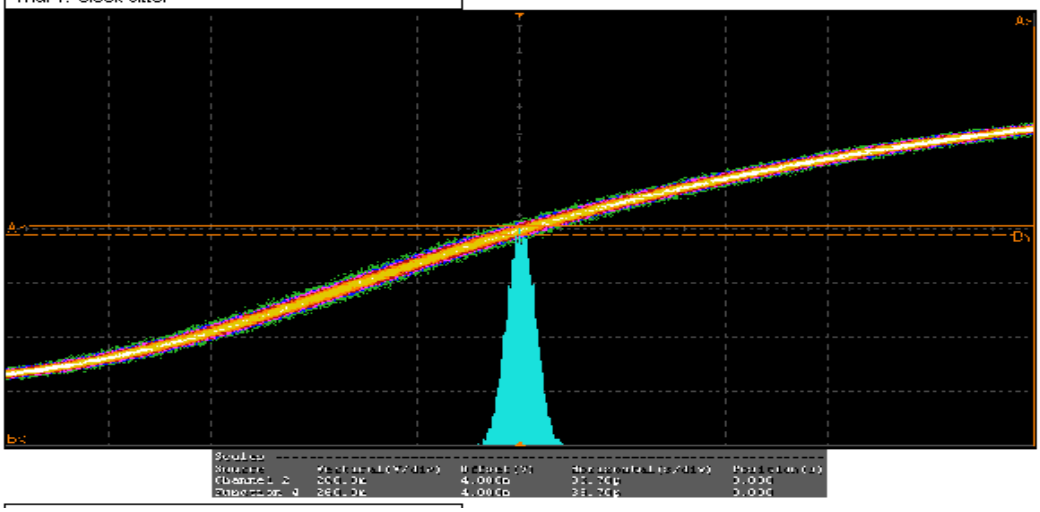
Test Limits: <= 250mTbit | Clock Jitter (Worst of 10 Trials) 56mTbit | # Trials Run: 10 | Worst Trial: T

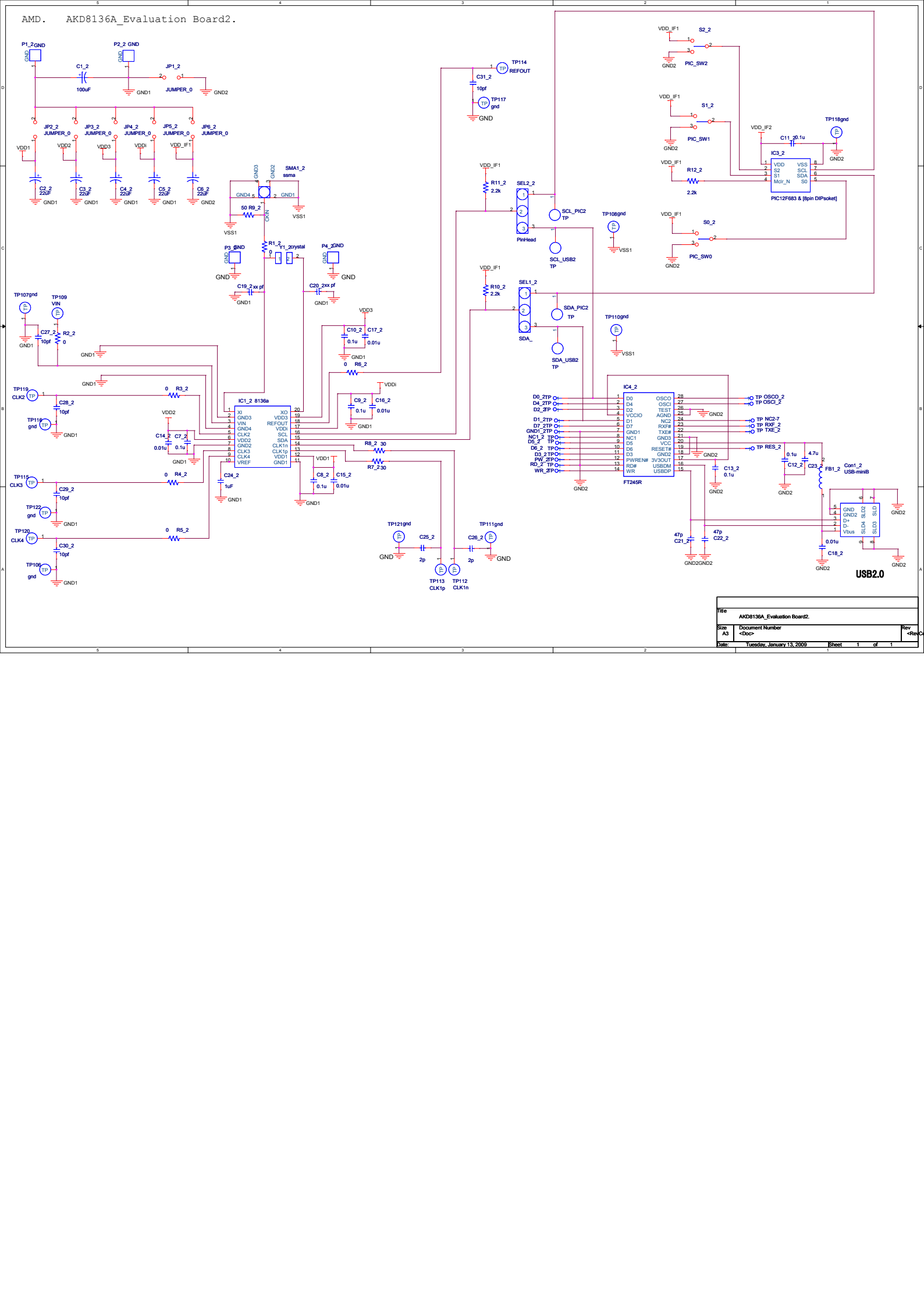
Overall Summary + details of worst 10 trials

. .	Actual Value	Margin	Test Frequency(MHz)	# Edges	Tbit(ps)	Clock Jitter(ps)
Avg	*52.87mTbit*	*78.88%*				
StdDev	*2.365mTbit*	*957.8m%*				
Range	*7.224mTbit*	*2.800%*				
Min	*48.93mTbit*	*77.60%*				
Max	*56.16mTbit*	*80.40%*				
Sum	*528.7mTbit*	*788.8%*				
✓ Trial 1	52mTbit	79.2%	148.477	16.00000M	673.506	35.200
✓ Trial 2	54mTbit	78.4%	148.490	16.00000M	673.448	36.320
✓ Trial 3	52mTbit	79.2%	148.464	16.00000M	673.566	34.820
✓ Trial 4	55mTbit	78.0%	148.475	16.00000M	673.515	37.070
✓ Trial 5	49mTbit	80.4%	148.474	16.00000M	673.518	33.330
✓ Trial 6	53mTbit	78.8%	148.482	16.00000M	673.484	35.570
✓ Trial 7	49mTbit	80.4%	148.502	16.00000M	673.394	32.950
✓ Trial 8 (Worst)	56mTbit	77.6%	148.480	16.00000M	673.492	37.820
✓ Trial 9	55mTbit	78.0%	148.492	16.00000M	673.437	37.070
✓ Trial 10	53mTbit	78.8%	148.477	16.00000M	673.506	35.950

Clock Jitter

Trial 1: Clock Jitter




AMD. AKD8136A_Evaluation Board2.
P1_2GND
P2_2 GND
C1_2
100uF
JP1_2
JUMPER_0
JP2_2 JUMPER_0
JP3_2 JUMPER_0
JP4_2 JUMPER_0
JP5_2 JUMPER_0
JP6_2 JUMPER_0
C2_2 22uF
C3_2 22uF
C4_2 22uF
C5_2 22uF
C6_2 22uF
SMA1_2 ssma
50 R9_2
R1_2 0
Y1_2crystal
P3_2GND
P4_2GND
C19_2 xx pf
C20_2xx pf
TP107gnd
TP109 VIN
C27_2 10pf
R2_2 0
TP119 CLK2
C28_2 10pf
TP118 gnd
0 R3_2
TP115 CLK3
C29_2 10pf
TP122 gnd
0 R4_2
TP120 CLK4
C30_2 10pf
TP106 gnd
0 R5_2
IC1_2 8136a
XI
GND3
VIN
GND4
CLK2
VDD2
GND2
CLK3
CLK4
VREF
XO
VDD3
REFOUT
VDDI
SCL
SDA
CLK1n
CLK1p
VDD1
GND1
C14_2 0.01u
C7_2 0.1u
C24_2 1uF
C10_2 0.1u
C17_2 0.01u
0 R6_2
C9_2 0.1u
C16_2 0.01u
C8_2 0.1u
C15_2 0.01u
R8_2 30
R7_2 30
TP114 REFOUT
C31_2 10pf
TP117 gnd
R11_2 2.2k
R10_2 2.2k
SEL2_2
SEL1_2
PinHead
SCL_PIC2 TP
SCL_USB2 TP
SDA_PIC2 TP
SDA_USB2 TP
SDA_
TP108gnd
TP110gnd
TP121gnd
TP111gnd
C25_2 2p
C26_2 2p
TP113 CLK1p
TP112 CLK1n
IC4_2
FT245R
D0_2TP
D4_2TP
D2_2TP
D1_2TP
D7_2TP
GND1_2TP
NC1_2 TP
D5_2 TP
D6_2 TP
D3_2TP
PW_2TP
RD_2 TP
WR_2TP
D0
D4
D2
VCCIO
D1
D7
GND1
NC1
D5
D6
D3
PWREN#
RD#
WR
OSCO
OSCI
TEST
AGND
NC2
RXF#
TXE#
GND3
VCC
RESET#
GND2
3V3OUT
USBDM
USBDP
TP OSCO_2
TP OSCI_2
TP NC2-7
TP RXF_2
TP TXE_2
TP RES_2
C13_2 0.1u
C12_2 0.1u
C23_2 4.7u
FB1_2
Con1_2 USB-miniB
C21_2 47p
C22_2 47p
C18_2 0.01u
S2_2
PIC_SW2
S1_2
PIC_SW1
S0_2
PIC_SW0
R12_2 2.2k
IC3_2
PIC12F683 & [8pin DIPsoket]
C11_2 0.1u
TP118gnd
VDD_IF1
VDD_IF2
VDD1
VDD2
VDD3
VDDI
VSS1
GND2
USB2.0
Title
AKD8136A_Evaluation Board2.
Size A3
Document Number <Doc>
Rev <Rev>
Date: Tuesday, January 13, 2009
Sheet 1 of 1