

## aP23KWC28S

## **USB** Writer **USER GUIDE**

## **Aplus Integrated Circuits, Inc.**

www.aplusinc.com.tw

sales@aplusinc.com.tw

**<u>III</u>** Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

### Introduction

The aP23KWC28S USB Writer is designed to support Aplus aP89K series Voice chips. It is suitable for:

- aP89682K (682 sec, 11 I/O chip) SOP28 -
- aP89341K (341 sec, 11 I/O chip) SOP28 -
- aP89170K (170 sec, 11 I/O chip) SOP28
- aP89085K (085 sec, 11 I/O chip) SOP28 \_

This development system serves three main functions:

**Compiler** – to create a dp2 file from user's Voice files Writer – to program the dp2 file into the aP23xxx chip **Copier** – connect DC 5V adaptor for 1 to 1 programming

The Compiler is used to combine the edited voice files into the chip to form the desired Voice Group and to define the playback functions of each Voice Group by selecting different Options and Trigger Modes of each individual Voice Group.

The Writer is used to program the voice data into the aP23xxx devices that resulted from the Compiler Function. A Writer Board connected to the PC via USB port is required.

The Copier is using the compiled \*.dp2 which loads to writer then disconnect the USB and connect the DC 5V for 1 pcs copying.



#### Hardware Installation

aP23KWC28S is a USB based writer programmer. It is intended to be used in Windows XP, Win7, Win8, Win10 computer.

#### Writer Board Connection

- 1) Connect USB cable from the writer board to the computer. The computer will display a new hardware is found message. The installation will begin automatically.
- 2) If there are too many USB devices are connected to your computer at the same time, the current supply from USB may not be sufficient to support the writer board.



Fig. 1 The aP23KWC28S USB Writer Programmer Board



#### **Running The Software**

Double click the file **23KWComplier.exe** to launch the software.

#### **COMPILER:**

au 23KWCompiler	-V2.5								_		×
Compiler Writer	About				3.				Cheo	k Sum :	15.
aP89341K 1	. V Key	/ Mode	2.	~ Config		Debounce 16ms (		Out1:B	Option: usy-H Bu	sy-H	~
Wave File					High Volu	ne	~ 04	Out2 :L	ED- Flash LEI	D- Flash	~
4.					Set LVD: Set Oscilla		]On T⊡Ext ⊡In	Out3 : S	top-H Sto	p-H	~
					Group	edge	Holdable	Trig	Stop	Outp	ut
					9.						
Type : Compressio		CM4	7.	6. Add-Wav Silence	]  						
File Name	Size	Rate	Туре	Use %	VoiceFile		Prog - Busy	Table Use	Table Start	Туре	
8.							Trog baby	Tuble obe	Tuble Start	Type	
					10.						
					13 Usage : 52	_	<b>14.</b>	0%)	12. LoadDp2		I <mark>1.</mark> piler

#### **COMPILER DESCRIPTION:**

- 1. Select your required IC body.
  - ---- aP23682-8pin, aP23341-8pin, aP23170-8pin, aP23085-8pin.
  - ---- aP23682-16pin , aP23341-16pin , aP23170-16pin , aP23085-16pin.
  - ---- aP89682K, aP89341K, aP89170K, aP89085K.
- 2. Select your required trigger mode.
  - --- Key mode / CPU parallel mode / MP3 mode / SPI mode / I2C mode / aP89 mode / SBT mode.
- 3. Select voice output mode. --- DAC or PWM.
- 4. Show all your required voice files. (Only wav files acceptable). --- The [xxx.wav]: 8 bits or 16 bits mono xxx.wav.

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- 5. Select the compression mode. --- ADPCM4 / ULAW8 / PCM8 / PCM16.
- 6. Select your required voice file [xxx.wav] folder.
- 7. Select if adding the silence. --- 1ms ~ 10000ms.
- 8. Loading the required \*.wav files.
- 9. Setting your required voice sections and function mode.
- 10. Show your final voice list.
- 11. Compiler: After setting the voices & function, push the button to create xxx.txt & xxx.dp2 files.
- 12. Re-download & Re-editing [xxx.dp2] to setting and function.
- 13. Show the memory of your usage.
- 14. Show the IC body memory size.
- 15. Show Check Sum.

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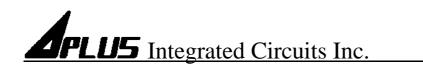
Mave File		y Mode		22. V Config	DAC PWM High Volu Set LVD:	Øoff □	065us 03V	21. Out1 :Bu Out2 :LE	Dption: 19. sy-H Bus D-Flash LED	k Sum : y-H ~ -Flash ~ p-H ~
					Group	edge	Holdable	Trig	Stop	Output
ype : Compressio	on PC1	М16		Add-Wav						
⊃PCM8		PCM4		Silence						
File Name	Size	Rate	Туре	Use %						
					VoiceFile		Prog - Busy	Table Use	Table Start	Туре
					Usage : 52		1048576 (	0%) L	oadDp2	Compiler

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aP23KWC28S	USB	Writer	User	Guide

www. 23KWCompiler-V2.5			_		×
Compiler Writer About			Che	ck Sum :	
aP23341 - 8Pin v Key Mode v Config Wave File	SBT Key3 23. PowerOnPlay 24. SBT Loop 25. Set Volume 26.	tage Output C 3V 4.5V Int Trig	Stop	Output	
Type : Compression	Close				
Compiler Writer About			Che	ck Sum :	
aP89341K V MP3 Mode V Config Wave File	D PowerOnPlay	tage Output O 3V Out1 : Bus 4.5V Out2 : LEE	sy-H Bu	usy- H ED- Flash	~
	Set Volume	Out3 : Sto Int	p-H St	top-H	~
	● SBT : P / P 27. ○ SBT : P / S	Trig	Stop	Output	
400 23KWCompiler-V2.5	1		_		×
Compiler Writer About			Che	ck Sum :	
aP89341K     Variation     Variation     Config       Wave File     Variation     Variation     Variation	PowerOnPlay	tage     Output O       3V     Out1 : Bus       4.5V     Out2 : LEE	sy-H Bu D-Flash LE	usy- H ED- Flash	~
	Set Volume	Out3 : Sto	р-Н St	lop-H	~
	CPU Serial Option 28.				

- 16. Select required debounce time.
  - --- 65us or 16ms.
- 17. Select if using low voltage detect.--- Select ON if the IC voltage less than 2V will be reset.
- 18. Select if using the oscillator.
  - --- XT (X'tal=16MHz ) / Rosc ext (  $68K \ ohm$  ) / Rosc Int.
- 19. Select the output function for output1, output2, output3.
  - --- Busy-H, Busy-L.
  - --- LED Flash (LED high active ) , ~LED Flash (LED low active ).
  - --- Stop-H, Stop-L.
  - --- Prog-BusyH, Prog-BusyL.
  - --- Load: For the play command [094h+D9~D0]; [D9~D0] total 10 bits indicate the voice address. Same the aP89341 prefetch-071h [no gap loop play].



- 20. Select PWM voice output volume. ---Select PWM high volume.
- 21. Select IC operating voltage at PWM (VOUT). --- Low Voltage: 3V, High Voltage: 4.5V.
- 22. IC body configures advanced function.
- 23. Select SBT pin swap. (for 8pin device only). --- Select (SBT as OUT1) or (SBT as KEY3).
  - --- SBT as OUT1: Busy-H/L, Stop-H/L, LED Flash (LED high active), ~LED Flash (LED low active), Prog-BusyH/L, Load.

S3 ( pin7 )	S2 ( pin6 )	Group	SBT = OUT1
0	1	SW1	Busy-H/L
1	0	SW2	Stop-H/L
1	1	SW3	LED

--- SBT as Key3:

SBT ( pin5 )	S3 ( pin7 )	S2 ( pin6 )	Group
0	0	1	SW1
0	1	0	SW2
0	1	1	SW3
1	0	0	SW4
1	0	1	SW5
1	1	0	SW6
1	1	1	SW7

#### 24. Select power on play.

--- Power on play [sw0] group once.

- 25. Select SBT loop. (At SBT mode).
  - --- Enable: The SBT pin sequential trigger & loop play. --- Disable: The SBT pin sequential trigger & play once. \*Note: Voice function (Trig Level) must select Level.
- 26. Select volume control function.
  - --- Select the volume control Level x16 / x8 / x4.
- 27. SBT pin act play/pause or play/stop function for MP3 mode.
- 28. Select if using pin S4 as data output pin.

--- The SPI mode or I2C mode of data output for 24 pin IC body and 16 pin IC body.



#### WRITER:

23KWCo	mpiler-V2.	5						
npiler W	/riter Abou	t					Check Sum :	
oup	edge	Holdable	Trig	Stop	Output			
						2.		
4.								
iceFile		Prog - Busy	Table Use	Table Start	Туре			
_								
5.								
6.		7.	8.		9.	10.	3.	
Blank	Check	7. ☑ Progran	n 🗹 Ver	ify □Se	ecurity	_	aP23682 - 8Pin	`
				1	1. 0 %	Run	12. 1. Load to Flash	d

#### WRITER DESCRIPTION:

- 1. Loading your programming file. (xxx.dp2)
- 2. Show setting and function after loading \*.dp2 file.
- 3. Show your required IC body.
- 4. Show voice sections and function mode.
- 5. Show the content of your selected section of voice list.
- 6. Select to blank check IC is blank?
- 7. Select to execute programming.
- 8. Select to verify the data of your programming.



9. Select if you need security mechanism. \*\*\* (If do this, it can't be copied; it can't be Master IC.)

- 10. Execute your selected (6.) (7.) (8.) (9.).
- 11. Show the progress of "blank check", "program", "verify" and "load to flash".
- 12. Load to Flash: download the program file (xxx.dp2) to [1 to 1 copier] writer.

#### **About :**



#### **ABOUT DESCRIPTION:**

- 1. Show software version.
- 2. Show website of Aplus Integrated Circuits Inc.
- 3. Detect writer firmware version.
- 4. Update writer firmware version.



### **Example for Compiler :**

aP23682 - 8 Wave File boku.wav CHILD.wav	Pin 🚢 Ke	ey Mode	b	Config	⊡ F Hig Set	AC Debounce Voltag WM 16ms 65us 0 3V h Volume e LVD: Ø Off 0 n Oscillator: XT Ext Ø In	d W	Option:	
MUSIC 02.wav Super16A.wav Train 01.wav	h				Gro	1	Trig	Stop	Output
Type : Compress OULAW8 OPCM8	ion PCI AD			dd-Wav Silence		Please Select a Folder		^	`
File Name	Size	Rate	Туре	Use %		A wav ABT_Builder AIVR AutoWriter-APP Builder_Project China_Customer Chk_dll cus wav	g 確定	取消	pe

- 1. Select the IC body is [aP23682 8Pin].
- 2. Select [Key Mode] to be our trigger mode.
- 3. Select the voice output is [PWM].
- 4. IC operating voltage at 3V.
- 5. Select PWM high volume.
- 6. Click Add-Wav to pick your required folder.
- 7. After confirming the folder, click the button.
- 8. All wav files in the folder will be listed here.



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ompiler Writer	About								Chec	k Sum :
aP23682 - 8Pi	n v Key	/ Mode	~	Config	□ DAC □ PWM	● 16ms		1	Option:	
Wave File					High Volu	ime	√ 04.	50		
boku.wav					Set LVD:	✓ Off □	On			
CHILD.wav							Ext 🛛 Ir	ht		
MUSIC 02.wav	h								1	1
Super 16A.wav					Group	edge	Holdable	Trig	Stop	Output
Train 01.wav										
Type : Compressio	0									
		16	Ac	dd-Wav						
JOLAWO J	OPUM	10	E I		1					
PCM8		CM4	k s	Silence						
-il Silence Time			ok I	Use %						
Fil Silence Time		) mS)		Use % 2 4	VoiceFile		Prog - Busy	Table Use	Table Start	Туре
Fil Silence Time	e (1 ~ 10000 mS	0 mS) C	Ok I ancel	Use % 2 4 3	VoiceFile		Prog - Busy	Table Use	Table Start	Туре
Fil Silence Time bc Ct 20 Mi Super 16A.wav	e (1 ~ 10000	) mS)	Ok I	Use % 2 4	VoiceFile		Prog - Busy	Table Use	Table Start	Type
Fil Silence Time bc Cf 20 MI Super 16A.wav Train 01.wav	e (1 ~ 10000 mS 512296	0 mS) C 16000	Ok I ancel PCM8	Use % 2 4 3 12	VoiceFile		Prog - Busy	Table Use	Table Start	Туре
bc	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Туре
Fil Silence Time bc Cf 20 Super 16A.wav Train 01.wav Silence : 20mS	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Type
Fil Silence Time bc Cf 20 Super 16A.wav Train 01.wav	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Type
Fil Silence Time bc Cf 20 Super 16A.wav Train 01.wav Silence : 20mS	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Type
Fil Silence Time bc 20 Super 16A.wav Train 01.wav Silence : 20mS	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Type
Fil Silence Time Ct 20 Super 16A.wav Train 01.wav Silence : 20mS	e (1 ~ 10000 mS 512296 46618	0 mS) C 16000 12000	Ok I Cancel PCM8 PCM8	Use % 2 4 3 12 2	VoiceFile		Prog - Busy	Table Use	Table Start	Type

- 9. Show all your required \*.wav files. Double click wav files you required in h, they will be showed in i.
- 9-1.If you once required multiple wav files to be showed in i. (Mouse left button as begin item after mouse right button as end item and click Add-Multi Wav at the same time).
- 9-2.It will show the memory size you has been used.
  - (Please note the data size you loaded can't exceed the body's memory).
  - \*\*\* Please note the data size you loaded can't exceed the body's memory. If so, there are some ways to solve this problem:
  - 1). Change it to a bigger memory size body. ex: aP23085-8Pin to aP23341-8Pin.
  - 2). Compressed the wav files to decrease the memory size. ex: from PCM16 to PCM8.
  - 3). Delete some required voice files.
- 10. If way file is too big, we can choose compressing files to decrease their sizes.
  - (UALW8 compress wav file to 8bits, PCM8 compress wav file to 8bits,

ADPCM compress wav file to 4bits).

\*\*\* Please note if your original voice is 16bits way file which need to be compressed to 8 bits, We suggest you choose ULAW would be better.

- 11. If you want to add mute voice, click Silence button to set the silence time.
- 12. If need silence 20ms. Key in 20 (unit ms) then click OK button.

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aP23682 - 8P	in v Key	/ Mode		~ Config	DAC PWM	Debounce 16ms	) 65us 🔘 3V	-	Option:	
Wave File					High Vol	ıme	0 04.			
boku.wav					Set LVD:	✓ Off	On P			
CHILD.wav						ator:		, q		
MUSIC 02.wav									1	1
Super 16A.wav					Group	edge	Holdable	Trig	Stop	Output
Train 01.wav						_				
Type : Compressio				Add-Wav	]					
ULAW8	OPCM	16								
PCM8		CM4		Silence						
File Name	Size	Rate	Туре	Use %						
boku.wav	35650	12000	PCM8	2						
CHILD.wav	91676	12000	PCM8	4	VoiceFile		Prog - Busy	Table Use	Table Start	Туре
MUSIC 02.wav	73004	12000	PCM8	3						
Super 16A.wav	512296	16000	PCM8	12						
Train 01.wav	46618	12000	PCM8	2						
Silence : 20mS	0	16000	Silence	0						

www.23KWCompiler-V2.5					_	-	×
Compiler Writer About		_			Che	eck Sum :	
aP23682 - 8Pin 🗸 Key Mode	~ Config	SBT Out1	tage 3V	Output Option Out1 : Busy- H		lusy-H	~
Wave File		PowerOnPlay     S	4.5V	u			
boku.wav		SBT Loop t		_			
CHILD.wav		Set Volume	Int				
MUSIC 02.wav		-		Trig	Stop	Outpu	
Super 16A.wav				ing	Stop	Оцфи	
Train 01.wav							
Type : Compression		Close					
.,,	Add-M/av						

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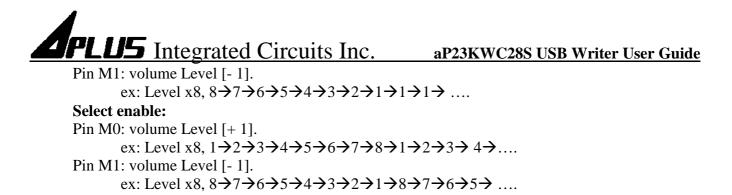
<ul> <li>23KWCompiler</li> </ul>	-V2.5						_		×
Compiler Writer	About						Check S	um :	
aP89170K	~ SP	I Mode		✓ Config	PowerOnPlay	tage Output Option: 3V Out1:Busy-H 4.5V	Busy-H	ł	~
Wave File					PowerOnPidy	Out2 :LED- Flash	LED- Fla	ash	~
boku.wav					v	Volume Warp : Disable 🗹 Enable	Load		~
CHILD.wav					Set Volume	Vol Level : 8 🗸 Vol Default : 8 🗸			_
MUSIC 02.wav						Vor Lever : 8 Vor Derault : 8 V		Output	
Super 16A.wav						Set V-1		Output	_
Train 01.wav					w	360			
					CPU Serial Op	tion SPI - 4 wire : Pin S4 as DO			
					Close	I2C - 3 wire : Pin S4 as DO			
Type : Compressio	-			Add-Wav		PULL-TYPE			
O ULAW8	OPC	M16		nuu mur					
PCM8		PCM4		Silence		Internal PULL-UP			
						O No internal PULL-UP			
File Name boku.wav	Size 35650	Rate 12000	Type PCM8	Use %		Set W-1			

- 13. Select the signal timing. (16ms or 65us).
- 14. IC operating voltage at 3V.
- 15. Select PWM high volume.
- 16. Select set Low Voltage Detect when voltage less than 2V IC will be reset.
- 17. Select set Oscillator from Crystal mode(X'tal=16MHz), External Rosc mode(68K), Internal Rosc mode. ( if selecting Crystal mode, It must set at pin M0 & pin M1 ).
- 18. SBT pin swap other I/O pin function. ex : SBT pin swap to OUT1 as output use.
- 19. Disable the power on play function. It does not immediately play [SW0] once.
- 20. When trigger in "SBT mode".

If enable the [SBT Loop]: It will one key sequential trigger and keep loop play in every group. If disable the [SBT Loop]: It will one key sequential trigger and play one time in every group. (\*\*\* Note: Trig Level must select Level).

- 21. Output Option: Setup the out1, out2, out3.Can select the Busy-H, Busy-L, Stop-H, Stop-L,LED Flash (LED high active), ~LED Flash(LED low active),Prog-BusyH, Prog-BusyL, Load.
- 22. [Set volume] control function.
  - ---Select the volume control Level x16 / x8 / x4.
  - ---The volume control key by the [M1] and [M0] key.

Volume Warp: Volume level increase to the max then begin from the level 1. Select disable: Pin M0: volume Level [+ 1]. ex: Level x8,  $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8 \rightarrow 8 \rightarrow 8 \rightarrow ....$ 



23. When set SPI Mode or I2C Mode, the pin S4 is for data output (DO) using.

ompiler Writer	About					bounce	Voltag	e Output		ck Sum :
P23682 - 8Pir	n ~ Key	/ Mode		✓ Config	DAC	16ms 🔾	65us 💿 3V	Out1:B		usy- H
Vave File					High Volume	8	√ 04.5	v		
oku.wav					Set LVD: 🖂 🤇	off 🗆 o	n			
HILD.wav					Set Oscillator			F I		
USIC 02.wav									1	
uper 16A.wav					and the second s	dge	Holdable	Trig	Stop	Output
rain 01.wav						lge	Unholdable	Retrigger	Enable	Panel-A
					SW2 Ed		Unholdable	Retrigger	Enable	
					-		Hold	Trigger	Stop	
ype : Compression	n				0L	evel	Unholdable	○ Non-Ret	rigger 🛛 🔿 Dis	sable
ULAW8	OPCM	16		Add-Wav		dge	⊖ Holdable	Retrigge	r 💿 En	able
PCM8		CM4		Silence						
ile Name	Size	Rate	Туре	Use %	SW	2	2		OK Car	ncel
oku.wav	35650	12000	PCM8	2						
CHILD.way	91676	12000	PCM8	4	VoiceFile	1	Prog - Busy	Table Use	Table Start	Type
USIC 02.wav	73004	12000	PCM8	3	boku.way		1	0	0	PCM8
uper 16A.wav	512296	16000	PCM8	12	CHILD.way		1	0	0	PCM8
rain 01.wav	46618	12000	PCM8	2	MUSIC 02.wav		1	0	0	PCM8
								Up		Danal D
- i -										Panel-B
					-			Down		
								Insert		
					-			Delete		
					-					
					-					

- 24. Double click Panel-A for your setting the function of each Group.
- 25. Key in group number.
- 26. SW means group. ex : Select the second group and double click the wav files you required in (i) then Panel-B will show them.

The mouse moves to Panel-B then enter right key for your adjusting the order of the wav files or insert or delete them.

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23KWCompiler-\									_	
ompiler Writer Al aP23682 - 8Pin		Mode		~ Config	DAC	Debounce 16ms		Out1:Busy-		
Wave File boku.wav CHILD.wav						ume ☑ Off □ ator: □ XI				
MUSIC 02.wav									1	
Super 16A.wav					Group	edge	Holdable	Trig	Stop	Output
Train 01.wav					SW1 SW2	Edge Edge	Unholdable	Retrigger Retrigger	Enable	
					SW2 SW3	Edge	Unholdable		Add	
Type : Compression	Орсм	16		Add-Wav			5W-Begin: 2	- z-1 Ok	Multi- Delete	
PCM8				Silence			SW-End: 3 Trig Level	Cancel	Play Stop	z
File Name boku.wav CHILD.wav MUSIC 02.wav	Size 35650 91676 73004	Rate 12000 12000 12000	Type PCM8 PCM8 PCM8	Use % 2 4 3	VoiceFile boku.wav		C Level Hold Unholdable Trigger	Edge  Holdable	le Start   T	ype CM8
Super 16A.wav Train 01.wav	512296 46618	16000 12000	PCM8 PCM8	12 2	CHILD.way MUSIC 02.		○ Non-Retrigg Stop ○ Disable	er (•) Retrigger		CM8 CM8
					Usage : 5		2097152 (	B 24 % ) Load	dDp2	Compiler

27. If the mouse move to Panel-A and enter right key, it will show there are additional function for add, multi-add, delete, play and stop.

Add: add single group. Multi-Add: add multi-groups at one time (z-1). Delete: delete the group. Play: play all voices of the group. Stop: stop the voice playback.

- 28. Finish compiling, click compiler button.
- 29. Generate Check Sum number.
- 30. Loading finished compiled .dp2 file.

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compiler Writer Al	out									Cheo	k Sum :
aP23682 - <mark>8Pi</mark> n	~ Ke	y Mode		~ Config	□ DAC □ PWM	Debounce 16ms (		Voltage ③ 3V ○ 4.5V	Out1 :Bu		sy-H
Wave File					High Volu	ıme	~	04.50			
					Set LVD:	✓ Off [	On				
					Set Oscill	ator: 🗆 🛛	T Ex	t 🗹 Int			
					Group	edge	Ho	ldable	Trig	Stop	Output
					1	· · · ·	ile is not	exist		×	
										C	
Type : Compression				dd-Way			- 🔺	D:\A\w	ave\boku.w	av	
	PCN	116		uu-vvav		-	_	D:/A/W	ave\CHILD.	vav	
		PCM4		Silence							
File Name	Size	Rate	Type	Use %					荷	定	
boku.wav	0	0	PCM8	0							
CHILD.wav	0	0	PCM8	0	VoiceFile		Prog -	Busy	Table Use	Table Start	Туре
MUSIC 02.wav	73004	12000	PCM8	3							
Super 16A.wav	512296	16000	PCM8	12							
Train 01.wav	46618	12000	PCM8	2							
Panel-C		Play									_
			C-1		L						
		Stop	_		-						
		Remov	e								
		Remov	e All								
		Modify	Path								
				_							
					Usage : 3	76208	< 20971	52 (1	8%) L	oadDp2	Compiler

- 31. Reloading .dp2 file if the voice file (\*.wav) is not exist.
- 32. The mouse moves to Panel-C then enter right key for your modifying the path of the wav files.

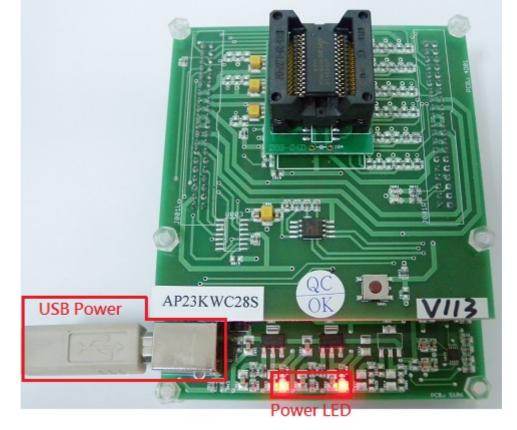
PLUS Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

### How to write the program file [ xxx.dp2 ] to IC :

23KWC	ompiler	-V2.5						
mpiler	Writer	About						Check Sum : C1B
Group	edge	Ho	Idable	Trig	Stop	Output	D:\A\demo\demo1.dp2	
W1	Edge	Un	holdable	Retrigger	Enable		Key Mode	
W2	Edge	Un	holdable	Retrigger	Enable		Use: PWM , Low Voltage : 3V	
NЗ	Edge	Uni	holdable	Retrigger	Enable		VOUT [ PWM ] - Level 6	
							Power On Play: Disable	
	c						Use: Rosc Int	
							LVD: Off	
							SBT as Out1 b	
							OutPut1: Busy- H	
							Execute Blank Check	
					8		Blank Ckeck Success	
		í					Execute Program	
oiceFile	3	Prog -	Busy	Table Use	Table Start	Туре	Program Finish Execute Verify	
oku.wav		1		0	0	PCM8	Verify Success	
HILD.wa	v	1		0	0	PCM8		
USIC 02	.wav	1		0	0	PCM8		
	1.1							
	d							
	_							
-								
	e							
Blank	c Chec		rogram	n 🗹 Ver	rify 🗆 Se	curity		23682 - 8Pin 🗸
Diam	Chec		rogran		iny 🗆 36	currey		2002 - 6PIII V
							Run g	a
						100		Load

- a. Click [Load] button to load the program file [xxx.dp2] file. After loading, it will show Check Sum  $\cdot b \cdot c \cdot d$  message.
- e. Select Blank Check to check if this IC is blank. Select Program to execute programming. Select Verify to execute verification. Select Security to execute IC security mechanism. \*\*\*(To avoid the data to be copied and it can't be a master IC).
- f. Click Run button to execute all your selected items in e column. (It'll show (e.) progress & (b) message).

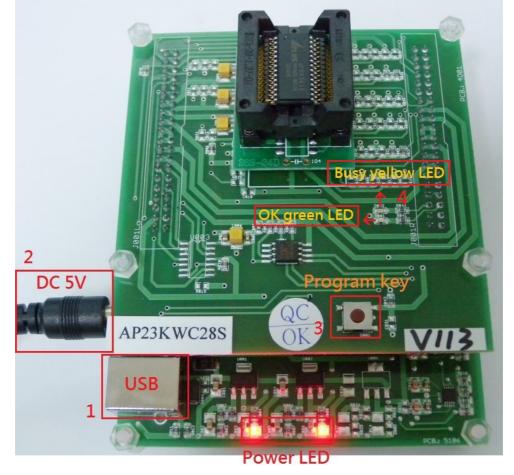
# PLUS Integrated Circuits Inc. aP23KWC28S USB Writer User Guide



g. Click [Load to Flash] button to download .dp2 file to Writer.

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aP23KWC28S USB Writer User Guide



When writer is able to be a 1 to 1 copier. \*\*\* (You must do g. step at first)

- 1. Disconnect USB.
- 2. Connect 5V adapter.
- 3. Push program key to execute programming.
- 4. When programming, yellow LED flash. When programming finished, green LED light. When programming failed , no LED light.



**Example for About :** 

4ver 23KWCompiler-V2.5	- 🗆	×
Compiler Writer About	Check Sum : C	C1B1
aP23xxx Series Voice OTP Development System		
Version 2.5		
Version 2.5		
Aplus Integrated Circuits Inc.		
. 5		
a www.aplusinc.com.tw		
www.apidsine.com.tw		
sales@aplusinc.com.tw		
b Writer Firmware Versiom : V114		
C Firmware Update		

- a. Double click the <u>www.aplusinc.com.tw</u> will connect website Aplus Integrate Circuits Inc.
- b. Double click the Writer Firmware Version will show writer firmware version.
- c. Double click the Firmware Update will load firmware file.



Writer and Copier only support the (\*.dp2) file from 23KWCompiler version V2.4 or up.

- Q1: How to update the latest firmware version.
- Q2: How to convert (\*.dat) format to (\*.dp2) format.

Q3: How to convert V2.1 & V2.2 & V2.3 (\*.dp2) to V2.4 or up (\*.dp2) format.

#### Ans1:

	Writer About						Check Sum :	>
Group	edge	Holdable	Trig	Stop	Output	C:\Users\RD\Desktop\test_file\v2_ Writer Disconnect	3-dac.dp2	^
oiceFile		Prog - Busy	Writer Ir	nformation Writer disc	×			
					<b>確</b> 定			
Dlank	Chack			(	uriby		2602 00:	
Blank	Check	⊻ Progran	n ⊠ Verify	/ Sect	0 %	Run Load to Flash	3682 - 8Pin Load	~

- a. Writer must be connected PC after load (\*.dp2) file.
- b. If Writer doesn't connect PC, it will show Writer disconnect message.

## **5** Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

23KWCompiler-V2.5

Compiler V	Vriter About						Check Sum :
Group	edge	Holdable	Trig	Stop	Output	C:\Users\RD\Desktop\test_file\v2_	3-dac.dp2
			Firmware U	pdate		×	
VoiceFile		Prog - Busy			atest version fin	nware	
						確定	
Blank	Check	✓ Program	n 🗹 Ver	ify □S	ecurity		3682 - 8Pin →
	CHECK	Errogran	. 2006	iiy 🗆 S	0 %	Run	Load

- c. If Writer connects PC, it will show Update the latest version firmware message.
- d. Please click OK button.

## PLUS Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

Group	edge	Holdable	Trig	Stop	Output	Get Img file (AP24XX_USB_Write Execute Update Firmware Update Firmware Finish Please replug in Usb Writer	er_v114.img) ^
VoiceFile		Prog - Busy	Table Use	Firmware Upo Update Firm Please replu	date nware Finish! g in Usb Writer 確定	×	
⊠ Blank (	Check	☑ Program	n 🗹 Ver	ify □Se	ecurity	Run Load to Flash	23682 - 8Pin ~

e. After finishing firmware update, click OK button and replug in Usb Writer.





f. You can see About page to check Writer Firmware Version.



Ans2:

lense -	23KWCompiler-V2.5					-	×
Co	ompiler Writer About					Check Sum	:
	Group edge Ho	oldable Trig	Stop Out;	but			^
#us 開啟							×
← → ∽ 个 🔒 → 本機	ŧ → 桌面 → test_file				ٽ ×	搜尋 test_file	Ą
組合管理 ▼ 新増資料水	ē						
🕂 Downloads 🖈 ^	名稱 ^		修改日期	類型	大小		
📃 桌面 🛛 🖈	🕪 v1_2-dac.dat		2016/4/28 上午 1	DAT 檔案	1,024 K	B	
🔮 文件 🖌 🖈	🕸 v1_2-pwm.dat		2016/4/28 上午 1		1,024 K	B	
📰 圏片 🛛 🖈	🕪 v2_3-dac.dp2		2016/4/28 上午 1	DP2 檔案	1,025 K	B	
demo pic test_file TestGoGo ▲ OneDrive ● 本機 ↓ Downloads	₩0 v2_3-pwm.dp2		2016/4/28 上午 1	DP2 檔案	1,025 K	.8	
<ul> <li>註 文件</li> <li>♪ 音樂</li> <li>二 桌面</li> </ul>							
	稱(N): v1_2-dac.dat				~	data files (*.dp2;*.dat) 開啟(O)	~ 取消

a. At Writer page click Load button and select (\*.dat) file.

# PLUS Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

23KWC	Writer								Check Sum :	×
Group	edge		Holdable	Trig	Stop	Output	C:\Users\RD\Desktop\t	est_file\v:	1_2-dac.dat	^
VoiceFile		Pr	rog - Busy	.*dat to .*dp		mat will be chan	ged to (*.dp2) format 確定	×		
								<u>_</u>		~
⊴ Blanl	k Che	ck 🗄	✓ Prograr	n 🗹 Verif	y ⊡s	Gecurity	Run	aP. d to Flash	23682 - 8Pin Load	~

- b. It will show (\*.dat) file format will be changed to (\*.dp2) format message.
- c. Click OK button.

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aP23KWC28S USB Writer User Guide

	<b>μu≈</b> 23KWC	ompiler-V2.5						- 0	$\times$
	Compiler	Writer About						Check Sum :	
	Group	edge	Holdable	Trig	Stop	Output	C:\Users\RD\Desktop\test_file\v	1_2-dac.dat	^
/₩ 另存新檔									×
← → ~ ↑ → 4	▷機 > 桌面	i⇒ test_file					✔ ひ 搜尋 test_f	ile	P
組合管理 ▼ 新増資料	4夾								0
<ul> <li>☆件</li> <li>☆</li> <li>▲ demo</li> <li>➡ pic</li> <li>➡ test_file</li> <li>➡ TestGoGo</li> <li>▲ OneDrive</li> <li>▲ 本機</li> <li>➡ Downloads</li> <li>☆ 文件</li> <li>➡ 音樂</li> <li>■ 真面</li> <li>○ 南比</li> </ul>	₩0 v2_	.3-dac.dp2 .3-pwm.dp2	^		修改日期 2016/4/28 上午 1 2016/4/28 上午 1		大小 1,025 KB 1,025 KB		
	-new-dac								~
存催類型(T): data へ 陽藏資料夾	a files (*.dp2	2)					存襠(S	) 取消	~ i

d. Now save (\*.dat) file as (\*.dp2) file. The (\*.dp2) can be used as the data for program and verify only. The (\*.dp2) file don't include sufficient information for re-load to the compiler.



Ans3:

<b>/ma</b> 23KW(	Compiler-V2.5						- 🗆	×
Compiler	Writer About						Check Sum :	
Croup	Lodao	Holdable	Tria	Stop	Output	Cultionro/BD/Dockton/toot file/v2	2 num do 3	
Group	edge	HOIGADIE           Image: Imag	Trig			C:\Users\RD\Desktop\test_file\v2	_3-pwm.apz	
	e P	r CheckSum I		will be modf	fied for new ver	× rsion compiler 確定		
		1						~
⊠ Blan	nk Check	✓ Program	n 🗹 Verit	fy □Se	curity	Run	23682 - 8Pin 🗠 Load	2

- a. At Writer page click Load button.
- b. Because the check sum rule has been modified after version V2.4, the check sum maybe different from the original one.

# APLUS Integrated Circuits Inc. aP23KWC28S USB Writer User Guide

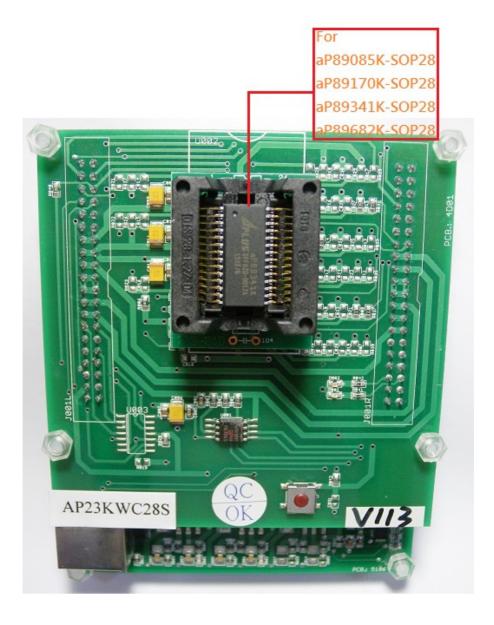
	In 23KWCoi	mpiler-V2.5								$\times$
	Compiler Writer About								Check Sum :	
	Group	edge	Holdable	Trig	Stop	Output	C:\Users\	RD\Desktop\test_file	e\v2_3-pwm.dp2	^
<b>/™</b> 另存新檔										×
← → ∽ ↑ 📘	> 本機 > 桌	面 > test_file	Ð					✓ <ul> <li>ひ</li> <li>授考</li> </ul>	≹ test_file	Q
組合管理 ▼ 新5	增資料夾								===	- 0
(□) 文件	★ ^ 名稱		^		修改日期		類型	大小		
demo pic test_file TestGoGo ▲ OneDrive 量本機 ↓ Downloads	HMD V	1_2-new-dac 2_3-dac.dp2 2_3-pwm.dpi			2016/4/28 上 <sup>4</sup> 2016/4/28 上 <sup>4</sup> 2016/4/28 上 <sup>4</sup>	∓1	DP2 檔案	1,025 KB 1,025 KB 1,025 KB		
	v v2_3_new_chl data files (*.d									~
▲ 隱藏資料夾									存檔(S)	取消

c. Now save (\*.dp2) file as version V2.5 (\*.dp2) file. The (\*.dp2) include sufficient information for re-load to the compiler.



## **Inserting Devices into the Programmer**

- SOP package devices \_
- Device should be inserted align to the bottom of the 28-pin textool socket.





#### 2015/03/27

aP23KWC28S User Guide.

#### 2015/05/20

Dat file become dp2 file.

#### 2015/07/17

Add $\rightarrow$ Device map & Check Sum

#### 2015/09/18

Add $\rightarrow$ Low voltage reset & CPU serial option. Modify→Trigger mode & Silence time & Usage memory size & Execute Run component control.

#### 2016/02/01

Add  $\rightarrow$  Auto detect writer firmware version. Add  $\rightarrow$  MP3 mode Play/Pause & Play/Stop option.

#### 2016/02/24

Add  $\rightarrow$  Q&A.

#### 2016/05/06

Add  $\rightarrow$  Select IC operating voltage. Add  $\rightarrow$  PWM voice output volume. Modify  $\rightarrow$  Change LVR to LVD.