

Pin Compatibility of the WM8766/68/72

INTRODUCTION

The WM8766/68/72 is a family of six and eight channel DACs and one Codec. They are designed to be pin compatible in most applications and share identical register structures. This document demonstrates how easily interchangeable the devices are.

PIN OUT OF THE WM8766/68/72

Figure 1 below shows the pin-out of all devices.

- WM8766: Fourth pair of outputs (pins 19 and 20) and the fourth digital input (pin 10) are missing from the device leaving No Connection pins instead.
- WM8768: Four sets of stereo outputs can be seen down the right hand side of the device with the digital inputs on the left hand side.
- WM8772: Pins 19,20,10 are used as analogue inputs and a digital output for the ADC.

WM8766, PIN CONFIGURATION 28 LEAD SSOP

MODE	1	●	28	AVDD
MCLK	2		27	AGND
BCLK	3		26	VOUT3R
LRCLK	4		25	VOUT3L
DVDD	5		24	VOUT2R
DGND	6		23	VOUT2L
DIN1	7		22	VOUT1R
DIN2	8		21	VOUT1L
DIN3	9		20	NC
DNC	10		19	NC
ML/I2S	11		18	VMID
MC/IWL	12		17	VREFP
MD/DM	13		16	VREFN
MUTE	14		15	TESTREF

WM8768, PIN CONFIGURATION 28 LEAD SSOP

MODE	1	●	28	AVDD
MCLK	2		27	AGND
BCLK	3		26	VOUT3R
LRCLK	4		25	VOUT3L
DVDD	5		24	VOUT2R
DGND	6		23	VOUT2L
DIN1	7		22	VOUT1R
DIN2	8		21	VOUT1L
DIN3	9		20	VOUT4R
DIN4	10		19	VOUT4L
ML/I2S	11		18	VMID
MC/IWL	12		17	VREFP
MD/DM	13		16	VREFN
MUTE	14		15	TESTREF

WM8772, PIN CONFIGURATION 28 LEAD SSOP

MODE	1	●	28	AVDD
MCLK	2		27	AGND
BCLK	3		26	VOUT3R
LRC	4		25	VOUT3L
DVDD	5		24	VOUT2R
DGND	6		23	VOUT2L
DIN1	7		22	VOUT1R
DIN2	8		21	VOUT1L
DIN3	9		20	AINL
DOUT	10		19	AINR
ML/I2S	11		18	VMID
MC/IWL	12		17	VREFP
MD/DM	13		16	VREFN
MUTE	14		15	REFADC

Figure 1 WM8766, WM8768 WM8772 Pin Configurations

The stereo channel VOUT4L/R has the same properties as the other three stereo channels (i.e. VOUT1L/R, VOUT2L/R, VOUT3L/R) for the WM8768 device. The analogue inputs to the WM8772 should be connected via AC coupling capacitors.

Figure 2 overleaf shows the recommended external components for all 3 devices. Common pins are shown in black, pins that vary from device to device are colour coded.

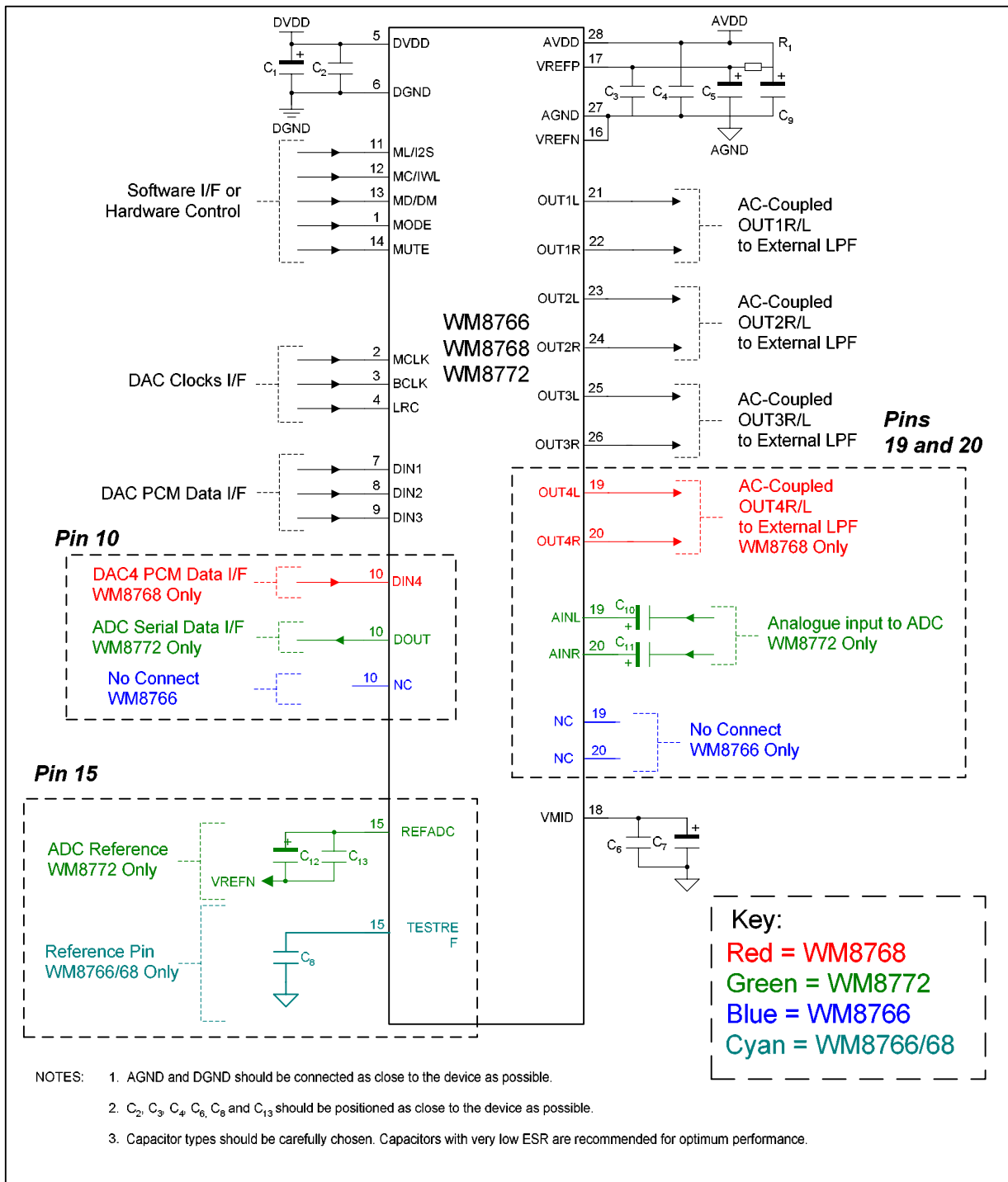


Figure 2 WM8766/68/72 Recommended External Components Diagram

COMPONENT REFERENCE	SUGGESTED VALUE	DESCRIPTION
C1 and C5	10 μ F	De-coupling for DVDD and AVDD.
C2 to C4	0.1 μ F	De-coupling for DVDD and AVDD.
C6	0.1 μ F	Reference de-coupling capacitors for VMID and TESTREF pin.
C7	10 μ F	
C8	0.1 μ F	De-coupling for TESTREF.
C9	10 μ F	Filtering for VREFP. Omit if AVDD low noise.
C10	1 μ F	AC coupling for analogue input
C11	1 μ F	AC coupling for analogue input
C12	10 μ F	De-coupling for ADC ref
C13	0.1 μ F	De-coupling for ADC ref
R1	33 Ω	Filtering for VREFP. Use 0 Ω if AVDD low noise.

Table 1 External Components Description

REGISTER MAPS OF THE WM8766/68/72

The register maps of the WM8766/68/72 are shown below in Table 2. Register R0-R9 and R31 are common to all devices with additional registers for VOUT4 in the WM8768 and the ADC in the WM8772.

The table shows all registers for all devices. The keys below this describe which rows represent each device. For example, row **R15(0Fh)** describes register R15 for the WM8766 and row **R15(0Fh)** describes R15 in the WM8768. Registers in white rows are common to all devices.

REGISTER	B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0	DEFAULT
R0(00h)	0	0	0	0	0	0	0	UPDATE	LDA1[7:0]							01111111	
R1(01h)	0	0	0	0	0	0	1	UPDATE	RDA1[7:0]							01111111	
R2(02h)	0	0	0	0	0	1	0	PL[8:5]			IZD	ATC	PDWN All DAC	DEEMP All DAC	MUTE All DAC	10010000	
R3(03h)	0	0	0	0	0	1	1	PHASE[8:6]		DACIWL[5:4]		DACBCP	DACL RP	DACFMT[1:0]		00000000	
R4(04h)	0	0	0	0	1	0	0	UPDATE	LDA2[7:0]							01111111	
R5(05h)	0	0	0	0	1	0	1	UPDATE	RDA2[7:0]							01111111	
R6(06h)	0	0	0	0	1	1	0	UPDATE	LDA3[7:0]							01111111	
R7(07h)	0	0	0	0	1	1	1	UPDATE	RDA3[7:0]							01111111	
R8(08h)	0	0	0	1	0	0	0	UPDATE	MASTDA[7:0]							01111111	
R9(09h)	0	0	0	1	0	0	1	DEEMP[8:6]			DMUTE[5:3]		DZFM[2:1]	ZCD	00000000		
R31(1Fh)	0	0	1	1	1	1	1	RESET							00000000		

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REGISTER	B15	B14	B13	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0	DEFAULT
R10(0Ah)	0	0	0	1	0	1	0	DACRATE[8:6]			DACMS	PWRDN ALL	DACD[3:1]			0	01000000
R10(0Ah)	0	0	0	1	0	1	0	DACRATE[8:6]			DACMS	PWRDN ALL	DACD[3:1]			ADCPD	01000000
R11(0Bh)	0	0	0	1	0	1	1	ADC OSR	0	1	0	0	0	0	0	0	00100000
R12(0Ch)	0	0	0	1	1	0	0	0	0	MPD	0	0	0	0	0	0	00000000
R12(0Ch)	0	0	0	1	1	0	0	0	0	MPD	0	0	ADCHP	AMUTE ALL	AMUTEL	AMUTER	00000000
R13(0Dh)	0	0	0	1	1	0	1	UPDATE	LDA4[7:0]							01111111	
R14(0Eh)	0	0	0	1	1	1	0	UPDATE	RDA4[7:0]							01111111	
R15(0Fh)	0	0	0	1	1	1	1	0	0	0	MPD	DEEMP ₄	PHASE4	DMUTE ₄	DZFM4	DACD4	00000000
R15(0Fh)	0	0	0	1	1	1	1	0	0	0	MPD	0	0	0	0	0	00000000

Table 2 Register Map of the WM8766/68/72

Key:

WM8766/68/72
WM8768
WM8766/68
WM8772
WM8766

Device	Active registers
WM8766	
WM8768	
WM8772	

For example, active registers in the WM8768 will be shown in rows that are coloured white, light blue, and red. Similarly, registers used in the WM8772 will be in rows coloured white and green.

APPLICATION SUPPORT

If you require more information or require technical support please contact Wolfson Microelectronics Applications group through the following channels:

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