



三合微科股份有限公司
SAMHOP Microelectronics Corp.

SM7186

DESCRIPTIONS:

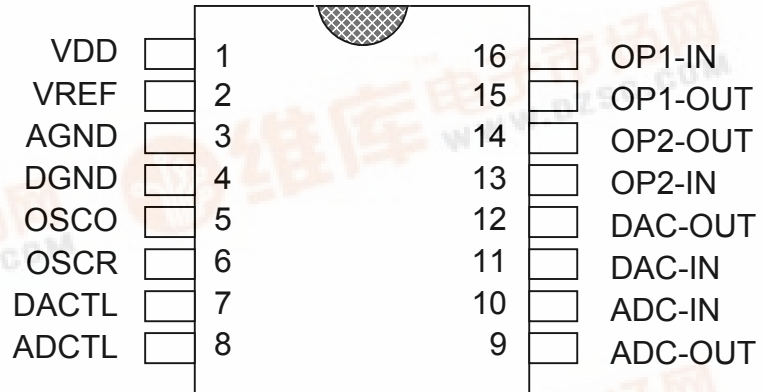
SM7186 is an Audio Echo Processor using CMOS Technology. It has built-in AD/DA and 48KBits SRAM for time delay. External Resister adjust large range oscillation frequency and control delay time. Many combination to fit your applications.

FEATURE:

- * Built-in adjustable OSC.
- * Built-in power on reset circuit.
- * Built-in 48KBits SRAM for delay control.
- * Adjustable delay time setting:
30ms ~ 700ms
- * Low operating current.

APPLICATIONS:

- * VCD
- * Karaoke
- * TV
- * Audio System
- * Car Stereo
- * VCR



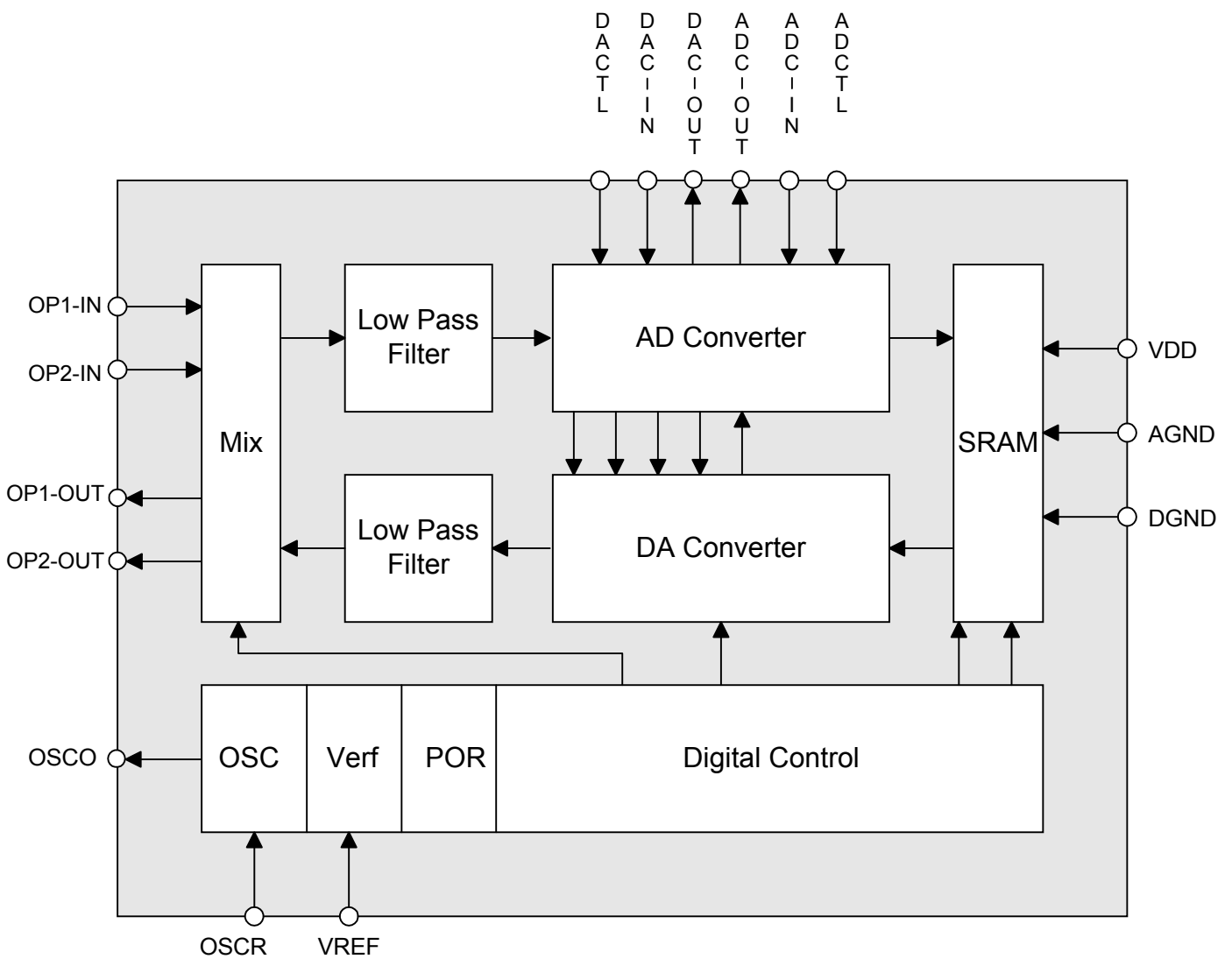


PIN DESCRIPTION

PIN No.	PIN NAME	I/O	FUNCTION
1	VDD	Power	Positive power supply
2	VREF	AI/O	Analog reference voltage
3	AGND	Power	Analog negative power supply
4	DGND	Power	Digital negative power supply
5	OSCO	OSC	System clock output
6	OSCR	OSC	Add resistor to modify internal OSC
7	DACTL	AIN	DAC control
8	ADCTL	AIN	ADC control
9	ADC-OUT	AOUT	ADC OP output
10	ADC-IN	AIN	ADC OP input
11	DAC-IN	AIN	DAC OP input
12	DAC-OUT	AOUT	DAC OP output
13	OP2-IN	AIN	OP2 input
14	OP2-OUT	AOUT	OP2 output
15	OP1-OUT	AOUT	OP1 output
16	OP1-IN	AIN	OP1 input

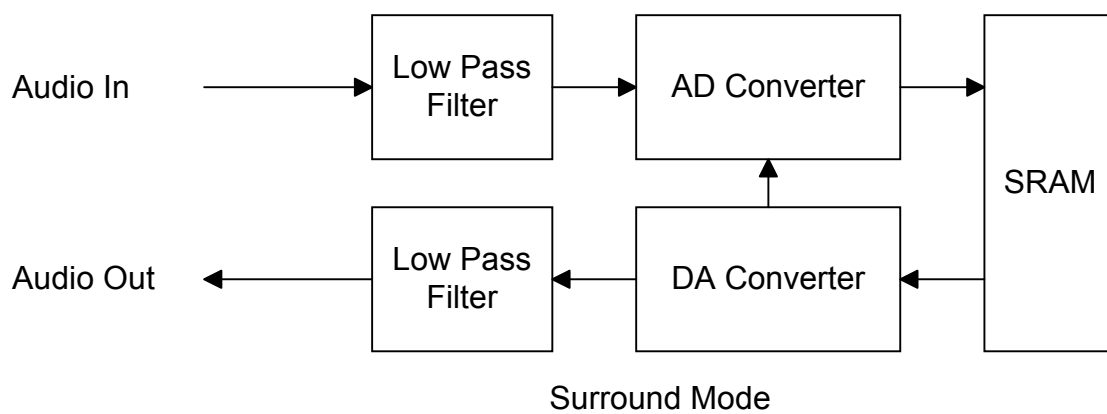
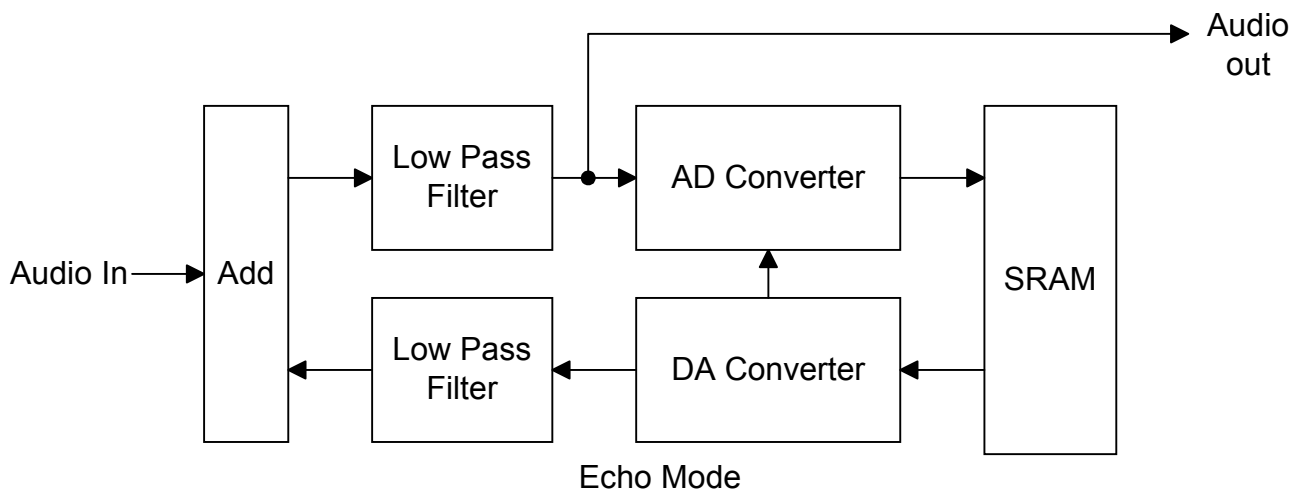


BLOCK DIAGRAM





Echo Mode & Surround Mode





DELAY TIME TABLE

OSCR	Fosc (MHz)	Delay Time ms
160K Ω	1.047	737.28
75K Ω	1.989	368.64
33K Ω	3.935	184.32
24K Ω	4.893	160.00
18K Ω	5.974	122.88
11K Ω	7.977	92.16
6.8K Ω	9.99	73.73
4.7K Ω	11.84	61.44
3.3K Ω	13.72	52.66
2.4K Ω	15.94	46.08
1.8K Ω	18.18	40.96
1.5K Ω	19.68	36.86
1.1K Ω	22.05	33.51
820 Ω	23.87	30.72



AC CHARACTERISTICS

($V_{cc} = 5.0V$, $f_{in} = 1KHz$, $V_i = 100mV_{rms}$, $f_{ck} = 4.608MHz$, $T_a = 25^{\circ}C$, unless otherwise noted)

SYMBOL	PARAMETER	Test condition	Min	Typ	Max	Unit
I _{cco}	Supply current			10	20	mA
G _v	Voltage gain	RL = 47KΩ		-0.5	2.5	dB
V _{omax}	Maximum output voltage	THD = 10%	0.8	1.4		V _{rms}
THD	Output distortion			0.38	0.9	%
No	Output noise voltage			-85	-70	dBV
PSRR	Power supply rejection ratio	△ V _{cc} = -20dBV f = 100Hz		-40	-25	dB
T _{mute}	Mute time		560	600	640	msec

DC CHARACTERISTICS

Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
V _{cc}	Supply voltage	4.5	5	5.5	V
I _{cc}	Supply current		10	20	mA
V _{IH}	"H" input voltage	0.7V			V
V _{IL}	"L" input voltage			0.3V	V



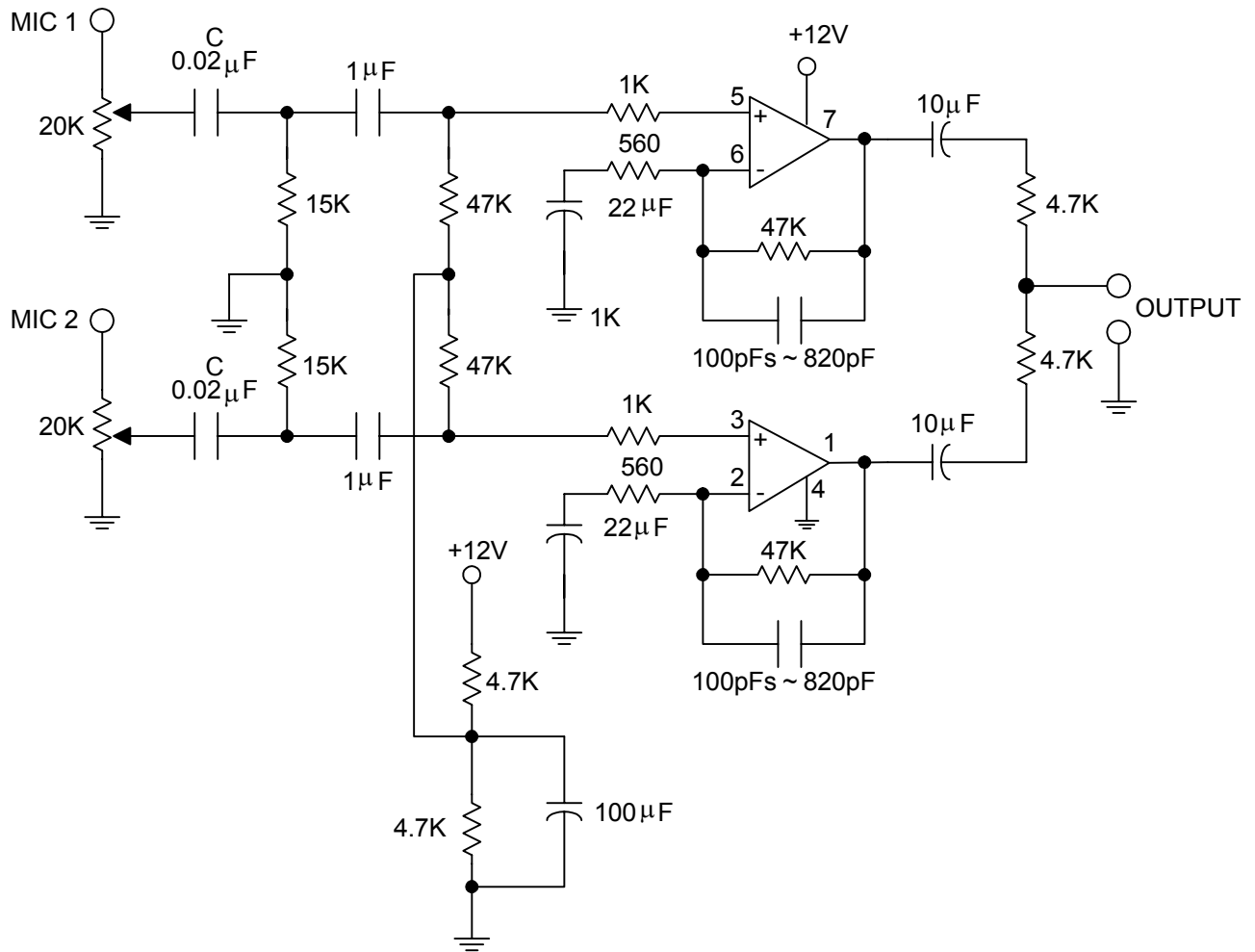
ABSOLUTE MAXIMUM RATINGS

(Ta = 25 °C, unless otherwise noted)

Symbol	Description	Limits	Unit
Vcc	Supply voltage	6.5	V
Icc	Supply current	100	mA
Pd	Power dissipation	1.7	W
Topr	Operation temperature	-20 ~ 75	° C
Tstg	Storage temperature	-25 ~ 125	° C

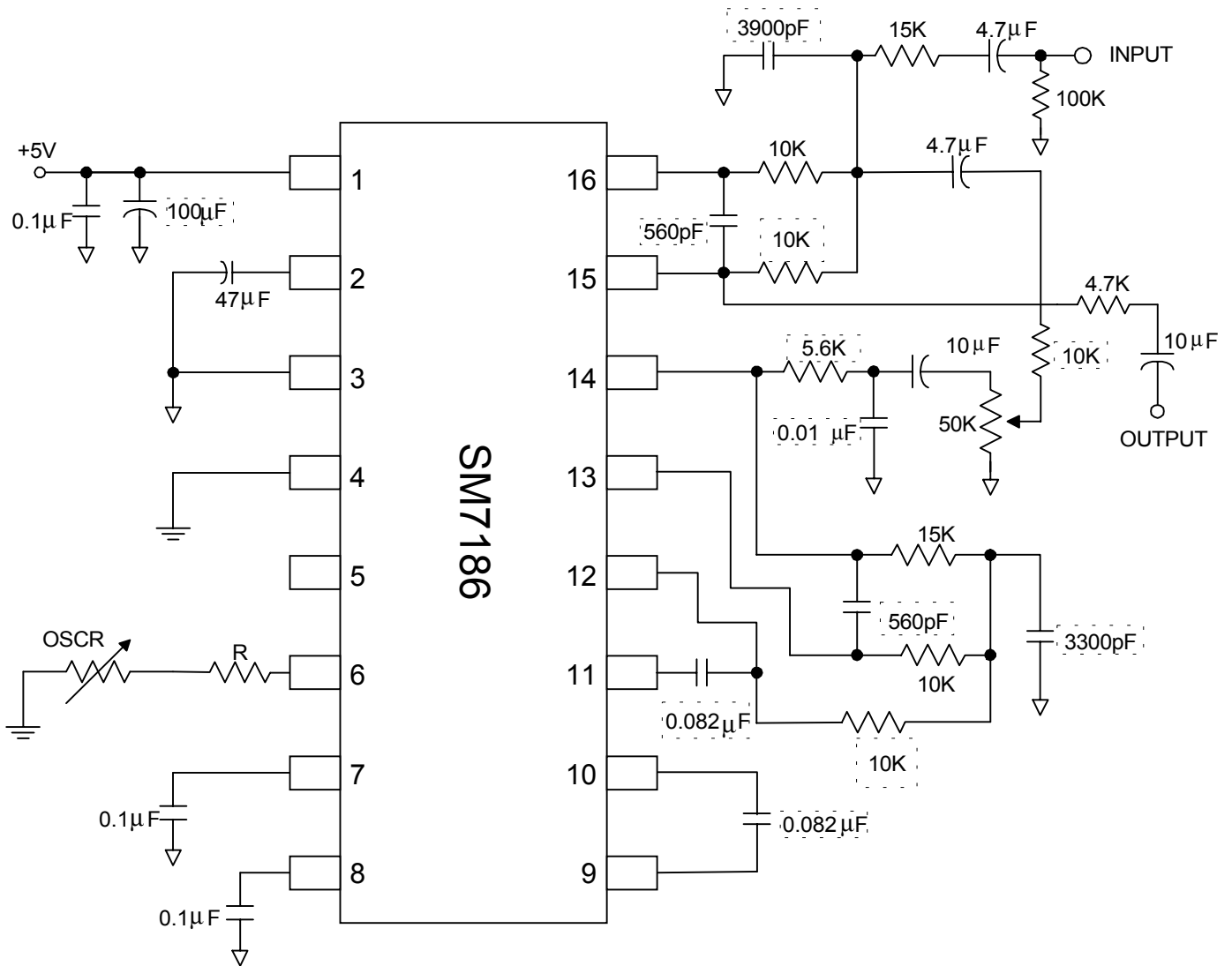


MIC PRE-AMP CIRCUIT





ECHO MODE APPLICATION CIRCUIT(MODIFIED)



1. Pin 6 R is approximate 1K~160kΩ .

2. ↓ Represent Analog Ground.

3. ≡ Represent Digital Ground.



SURROUND MODE APPLICATION CIRCUIT

