9713GS BOARD
SAM9713 REFERENCE DESIGN

9713GS demonstrates a typical application of SAM9713. This is a Waveblaster™ compatible board which uses SAM9713 with 512kx16 ROM (8Mbit), 32kx8 SRAM, and a Burr-Brown PCM1718E stereo DAC.

The ROM can be of the type GMS960800B (with express permission of Roland corporation, special licensing conditions apply), or GMS970800B without license.

9713GS provides:
• High quality wavetable synthesis with 38 voices polyphony
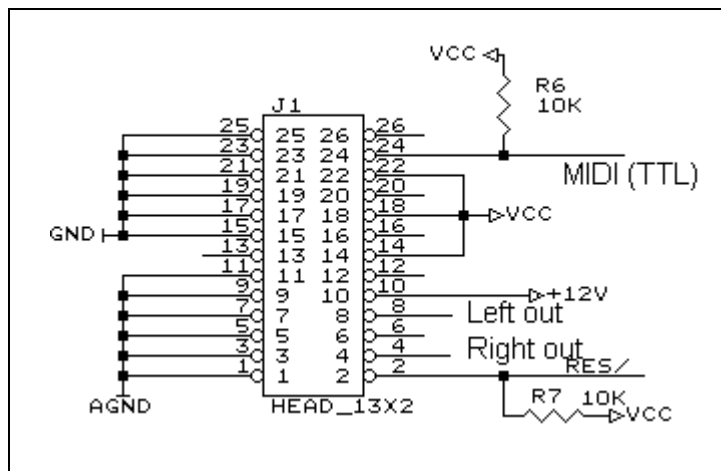• Compatible reverb and chorus
• Surround
• 4 bands equalizer

For a full list of available features and detailed MIDI implementation please refer to the correponding ROM data sheet (GMS960800B or GMS970800B).
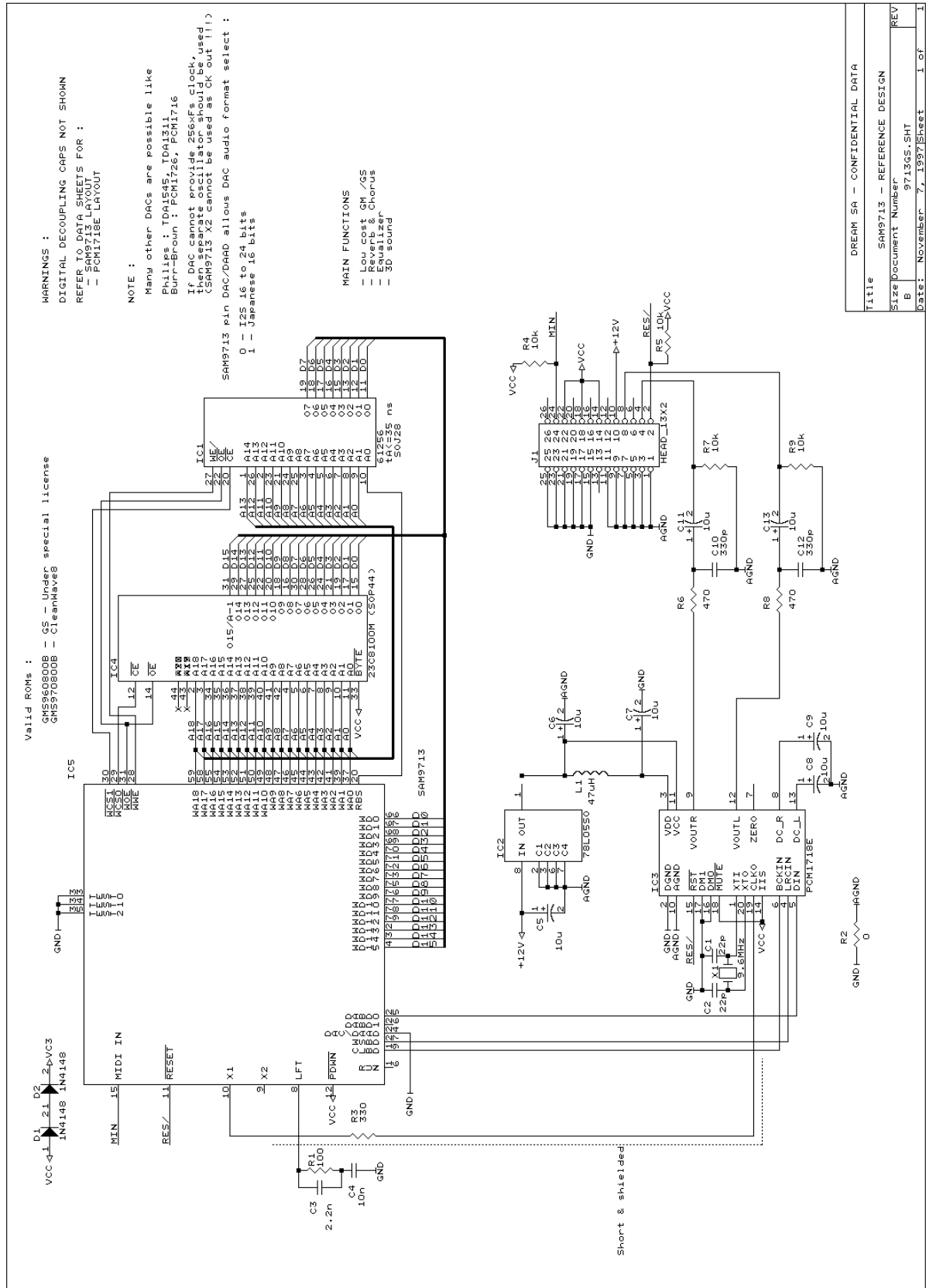
CONNECTION:
Note that board requires
+5V
+9V to +12V (on-board regulator)

dream

Schematics

WARNINGS :

DIGITAL DECOUPLING CAPS NOT SHOWN

REFER TO DATA SHEETS FOR :
- SAM9713 LAYOUT
- PCM1718E LAYOUT

NOTE :

Many other DACs are possible like

Philips : TDA1545, TDA1311
Burr-Brown : PCM1726, PCM1716

If DAC cannot provide 256×Fs clock,
then separate oscillator should be used
(SAM9713 X2 cannot be used as CK out !!!)

SAM9713 pin DAC/DAAD allows DAC audio format select :

0 - I2S 16 to 24 bits
1 - Japanese 16 bits

MAIN FUNCTIONS
- Low cost GM /GS
- Reverb & Chorus
- Equalizer
- 3D sound

Valid ROMs :

GMS960800B - GS - Under special license
GMS970800B - CleanWave8

IC1 61256 tAC≤35 ns SOJ28

IC4 23C8100M (SOP44)

IC5 SAM9713

IC2 78L05 IN OUT

IC3 PCM1718E

HEAD_13X2

MIDI IN

RESET

Short & shielded

D1 1N4148   D2 1N4148

R1 100   C3 2.2n   C4 10n

R3 330

R4 10k   R5 10k

R6 470   R7 10k   C10 330p   C11 10u

R8 470   R9 10k   C12 330p   C13 10u

R2 0

C1 22p   C2 22p   X1 9.6MHz

C5 10u   C6 10u   C7 10u   C8 10u   C9 10u

L1 47uH

MIN   RES/   VCC   GND   AGND   +12V

Parts list

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9713GS.SHT                                   Revision:

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 Item   Quantity  Reference                  Part
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    1       1     R1                         100
    2       1     J1                         HEAD_13X2
    3       1     IC1                        61256
    4       1     IC2                        78L05SO
    5       1     X1                         9.6MHz
    6       1     L1                         47uH
    7       1     R2                         0
    8       1     IC3                        PCM1718E
    9       1     IC4                        23C8100M (SOP44)
   10       1     IC5                        SAM9713
   11       1     R3                         330
   12       2     C1,C2                      22p
   13       2     D1,D2                      1N4148
   14       1     C3                         2.2n
   15       1     C4                         10n
   16       7     C5,C6,C7,C8,C9,C11,C13     10u
   17       4     R4,R5,R7,R9                10k
   18       2     R6,R8                      470
   19       2     C10,C12                    330p
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