

CD audio decoder, digital servo and filterless
DAC with integrated pre-amp and laser control

SAA7824

3 ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
SAA7824HL	LQFP80	plastic low profile quad flat package; 80 leads; body 12 × 12 × 1.4 mm	SOT315-1

4 QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{DDD}	digital supply voltage		1.65	1.8	1.95	V
V_{DDA}	analog supply voltage		3.0	3.3	3.6	V
$I_{DD(tot)}$	total supply current	n = 1 mode	–	38	–	mA
		n = 2 mode	–	39	–	mA
		n = 4 mode	–	40	–	mA
f_{xtal}	crystal frequency		–	8.4672	–	MHz
T_{amb}	ambient temperature		0	–	70	°C
T_{stg}	storage temperature		–55	–	+125	°C
S/N_{DAC}	onboard DAC signal-to-noise ratio		–	90	–	dB

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5 BLOCK DIAGRAM

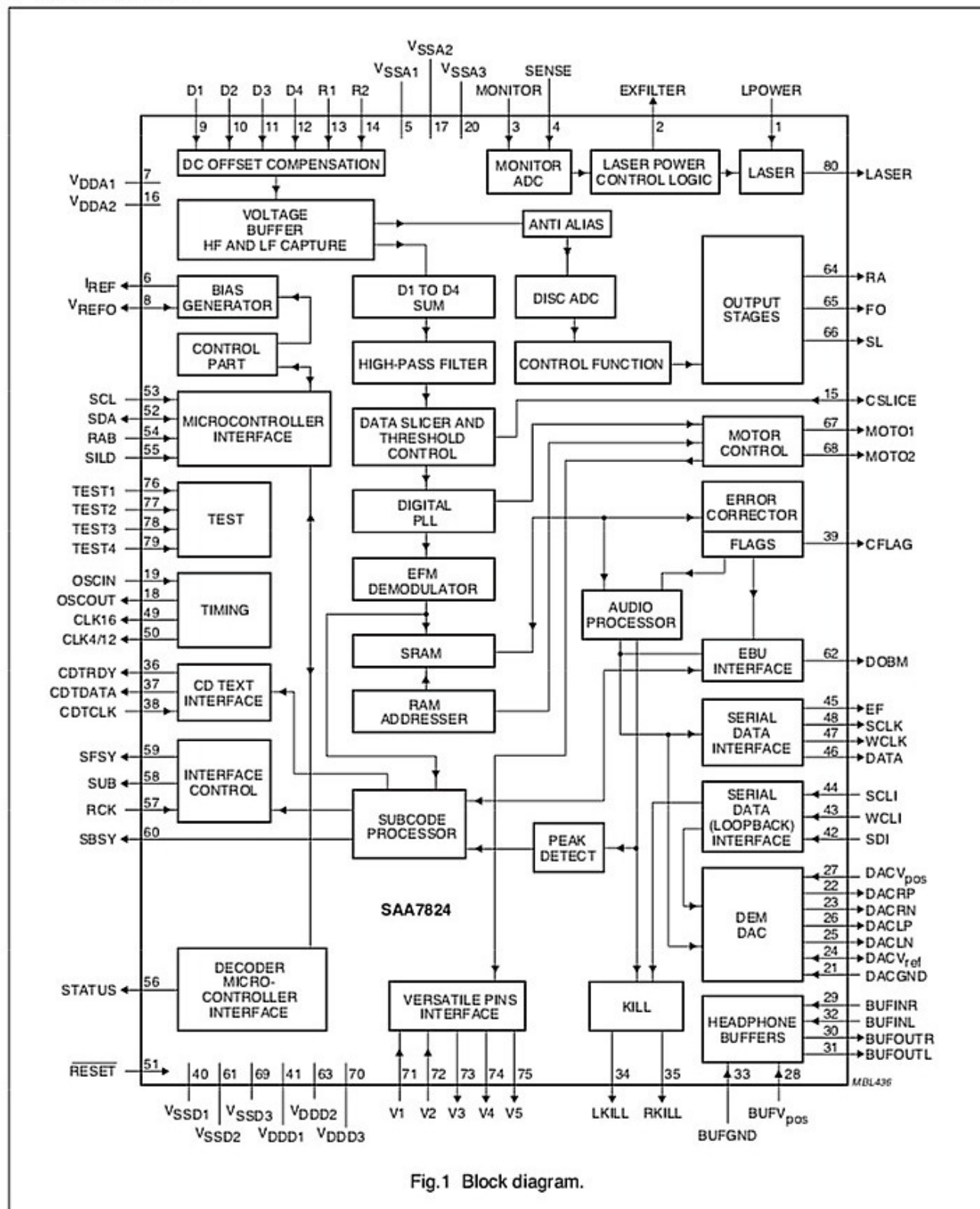


Fig.1 Block diagram.

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6 PINNING

SYMBOL	PIN	I/O	DESCRIPTION
LFPOWER	1	I	laser power supply
EXFILTER	2	O	10 nF capacitor for laser start-up control
MONITOR	3	I	laser monitor diode
SENSE	4	I	OPU ground reference point for MONITOR measurement
V _{SSA1}	5	SUP	analog ground 1
I _{REF}	6	O	reference current output (24 kΩ resistor connected to analog ground)
V _{DDA1}	7	SUP	analog supply voltage 1
V _{REFO}	8	I/O	servo reference voltage
D1	9	I	diode voltage/current input (central diode signal input)
D2	10	I	diode voltage/current input (central diode signal input)
D3	11	I	diode voltage/current input (central diode signal input)
D4	12	I	diode voltage/current input (central diode signal input)
R1	13	I	diode voltage/current input (satellite diode signal input)
R2	14	I	diode voltage/current input (satellite diode signal input)
CSLICE	15	I/O	10 nF capacitor for adaptive HF data slicer
V _{DDA2}	16	SUP	analog supply voltage 2
V _{SSA2}	17	SUP	analog ground 2
OSCOUT	18	O	crystal/resonator output
OSCIN	19	I	crystal/resonator input
V _{SSA3}	20	SUP	analog ground 3
DACGND	21	I	audio DAC ground
DACRP	22	O	audio DAC right channel differential positive output
DACRN	23	O	audio DAC right channel differential negative output
DACV _{ref}	24	I/O	audio DAC decoupling point (10 μF or 100 nF to ground)
DACLN	25	O	audio DAC left channel differential negative output
DACLP	26	O	audio DAC left channel differential positive output
DACV _{pos}	27	I	audio DAC positive supply voltage
BUFV _{pos}	28	I	audio buffer positive supply voltage
BUFINR	29	I	audio buffer right input
BUFOUTR	30	O	audio buffer right output
BUFOUTL	31	O	audio buffer left output
BUFINL	32	I	audio buffer left input
BUFGND	33	I	audio buffer ground
LKILL	34	O	KILL output for left channel (configurable as open-drain)
RKILL	35	O	KILL output for right channel (configurable as open-drain)
CDTRDY	36	O	CD text output to microcontroller ready flag
CDTDATA	37	O	CD text output data to microcontroller
CDTCLK	38	I	CD text microcontroller clock input
CFLAG	39	O	correction flag output (open-drain)
V _{SSD1}	40	SUP	digital ground 1

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SYMBOL	PIN	I/O	DESCRIPTION
V _{DD1}	41	SUP	digital supply voltage 1
SDI	42	I	serial data input (loopback)
WCLI	43	I	word clock input (loopback)
SCLI	44	I	serial bit clock input (loopback)
EF	45	O	C2 error flag output
DATA	46	O	serial data output
WCLK	47	O	word clock output
SCLK	48	O	serial clock output
CLK16	49	O	16 MHz clock output
CLK4/12	50	O	configurable 4 MHz or 12 MHz clock output
RESET	51	I	power-on reset input (active LOW)
SDA	52	I/O	microcontroller interface data input/output (open-drain)
SCL	53	I	microcontroller interface clock input
RAB	54	I	microcontroller interface R/W and load control input (4-wire)
SILD	55	I	microcontroller interface R/W and load control input (4-wire)
STATUS	56	O	servo interrupt request line/decoder status register/DC offset value readback output
RCK	57	I	subcode clock input
SUB	58	O	P to W subcode output
SFSY	59	O	subcode frame sync output
SBSY	60	O	subcode block sync output
V _{SS2}	61	SUP	digital ground 2
DOBM	62	O	bi-phase mark output (externally buffered)
V _{DD2}	63	SUP	digital supply voltage 2
RA	64	O	radial actuator output
FO	65	O	focus actuator output
SL	66	O	sledge actuator output
MOTO1	67	O	motor output 1 output
MOTO2	68	O	motor output 2 output
V _{SS3}	69	SUP	digital ground 3
V _{DD3}	70	SUP	digital supply voltage 3
V1	71	I	versatile pin 1 input
V2	72	I	versatile pin 2 input
V3	73	O	versatile pin 3 output
V4	74	O	versatile pin 4 output
V5	75	O	versatile pin 5 output
TEST1	76	I	test pin 1 input
TEST2	77	I	test pin 2 input
TEST3	78	I	test pin 3 input
TEST4	79	I	test pin 4 input
LASER	80	O	laser drive output