

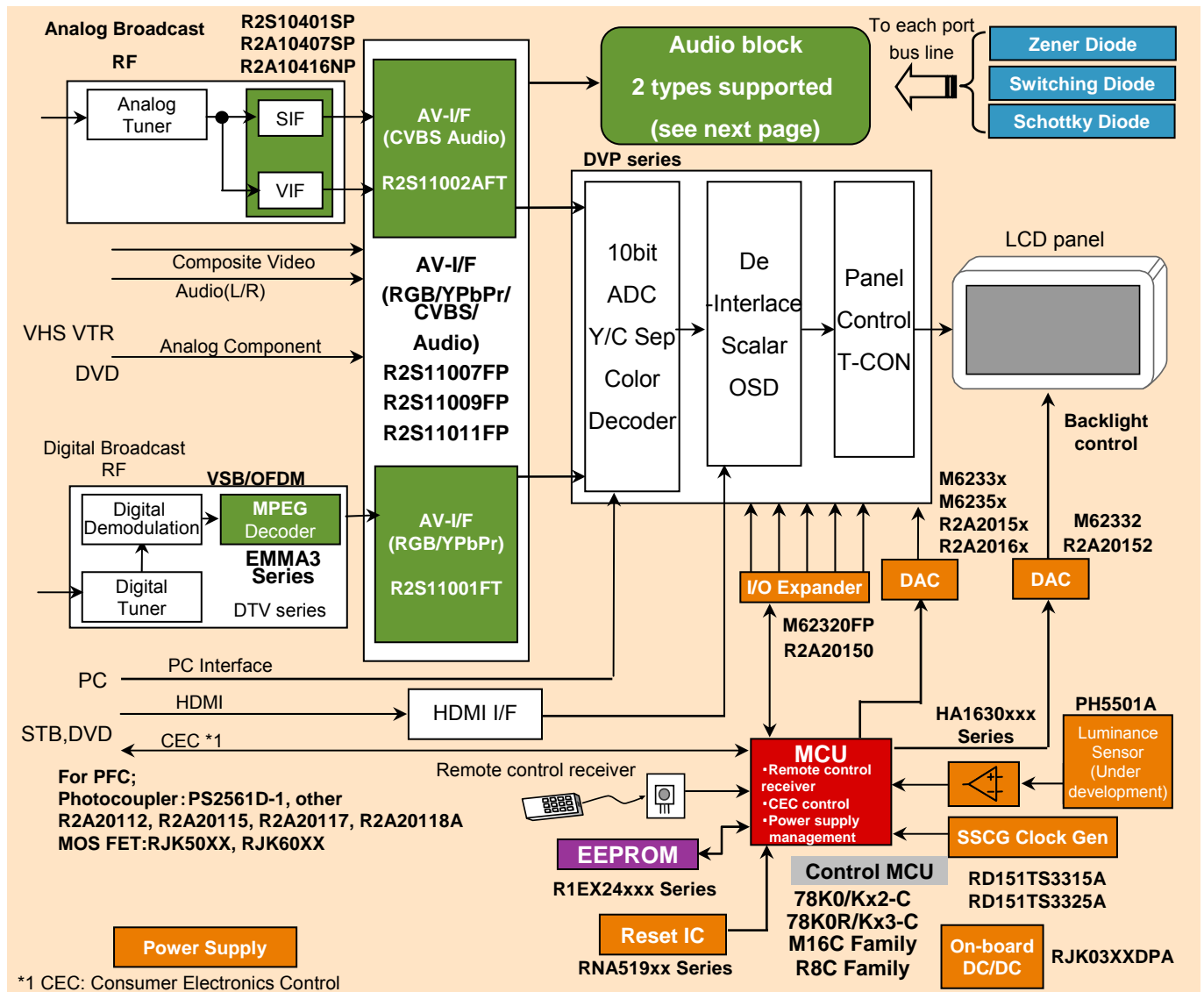


Overview

Flat panel TV (LCD TV) have grown rapidly in popularity due to increasing availability of digital services and high definition digital media content. Since the TV in the home is a product that is typically in use for several hours every day, it is required to be increasing more energy efficient and eco-friendly. Advanced functionality, such as a CEC link functionality using a HDMI (High-Definition Multimedia Interface) connection is now a common requirement for LCD TVs.

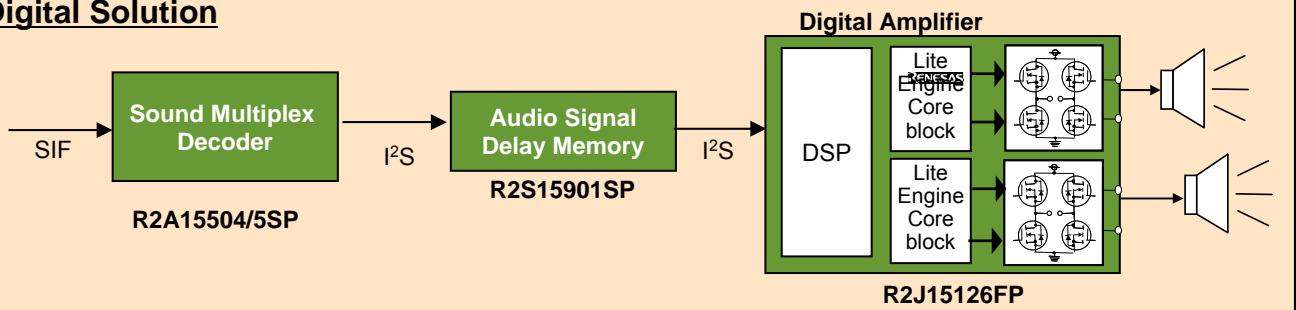
Renesas supplies effective solutions for customers developing eco-friendly home electronic products, such as the 78K0, 78K0R Series, R8C Family and M16C Family of energy-efficient MCUs. These MCUs deliver functionality, such as support for CEC which receives commands from a remote control while in system standby mode, while also maintaining a low level of power consumption. Renesas also offers a wide lineup of devices, such as audio and video processors, that are essential in the development of multimedia AV products.

System Block Diagram

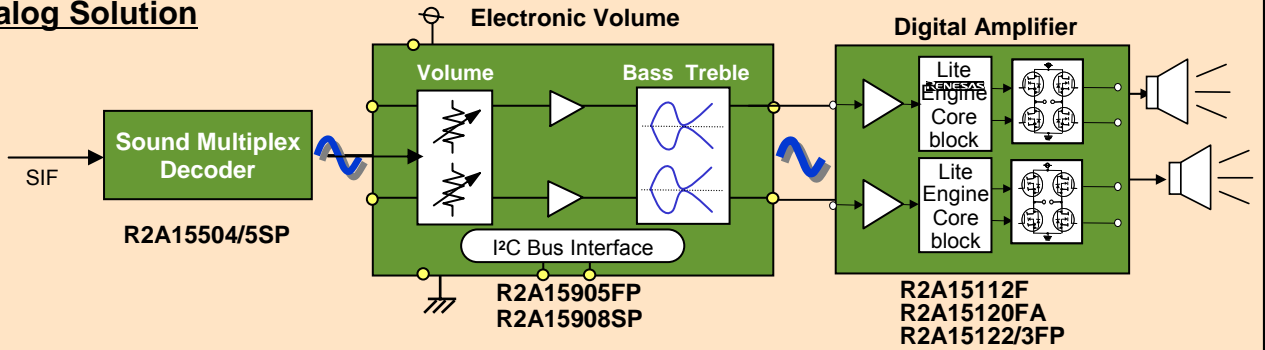


■Audio Block

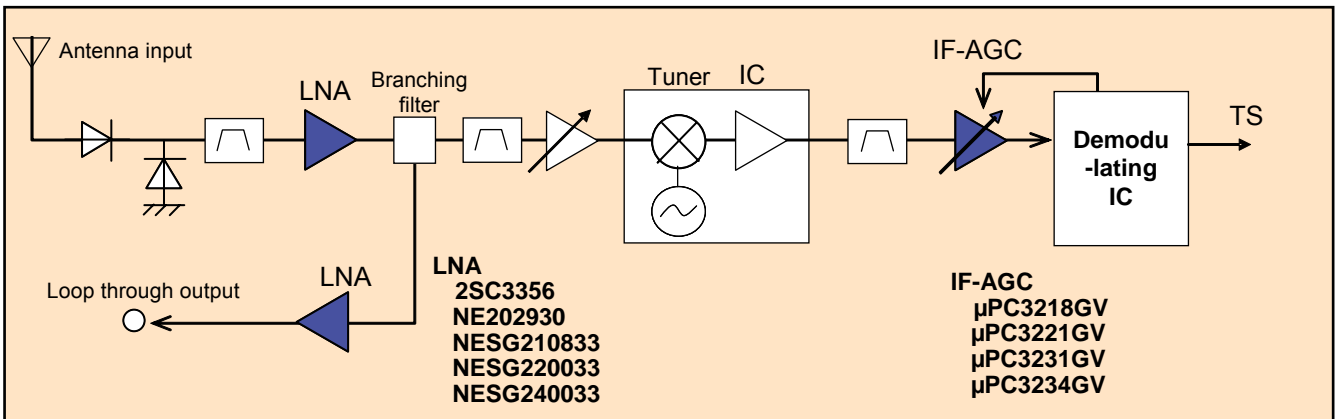
Digital Solution



Analog Solution



■Tuner Block



Recommended Products

As of July 2010

Block	Semiconductor device	Recommended products	Features, etc.
Power supply section	PFC power supply control IC	R2A20112, R2A20117, R2A20118A	Continuous conduction mode single
		R2A20115	Critical conduction mode interleaving
	Power MOSFET	2SK31xxB, 2SK32xxB, 2SK33xxB	500 V, 600 V tolerance
		RJK60xxDxx, RJK50xxDxx	500 V, 600 V tolerance
Photocoupler (Standard)	PS25xx Series PS27xx Series PS28xx Series	High isolation voltage(5kVr.m.s.), 4p-DIP High isolation voltage(3.75kVr.m.s.), 4p-SOP High isolation voltage,(2.5kVr.m.s.), 4p-SSOP	
LCD panel	D/A converter for image adjustment	M6233x Series, M6235x Series R2A2015x Series, R2A2016x Series	I2C supported, 2 to 4 channels, 8 pins; 3-line type 6 to 12 channels *1
	Image adjustment (dimmer) D/A converter	R2A20152, M62332	I2C supported, 2 channels *1
Video	MPEG Decoder	EMMA3 Series	
Audio	Sound multiplex decoder	R2A15504/5SP	
	Digital delay	R2S15901SP	
	Audio signal processor	R2A15905FP	Built-in HP (headphone) amplifier
		R2A15908SP	
	Digital amp	R2A15112FP	15 W x 2 ch: Single End
		R2A15126FP *	
R2A15120FA		15 W x 2 ch: BTL (built-in limiter)	
	R2A15122/3FP	10 W x 2 ch (4 W x 2 ch): Single End	
Main controller	CPU	78K0/Kx2-C	Low power consumption, CEC function
		78K0R/Kx3-C	
		R8C Family, M16C Family	
	I/O expander	R2A20150, M62320	I2C supported, 8-bit I/O *1
	Reset IC	RNA519xx Series	Variable detection voltage and delay time
	CMOS op-amp.	HA1630xxx Series	Low power consumption
	Analog switch	R2S11001FT	
		R2S11002AFT	
		R2S11007FP	
		R2S11009FP	
		R2S11011FP	
	VIF/SIF signal processor	R2S10401SP	
		R2S10407SP	
		R2S10416NP	
	MOS FET for On-board DC/DC	RJK03xxDPA	30 V tolerance, WPAK
UPA27xxT1A		30 V tolerance, HVSON	
Clock generator	RD151TS3315A		
	RD151TS3325A		
EEPROM	R1EX24xxx Series	I2C bus Interface *1	
	R1EX25xxx Series	SPI bus Interface *2	
Luminance Sensor	PH5501A	illuminance level 1~10,000lx, analog linear output	

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Recommended Products

As of July 2010

Block	Semiconductor device	Recommended products	Features, etc.
General use, surge absorption, circuit protection, etc.	Zener Diodes	HZM6.2ZMWA, other	3 terminals (2 devices) High ESD tolerance optimal for use in surge absorption
		NNCDxxDA Series	High ESD tolerance optimal for use in surge absorption
		RDxxS Series	2-terminal face-mount outline
		RKZ6.8Z4MFAKT	5 terminals (4 devices) low capacitance (4 pF) Low capacitance (4 pF) optimal for use in surge absorption for USB ports
		RKZxxKG/KJ Series	2 terminals SMD High ESD tolerance optimal for use in surge absorption
	Switching Diodes	HSC/D119, HSB2836/8	2-3 terminals SMD
		RKH0145/0160KU Series	2 terminals SMD High voltage tolerance optimal for use in surge absorption and high-voltage rectification
	Schottky Diodes	RKR, HRW Series	2-3 terminals SMD Small package, low capacitance, large current type
Tuner	LNA(Digital Tuner)	2SC3356,NE202930, other	Low distortion, Low noise
		NESG240033,NESG220033, other	Low distortion, Low noise, Protected high ESD
		μPC3221GV,μPC3234GV, other	Variable wide gain, Protected high ESD

*1 I²C : Inter-Integrated Circuit
*2 SPI : Serial Peripheral Interface

* = Under development

Related Application Notes/Sample Code

Title	Document No.
Power MOS FET Application Note	REJ05G0001-0200
R2A20112 Application Note*	-
R2A20115 Application Note*	-
R2A20117 Application Note*	-
R2A20118A Application Note*	-
R2A20132 Application Note*	-

*:Please contact your sales representative or contact us directly.

Related Boards

Name	Part No.
R2A20111 Evaluation Board*	-
R2A20112 Evaluation Board*	-
R2A20115 Evaluation Board*	-
R2A20117 Evaluation Board*	-
R2A20118A Evaluation Board*	-
R2A20132 Evaluation Board*	-

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