TUNER, RF / TU / IF

TYPE 295P510A10
(VD025AR)

(For UL and FCC Applications)

CONTENTS:

	PAGE
MATERIAL IDENTIFICATION (For UL)	2
TECHNICAL SPECIFICATIONS DETAIL (For FCC)	3~5
BLOCK DIAGRAM (For FCC)	6
SCHEMATIC DIAGRAM (For FCC)	7

SANYO Tuner Industries Co., LTD.
1-1, SANYO-CHO, DAITO CITY,
OSAKA, JAPAN

APPROVED	CHECKED	CHECKED	WRITTEN
Sep. 1. '99 T. Kakehi		Sep. 1 '99 H. Miyauchi	Sep. 1. '99 [illegible]

仮 称	VD025AR
月/日	1999. 8.31
改 正	

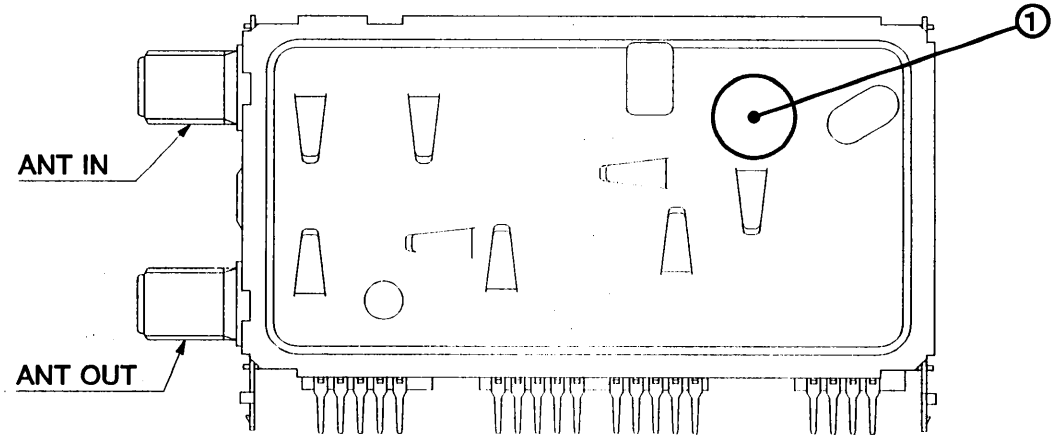
Series T - 389

FILE NO. | PROJECT | DEVICE TUNER, RF/TU/IF | MFR.

ENGINEER | MODEL NO. 295P510A10 (VD025AR) | DATE

Fig. Item	Component Part	SANYO Type NO.	Material Used			Flame Class		Hot Bar		Hot Wire		High Amp Arc		CTI		UL File No.	Application
			Generiec ID	Type	Mfr	Reqd	Used	Reqd	Used	Reqd	Used	Reqd	Used	Reqd	Used		
1.	PRINTED WIRING BOARD		EPOXY GLASS RESIN →	KPC 6294V-0	KYOTO PRINTED CIRCUIT CO., LTD.		94V-0									E55888	UL796
					(symbol mark; KPC 6294V-0)												
			(MATERIAL ; MATSUSHITA ERECTRIC WORKS, LTD : R-1781)				94V-0			120			200		600	E81336	
				KPC 4494MV-0	KYOTO PRINTED CIRCUIT CO., LTD.		94V-0									E55888	UL796
					(symbol mark; KPC 4494MV-0)												
				MEG-4V-0 or MBZ	HOMER DENSHI CO., LTD.		94V-0									E55147	UL796
					(symbol mark; MBZ)												
			(MATERIAL ; MITSUBISHI GAS CHEMICAL CO., ING : CCL-E145)				94V-0			120+			200		225	E81340	
				KPC 6694V-0	KYOTO PRINTED CIRCUIT CO., LTD.		94V-0									E55888	UL796
					(symbol mark; KPC 6694V-0)												
				NEG-5V-0 or JAZ	HOMER DENSHI CO., LTD.		94V-0									E55147	UL796
					(symbol mark; JAZ)												
			(MATERIAL ; NIKAN INDUSTRIES CO., IND : L6524-C1)				94V-0			120+			52		175	E46785	

→ ; Mark shows material being used.



	仕様書番号
1	
2	
3	
4	
5	

RF Modulator Technical Specifications Detail

SCOPE

The devise, type 295P510A10 consists of RF modulator (RF converter) and Antenna switch (RF switch). When control switch is OFF (supply 0V or open), the output signal of RF modulator is not generated and TV signals which is supplied to the ANT input terminal is let to the ANT output terminal through the RF switch.
In this case, RF switch (Q1 and Q2) shall work as a high-pass filter (C20 to C22 and L5 to L7, fc = 54MHz).
When control switch is ON (supply +5V DC), the output signal of the RF modulator is let to the ANT output terminal through the RF switch (Q3) but Q1 and Q2 of this switch cut off the signal and do not lead it to the ANT input terminal.

1) Type of Emission
   Video Modulation Type : A5c
   Polarity of Video Modulation : Negative
   TV System : N. T. S. C.
   Audio Modulation Type : F3. ±25KHz, 75μS pre-emphasis

2) Output frequency Range
   Low CH : VHF Channel 3, (60MHz to 66MHz)
   High CH : VHF Channel 4, (66MHz to 72MHz)

3) Range of Operating power : Fixed, 66dBμ Typ.
   Means Provided for changing of Operating Power : Not Applicable

4) Maximum Power Rating (Into 75 ohms)
   Low CH : 69dBμ
   High CH : 69dBμ

5) Voltage and Current to Modulator : 5V DC, 35mA typ.

6) Function of Active Circuit Devices

IC1 : Video Clamper, Video Clipper, RF MIXER, RF Carrier Oscillator, FM Oscillator, ANT SW Driver.

Q1, Q2, Q3 : RF Switcher

Type of Devices

IC1 : LA7161NM (SANYO) or Equivalent

Q1 to Q3 : 2SC4774 (ROHM) or Equivalent

The video carrier is made by the RF carrier oscillator (IC) PLL.
Then the RF carrier is supplied to the RF Mixer.
The audio signal is supplied to C4, R3 having 75μS pre-emphasis time constant. Then the audio signal is supplied to the FM Oscillator (IC).
The frequency modulated signal is supplied to RF Mixer (IC) and converted to the SOUND RF SIGNAL.
Then this signal and video modulator signal (PICTURE RF SIGNAL) is supplied to the ANT output terminal through the low-pass filter (C15, C17 and L2) and RF switch (Q3).
RF switch (Q1 and Q2) can attenuate the RF output signal enough to isolate the ANT input terminal both from the ANT output terminal and RF modulator output.

7) Tune Up Procedure over the Power Range or at Specific Operating Power Level : Not Adjustable (※)

※ The consumer can not adjust it.

8) All Circuitry and Devices Provided for Determinating and Stabilizing Frequency :

To keep good stability of video carrier and audio carrier, PLL oscillator is used.

9) Any Circuitry or Devices Employed for Suppression of Spurious Radiation, for Limiting the Operating Power :

a) Suppression of Spurious Radiation

On the RF OUTPUT, there is low-pass filter to suppress spurious.

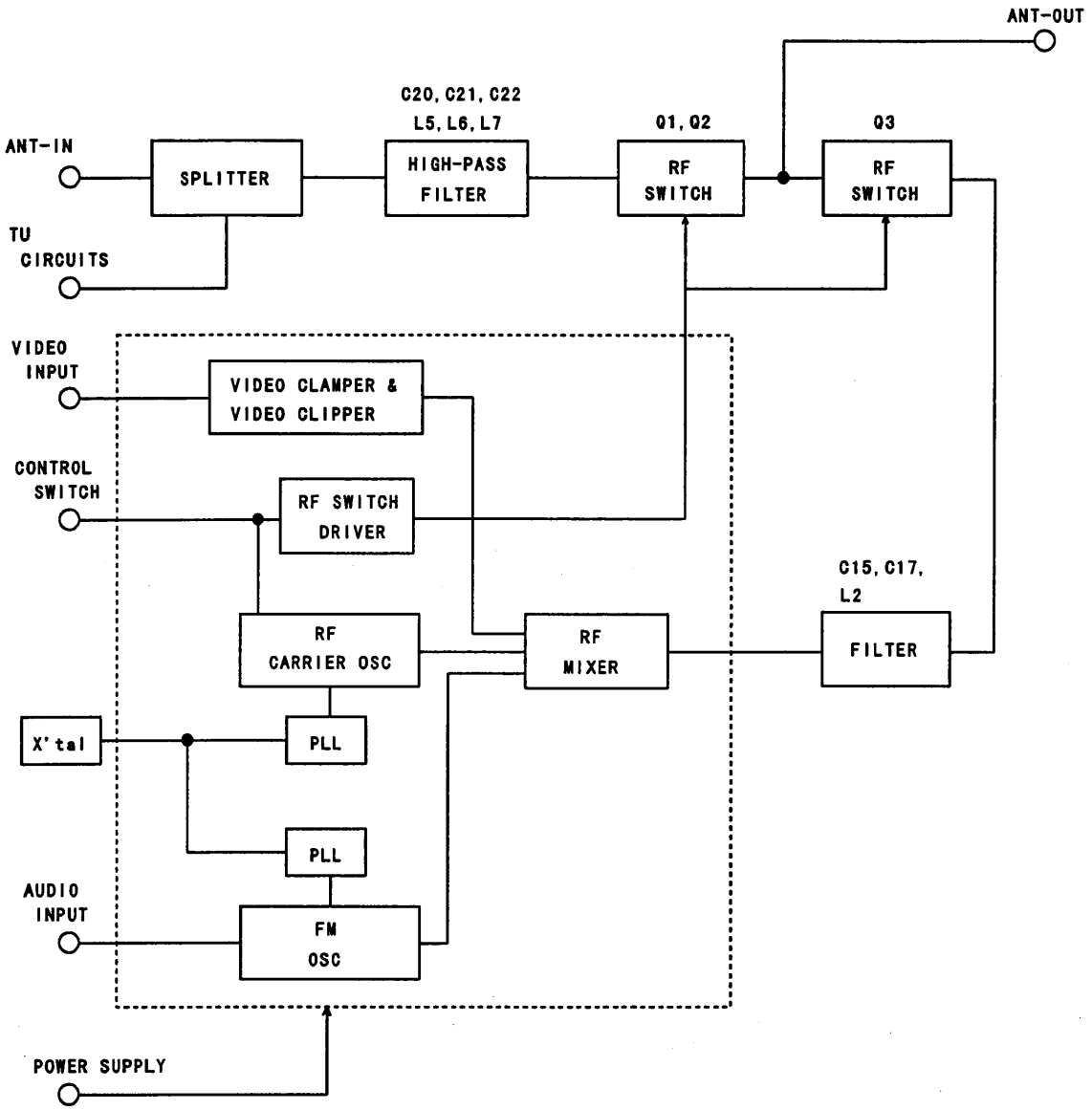
b) Limiting the Operating Power

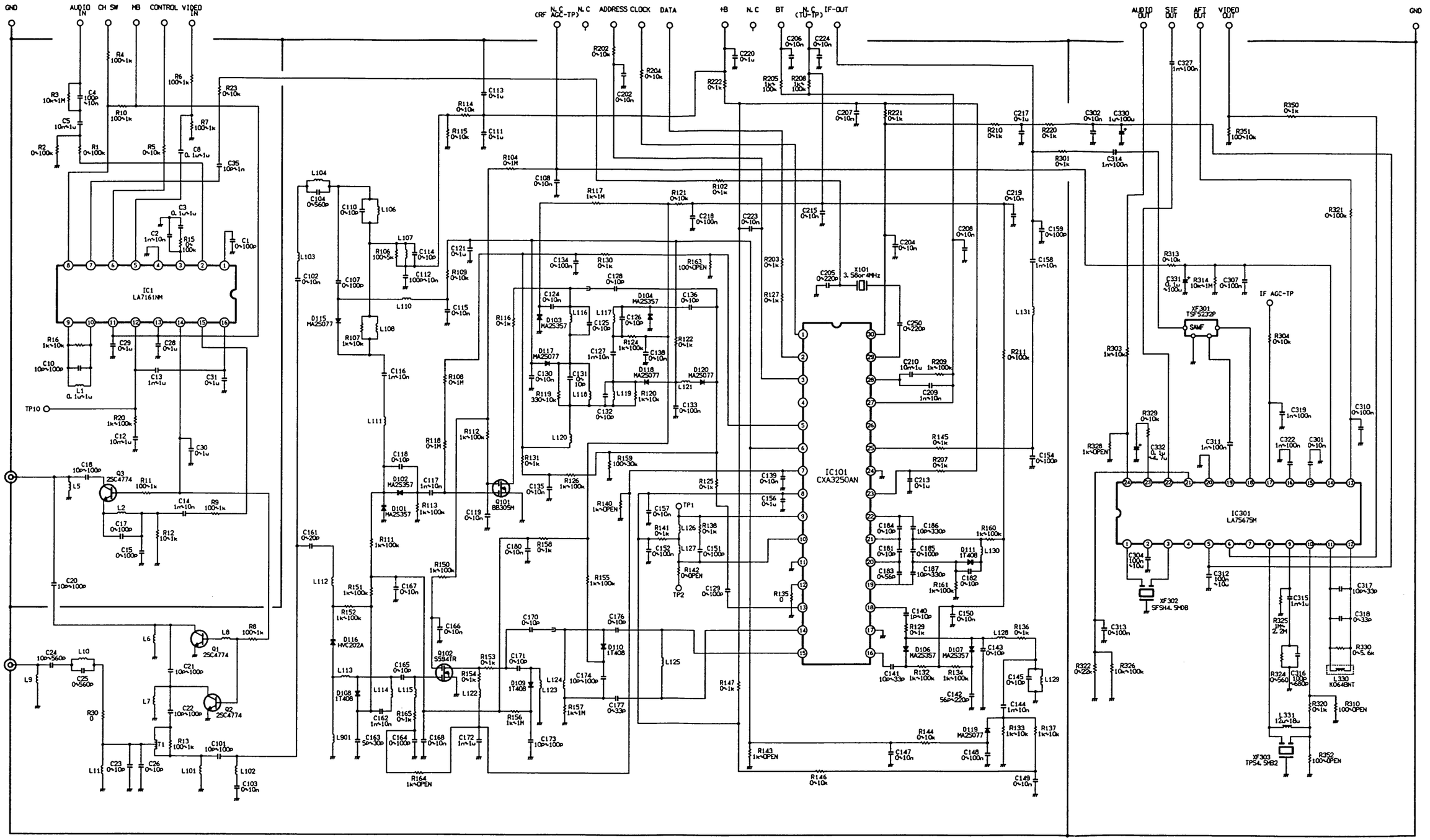
The modulation degree is set with R6, R7 (Video)

and R1, R2 (Audio).

10) Block Diagram and Circuit Diagram : Attached.

BLOCK DIAGRAM





Q1-Q3 : 2SC4774. 2SC4965. 2SC4713K
Q101 : BB304M. BB305M. SMM4R01
Q102 : BB101M. BB501M. SMM4R02. S594TR

D101-D104. D106. D107 : MA2S357. 1T403M. 1T404. 1T408. BB664
D113. D115. D117-D120 : MA2S077. HVC277
D108-D111 : HVC306A. HVC306B. 1T408. 1T404
D116 : HVC202A9. 1T402. BB555

X101 : HC-49/U-S. HC-4949/U03. AT-51/4MHz. AT-49. AT-49/3. 58. AT-51/3. 58. HC-49/U-S3. 58
XF301 : TSF5232P. M902A. TSF5221P. M1864M. M1867M. M1866M
XF302 : EFCS4R5YS5SA. SFSH4. 5MNEB2. SFSH4. 5MC. SFSH4. 5MDB. SFSR4. 5MC
XF303 : TPS4. 5MB2. TPS4. 5MC. TPSR4. 5MB2. EFCS4RSMW5. EFCS4RSMW5C

IC1 : AN3117SA. HA11560FP. LA7161NM. LA7166
IC101 : CXA3135AN. CXA3085AN. CXA3250AN
IC301 : LA7567SM. LA7567SAM. LA7567BM. LA7567NM. LA7550S. M52342AFD. M52766FP. M52767FP

Sep. 1. '99 APPROVED	F. Kabeli
CHKD	
Sep. 1 '99 CHKD	A. Miyauchi
1998. 12. 03 DESIGNED	H. M. T. M. A. A
1999. 09. 01 DRAWN	Y. ABE
1999. 09. 01 DRAW. ID	3_VD25ARM1

MK	DATE	REVISION	SUBSEC

SANYO SANYO Tuner Industries Co., Ltd.

ORIGINAL MODEL	PART NAME	PART CODE
115-V-025AR	TUNER RF/TU/IF	VD025AR