Service Manual

GP3 CHASSIS

Color Television

TC-14A04P
TC-20A04P
TC-20B04

Specifications

ITEM \ MODEL	TC-14A04P	TC-20A04P	TC-20B04
Power source	110/220 V AC 50/60 Hz automatic switch	110/220 V AC 50/60 Hz automatic switch	110/220 V AC 50/60 Hz automatic switch
Consumption	51 W	61 W	61 W
Antenna input jack	75 ohms - VHF/UHF/CATV	75 ohms - VHF/UHF/CATV	75 ohms - VHF/UHF/CATV
Color systems	PAL-M/NTSC/PAL-N	PAL-M/NTSC/PAL-N	PAL-M/NTSC/PAL-N
Tuning system	F.S.T.	F.S.T.	F.S.T.
Channel capability	2 to 13 (VHF) 14 to 69 (UHF) 1 to125 (CATV)	2 to 13 (VHF) 14 to 69 (UHF) 1 to125 (CATV)	2 to 13 (VHF) 14 to 69 (UHF) 1 to125 (CATV)
Picture tube (Diagonal Visual)	Panablack 33 cm	Panablack 48cm	Panablack 48cm
Audio output	3 W RMS	3 W RMS	3 W RMS
Video input jack	1 AV (rear)	1AV (rear)	1 (front) 1(rear)
Video Outlet	1 (back)	1 (back)	1 (back)
Dimension (width, height, depth)	370 x 351 x 366 mm	502 x 455 x 471 mm	502 x 455 x 471 mm
Weight	9,6 kg	17 kg	17 kg

Specifications are subject to change without notice. Weight and dimensions shown are approximate.

Supplied Accessories:
- 1 Remote Control Transmitter
- 1 300Ω/75Ω Balum
- 2 “AA” (or R6) batteries (1.5V; ABNT/IEC)
- 1 Internal antenna (TC-14A04A and TC-20B04)

Panasonic ®

CS Division
Technical Support

Important Safety Notice

Special components are used in this television set which are important for safety. These parts are identified on the schematic diagram by the symbol ⚠ . It is essential that these critical parts are replaced with the manufacturer's specified replacement parts to prevent X-ray radiation, shock, fire or other hazards. Do not modify the original design without manufacturer's permission.

Contents

General Guidelines

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect the Receiver from being damaged by accidental shorting that may occur during servicing.

When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always Replace Protective Devices, such as fishpaper, isolation resistors and capacitors, and shields after servicing the Receiver. Use only manufacturer's recommended rating for fuses, circuit breakers, etc.

High potentials are present when this Receiver is operating. Operation of the Receiver without the rear cover introduces danger from electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautions when servicing high-voltage equipment.

Extreme care should be practiced when Handling the Picture Tube. Rough handling may cause it to implode due to atmospheric pressure (14.7 lbs per sq. in). Do not sick or scratch the glass or subject it to any undue pressure. When handling, use safety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging, connect cold ground (i.e. dag ground lead) to the anode with a well insulated wire or use a grounding probe.

Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to X-ray radiation.

The Test Picture Tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provides shielding for the tube viewing area against X-ray radiation as well as implosion. The magnetic shield limits X-ray radiation around the bell of the picture tube in addition to restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 31kV without causing X-ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Warning !

It is essential that these critical parts are replaced with the manufacturer's specified replacement parts to prevent X-ray radiation, shock, fire or other hazards.

ABOUT LEAD FREE SOLDER (PbF)

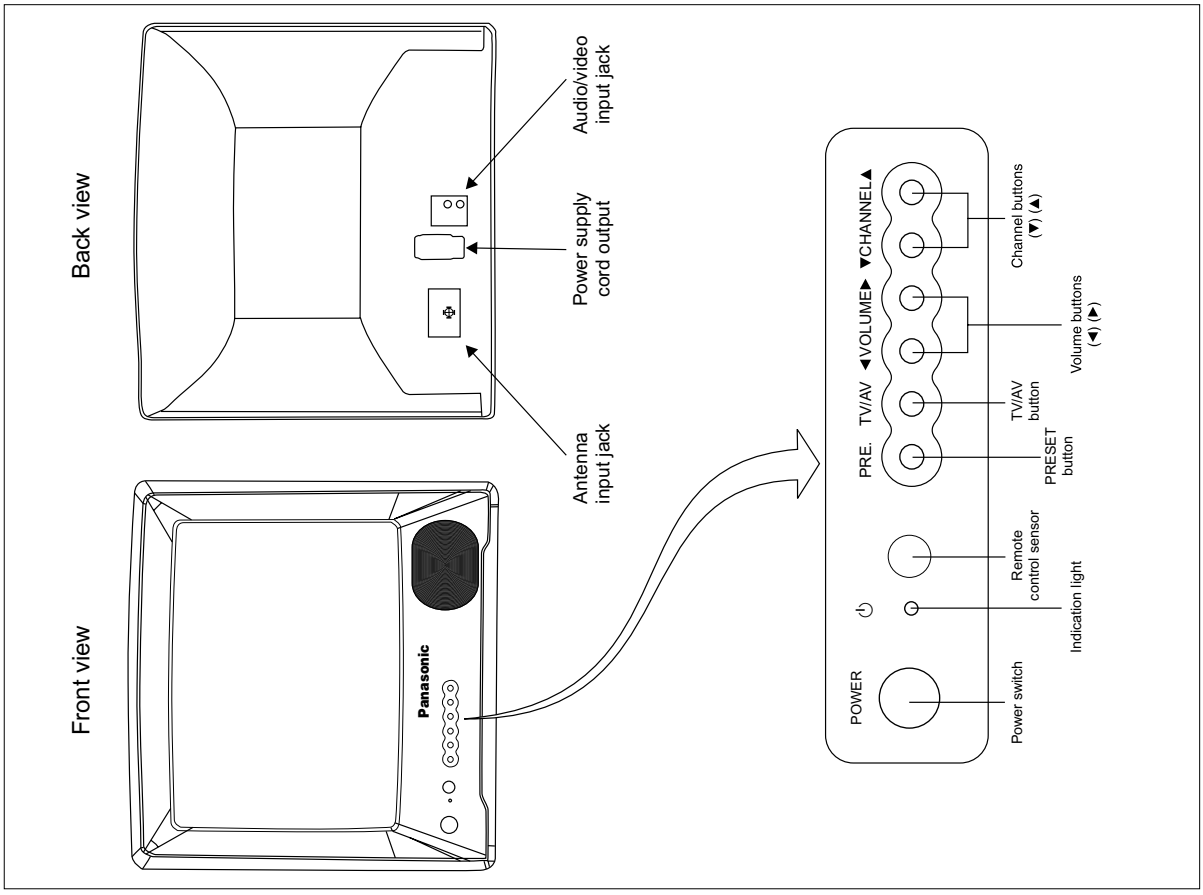
This model uses lead free solder (PbF).

CAUTION:

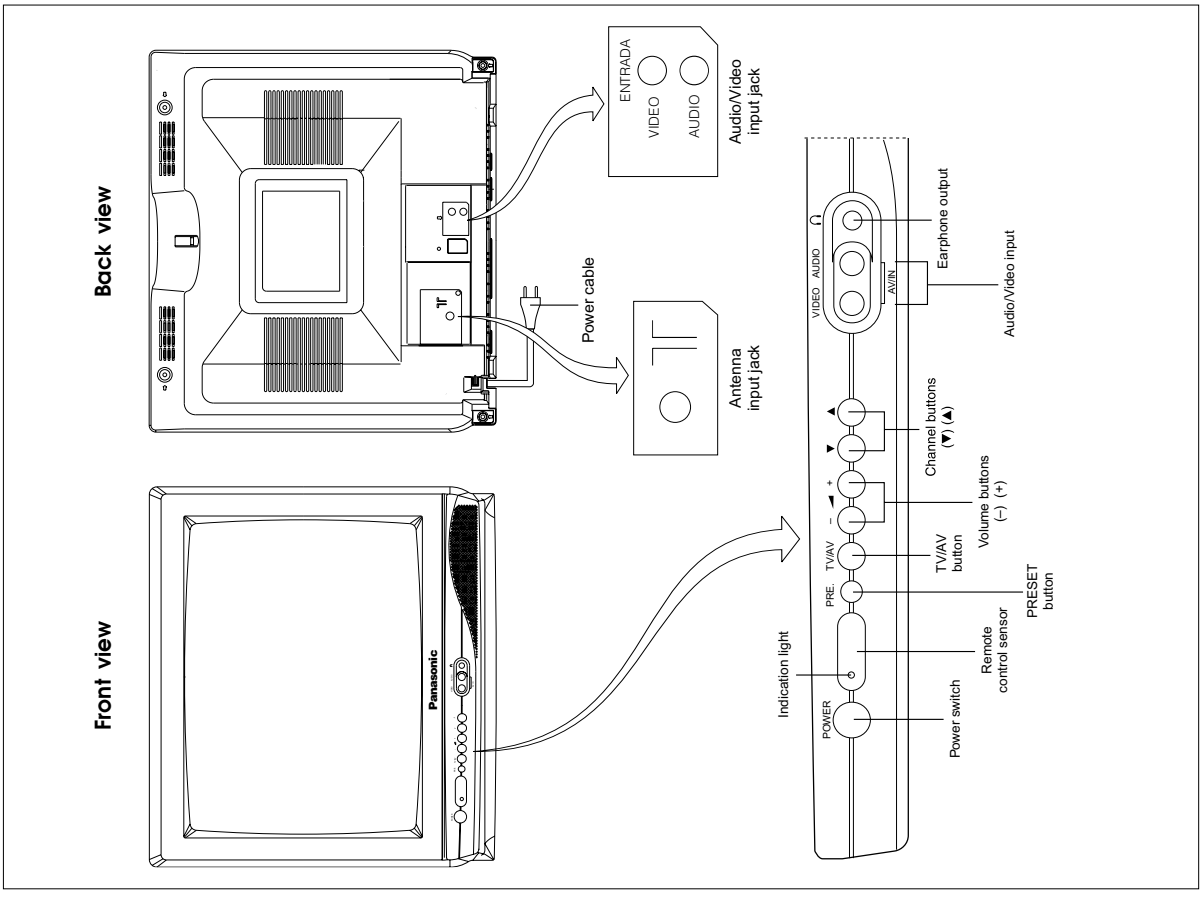
- Pb free solder has a higher melting point than standard solder; typically the melting point is 50 - 70°F (300 - 400°C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control,please set it to 700 ± 20°F (370 ± 10°C).
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
  When soldering or unsoldering, please completely remove all of the solder on the pins or solder area, and be sure to heat the soldering points with the Pb free solder until it melts enough.

■ OPERATING INSTRUCTIONS

Location of Controls (TC-14A04P / TC-20A04P)



Location of Controls (TC-20B04)



IC601 - PINOUT

Symbol	Pin	Description
P3.1/ADC1	1	port 3.1 or ADC1 input
P3.2/ADC2	2	port 3.2 or ADC2 input
P3.3/ADC3	3	port 3.3 or ADC3 input
VSSC/P	4	digital ground for m-Controller core and periphery
P0.5	5	port 0.5 (8 mA current sinking capability for direct drive of LEDs)
P0.6/CVBSTD	6	port 0.6 (8 mA current sinking capability for direct drive of LEDs) or Composite video input. A positive-going 1V (peak-to-peak) input is required
VSSA	7	digital ground of TV-processor
SECPLL	8	SECAM PLL decoupling
VP2	9	2nd supply voltage TV-processor (+8V)
DECDIG	10	supply voltage decoupling of digital circuit of TV-processor
PH2LF	11	phase-2 filter
PH1LF	12	phase-1 filter
GND3	13	ground 3 for TV-processor
DECBG	14	bandgap decoupling
EWD	15	East-West drive output
VDRB	16	vertical drive B output
VDRA	17	vertical drive A output
IFIN1	18	IF input 1
IFIN2	19	IF input 2
IREF	20	reference current input
VSC	21	vertical sawtooth capacitor
AGCOUT	22	tuner AGC output
SIFIN1	23	SIF input 1
SIFIN2	24	SIF input 2
GND2	25	ground 2 for TV processor
SNDPLL	26	narrow band PLL filter
AVL/REF0/SNDIF (1)	27	Automatic Volume Levelling / subcarrier reference output / sound IF input
AUDIO2	28	audio 2 input
AUDIO3	29	audio 3 input
HOUT	30	horizontal output
FBISO	31	flyback input/sandcastle output
DECSDEM	32	decoupling sound demodulator
QSSO/AMOUT/ AUDEEM (1)	33	QSS intercarrier output / AM output in stereo applications or deemphasis (front-end audio out) / AM output in mono applications
EHTO	34	EHT/overvoltage protection input
PLLIF	35	IF-PLL loop filter
SIFAGC	36	AGC sound IF
INTCO	37	intercarrier output (from QSS or vision IF amplifier)
IFVO/SVO (1)	38	IF video output / selected CVBS output
VP1	39	main supply voltage TV processor
CVBS1	40	internal CVBS input
GND	41	ground for TV processor
CVBS2	42	external CVBS2 input
GND	43	ground for TV-processor
CVBS3/Y	44	CVBS3/Y input
C	45	chroma input
WHSTR	46	white stretch capacitor
CVBSO	47	CVBS output
AUDOUT /AMOUT	48	audio output /AM audio output (volume controlled)
SVM	49	scan velocity modulation output
INSSW2	50	2nd RGB / YUV insertion input
R2/VIN	51	2nd R input / V (R-Y) input / PR input
G2/YIN	52	2nd G input / Y input
B2/UIN	53	2nd B input / U (B-Y) input / PB input
BCLIN	54	beam current limiter input
BLKIN	55	black current input / V-guard input
RO	56	Red output
GO	57	Green output

IC601 - PINOUT

Symbol	Pin	Description
BO	58	Blue output
VDDA	59	analog supply of Teletext decoder and digital supply of TV-processor (3.3 V)
VPE	60	OTP Programming Voltage
VDDC	61	digital supply to core (3.3 V)
OSCGND	62	oscillator ground supply
XTALIN	63	crystal oscillator input
XTALOUT	64	crystal oscillator output
RESET	65	reset
VDDP	66	digital supply to periphery (+3.3 V)
P1.0/INT1	67	port 1.0 or external interrupt 1 input
P1.1/T0	68	port 1.1 or Counter/Timer 0 input
P1.2/INT0	69	port 1.2 or external interrupt 0 input
P1.3/T1	70	port 1.3 or Counter/Timer 1 input
P1.6/SCL	71	port 1.6 or I2C-bus clock line
P1.7/SDA	72	port 1.7 or I2C-bus data line
P2.0/TPWM	73	port 2.0 or Tuning PWM output
P2.1/PWM0	74	port 2.1
P2.2/PWM1	75	port 2.2
P2.3/PWM2	76	port 2.3
P2.4/PWM3	77	port 2.4
P2.5/PWM4	78	port 2.5
SYNC_FILTER	79	CVBS (i.e. P0.6/CVBS) Sync filter input: This pin should be connected to VSSA via a 100 nF capacitor.
P3.0/ADC0	80	port 3.0 or ADC0 input

IC VOLTAGE TABLES

IC601

Pin	Voltage	Pin	Voltage
1	3,3	41	0
2	21.2mV	42	3,8
3	2	43	0
4	0	44	3,3
5	2,56	45	0
6	97.5mV	46	3,6
7	0	47	2,9
8	2,3	48	3,5
9	8	49	4,4
10	5	50	2,5
11	3,3	51	2,7
12	3,9	52	2,7
13	0	53	2,7
14	4	54	2
15	11.6mV	55	5,3
16	1,3	56	3
17	1,3	57	3
18	1,9	58	3
19	1,9	59	3,3
20	3,9	60	0
21	3,8	61	3,3
22	146.7mV	62	28.5mV
23	181.3mV	63	1,9
24	181.3mV	64	1,9
25	0	65	0
26	1,3	66	3,3
27	2,5	67	105mV
28	3,7	68	4,7
29	3,7	69	5
30	0,6	70	3,2
31	0,5	71	2,3
32	2,3	72	3
33	2,8	73	55.9mV
34	1,6	74	0
35	1,5	75	0
36	198mV	76	3,7
37	0,4	77	0
38	2,7	78	0
39	8	79	0
40	3,6	80	0

IC451

Pin	Voltage
1	0,3V
2	15,6V
3	-14V
4	-15,6V
5	67mV
6	16,5V
7	0,3V

IC801

Pin	Voltage
1	183V
2	
3	22,7V
4	22,3V
5	96mV
6	1,5V
7	0,52V

IC851

Pin	Voltage
1	10,5V
2	10,5V
3	6,5V
4	4,3mV
5	6,3V
6	8V
7	5V

IC802

Pin	Voltage
1	141V
2	8,5V
3	-8,7mV

IC880

Pin	Voltage
1	10,4V
2	5V
3	-3,9mV

IC1103

Pin	Voltage
1	7,3mV
2	7,3mV
3	7,3mV
4	7,3mV
5	3,8V
6	3,8V
7	0,2V
8	5V

IC1201

Pin	Voltage
1	5V
2	6,4mV
3	1,27V
4	3,3V
5	6,4mV
6	5V

IC2301

Pin	Voltage
1	11,22V
2	0,26V
3	6,6mV
4	0,23V
5	0,2V
6	1,46V
7	6,6mV
8	0,25V
9	50mV

T801

Pin	Voltage
(V2) 1	22,5mV
(V1) 2	23mV
(P2) 5	180V
(PT) 7	170V
(P1) 8	168V
(S6) 11	0,5V
(S1) 12	0,2V
(S2) 15	0,7V
(S3) 17	0,2V

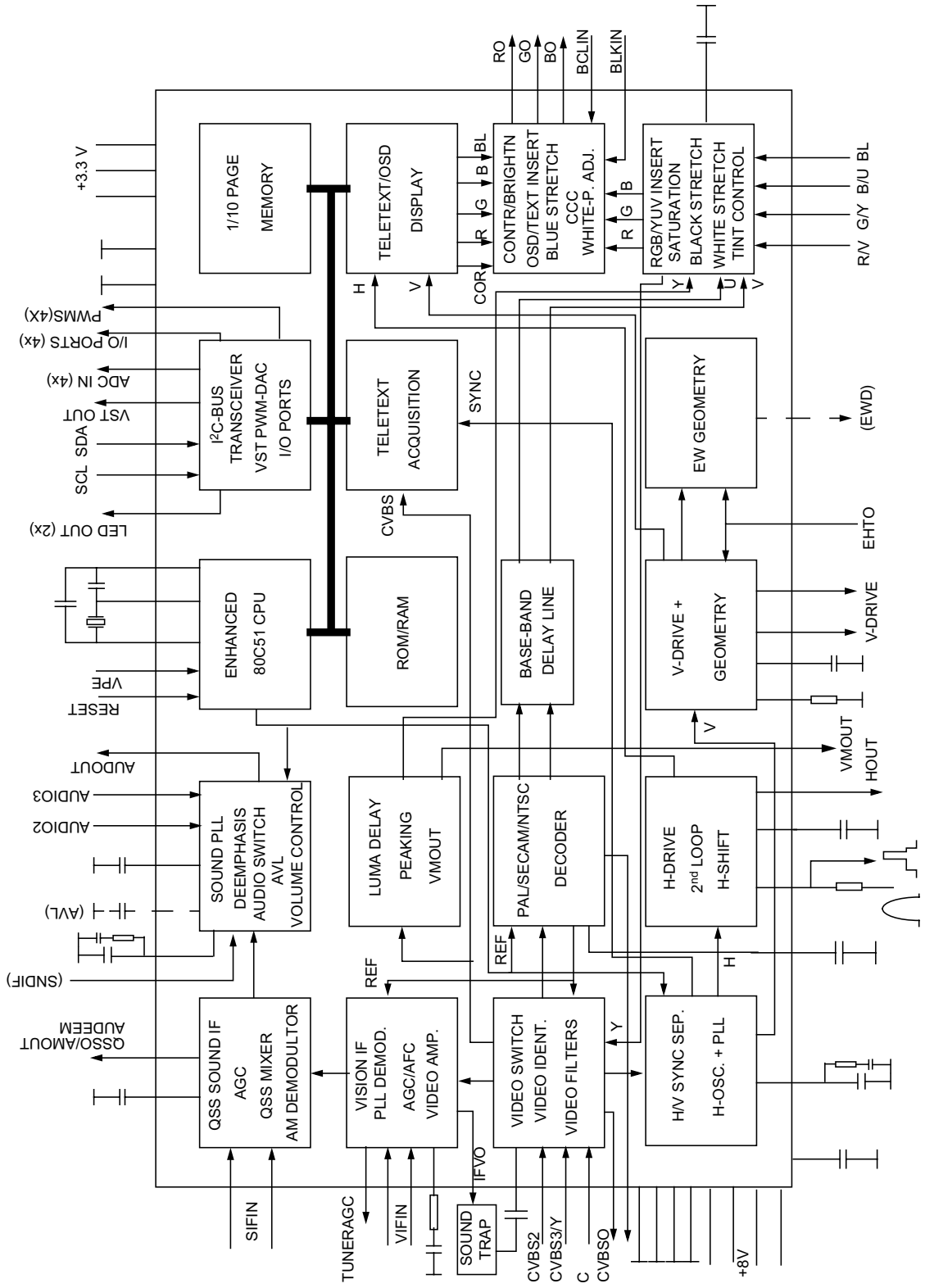
X101

Pin	Voltage
1	0,25V
2	0,25V
3	1,9V
4	1,9V

TPA10	142V
TPA11	11,2V

All voltage measurements were made in POWER ON mode, with 127V 60Hz power source and Color Bars Video Pattern.

■ IC601 - BLOCK DIAGRAM



■ CHASSIS GP3 FEATURE SUMMARY

MODELS : TC-14A04P, TC-20A04P and TC-20B04

SYSTEM : 3 systems (PAL-M/PAL-N/NTSC) (PAL-M 50hZ)

POWER SOURCE : CA automatic power switching (110/220)V, 50/60Hz

MEMORY : 125 positions

TV TUNING RANGE : 181 channels (TV / CATV)

OSD LANGUAGE : Portuguese, Spanish and English

AUDIO SYSTEM : Mono

VERTICAL MAGNETIC FIELD : -0.1 ±0.03

COLOR TEMPERATURE : (High Light) x= 0.275±0.01, y=0.284 ±0.01, Y=150 (nit))
(Low Light) x= 0.273±0.01, y=0.283 ±0.01, Y=7.0 (nit)

REFERENCE VOLTAGE

CONTENTS	TEST POINT	ADJUSTMENT POINTS	VOLTAGE
+B VOLTAGE	TPA10		140 ± 1,5V
	TPA8		8 ±1V
	TPA9		5 ±1V
	TPA21		175 ±1V
Buzzing confirmation	A22-3 ou TPA41		0.5 Vp-p
PAL color output	TPL2	D	2.45 ±0.1Vo-p
	TPL1	C	2.45 ±0.5Vo-p
NTSC color output	TPL1	C	1.2 ±0.5Vo-p
Anode (EHT) voltage	CRT ANODE		24.5 +0.7 (Kv) 24.5 -1.5 (kV)

MEMORY DATA

MODEL	DATA
TC-14A04A	[A]=C1H , [B]=00H , [C]=00H , [D]=33H , [E]=00H , [F]=20H , [G]=00H , [H]=01H
TC-20A04A	[A]=C1H , [B]=00H , [C]=00H , [D]=33H , [E]=00H , [F]=20H , [G]=00H , [H]=01H

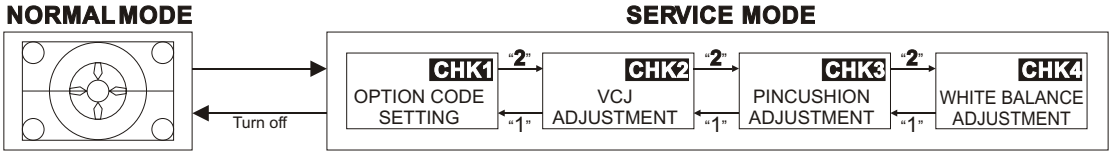
THE DAC CONTROL FOR GP3 CHASSIS FUNCTIONS AND ADJUSTMENTS

HOW TO ENTER IN THE SERVICE MODE:

1- Set the "**OFF TIMER**" to 30 minutes.
2- Press simultaneously "**RECALL**" key on the remote control and **VOL(-)** button on the unit.

After a couple of seconds, the expression "**CHK**" should appear on the right superior side of the screen. (To change the memory data, press **MUTE** and **VOLUME(–)** simultaneously while the OSD is still on CHK1 mode. Key "4" moves forward in the memory, and key "3" moves back in the memory

Note: To alter from CHK1 mode to CHK2, CHK3 or CHK4 modes, press key "2" to move forward and the key "1" to move back, as illustrated below.

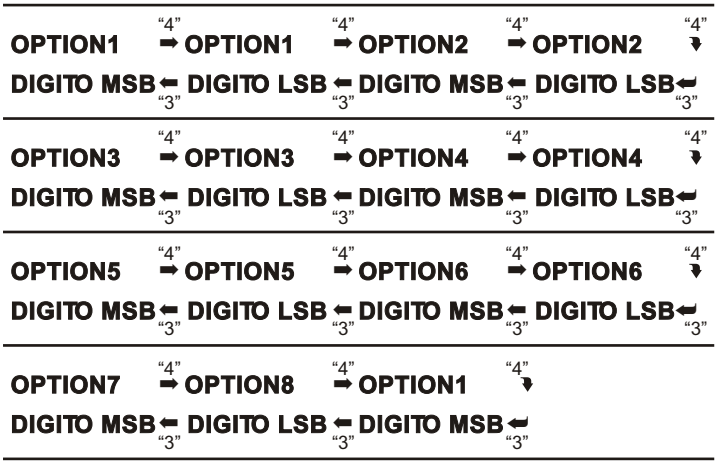


TO EXIT SERVICE MODE AND RETURN TO NORMAL MODE:

Press the **"NORMAL"** key on the remote control unit or turn off the TV.

CHK1 - OPTIONS

On CHK1 mode, it is possible to adjust the options below:



Note:
To select an option, type "4" to move forward and "3" to move back.
After having selected the desired option, adjust it by pressing the "**VOL(–)**" or "**VOL(+)**" keys.
Press "**0**" to memorize the adjustment.

CHK1 mode adjustments

On CHK1 mode it is possible to adjust the items of the table shown here.
Note:
To select an item, type "4" to move forward and "3" to move back.
After having selected the desired option, adjust it by pressing the "VOL(–)" or "VOL(+)" keys.
Press "0" To memorize the adjustment.

CHK1 mode table		
Standard values		
	14"	**20"**
OPTION1	00	00
OPTION2	00	00
OPTION3	00	00
OPTION4	33	33
OPTION5	00	00
OPTION6	20	20
OPTION7	00	00
OPTION8	01	01

ADJUSTMENTS

CHK2 mode adjustments

On CHK2 mode it is possible to adjust the items of the table shown here.

Note:

To select an item, type “4” to move forward and “3” to move back.

After having selected the desired option, adjust it by pressing the “VOL(–)” or “VOL(+)” keys.

Press “0” To memorize the adjustment.

CHK2 mode table		
Standard values		
	14”	20”
RF AGC	24	24
CONT	100	100
COL	50	50
S-COL	34	34
TINT	50	50
S-TINT	30	30
BRT	30	30

CHK3 mode adjustments

On CHK3 mode it is possible to adjust the items of the table shown here.

Note:

To select an item, type “4” to move forward and “3” to move back.

After having selected the desired option, adjust it by pressing the “VOL(–)” or “VOL(+)” keys.

Press “0” To memorize the adjustment.

CHK3 mode table		
Standard values		
	14”	20”
V-SLOPE 60HZ	35	35
V-SHIFT 60HZ	36	36
V-AMP 60HZ	44	44
H-SHIFT 60HZ	18	18
S-CORR 60HZ	28	28

CHK4 mode adjustments

On CHK4 mode it is possible to adjust the items of the table shown here.

Note:

To select an item, type “4” to move forward and “3” to move back.

After having selected the desired option, adjust it by pressing the “VOL(–)” or “VOL(+)” keys.

Press “0” To memorize the adjustment.

CHK4 mode table		
Standard values		
	14”	20”
R-CUT	26	26
G-CUT	25	25
BRT	50	50
S-BRT	28	28
CONT	100	100
S-CONT	21	21
R-DR	28	28
G-DR	31	31
B-DR	33	33
RGB CON	2	2

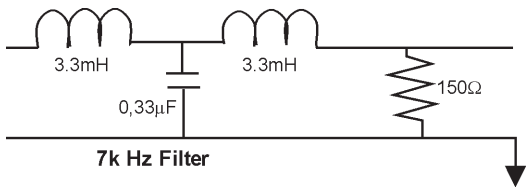
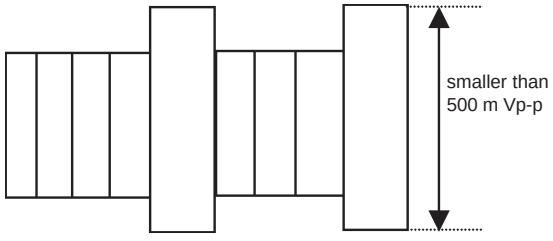
ADJUSTMENTS

TEST AND MEASUREMENT EQUIPMENTS

To execute all these electrical adjustments, the following equipment are required:

- Dual-Trace Oscilloscope
  Voltage Range: 0.001 V to 50 V/Div.
  Frequency Range: DC to 50 MHz
  Probes: 10:1, 1:1
- NTSC Video Pattern Generator
- DVM (Digital Volt Meter)
- MTS/SAP Signal Generator
- (TV Multi-Channel Sound Modulator (U.S.A.))
- Plastic Tip Driver and Non-Metal Driver
- Isolation Transformer (Variable)
- Degaussing Coil
- White Pattern Generator
- Audio Generator

ADJUSTMENTS

ITEM / PREPARATION	PROCEDURE
1- RF AGC ADJUSTMENT 1. Supply a color bar pattern and adjust the RF input signal of 69 dB μV (75Ω opened channel 07 RF freq.: 175.25 MHz). 2. Connect the digital multimeter in TPA15.	**ADJUSTMENT:** 1. Select “RF AGC” on “CHK2” service mode. 2. Adjust "RF AGC" by pressing VOL(+) or (-) until obtaining 2.2±0.1V in TPA15. 3. Increase the input level by +2 dB and confirm that the voltage decreases in TPA15.
2- VIF DETECTOR OUTPUT LEVEL CONFIRMATION	**CONFIRMATION**: 1. Install the chassis in the VIF calibration JIG and tune in a 63 dBU colorbar pattern (75Ω opened). 2. Connect the oscilloscope in TPA31. 3. Confirm that the output video sign is 1.05 ± 0.15 Vp-p in TPA 31.
3- BUZZING CONFIRMATION (AUDIO CIRCUIT) 1. Connect the oscilloscope with a 7kHz filter between A22-2 and A22-3 speakers terminals . 2. Adjust the sound to maximum. 3. Adjust **AVL**: OFF 	**CONFIRMATION:** 1. Supply a colorbar signal with local frequency adjusted and the AFC ON (Channel with sound bearer and without modulation). 2. Assure that the width in the buzzing waveform is smaller than 500 m Vp-p. 
4- ANODE AND HEATER VOLTAGE CONFIRMATION 1. Supply a crosshatch signal. 2. Adjust the current beam to zero. (0 beam). 3. Adjust “SCREEN VR” and “CONTRAST” to minimum. **Nota**: (When using a high voltage meter resistive type, it is necessary to use an electrostatic meter type to verify the values)	**CONFIRMATION** 1. Connect a voltage meter between TPA10 and ground. Confirm that the voltage +B is within a range of 140.5V± 1.5V 2. Connect a high frequency voltage meter (VRMS) among the heater, and confirm that the voltage is as below: 3. Connect the high voltage meter in the CRT anode pin, and confirm that the high voltage is within [A] range.

14"	SAMSUNG	A34KQW42X	6,30 ± 0,25 Vrms
14"	PHILIPS	A34EAK01X	6,15 ± 0,25 Vrms
20"	SAMSUNG	A48KRDB89X	6,30 ± 0,25 Vrms
20"	PHILIPS	A48EAK01X	6,15 ± 0,25 Vrms

CRT	[A]
14”	25,2 ~ 23,0
20”	27,2 ~ 25,0

ADJUSTMENTS

5- PAL COLOR OUTPUT SIGNAL ADJUSTMENT

1. Supply a color bar signal and adjust the local frequency.
2. Adjust “IMAGE” to DYNAMIC NORMAL, “CONTRAST” to 63 and “SUB-CONTRAST” to 21.
3. Adjust the “CHANNEL COLOR” level to NORMAL.
4. Set to CHK2 service mode option, press “5” on the remote control unit and confirm that OSD becomes blue (AKB turned off).
5. Set ABL to OFF (in CHK2 mode, to access BRT, CONT, S-CONT or S-TINT).
6. Adjust [A] for 2.3 ± 0.2V through the BRIGHT control variation in the test point TPL2.
7. Confirm:

CRT	14 inch	20 inch
RGB Contrast	2 DAC	7 DAC
{352}	12	17

8. Fix G-DRIVE GAIN, R-DRIVE GAIN and B-DRIVE GAIN data in 1FH or 31 DAC.
   R-DRIVE GAIN: [SLV(8A), SUB (16)]
   G-DRIVE GAIN: [SLV(8A), SUB (17)]
   B-DRIVE GAIN: [SLV(8A), SUB (18)]

CALIBRATION:

1. Connect the oscilloscope in TPL2 (G-OUT) with a 10KΩ resistor and adjust “CONTRAST”, so that the [**B**] waveform it is 2.3±0.1V with 14” CRT and 2.6±0.1V with 20” CRT.
2. Adjust “SUB-COLOR” to obtain 2,45±0.1V in [**D**] according to fig. 1.
3. Connect the oscilloscope in TPL1 (R-OUT) with a 10KΩ resistor and confirm that the [**C**] waveform it is 2.45±0.1V according to fig. 2.
4. Press the key “5” (AKB ON) and confirm that OSD becomes white.

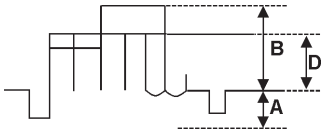


Fig. 1
A = 2.3 ±0.1Vo-p
B = 2.4±0.1V
D = 2.45±0.1V

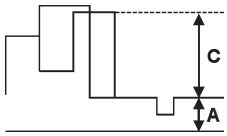


Fig. 2
A = 2.3 ±0.2Vo-p
C = 2.45±0.1V

6- NTSC SUB-TINT CALIBRATION

1. Connect the oscilloscope in TPL1 (R-OUT) with a 10KΩ resistor.
2. Supply a Rainbow signal (NTSC 3.58 MHz) through VIDEO IN.
3. Select “IMAGE” to DYNAMIC NORMAL.
4. Select “COLOR FOR CHANNEL” to NORMAL.
5. On CHK2 service mode, press “5” (AKB OFF) and confirm that OSD becomes blue (AKB turned off).
6. Set ABL to OFF (on CHK2 mode, to access BRT, CONT, S-CONT or S-TINT).

CALIBRATION:

1. Adjust [C] for 5.0±0.2V through the BRIGHT control variation (CHK2) according to fig. 1.
2. Adjust SUB TINT-NTSC so that the levels of positions 2, 3 and 4 of Fig. 1 in accordance with the Fig. 2.
3. Set ABL to ON.
4. Press “5” and confirm that OSD becomes white (AKB turned on).

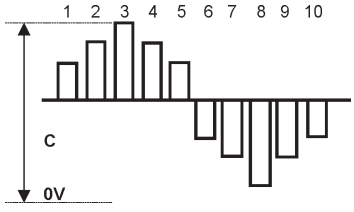


Fig. 1

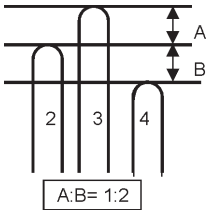


Fig. 2

7- PROTECTION CIRCUIT (SHUTDOWN) CONFIRMATION OF OPERATION

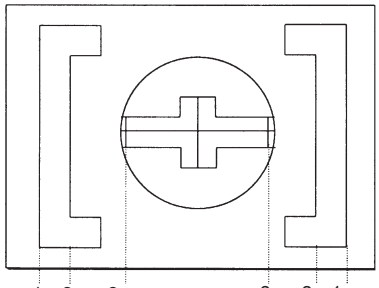
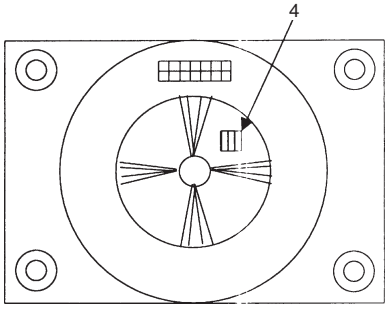
1. Supply a crosshatch pattern signal and adjust the CONTRAST and BRIGHT DAC controls to minimum. (Ibeam=0 μA)

CONFIRMATION:

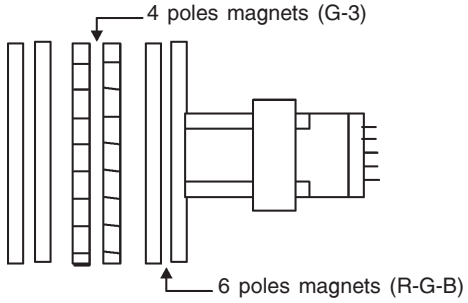
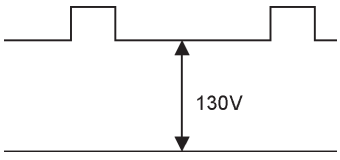
1. Connect the voltmeter in TPA22 and confirm that the voltage is smaller than [**A**].
2. Connect a DC source in TPA22 and confirm that the protection circuit doesn’t act when the voltage is [**B**].
3. Confirm that the protection circuit acts with smaller voltage than [**C**].

Condition	14”	20”
A	21,6V	22,4V
B	23,4V	23,4V
C	26,1V	26,1V

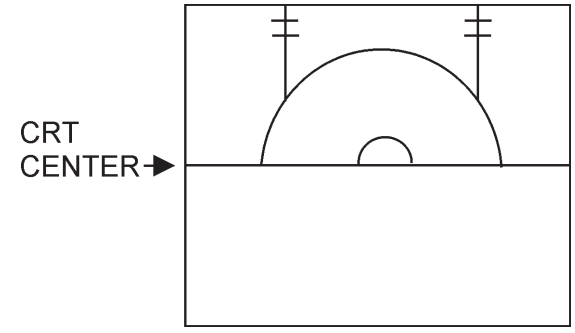
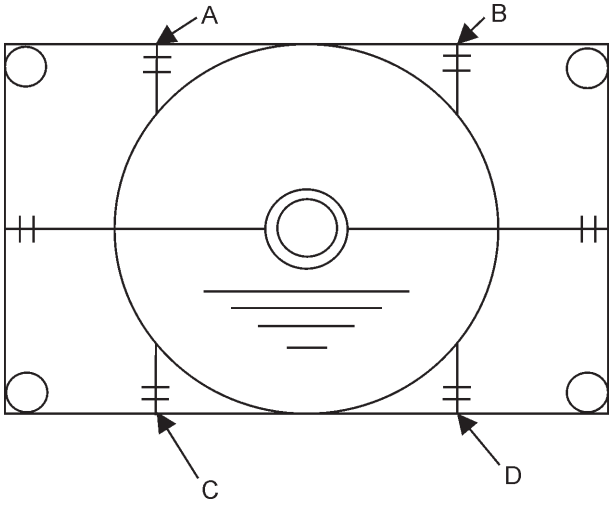
ADJUSTMENTS

ITEM / PREPARATION	PROCEDURE
8- SUB-BRIGHT AND SUB-CONTRAST CALIBRATION 1. Supply a WINDOW pattern signal. 2. Adjust IMAGE MENU to DYNAMIC NORMAL	**SUB-BRIGHT CALIBRATION** 1. Position the color analyzer in the LOW LIGHT image area. 2. Ajust S-BRT <CHK 4> control, so that it is Y=0,7±0.2 for 14" or 20" CRT. **SUB-CONTRAST CALIBRATION** 1. Position the color analyzer in the HIGH LIGHT image area. 2. Ajust S-CONT <CHK 4> DAC control, so that it is Y=380±20 to 14" and Y=230±20 to 20" CRT. 3. If impossible to obtain that adjustment, adjust SUB-CONT <CHK 4> again. 4. Check the SUB-BRIGHT adjust.
9- FOCUS CALIBRATION • Assure that the SUB-BRIGHTNESS adjustment has been done. 1. Supply a Philips or monoscope pattern signal. 2. Adjust IMAGE MENU to DYNAMIC NORMAL.  Fig. 1	**CALIBRATION**: 1. Adjust the FOCUS variable resistor for the point of better adjustment. • **with PHILIPS signal** .... take as reference for adjustment the third vertical line (fig. 1). • **with MONOSCOPE signal** in the number 4 (fig.2).  Fig. 2
10- PURITY CALIBRATION 1. Adjust the HELMHOLTZ device for the local magnetic field (HORIZONTAL: 0 ± 0.03 X 10-4T) 2. Let the set warm up (aging time) for a minimum of 60 minutes. 3. Supply a purity pattern (white pattern). 4. Adjust CONTRAST and BRIGHT to MAXIMUM. 5. The static convergence adjustment must have been made preliminarily. 6. Connect a DC ampere meter between FBT pin11 (-) and FBT pin3 (+), and adjust to 920mA±10% in the 14" CRT and 1200mA±10% in the 20", varying the S-BRT DAC control.	**CALIBRATION**: 1. Position the "ears" of the purity magnets both upward. 2. Adjust the purity until the markers in the purity jig monitorscope becomes symmetrical in the horizontal direction. 3. The vertical centralization correction is made through the purity magnets for stripe CRT type only. 4. Slide the yoke forward by 10 mm±5 in the monitor. Then, tighten the deflection yoke. 5. Repeat the procedures 2 ~ 4. 6. Press the belt of deflection yoke. 7. Adjust "beam landing" using a microscope. (for model change or instrument check only)

ADJUSTMENTS

ITEM / PREPARATION	PROCEDURE
11- WHITE QUALITY CALIBRATION **PREPARATION:** 1. Adjust the HELMHOLTZ device to local magnetic field. Horizontal: 0 ± 0.003 x 10^{-4}T 2. Receive a white purity pattern. 3. Adjust CONTRAST and BRIGHT controls to maximum. 4. Previously adjust the CONVERGENCE. 5. Fully degauss the CRT by using an external degaussing coil.	**CALIBRATION:** 1. Adjust the magnetic field in 0.4x10-4T (400 mG), and check the white quality with the CRT turned to EAST and to WEST. 2. Receive a red pattern, adjust the COLOR control to maximum and confirm the purity adjustment. 3. If purity error is found at the CRT corners, apply magnetic tapes to correct it, fully degauss the CRT again and repeat the steps 1 and 2. Don't use this magnetic tapes on the internal side of the yoke. 4. Receive a white purity pattern, adjust the COLOR control to minimum and confirm the purity adjustment.
12- CONVERGENCE CALIBRATION 1. Adjust the HELMHOLTZ device to local magnetic field. 2. Receive a crosshatch pattern. 3. Adjust IMAGE menu to DINÂMIC NORMAL and the DAC BRIGHT control for the crosshatch pattern to be gray. 4. Remove the DY wedges and slightly tilt the deflection yoke to the vertically and horizontally to obtain the good overall convergence. 5. If purity error is found, repeat “Color Purity” adjustment  	**CALIBRATION** Static convergence calibration I) Assure that the magnets are positioned according to illustration 1. II) Adjust the 4 poles magnets to align the R and B CENTRAL DOTS and adjust the 6 poles magnets to align both DOTS with G. III) After adjustment above, assure that the magnets are sealed, through the application of white glue. **Note**: The electron beams are moved rotationally when the static convergence magnets are rotated. The reduction of rotational beams differ depending of the two magnets angle. Therefore, it is necessary to repeat the magnets calibrations sometimes, until obtaining a good alignment.
13- CRT CUT OFF CALIBRATION 1. Supply a WINDOWS signal. 2. Position DACs with the data below: **BRT** —> 50H **S-BRT** —> 31H **RGB CONTRAST** —> 02H w/14” and 07H w/ 20” CRT **SUB-CONTRAST** —> 21H **R,G,B DRIVE** —> 31H **R,G CUT** —> 31H	**CALIBRATION:** 1. Press “5” (AKB OFF) and confirm that OSD becomes blue. 2. Connect the oscilloscope in TPL5 and adjust BRT to obtain 130V as in the Fig. 1 below. 3. Adjust the SCREEN to obtain a horizontal fine line in the screen center. Y = 1.0 +1.0 -0.5 4. Press “5” (AKB ON) and confirm that OSD becomes white.  Fig. 1

ADJUSTMENTS

ITEM / PREPARATION	PROCEDURE
14- VERTICAL DEFLECTION CALIBRATION AND CONFIRMATION 1. Adjust IMAGE to DYNAMIC NORMAL  Fig. 1  Fig. 2	**S-CORR CONFIRMATION AND CALIBRATION** **1) Confirmation in 50Hz** 1. Supply a PHILIPS PAL-N signal. 2. Confirm that S-CORR 50Hz is in [18] DAC. **2) Confirmation in 60Hz** 1. Supply a MONOSCOPE signal. 2. Confirm that S-CORR 60Hz is in [18] DAC. **3) V-SLOPE calibration** 1. Supply a MONOSCOPE signal. 2. Adjust V_SLOPE (CHK3) so that the beginning of the black part of the image is aligned with the center of the CRT as Fig. 1. **4) VERTICAL CENTRALIZATION 50 HZ CALIBRATION** 1. Supply a PAL-N Philips signal. 2. Adjust V-SHIFT 50Hz (CHK3) so that the Philips pattern's center it is in the center of the CRT. **5) VERTICAL CENTRALIZATION 60 HZ CALIBRATION** 1. Supply a MONOSCOPE signal. 2. Adjust V-SHIFT 60Hz (CHK3) so that the monoscope pattern´s center it is in the center of the CRT. **6) VERTICAL HEIGHT (V-AMP 50HZ) CALIBRATION** 1. Supply a PHILIPS PAL-N signal. 2. Adjust V-AMP-50Hz (CHK3) so that the Philips pattern's circle height be the same dimension of the width. **7) VERTICAL HEIGHT (V-AMP 60HZ) CALIBRATION** 1. Supply a MONOSCOPE signal. 2. Adjust V-AMP-60Hz (CHK3) according to box. **CRT->** / 14" / 20" **C,D** / 1.9 ~ 2.2 / 1.5 ~ 2.0 **A,B** / 1.5 ~ 2.3 / 1.5 ~ 1.6 3. MEMORIZE in EEPROM.
16- WHITE BALANCE CALIBRATION 1. Adjust the HELMHOLTZ device to local magnetic field. 2. Let the set warm up for a minimum of 30 minutes. 3. Receive a white balance. (This sign should contain burst sign). 4. Adjust the IMAGE menu to DINÂMIC NORMAL. 5. Fully degauss the CRT by using an external degaussing coil. 6. Position the color analyzer in contact with the CRT face.	**CALIBRATION:** **[1] LOW LIGHT CALIBRATION** 1. Adjust S-BRT, so that Y = 7 2. Adjust R-CUT OFF, so that x = 0.273 ±0.01 3. Adjust G-CUT OFF, so that y = 0,283 ±0.01 **[2] HIGH LIGHT CALIBRATION** (Confirm that G-DRIVE is 31 DAC) 1. Adjust S-BRT, so that Y = 150 2. Adjust R-DRIVE, so that x = 0,275 ±0.01 3. Adjust B-DRIVE, so that y = 0,284 ±0.01 **[3] Repeat the procedures [1] and [2].**

Assure that not entering light for the meter borders and that the CUT OFF voltage calibration has been done. If the value in the color analyzer is below 150, adjust CONTRAST to 50 and press "8" in CHK2 mode.

EEPROM MEMORY MAPS

Observation:
***/XX** : Data subjects to alterations in the calibration process (values no fixed).
@ : Data of channels
[A-M] : Corresponds to the specification of specific production of each model.

: Fixed data (it doesn't alter in the calibration process)

14 & 20 INCHES DIFFERENCES TABLE

ITEM	ADDR	14 Inches	20 Inches	FUNCTION
*3	392	00	FA	Color offset
*5	352	12	17	RGB Contrast
*6	254	20	2D	Sharpness – Picture user data
*7	284	20	2D	Sharpness – Picture normalize
*8	3BB	05	03	H.Shift Offset - NTSC
*9	3BE	FC	00	Sharpness Offset (AV)

TABLE A0 (0XX)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	02	00	06	01	00	06	02	00	06	03	00	06	04	00	06	05
10	00	06	06	00	06	07	00	06	08	00	06	09	00	06	0A	00
20	06	0B	00	06	0C	00	06	0D	00	06	0E	00	06	0F	00	06
30	10	00	06	11	00	06	12	00	06	13	00	06	14	00	06	15
40	00	06	16	00	06	17	00	06	18	00	06	19	00	06	1A	00
50	06	1B	00	06	1C	00	06	1D	00	06	1E	00	06	1F	00	06
60	20	00	06	21	00	06	22	00	06	23	00	06	24	00	06	25
70	00	06	26	00	06	27	00	06	28	00	06	29	00	06	2A	00
80	06	2B	00	06	2C	00	06	2D	00	06	2E	00	06	2F	00	06
90	30	00	06	31	00	06	32	00	06	33	00	06	34	00	06	35
A0	00	06	36	00	06	37	00	06	38	00	06	39	00	06	3A	00
B0	06	3B	00	06	3C	00	06	3D	00	06	3E	00	06	3F	00	06
C0	40	00	06	41	00	06	42	00	06	43	00	06	44	00	06	45
D0	00	06	46	00	06	47	00	06	48	00	06	49	00	06	4A	00
E0	06	4B	00	06	4C	00	06	4D	00	06	4E	00	06	4F	00	06
F0	50	00	06	51	00	06	52	00	06	53	00	06	54	00	06	55

TABLE A2 (1XX)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	06	56	00	06	57	00	06	58	00	06	59	00	06	5A	00
10	06	5B	00	06	5C	00	06	5D	00	06	5E	00	06	5F	00	06
20	60	00	06	61	00	06	62	00	06	63	00	06	64	00	06	65
30	00	06	66	00	06	67	00	06	68	00	06	69	00	06	6A	00
40	06	6B	00	06	6C	00	06	6D	00	06	6E	00	06	6F	00	06
50	70	00	06	71	00	06	72	00	06	73	00	06	74	00	06	75
60	00	06	76	00	06	77	00	06	78	00	06	79	00	06	7A	00
70	06	7B	00	06	7C	00	06	7D	00	06	00	00	00	00	00	00
80	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
90	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
A0	06	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

TABLE A4 (2XX)

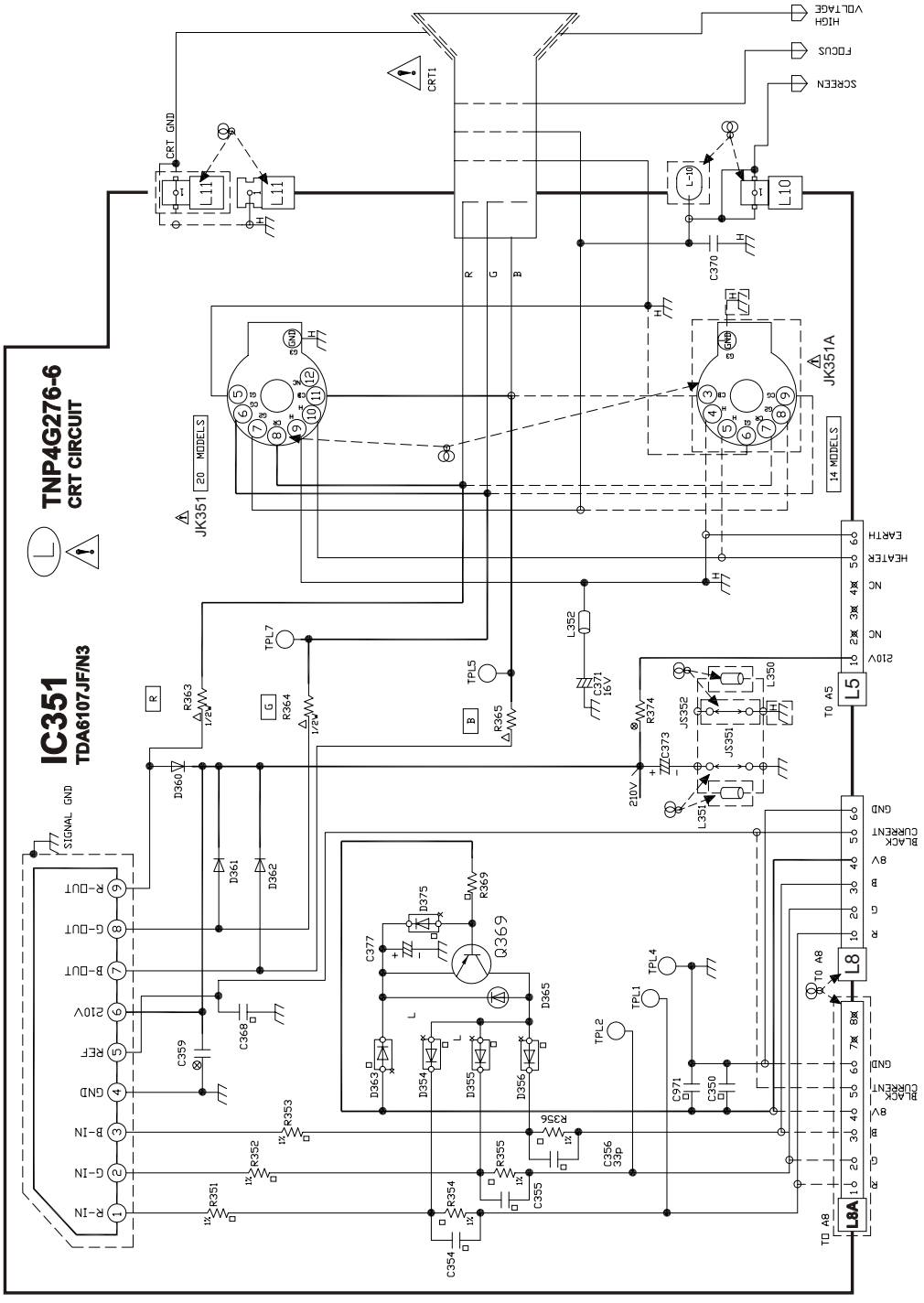
	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	02	00	A5	5A	00	***1**	01	00	00	08	00	04	00	00	01	00
10	00	00	00	00	00	00	00	00	20	00	00	00	00	00	00	00
20	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
40	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
50	20	20	20	3F	***6**	20	20	20	2D	20	1E	20	20	23	1E	20
60	2D	2A	34	32	24	24	00	00	00	20	20	20	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	78	BB
80	20	20	20	3F	***7**	20	20	20	2D	20	1E	20	20	23	1E	34
90	32	24	24	00	00	00	2D	2A	00	00	00	00	00	00	00	00
A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
B0	02	19	15	***2**	00	1B	00	00	00	04	04	04	00	00	00	00
C0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
D0	0C	10	15	04	06	06	00	04	00	00	00	00	00	00	00	00
E0	00	00	00	00	00	00	00	00	**[A]**	[B]	[C]	[D]	[E]	[F]	[G]	[H]
F0	00	00	18	20	15	1A	00	00	00	00	00	00	00	A5	3F	A5

TABLE A6 (3XX)

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
10	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20	00	00	B6	B7	20	10	28	18	B0	00	00	00	12	00	00	00
30	1B	20	00	22	17	1A	0F	0F	2B	12	1F	12	20	19	1F	1F
40	1F	1F	1F	00	06	00	00	00	10	00	2A	00	34	***4**	30	20
50	02	48	***5**	40	00	80	34	01	00	00	00	00	00	00	00	00
60	00	FF	1C	12	19	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	10	00	00	00	00	00	00	00
80	00	00	00	00	00	00	00	0E	11	0D	06	0C	07	0C	02	00
90	09	00	***3**	00	00	00	00	0A	F8	00	00	00	00	00	00	03
A0	01	03	02	03	03	00	34	12	12	2B	***10**	63	03	00	20	30
B0	4A	49	4B	00	01	00	00	FF	00	04	05	***8**	03	F8	***9**	F2
C0	20	07	4F	40	40	00	00	00	00	00	00	00	00	00	00	00
D0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

SCHEMATIC DIAGRAMS

CRT PCB SCHEMATIC DIAGRAM



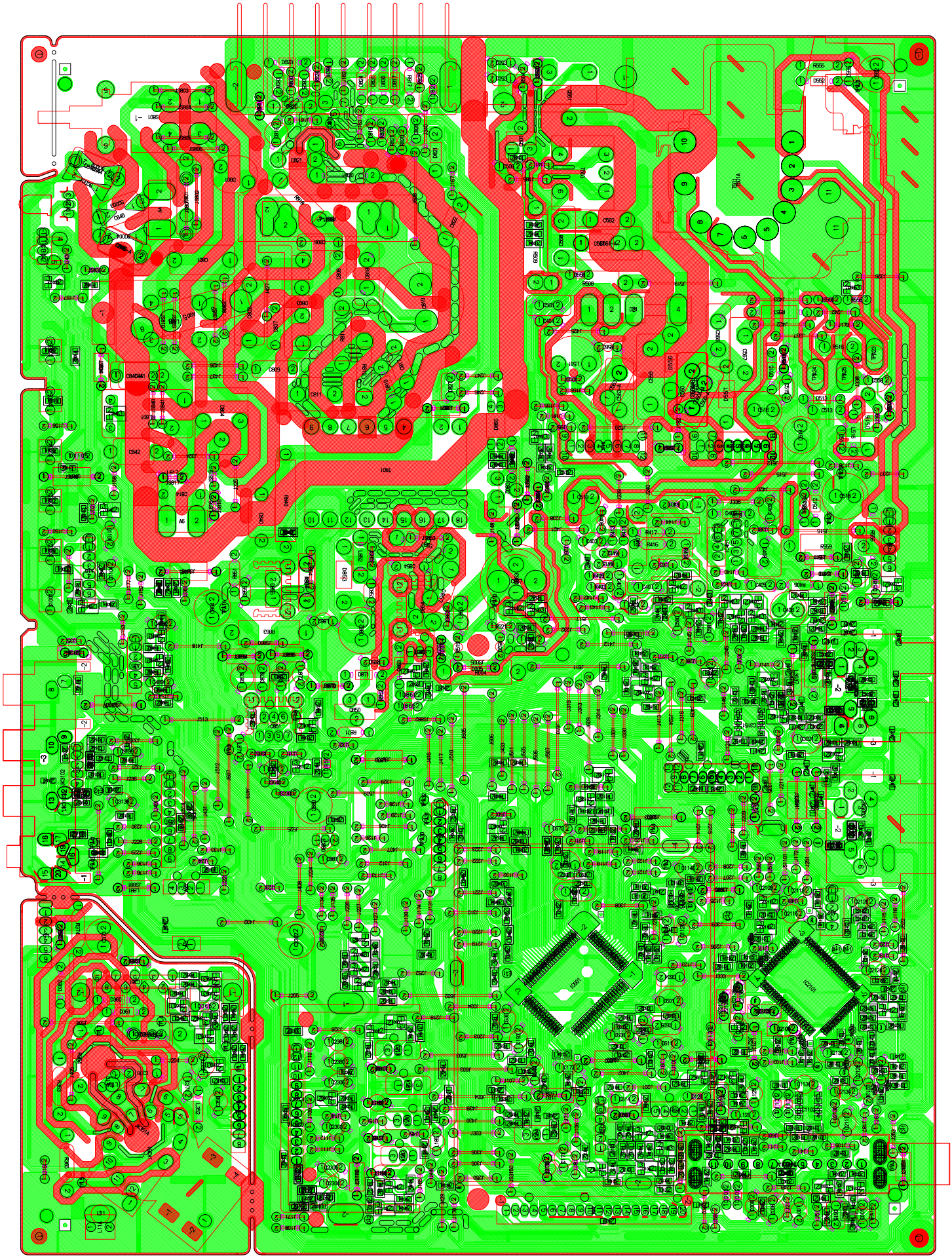
■ MAIN PCB SCHEMATIC DIAGRAM

SEE IC601 PINOUT TABLE BELOW

IC601 PINOUT

N°	DESCRIÇAO	N°	DESCRIÇAO	N°	DESCRIÇAO	N°	DESCRIÇAO
01	P3.1/ADC1	21	VSC	41	GND	61	VDDC
02	P3.2/ADC2	22	AGCOUT	42	CVBS2	62	DSCGND
03	P3.3/ADC3	23	SIFIN1	43	GND	63	XTALIN
04	VSSC/P	24	SIFIN2	44	CVBS3/Y	64	XTALOUT
05	P0.5	25	GND2	45	C	65	RESET
06	P0.6/CVBSTD	26	SNDPLL	46	WHSTR	66	VDDP
07	VSSA	27	AVL/REFO/SNDIF(1)	47	CVBSO	67	P1.0/INT1
08	SECPLL	28	AUDIO2	48	AUDOUT/AMOUT	68	P1.1/T0
09	VP2	29	AUDIO3	49	SVM	69	P1.2/INT0
10	DECDIG	30	HOUT	50	INSSW2	70	P1.3/T1
11	PH2LF	31	FBISO	51	R2/VIN	71	P1.6/SCL
12	PH1LF	32	DECSDEM	52	G2/YIN	72	P1.7/SDA
13	GND3	33	QSSO/AMOUT/AUDEM (1)	53	B2/UIN	73	P2.0/TPWM
14	DECBG	34	EHTO	54	BCLIN	74	P2.1/PWM0
15	EWD	35	PLL1F	55	BLKIN	75	P2.2/PWM1
16	VDRB	36	SIFAGC	56	RO	76	P2.3/PWM2
17	VDRA	37	INTCO	57	GO	77	P2.4/PWM3
18	IFIN1	38	IFVO/SVO (1)	58	BO	78	P2.5/PWM4
19	IFIN2	39	VP1	59	VDDA	79	SYNC_FILTER
20	IREF	40	CVBS1	60	VPE	60	P3.0/ADC0

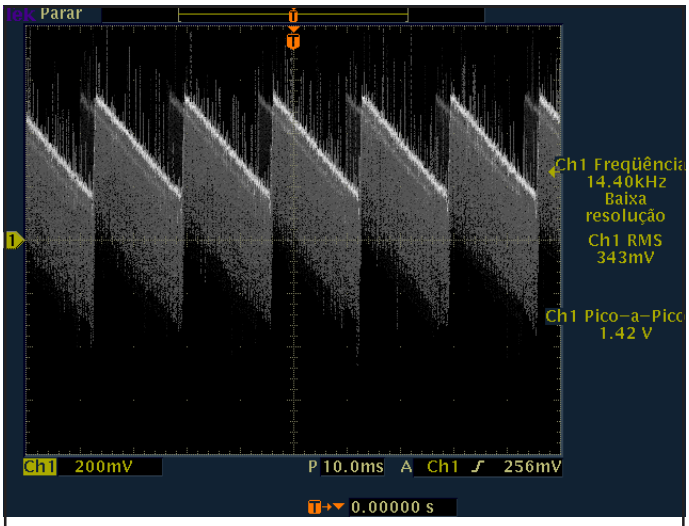
■ MAIN BOARD CIRCUIT LAYOUT



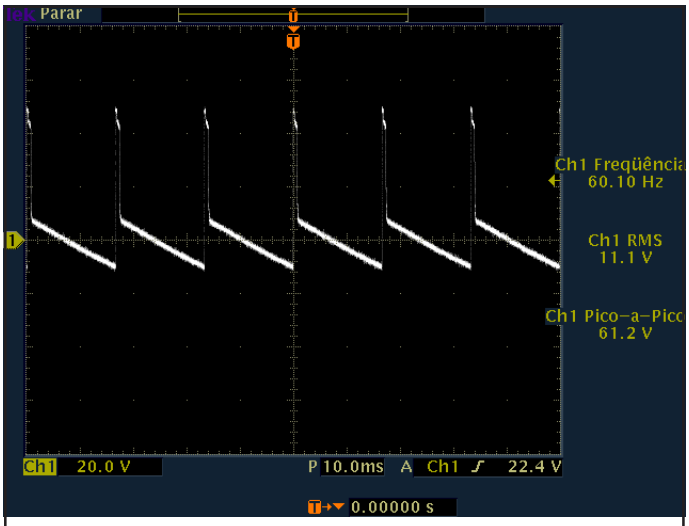
SIGNAL WAVEFORM

• All waveforms were obtained using 127V 50Hz power source and Color Bars Pattern.

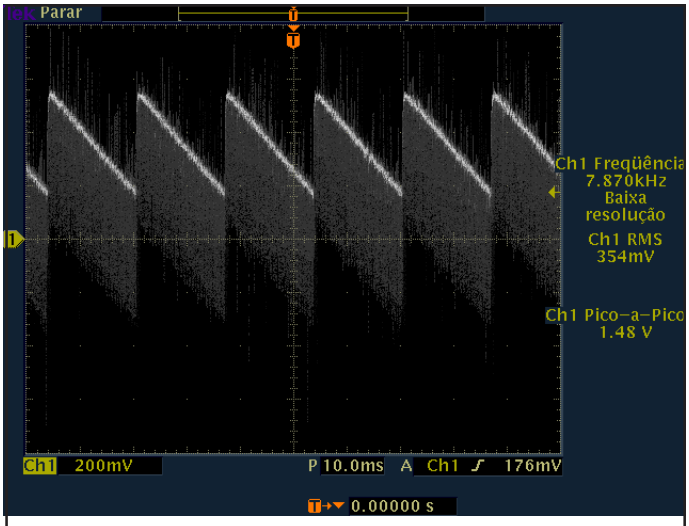
IC451



Pin 1

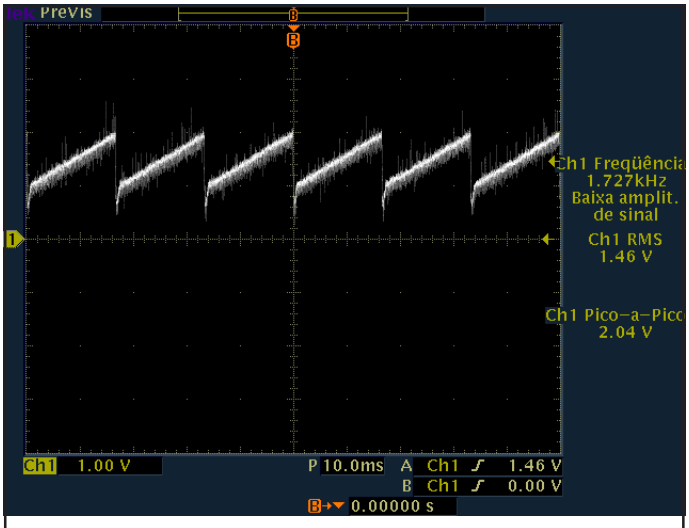


Pin 5

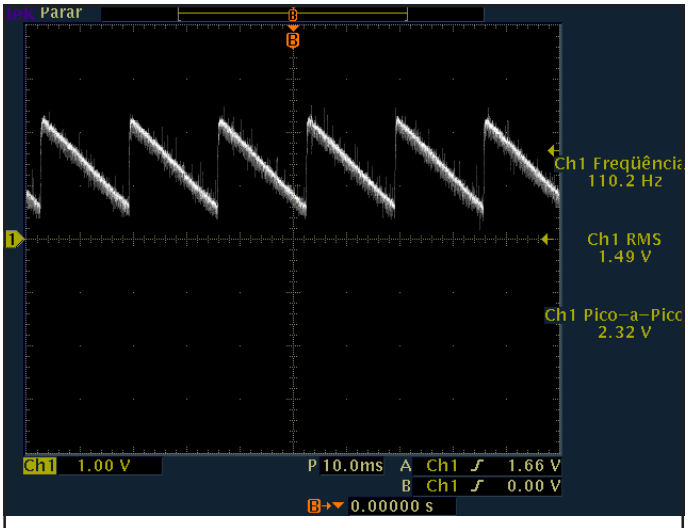


Pin 7

IC601

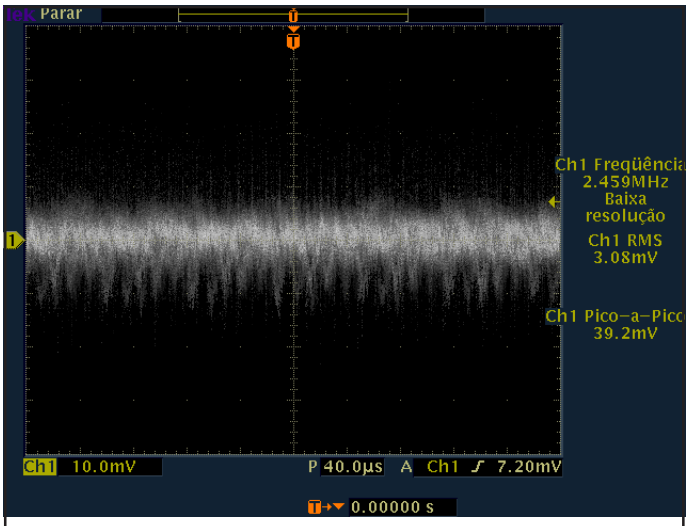


Pin 16

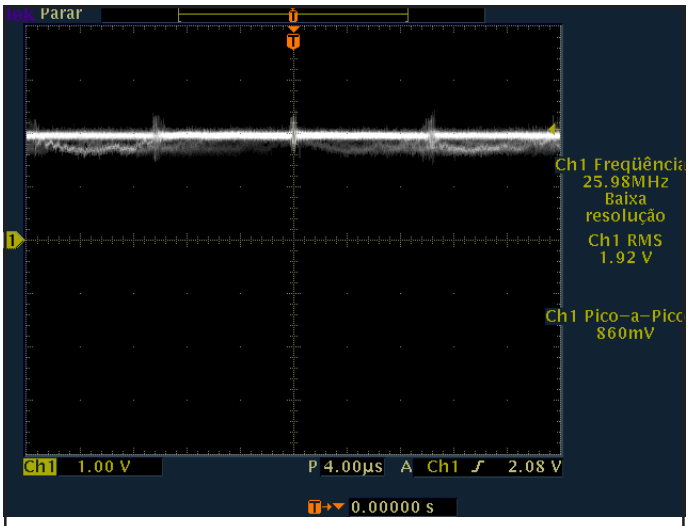


Pin 17

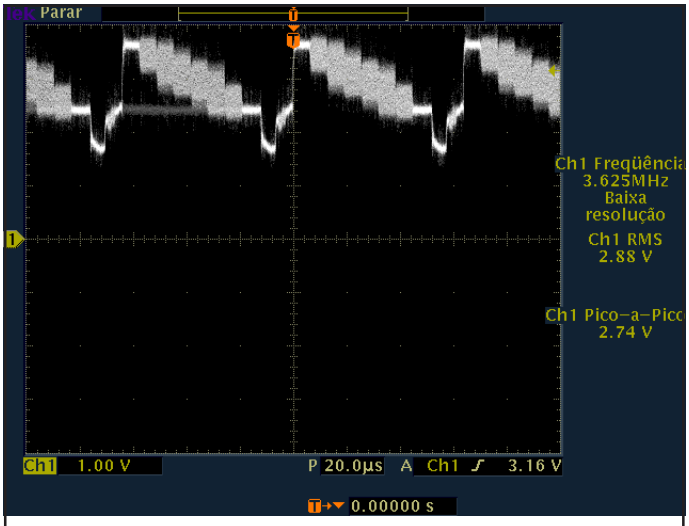
IC601



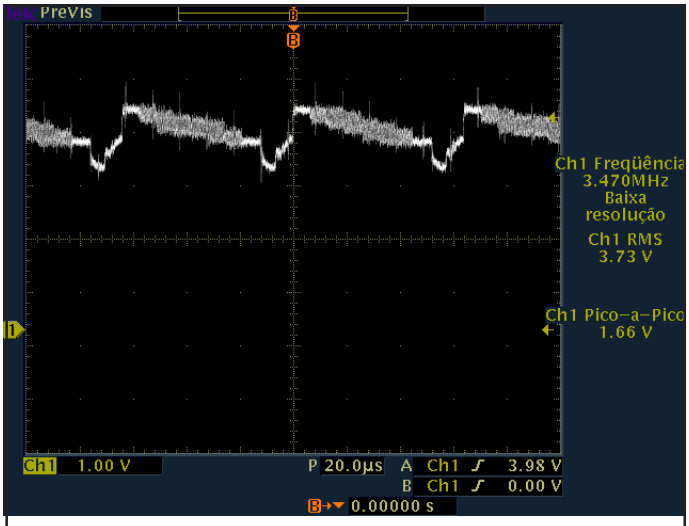
Pin 18



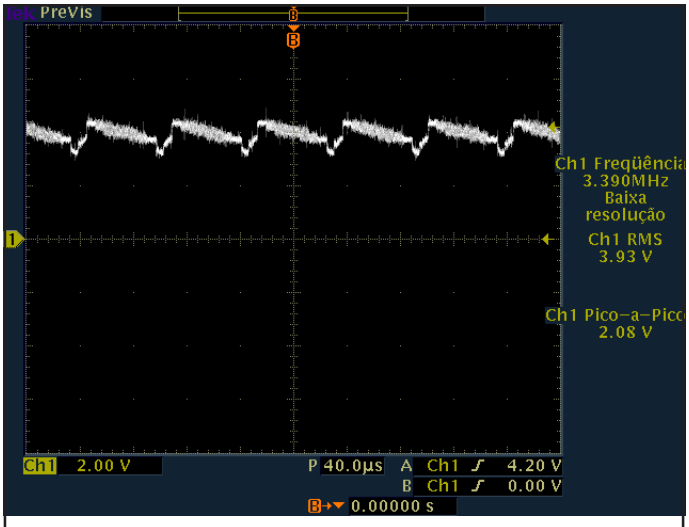
Pin 19



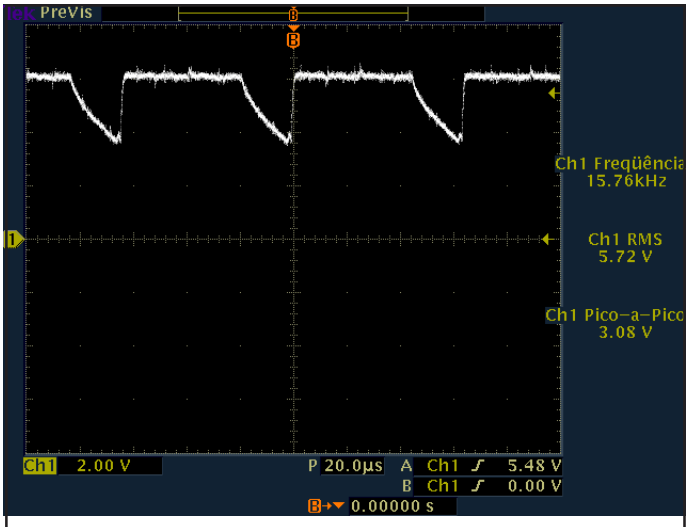
Pin 38



Pin 40

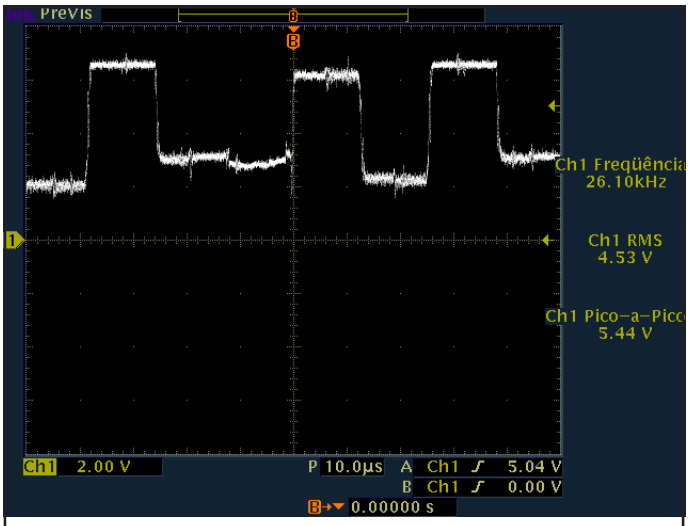


Pin 42

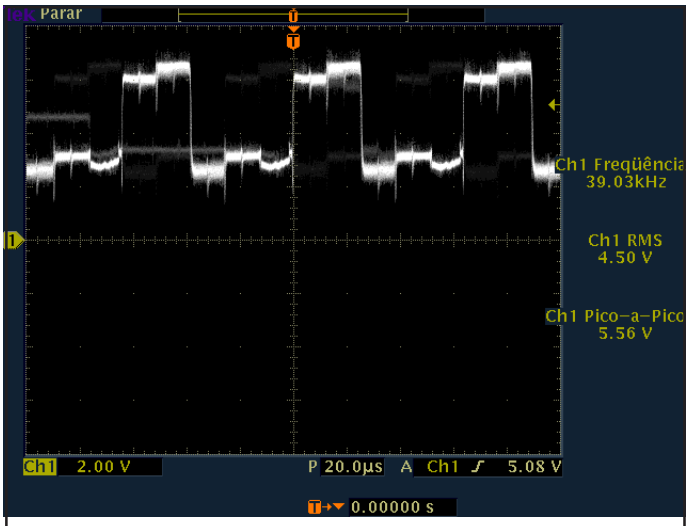


Pin 55

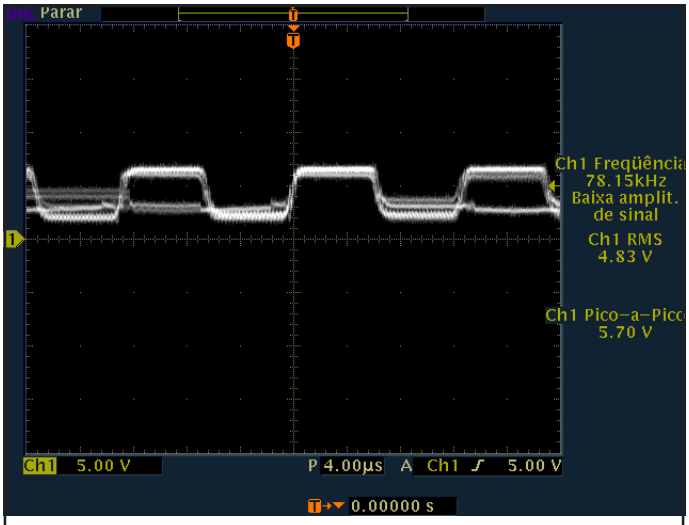
IC601



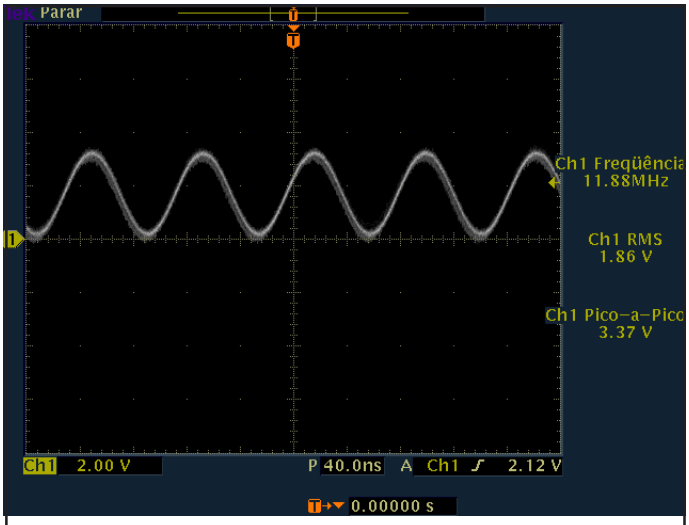
Pin 56



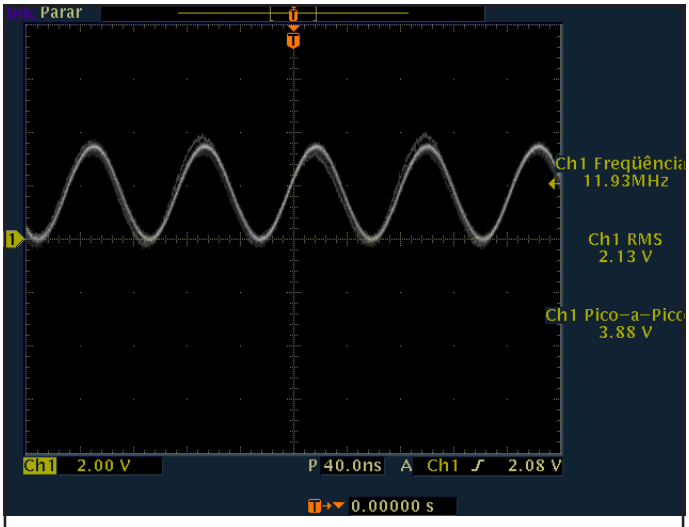
Pin 57



Pin 58

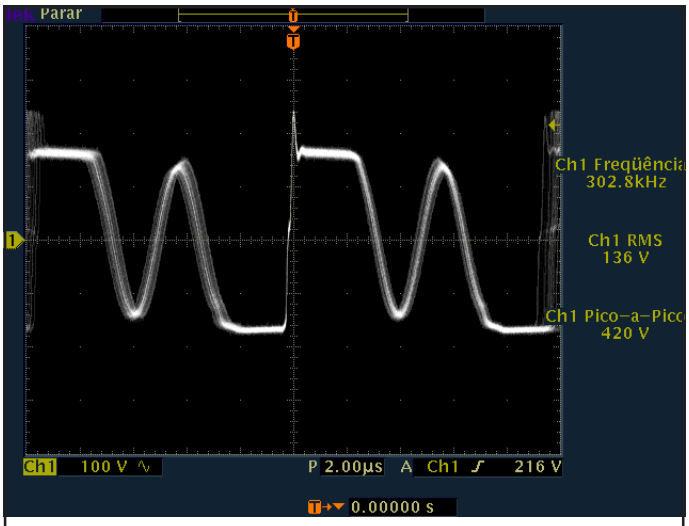


Pin 63



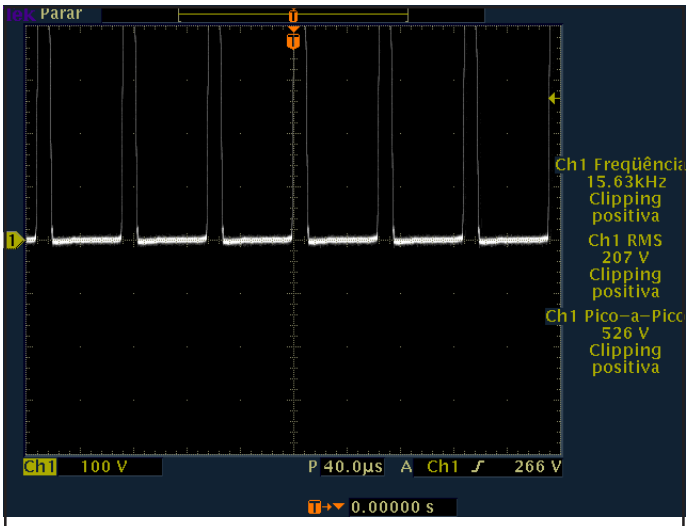
Pin 64

IC804



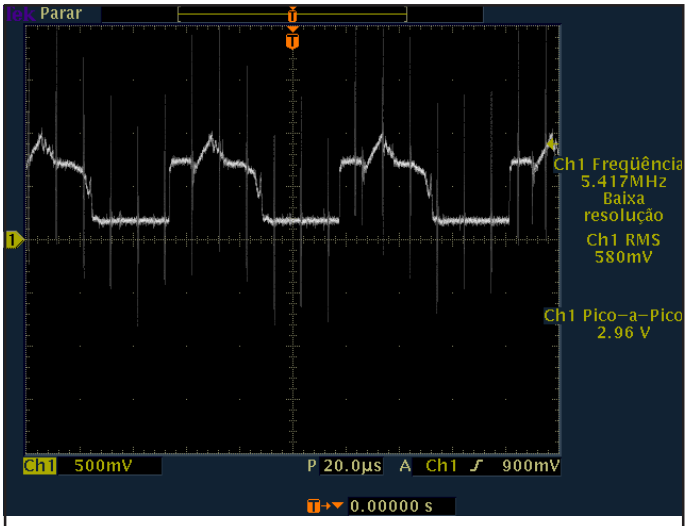
Pin 1

Q551

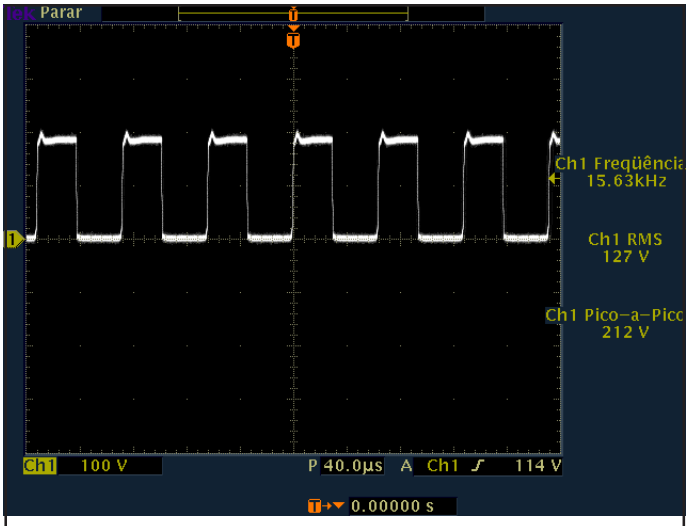


Collector

Q501

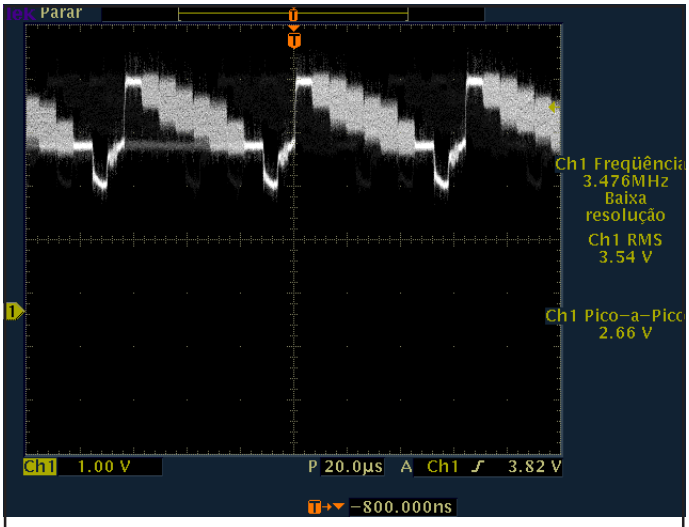


Base



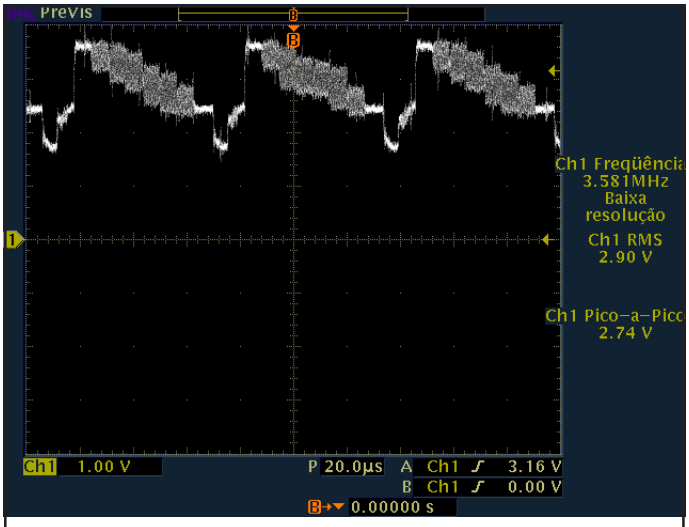
Collector

Q601



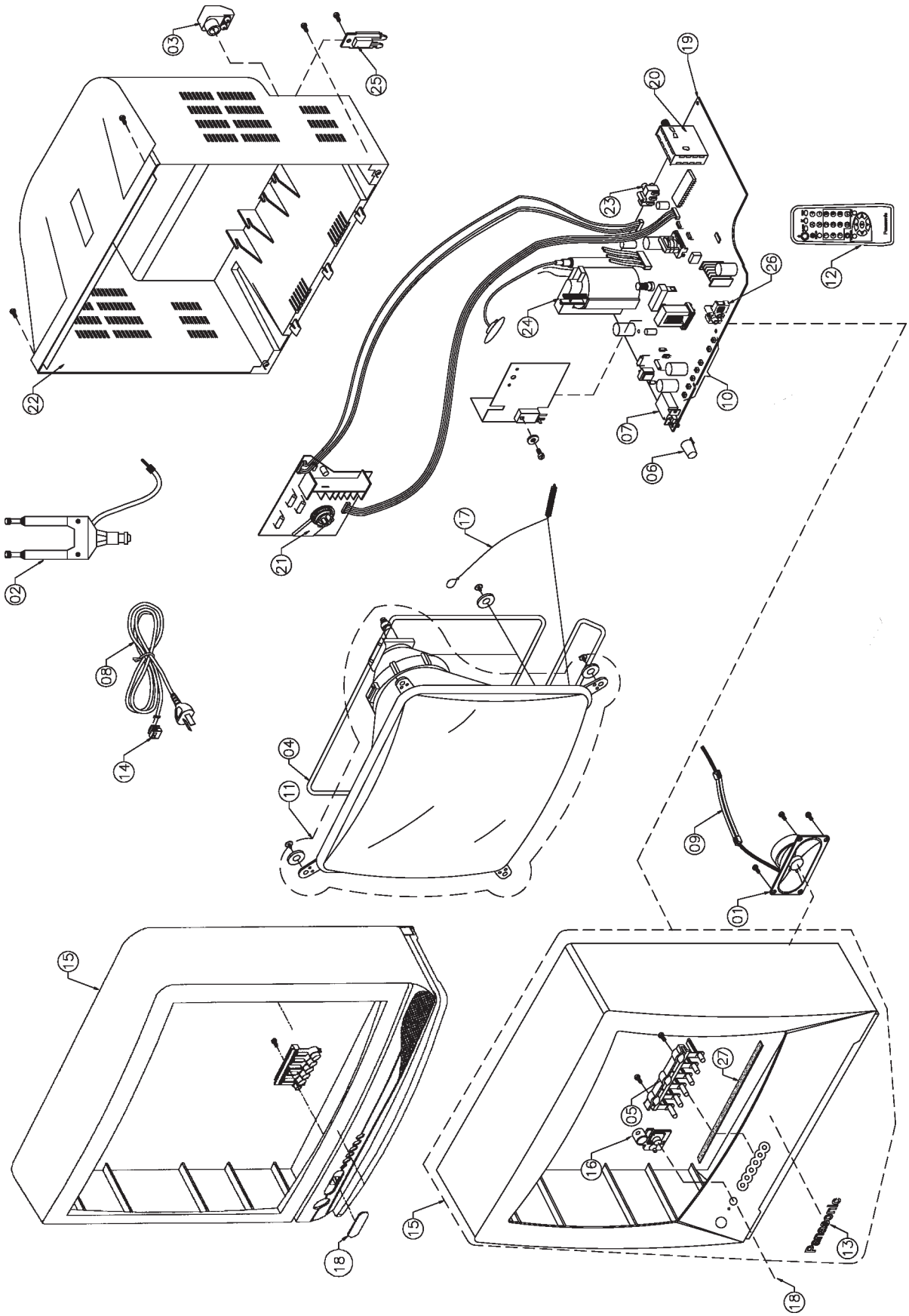
Emiter

Q602



Collector

■ EXPLODED VIEW



REPLACEMENT MECHANICAL PARTS LIST

Ref. No.	TC-14A04P Part No.	TC-20A04P Part No.	TC-20B04 Part No.	Part Name & Description
1	EASZ9D05B8	EASZ9D05B8	EASZ9D05B8	FULL RANGE SPEAKER
2	TSA8108-6KP	- - - - - - o - - - - - -	TSA8108-6KP	TELESCOPIC ANTENNA
3	S-U5012	S-U5012	S-U5012	300W ADAPTOR BALLUM
4	TLK2B14002A	TLK2BA003	TLK2B20001A	DEGAUSSING COIL
5	TBX2B861-1	TBX2B863-1	TBX2B864	6 POSITIONS BUTTON
6	TBX2B862-1	TBX2B862-1	TBX2B846-1	POWER BUTTON
7	ESB92DA1B	ESB92DA1B	ESB92DA1B	POWER SWITCH
8	TSX2BA04	TSX2BA04	TSX2BA07	AC CABLE
9	TXAJTA22TC14A12	TXAJTA22TC20A12	TXAJTA22TC14A12	LEAD WIRE W/ SPEAKER CONNECTOR
10	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCHES
11	A34EAK01X094R	A48EAK01X094R	A48EAK01X094R	PICTURE TUBE
12	TNQ2B2902	TNQ2B2902	TNQ2B2502	REMOTE CONTROLLER
13	TBM2B412	TBM2B412	TBM2B412	PANASONIC LABEL
14	TKP2B11161-2	TKP2B11161-2	TKP2B11161-2	AC CABLE HOLDER
15	TXPTKY2B1802-2	TXPTKY2B1902-2	TXPTKY2B1003-1	FRONT CABINET
16	TMW2B212-1	TMW2B212-1	TMW2B212-1	LED GUIDE
17	TXF3A14C7	TXF3A20C7-1	TXF3A20C7-1	COIL SPRING
18	TKP2B11221	TKP2B11231	TKP2B11191-2	LED LENS
19	PAL14A04MON	PAL20A04MON	PAL20A04MON	ASSEMBLED PCB
20	TEDH9-301A	ENV56K05G3	ENV56K05G3	TUNER
21	330620065	330550044K2F	330550044K2F	CRT SOCKET
22	TXITKU2B22302-2	TXITKU2B22402-2	TXITKU2B21404	REAR COVER
23	K4BC03B00021	K4BC03B00021	K4BC03B00021	AV TERMINAL (REAR)
24	ZTFN81001A	ZTFN82007A	ZTFN82007A	FLY BACK
25	TKP2B11161-2	TKP2B11161-2	TKP2B11161-2	AC CABLE HOLDER
26	- - - - - - o - - - - - -	- - - - - - o - - - - - -	TJB4G605	AV TERMINAL (FRONT)
27	- - - - - - o - - - - - -	- - - - - - o - - - - - -	TMK2B720	CUSHION
	TKK2B0307	TKK2B0308	TKK2B0308	PLASTIC PANEL

REPLACEMENT ELECTRICAL PARTS LIST

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
MAIN BOARD				
MAIN	PAL14A04MON	PAL20A04MON	PAL20A04MON	A + L ASSEMBLED PCB
CAPACITORS				
C001	ECEA1CKA220B	ECEA1CKA220B	ECEA1CKA220B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 22,00 µF 16V
C002	ECJ2VF1H103Z	ECJ2VF1H103Z	ECJ2VF1H103Z	SMD CAPACITOR 10,00 nF 50V +80 -20 %
C003	ECJ2VF1H103Z	ECJ2VF1H103Z	ECJ2VF1H103Z	SMD CAPACITOR 10,00 nF 50V +80 -20 %
C005	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C006	F2A1A331A161	F2A1A331A161	F2A1A331A161	RADIAL POLAR ELECTROLYTICAL CAPACITOR 330,00 µF 10V
C008	ECEA1HKA010B	ECEA1HKA010B	ECEA1HKA010B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1,00 µF 50V
C117	ECJ2VB1H103J	ECJ2VB1H103J	ECJ2VB1H103J	SMD CAPACITOR 10,00 nF 50V 5,0 %
C120	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
C122	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
C191	ECJ2YB1H104K	ECJ2YB1H104K	ECJ2YB1H104K	SMD CAPACITOR 100,00 nF 50V 10,0 %
C193	F2A1C100A180	F2A1C100A180	F2A1C100A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C350	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C354	ECJ2VC1H330J	ECJ2VC1H330J	ECJ2VC1H330J	SMD CAPACITOR 33,00 PF 50V 5,0 % NP0
C355	ECJ2VC1H330J	ECJ2VC1H330J	ECJ2VC1H330J	SMD CAPACITOR 33,00 PF 50V 5,0 % NP0
C356	ECJ2VC1H330J	ECJ2VC1H330J	ECJ2VC1H330J	SMD CAPACITOR 33,00 PF 50V 5,0 % NP0
C359	ECQM4104KZB	ECQM4104KZB	ECQM4104KZB	RADIAL POLYESTER FILM CAPACITOR 100,00 nF 400V 10,0 %
C368	ECJ2VC1H122J	ECJ2VC1H122J	ECJ2VC1H122J	SMD CAPACITOR 1,20 nF 50V 5,0 % NP0
C370	ECKW3D102KBP	ECKW3D102JBR	ECKW3D102JBR	RADIAL CERAMIC CAPACITOR 1.000,00 PF 2.000V 5,0 %
C371	ECEA1CN100UB	ECEA1CN100UB	ECEA1CN100UB	BIPOLAR RADIAL ELETROLITYCAL CAPACITOR 10,00 µF 16V
C373	F2A2E1000011	F2A2E1000011	F2A2E1000011	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 250V
C377	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C403	F2A1H220A182	F2A1H220A182	F2A1H220A182	RADIAL POLAR ELECTROLYTICAL CAPACITOR 22,00 µF 50V
C404	ECQB1103JF3	ECQB1103JF3	ECQB1103JF3	RADIAL POLYESTER FILM CAPACITOR 0,01 µF 100V 5,0 %
C406	ECA1HHG221B	ECA1HHG221B	ECA1HHG221B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 220,00 µF 50V
C408	ECQB1274JF3	ECQB1274JF3	ECQB1274JF3	RADIAL POLYESTER FILM CAPACITOR 270,00 nF 100V 5,0 %
C502	F1B2H821A025	F1B2H821A025	F1B2H821A025	RADIAL CERAMIC CAPACITOR 820,00 PF 500V 10,0 %
C503	F1B2H821A025	F1B2H821A025	F1B2H821A025	RADIAL CERAMIC CAPACITOR 820,00 PF 500V 10,0 %
C504	ECJ2VB1H681K	ECJ2VB1H681K	ECJ2VB1H681K	SMD CAPACITOR 680,00 PF 50V 10,0 %
C506	F1A2H1000002	F1A2H1000002	F1A2H1000002	RADIAL CERAMIC CAPACITOR 10,00 PF 500V 0,50 PF
C511	F2A1V1010038	F2A1V1010038	F2A1V1010038	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 35V
C513	ECKW3D331JBR	ECKW3D331JBR	ECKW3D331JBR	RADIAL CERAMIC CAPACITOR 330,00 PF 2.000V 5,0 %
C514	F2A1E102A151	F2A1E102A151	F2A1E102A151	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1.000,00 µF 25V
C515	F1B2H331A025	F1B2H331A025	F1B2H331A025	RADIAL CERAMIC CAPACITOR 330,00 PF 500V 10,0 %
C516	F2A1E102A151	F2A1E102A151	F2A1E102A151	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1.000,00 µF 25V
C519	F2A2C330A020	F2A2C330A020	F2A2C330A020	RADIAL POLAR ELECTROLYTICAL CAPACITOR 33,00 µF 160V
C520	F2A0J221A181	F2A0J221A181	F2A0J221A181	RADIAL POLAR ELECTROLYTICAL CAPACITOR 220,00 µF 6,3 V
C552	F2A2E1000011	F2A2E1000011	F2A2E1000011	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 250V
C555	F1B2H471A025	F1B2H471A025	F1B2H471A025	RADIAL CERAMIC CAPACITOR 470,00 PF 500V 10,0 %
C558	ECQB1104JF3	ECQB1104JF3	ECQB1104JF3	RADIAL POLYESTER FILM CAPACITOR 100,00 nF 100V 5,0 %
C559	ECWH16752JVB	ECWH16822JVB	ECWH16822JVB	RADIAL POLYPROPILENE CAPACITOR 8,20 nF 1.600V 5,0 %
C560	ECQM4223JZW	ECQM4273JZW	ECQM4273JZW	RADIAL POLYESTER FILM CAPACITOR 27,00 nF 400V 5,0 %
C561	ECKW3D471JBR	- - - - - O - - - - -	- - - - - O - - - - -	RADIAL CERAMIC CAPACITOR 0,47 nF 2.000V 5,0 %
C561	- - - - - O - - - - -	ECKW3D681JBR	ECKW3D681JBR	RADIAL CERAMIC CAPACITOR 0,68 nF 2.000V 5,0 %
C562	ECKW3D821JBR	ECKW3D821JBR	ECKW3D821JBR	RADIAL CERAMIC CAPACITOR 0,82 nF 2.000V 5,0 %
C563	ECWF2224JBB	- - - - - O - - - - -	- - - - - O - - - - -	RADIAL POLYPROPILENE CAPACITOR 220,00 nF 250V 5,0 %
C563	- - - - - O - - - - -	ECWF2394JSR	ECWF2394JSR	RADIAL POLYPROPILENE CAPACITOR 390,00 nF 250V 5,0 %
C565	ECQP1H183JZW	ECQP1H183JZW	ECQP1H183JZW	RADIAL POLYPROPILENE CAPACITOR 18,00 nF 50V 5,0 %
C570	ECJ2VC1H330J	ECJ2VC1H330J	ECJ2VC1H330J	SMD CAPACITOR 33,00 PF 50V 5,0 % NP0
C580	F2A1H220A182	F2A1H220A182	F2A1H220A182	RADIAL POLAR ELECTROLYTICAL CAPACITOR 22,00 µF 50V
C581	ECQV1H105JL3	ECQV1H105JL3	ECQV1H105JL3	RADIAL POLYESTER FILM CAPACITOR 1,00 µF 50V 5,0 %
C601	ECEA1CKA101B	ECEA1CKA101B	ECEA1CKA101B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C602	ECJ2YB1H104K	ECJ2YB1H104K	ECJ2YB1H104K	SMD CAPACITOR 100,00 nF 50V 10,0 %
C603	ECJ2VB1H472K	ECJ2VB1H472K	ECJ2VB1H472K	SMD CAPACITOR 4.700,00 PF 50V 10,0 %
C604	ECQV1H224JL3	ECQV1H224JL3	ECQV1H224JL3	RADIAL POLYESTER FILM CAPACITOR 220,00 nF 50V 5,0 %

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
C605	ECQV1H224JL3	ECQV1H224JL3	ECQV1H224JL3	RADIAL POLYESTER FILM CAPACITOR 220,00 nF 50V 5,0 %
C606	ECJ2VC1H222J	ECJ2VC1H222J	ECJ2VC1H222J	SMD CAPACITOR 2.200,00 PF 50V 5,0 % NPO
C607	ECEA1HKA010B	ECEA1HKA010B	ECEA1HKA010B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1,00 µF 50V
C608	ECEA1HKA100B	ECEA1HKA100B	ECEA1HKA100B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 50V
C609	ECJ2YB1H104K	ECJ2YB1H104K	ECJ2YB1H104K	SMD CAPACITOR 100,00 nF 50V 10,0 %
C610	ECJ2VB1H103J	ECJ2VB1H103J	ECJ2VB1H103J	SMD CAPACITOR 10,00 nF 50V 5,0 %
C611	ECEA1HKAR22B	ECEA1HKAR22B	ECEA1HKAR22B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 0,22 µF 50V
C612	ECJ2VB1H472K	ECJ2VB1H472K	ECJ2VB1H472K	SMD CAPACITOR 4.700,00 PF 50V 10,0 %
C613	ECJ2VB1H472K	ECJ2VB1H472K	ECJ2VB1H472K	SMD CAPACITOR 4.700,00 PF 50V 10,0 %
C614	ECQV1H104JL3	ECQV1H104JL3	ECQV1H104JL3	RADIAL POLYESTER FILM CAPACITOR 100,00 nF 50V 5,0 %
C615	ECQV1H224JL3	ECQV1H224JL3	ECQV1H224JL3	RADIAL POLYESTER FILM CAPACITOR 220,00 nF 50V 5,0 %
C618	F1B1H681A130	F1B1H681A130	F1B1H681A130	RADIAL CERAMIC CAPACITOR 680,00 PF 50V 10,0 %
C619	ECQV1H104JL3	ECQV1H104JL3	ECQV1H104JL3	RADIAL POLYESTER FILM CAPACITOR 100,00 nF 50V 5,0 %
C620	ECJ2VC1H470J	ECJ2VC1H470J	ECJ2VC1H470J	SMD CAPACITOR 47,00 PF 50V 5,0 % NP0
C621	ECJ2VB1H471K	ECJ2VB1H471K	ECJ2VB1H471K	SMD CAPACITOR 470,00 PF 50V 10,0 %
C622	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C623	ECJ2VC1H470J	ECJ2VC1H470J	ECJ2VC1H470J	SMD CAPACITOR 47,00 PF 50V 5,0 % NP0
C625	ECEA0JN221UB	ECEA0JN221UB	ECEA0JN221UB	BIPOLAR RADIAL ELETROLITYCAL CAPACITOR 220,00 µF 6,3 V
C628	ECJ2YB1H473K	ECJ2YB1H473K	ECJ2YB1H473K	SMD CAPACITOR 47,00 nF 50V 10,0 %
C631	ECJ2VB1H222K	ECJ2VB1H222K	ECJ2VB1H222K	SMD CAPACITOR 2.200,00 PF 50V 10,0 %
C632	ECJ2VB1H392K	ECJ2VB1H392K	ECJ2VB1H392K	SMD CAPACITOR 3.900,00 PF 50V 10,0 %
C633	ECJ2VF1C105Z	ECJ2VF1C105Z	ECJ2VF1C105Z	SMD CAPACITOR 1,00 µF 16V +80 -20%
C636	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C640	F2A1C100A180	F2A1C100A180	F2A1C100A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C641	ECJ2VC1H100C	ECJ2VC1H100C	ECJ2VC1H100C	SMD CAPACITOR 10,00 PF 50V NP0
C670	F2A1C100A180	F2A1C100A180	F2A1C100A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C680	ECJ2YB1H473K	ECJ2YB1H473K	ECJ2YB1H473K	SMD CAPACITOR 47,00 nF 50V 10,0 %
C685	ECJ2VC1H101J	ECJ2VC1H101J	ECJ2VC1H101J	SMD CAPACITOR 100,00 PF 50V 5,0 %
C687	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C689	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C801	ECQU2A224BN9	ECQU2A224BN9	ECQU2A224BN9	RADIAL POLYPROPILENE CAPACITOR 220,00 nF 100V
C806	ECKWAE472ZED	ECKWAE472ZED	ECKWAE472ZED	RADIAL CERAMIC CAPACITOR 4,70 nF 250V +80 -20 %
C807	ECKWAE472ZED	ECKWAE472ZED	ECKWAE472ZED	RADIAL CERAMIC CAPACITOR 4,70 nF 250V +80 -20 %
C808	ECKWAE472ZED	ECKWAE472ZED	ECKWAE472ZED	RADIAL CERAMIC CAPACITOR 4,70 nF 250V +80 -20 %
C809	ECKWAE472ZED	ECKWAE472ZED	ECKWAE472ZED	RADIAL CERAMIC CAPACITOR 4,70 nF 250V +80 -20 %
C810	EETHC2G221C:	EETHC2G221C:	EETHC2G221C:	RADIAL POLAR ELECTROLYTICAL CAPACITOR 220,00 µF 400V
C811	ECQM4473JZW	ECQM4473JZW	ECQM4473JZW	RADIAL POLYESTER FILM CAPACITOR 47,00 nF 400V 5,0 %
C816	F2A1H330A115	F2A1H330A115	F2A1H330A115	RADIAL POLAR ELECTROLYTICAL CAPACITOR 33,00 µF 50V
C819	F2A1H1R00053	F2A1H1R00053	F2A1H1R00053	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1,00 µF 50V
C821	ECKW3D471JBR	ECKW3D471JBR	ECKW3D471JBR	RADIAL CERAMIC CAPACITOR 0,47 nF 2.000V 5,0 %
C822	ECKW3D331JBR	ECKW3D331JBR	ECKW3D331JBR	RADIAL CERAMIC CAPACITOR 330,00 PF 2.000V 5,0 %
C825	ECQB1H471JF3	ECQB1H471JF3	ECQB1H471JF3	RADIAL POLYESTER FILM CAPACITOR 470,00 PF 50V 5,0 %
C826	F0A1H103A039	F0A1H103A039	F0A1H103A039	RADIAL POLYPROPILENE CAPACITOR 0,01 µF 50V 5,0 %
C827	ECQV1H184JL3	ECQV1H184JL3	ECQV1H184JL3	RADIAL POLYESTER FILM CAPACITOR 180,00 nF 50V 5,0 %
C830	ECQB1H561JF3	ECQB1H102JF3	ECQB1H102JF3	RADIAL POLYESTER FILM CAPACITOR 1,00 nF 50V 5,0 %
C840	ECKCNA152ME7	ECKCNA152ME7	ECKCNA152ME7	RADIAL CERAMIC CAPACITOR 1,50 nF 4.000V
C844	ECKCNA102MB7	ECKCNA102MB7	ECKCNA102MB7	RADIAL CERAMIC CAPACITOR 1,00 nF 4.000V
C846	ECKCNA102MB7	ECKCNA102MB7	ECKCNA102MB7	RADIAL CERAMIC CAPACITOR 1,00 nF 4.000V
C850	ECJ2VF1H224Z	ECJ2VF1H224Z	ECJ2VF1H224Z	SMD CAPACITOR 220,00 nF 50V +80 -20 %
C853	F1B2H561A025	F1B2H561A025	F1B2H561A025	RADIAL CERAMIC CAPACITOR 560,00 PF 500V 10,0 %
C854	ECKW3D122KBP	ECKW3D122KBP	ECKW3D122KBP	RADIAL CERAMIC CAPACITOR 1,20 nF 2.000V 10,0 %
C855	F1B2H331A025	F1B2H331A025	F1B2H331A025	RADIAL CERAMIC CAPACITOR 330,00 PF 500V 10,0 %
C862	ECA1CHG332E	ECA1CHG332E	ECA1CHG332E	RADIAL POLAR ELECTROLYTICAL CAPACITOR 3.300,00 µF 16V
C863	F2A2C221A021	F2A2C221A021	F2A2C221A021	RADIAL POLAR ELECTROLYTICAL CAPACITOR 220,00 µF 160V
C864	F2A1C102A116	F2A1C102A116	F2A1C102A116	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1.000,00 µF 16V
C875	F2A1E1010056	F2A1E1010056	F2A1E1010056	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 25V
C876	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C877	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V

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C879	ECQV1H104JL3	ECQV1H104JL3	ECQV1H104JL3	RADIAL POLYESTER FILM CAPACITOR 100,00 nF 50V 5,0 %
C880	F2A1C1020049	F2A1C1020049	F2A1C1020049	RADIAL POLAR ELECTROLYTICAL CAPACITOR 1.000,00 µF 16V
C881	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C882	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C883	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C971	ECJ2VF1H103Z	ECJ2VF1H103Z	ECJ2VF1H103Z	SMD CAPACITOR 10,00 nF 50V +80 -20 %
C1101	ECJ2VF1H103Z	ECJ2VF1H103Z	ECJ2VF1H103Z	SMD CAPACITOR 10,00 nF 50V +80 -20 %
C1103	ECJ2VC1H331J	ECJ2VC1H331J	ECJ2VC1H331J	SMD CAPACITOR 330,00 PF 50V 5,0 % NP0
C1104	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C1105	ECJ2VF1H103Z	ECJ2VF1H103Z	ECJ2VF1H103Z	SMD CAPACITOR 10,00 nF 50V +80 -20 %
C1125	ECEA1CKA100B	ECEA1CKA100B	ECEA1CKA100B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C1130	ECJ2VC1H560J	ECJ2VC1H560J	ECJ2VC1H560J	SMD CAPACITOR 56,00 PF 50V 5,0 % NP0
C1131	F2A0J221A181	F2A0J221A181	F2A0J221A181	RADIAL POLAR ELECTROLYTICAL CAPACITOR 220,00 µF 6,3 V
C1132	ECJ2VC1H560J	ECJ2VC1H560J	ECJ2VC1H560J	SMD CAPACITOR 56,00 PF 50V 5,0 % NP0
C1140	ECEA1CKA101B	ECEA1CKA101B	ECEA1CKA101B	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C1141	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C1142	ECJ2VF1H104Z	ECJ2VF1H104Z	ECJ2VF1H104Z	SMD CAPACITOR 100,00 nF 50V +80 -20 %
C2302	F2A1E471A151	F2A1E471A151	F2A1E471A151	RADIAL POLAR ELECTROLYTICAL CAPACITOR 470,00 µF 25V
C2303	F2A1C100A180	F2A1C100A180	F2A1C100A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C2304	ECEA1HKN010B	ECEA1HKN010B	ECEA1HKN010B	BIPOLAR RADIAL ELETROLITYCAL CAPACITOR 1,00 µF 50V
C2305	ECEA1HKN010B	ECEA1HKN010B	ECEA1HKN010B	BIPOLAR RADIAL ELETROLITYCAL CAPACITOR 1,00 µF 50V
C2306	F2A1H220A182	F2A1H220A182	F2A1H220A182	RADIAL POLAR ELECTROLYTICAL CAPACITOR 22,00 µF 50V
C2380	F2A1C101A180	F2A1C101A180	F2A1C101A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 100,00 µF 16V
C2381	F2A1C100A180	F2A1C100A180	F2A1C100A180	RADIAL POLAR ELECTROLYTICAL CAPACITOR 10,00 µF 16V
C3020	ECJ2VC1H561K	ECJ2VC1H561K	ECJ2VC1H561K	SMD CAPACITOR 560,00 PF 50V 10,0 % NP0
C3173	ECJ2VF1C105Z	ECJ2VF1C105Z	ECJ2VF1C105Z	SMD CAPACITOR 1,00 µF 16V +80 -20%
DIODES				
D002	B0BA01700031	B0BA01700031	B0BA01700031	ZENER DIODE 17V 0,5 W 5mA RZ = 20W
D003	B0BA01500036	B0BA01500036	B0BA01500036	ZENER DIODE 15V 0,5 W 5mA RZ = 40W
D011	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D354	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D355	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D356	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D360	B0HAGP000003	B0HAGP000003	B0HAGP000003	AXIAL RECTIFIER DIODE 400V 0,5 A
D361	B0HAGP000003	B0HAGP000003	B0HAGP000003	AXIAL RECTIFIER DIODE 400V 0,5 A
D362	B0HAGP000003	B0HAGP000003	B0HAGP000003	AXIAL RECTIFIER DIODE 400V 0,5 A
D363	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D365	B0BA9R900005	B0BA9R900005	B0BA9R900005	ZENER DIODE 9,9 V 0,5 W 5mA
D375	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D402	B0HAHM000008	B0HAHM000008	B0HAHM000008	AXIAL RECTIFIER DIODE 200V 0,6 A
D511	MAZ4108J0F	MAZ4108J0F	MAZ4108J0F	AXIAL ZENER DIODE 10,8 V 0,37 W 250mA
D512	MA2B17100E	MA2B17100E	MA2B17100E	AXIAL DIODE 200mA VRM=80V; VFM=1,0
D513	B0HAJP000015	B0HAJP000015	B0HAJP000015	AXIAL RECTIFIER DIODE 400V 0,7 A
D515	B0HAJP000015	B0HAJP000015	B0HAJP000015	AXIAL RECTIFIER DIODE 400V 0,7 A
D520	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D551	MAZ30470HL	MAZ30470HL	MAZ30470HL	SMD ZENER DIODE 4,9 V 0,2 W 5mA VZ= 4,74 ~ 4,99 V @ IZ=5MA
D552	B0HAJP000015	B0HAJP000015	B0HAJP000015	AXIAL RECTIFIER DIODE 400V 0,7 A
D555	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D556	B0EAKV000008	B0EAKV000008	B0EAKV000008	AXIAL RECTIFIER DIODE 1.000V 1,0 A VFM=1,2V
D557	RU2AMV1	RU2AMV1	RU2AMV1	AXIAL RECTIFIER DIODE 600V 1,1 A
D558	MA2C18500E	MA2C18500E	MA2C18500E	AXIAL DIODE 200V 200mA
D580	B0BA03100002	B0BA03100002	B0BA03100002	ZENER DIODE 31V 0,5 W 5mA RZ = 40W
D581	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D582	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D583	MA3X152E0L	MA3X152E0L	MA3X152E0L	SMD SWITCHING DIODE 80V 100mA
D584	MAZ30560HL	MAZ30560HL	MAZ30560HL	SMD ZENER DIODE 5,8 V 0,2 W 5mA VZ=5,66 ~ 5,95 V @ IZ=5MA
D585	B0BA3R900006	B0BA3R900006	B0BA3R900006	ZENER DIODE 3,9 V 0,5 W 20mA
D586	B0ACCK000005	B0ACCK000005	B0ACCK000005	SMD SWITCHING DIODE 90V 100mA

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D630	MAZ30560HL	MAZ30560HL	MAZ30560HL	ZENER DIODE SMD 5,8 V 0,2 W 5mA VZ=5,66 ~ 5,95 V @ IZ=5MA
D801	ERZV10V621CS	ERZV10V621CS	ERZV10V621CS	VARISTOR
D803	B0EBNT000002	B0EBNT000002	B0EBNT000002	AXIAL RECTIFIER DIODE 800V 4,0 A
D804	TAP4GA0005	TAP4GA0005	TAP2B0001	POSISTOR 7W 3 PINS
D810	B0EAKT000019	B0EAKT000019	B0EAKT000019	AXIAL RECTIFIER DIODE 800V 1,0 A TAPING : 52MM
D817	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D820	MAZ20820A0LS	MAZ20820A0LS	MAZ20820A0LS	ZENER DIODE 8V 1/2 W RZ < 10W
D821	MAZ20750A0LS	MAZ20750A0LS	MAZ20750A0LS	ZENER DIODE 7,2 V 1/2 W RZ < 10W
D823	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D824	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D825	B0BA6R100003	B0BA6R100003	B0BA6R100003	ZENER DIODE 6,1 V 0,5 W 5mA
D830	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D831	B0BA02400029	B0BA02400029	B0BA02400029	ZENER DIODE 24V 0,5 W 5mA RZ = 20W
D853	B0HAMM000101	B0HAMM000101	B0HAMM000101	DIODO RETIFICADOR 200V 1,5 A
D854	B0HAPV000009	B0HAPV000009	B0HAPV000009	AXIAL RECTIFIER DIODE 1.000V 3,0 A
D855	B0HFRJ000012	B0HFRJ000012	B0HFRJ000012	RECTIFIER DIODE 80V 5,0 A
D856	B0BA7R500006	B0BA7R500006	B0BA7R500006	ZENER DIODE 7,5 V 1/2 W 5mA ENFITADO / RZ = 10W
D860	B3PAA0000135	B3PAA0000135	B3PAA0000135	PHOTO COUPLER DIODE
D862	B0BA2R100003	B0BA2R100003	B0BA2R100003	ZENER DIODE 2,1 V 0,5 W 5mA RZ = 20W
D863	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D865	B0BA3R500006	B0BA3R500006	B0BA3R500006	ZENER DIODE 3,5 V 0,5 W 5mA
D870	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D871	B0HAJL000001	B0HAJL000001	B0HAJL000001	AXIAL RECTIFIER DIODE 100V 0,7 A
D1105	B0BA7R500006	B0BA7R500006	B0BA7R500006	ZENER DIODE 7,5 V 1/2 W 5mA ENFITADO / RZ = 10W
D1120	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D1130	B0BA5R700008	B0BA5R700008	B0BA5R700008	ZENER DIODE 5,7 V 0,5 W 5mA VZ=5.61~5.91V / RZ = 40W
D1131	B0BA5R700008	B0BA5R700008	B0BA5R700008	ZENER DIODE 5,7 V 0,5 W 5mA VZ=5.61~5.91V / RZ = 40W
D1132	B0BA5R400008	B0BA5R400008	B0BA5R400008	ZENER DIODE 5,4 V 1/2 W 5mA RZ = 40W
D1140	B0BA5R600016	B0BA5R600016	B0BA5R600016	ZENER DIODE 5,6 V 0,5 W 5mA RZ = 100W
D1151	EL3331D/S928	EL3331D/S928	EL3331D/S928	LED (RED / GREEN) 40mA 5mm
D2380	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D2381	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
D2382	MA3X152K0L	MA3X152K0L	MA3X152K0L	SMD SWITCHING DIODE 80V 100mA
INTEGRATED CIRCUITS				
IC351	TDA6107JF/N3	TDA6107JF/N3	TDA6107JF/N3	RGB OUT IC
IC451	AN5522	AN5522	AN5522	BIPOLAR PTH IC
IC601	TDA9590H/N2	TDA9590H/N2	TDA9590H/N2	UOC PHILIPS
IC801	C5HABZZ00116	C5HABZZ00116	C5HABZZ00116	MOSFET PTH 22KHz IC
IC802	C0EAS0000026	C0EAS0000026	C0EAS0000026	10V VOLTAGE DETECTOR IC
IC851	C0DAAHF00005	C0DAAHF00005	C0DAAHF00005	VOLTAGE REGULATOR IC - VOUT 5 V IOUT 0,75A
IC880	AN78L05-TA	AN78L05-TA	AN78L05-TA	REGULATOR IC
IC1103	C3EBFC000021	C3EBFC000021	C3EBFC000021	SMD EEPROM MEMORY
IC1104	B3RAD0000012	B3RAD0000012	B3RAD0000012	REMOCON RECEPTOR IC
IC1201	C0CBABC00037	C0CBABC00037	C0CBABC00037	SMD VOLTAGE REGULATOR VOUT 3V, VIN 4~15V
IC2301	AN7523N	AN7523N	AN7523N	PTH AMP IC
CONNECTORS				
A12	BJP11V04-AP	BJP11V04-AP	BJP11V04-AP	CONNECTOR 4 PINS
A22	- - - - - O - - - - -	B02B-XASS-1-T	B02B-XASS-1-T	CONNECTOR 2PINS (JST)
A5-L5	TXAJTA5CB14A12	TXAJTA5CB14A12	TXAJTA5CB14A12	CONNECTOR 6 PIN
A8-L8	TXAJTA8CB20A12	TXAJTA8CB29K	TXAJTA8CB29K	CONNECTOR 6 PIN
JK351	330620065	330550044K2F	330550044K2F	CRT SOCKET
JK3002	K4BC03B00021	K4BC03B00021	K4BC03B00021	REAR AV TERMINAL - MONO 3 PINS RCA
COILS				
L001	G0C100K00008	G0C100K00008	G0C100K00008	RADIAL SHOCK COIL 10,00 µH 10,0 % I=0,4A
L002	EXC3BB221H	EXC3BB221H	EXC3BB221H	SMD BEAD CORE Z=200W(100MHZ); I= 0,2 A
L182	TALV35VB6R8K	TALV35VB6R8K	TALV35VB6R8K	AXIAL PIC SHOCK COIL 6,80 µH I=0,4A
L352	J0JKA0000022	J0JKA0000022	J0JKA0000022	AXIAL BEAD CORE I=6 A / Z= 60W(100MHZ)
L401	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE

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L501	- - - - - O - - - - -	ELH5L4101Z	ELH5L4101Z	LINEARITY COIL
L502	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L510	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L511	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L550	J0JKB0000038	J0JKB0000038	J0JKB0000038	AXIAL BEAD CORE I=6 A / Z= 100W(100MHZ)
L602	J0JKA0000024	J0JKA0000024	J0JKA0000024	AXIAL BEAD CORE I=6 A / Z= 100W(100MHZ)
L603	J0JKA0000024	J0JKA0000024	J0JKA0000024	AXIAL BEAD CORE I=6 A / Z= 100W(100MHZ)
L605	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L606	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L607	J0JKB0000034	J0JKB0000034	J0JKB0000034	RADIAL SHOCK COIL I = 6 A / Z=100W (100MHZ)
L620	J0JCC0000009	J0JCC0000009	J0JCC0000009	SMD BEAD CORE 200MA, 2,25KOhm
L801	ELF21V012S	ELF21V012S	ELF21V012S	LINE FILTER 25,00 mH
L820	EXCELSA39E	EXCELSA39E	EXCELSA39E	RADIAL BEAD CORE Z=80W(100 MHZ); I=6A
L821	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L852	EXCELSA35B	EXCELSA35B	EXCELSA35B	RADIAL BEAD CORE Z=40W(100MHZ); I=6A
L853	EXCELSA39E	EXCELSA39E	EXCELSA39E	RADIAL BEAD CORE Z=80W(100 MHZ); I=6A
L854	EXCELSA35B	EXCELSA35B	EXCELSA35B	RADIAL BEAD CORE Z=40W(100MHZ); I=6A
L862	G0C1R5KA0030	G0C1R5KA0030	G0C1R5KA0030	RADIAL SHOCK COIL 1,50 µH 10,0 %
L871	G0C1R5KA0030	G0C1R5KA0030	G0C1R5KA0030	RADIAL SHOCK COIL 1,50 µH 10,0 %
L872	G0C1R5KA0030	G0C1R5KA0030	G0C1R5KA0030	RADIAL SHOCK COIL 1,50 µH 10,0 %
L873	EXCELSA39V	EXCELSA39V	EXCELSA39V	AXIAL BEAD CORE Z=80W(100MHZ); I=6A
L1101	TALV35VB331K	TALV35VB331K	TALV35VB331K	AXIAL PIC SHOCK COIL 330,00 µH I=0,4A
L1110	EXCELSA35T	EXCELSA35T	EXCELSA35T	AXIAL BEAD CORE
L3016	J0JKA0000024	J0JKA0000024	J0JKA0000024	AXIAL BEAD CORE I=6 A / Z= 100W(100MHZ)
L3137	J0JKA0000024	J0JKA0000024	J0JKA0000024	AXIAL BEAD CORE I=6 A / Z= 100W(100MHZ)
TRANSISTORS				
Q001	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q369	2SB0709A0L	2SB0709A0L	2SB0709A0L	SWITCHING TRANSISTOR SMD PNP 0,2 W 45V 100mA
Q501	2SC4212H00LB	2SC4212H00LB	2SC4212H00LB	POWER TRANSISTOR NPN 1 W 300V
Q520	2SB792ATX	2SB792ATX	2SB792ATX	TRANSISTOR SMD PNP 0,2 W 185V 50mA HFE = 100 ~ 200
Q551	2SC5902000LK	2SC5902000LK	2SC5902000LK	TRANSISTOR BIPOLAR NPN 1.000V 8,0 A
Q580	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q581	2SB0709A0L	2SB0709A0L	2SB0709A0L	SWITCHING TRANSISTOR SMD PNP 0,2 W 45V 100mA
Q601	2SB0709A0L	2SB0709A0L	2SB0709A0L	SWITCHING TRANSISTOR SMD PNP 0,2 W 45V 100mA
Q602	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q852	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q857	2SC54190RA	2SC54190RA	2SC54190RA	BIPOLAR TRANSISTOR NPN 1 W 187V 70mA
Q870	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q871	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q1052	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q1053	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q1110	2SB0709A0L	2SB0709A0L	2SB0709A0L	SWITCHING TRANSISTOR SMD PNP 0,2 W 45V 100mA
Q2380	B1ABCE000005	B1ABCE000005	B1ABCE000005	SMD TRANSISTOR NPN 0,2W 200mA
Q2381	2SB0709A0L	2SB0709A0L	2SB0709A0L	SWITCHING TRANSISTOR SMD PNP 0,2 W 45V 100mA
RESISTORS				
R003	ERJ6GEYJ100V	ERJ6GEYJ100V	ERJ6GEYJ100V	SMD RESISTOR 10,00 Ohm 1/8 W 5,0 %
R004	ERG3FJ183H	ERG3FJ183H	ERG3FJ183H	METALIC RESISTOR 18,00 kOhm 3 W 5,0 %
R006	ERJ6GEYJ273V	ERJ6GEYJ273V	ERJ6GEYJ273V	SMD RESISTOR 27,00 kOhm 1/8 W 5,0 %
R007	ERJ6GEYJ472V	ERJ6GEYJ472V	ERJ6GEYJ472V	SMD RESISTOR 4,70 kOhm 1/8 W 5,0 %
R008	ERJ6GEYJ681V	ERJ6GEYJ681V	ERJ6GEYJ681V	SMD RESISTOR 680,00 Ohm 1/8 W 5,0 %
R011	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R012	ERJ6GEYJ332V	ERJ6GEYJ332V	ERJ6GEYJ332V	SMD RESISTOR 3,30 kOhm 1/8 W 5,0 %
R021	ERJ6GEYJ273V	ERJ6GEYJ273V	ERJ6GEYJ273V	SMD RESISTOR 27,00 kOhm 1/8 W 5,0 %
R022	ERJ6GEYJ473V	ERJ6GEYJ473V	ERJ6GEYJ473V	SMD RESISTOR 47,00 kOhm 1/8 W 5,0 %
R121	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
R122	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
R182	ERJ6GEYJ221V	ERJ6GEYJ221V	ERJ6GEYJ221V	SMD RESISTOR 220,00 Ohm 1/8 W 5,0 %

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
R190	ERJ6GEYJ391V	ERJ6GEYJ391V	ERJ6GEYJ391V	SMD RESISTOR 390,00 Ohm 1/8 W 5,0 %
R351	ERJ6ENF1001V	ERJ6ENF1001V	ERJ6ENF1001V	SMD RESISTOR 1,00 kOhm 1/10 W 1,0 %
R352	ERJ6ENF1001V	ERJ6ENF1001V	ERJ6ENF1001V	SMD RESISTOR 1,00 kOhm 1/10 W 1,0 %
R353	ERJ6ENF1001V	ERJ6ENF1001V	ERJ6ENF1001V	SMD RESISTOR 1,00 kOhm 1/10 W 1,0 %
R354	ERJ6ENF7870V	ERJ6ENF7870V	ERJ6ENF7870V	SMD RESISTOR 787,00 Ohm 1/10 W 1,0 %
R355	ERJ6ENF7870V	ERJ6ENF7870V	ERJ6ENF7870V	SMD RESISTOR 787,00 Ohm 1/10 W 1,0 %
R356	ERJ6ENF7870V	ERJ6ENF7870V	ERJ6ENF7870V	SMD RESISTOR 787,00 Ohm 1/10 W 1,0 %
R363	ERC12GK222V	ERC12GK222V	ERC12GK222V	AXIAL RESISTOR 2,20 kOhm 1/2 W 10,0 %
R364	ERC12GK222V	ERC12GK222V	ERC12GK222V	AXIAL RESISTOR 2,20 kOhm 1/2 W 10,0 %
R365	ERC12GK222V	ERC12GK222V	ERC12GK222V	AXIAL RESISTOR 2,20 kOhm 1/2 W 10,0 %
R369	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R374	ERQ12AJ181P	ERQ12AJ181P	ERQ12AJ181P	FUSISTOR 180,00 Ohm 1/2 W 5,0 %
R401	ERDS2TJ104T	ERDS2TJ104T	ERDS2TJ104T	AXIAL RESISTOR 100,00 kOhm 1/4 W 5,0 %
R403	ER0S2THF2491	ER0S2THF2491	ER0S2THF2491	AXIAL RESISTOR 2,49 kOhm 1/4 W 1,0 % 50PPM/C
R404	ERDS2TJ751T	ERDS2TJ751T	ERDS2TJ751T	AXIAL RESISTOR 750,00 Ohm 1/4 W 5,0 %
R405	ER0S2THF2701	ER0S2THF2701	ER0S2THF2701	AXIAL RESISTOR 2,70 kOhm 1/4 W 1,0 % 50PPM/C
R406	ERDS1FJ1R0T	ERDS1FJ1R0T	ERDS1FJ1R0T	AXIAL RESISTOR 1,00 Ohm 1/2 W 5,0 %
R407	ERG2FJ331H	ERG2FJ331H	ERG2FJ331H	METALIC RESISTOR 330,00 Ohm 2 W 5,0 %
R408	ERD25V0R00T	ERD25V0R00T	ERD25V0R00T	CARBON RESISTOR 0,00 Ohm 1/4 W
R411	ERDS2TJ202T	ERDS2TJ202T	ERDS2TJ202T	AXIAL RESISTOR 2,00 kOhm 1/4 W 5,0 %
R412	ERDS2TJ332T	ERDS2TJ332T	ERDS2TJ332T	AXIAL RESISTOR 3,30 kOhm 1/4 W 5,0 %
R413	ERDS2TJ431T	ERDS2TJ431T	ERDS2TJ431T	AXIAL RESISTOR 430,00 Ohm 1/4 W 5,0 %
R415	ERDS2TJ431T	ERDS2TJ431T	ERDS2TJ431T	AXIAL RESISTOR 430,00 Ohm 1/4 W 5,0 %
R416	ERDS1TJ1R8T	- - - - - O - - - - -	- - - - - O - - - - -	CARBON RESISTOR 1,80 Ohm 1/2 W 5,0 %
R416	- - - - - O - - - - -	ERDS1TJ1R2T	ERDS1TJ1R2T	AXIAL RESISTOR 1,20 Ohm 1/2 W 5,0 %
R417	ERDS1TJ1R2T	ERDS1TJ1R2T	ERDS1TJ1R2T	AXIAL RESISTOR 1,20 Ohm 1/2 W 5,0 %
R502	ERJ6GEYJ182V	ERJ6GEYJ182V	ERJ6GEYJ182V	SMD RESISTOR 1,80 kOhm 1/8 W 5,0 %
R503	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
R504	ERG2SJ682E	ERG2SJ682E	ERG2SJ682E	RADIAL RESISTOR 6,80 kOhm 2 5,0 %
R507	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R508	ERG3FJ182H	- - - - - O - - - - -	- - - - - O - - - - -	RESISTOR FILME METÁLICO 1,80 kOhm 3 W 5,0 %
R508	- - - - - O - - - - -	ERG3FJ152H	ERG3FJ152H	METALIC RESISTOR 1,50 kOhm 3 W 5,0 %
R509	ERG3FJ182H	ERG3FJ182H	ERG3FJ182H	METALIC RESISTOR 1,80 kOhm 3 W 5,0 %
R511	ERJ6ENF1072V	ERJ6ENF1072V	ERJ6ENF1072V	SMD RESISTOR 10,70 kOhm 1/10 W 1,0 %
R512	ERJ6ENF1152V	ERJ6ENF1152V	ERJ6ENF1152V	SMD RESISTOR 11,50 kOhm 1/10 W 1,0 %
R513	ERQ14AJ100E	ERQ14AJ100E	ERQ14AJ100E	RADIAL FUSISTOR 10,00 Ohm 1/4 W 5,0 %
R520	ERQ12AJ6R8E	- - - - - O - - - - -	- - - - - O - - - - -	RADIAL FUSISTOR 6,80 Ohm 1/2 W 5,0 %
R520	- - - - - O - - - - -	ERQ12AJ2R7E	ERQ12AJ2R7E	RADIAL FUSISTOR 2,70 Ohm 1/2 W 5,0 %
R521	ERQ12AJ6R8E	- - - - - O - - - - -	- - - - - O - - - - -	RADIAL FUSISTOR 6,80 Ohm 1/2 W 5,0 %
R521	- - - - - O - - - - -	ERQ12AJ2R7E	ERQ12AJ2R7E	RADIAL FUSISTOR 2,70 Ohm 1/2 W 5,0 %
R522	ERJ6GEYJ273V	ERJ6GEYJ123V	ERJ6GEYJ123V	SMD RESISTOR 12,00 kOhm 1/8 W 5,0 %
R523	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R524	ERJ6GEYJ104V	ERJ6GEYJ104V	ERJ6GEYJ104V	SMD RESISTOR 100,00 kOhm 1/8 W 5,0 %
R525	ERJ6GEYJ392V	ERJ6GEYJ392V	ERJ6GEYJ392V	SMD RESISTOR 3,90 kOhm 1/8 W 5,0 %
R553	ERJ6GEYJ223V	ERJ6GEYJ223V	ERJ6GEYJ223V	SMD RESISTOR 22,00 kOhm 1/8 W 5,0 %
R555	ERQ14AJ2R0P	ERQ14AJ2R0P	ERQ14AJ2R0P	FUSISTOR 2,00 Ohm 1/4 W 5,0 %
R556	ER050PKF5603	ER050PKF5603	ER050PKF5603	AXIAL RESISTOR 560,00 kOhm 1/2 W 1,0 %
R557	ER050PKF1743	ER050PKF1473	ER050PKF1473	AXIAL RESISTOR 147,00 kOhm 1/2 W 1,0 %
R558	ERDS2TJ223T	ERDS2TJ223T	ERDS2TJ223T	AXIAL RESISTOR 22,00 kOhm 1/4 W 5,0 %
R559	ERQ1CJP2R7S	ERQ1CJP2R7S	ERQ1CJP2R7S	FUSISTOR AXIAL 2,70 Ohm 1 W 5,0 %
R560	- - - - - O - - - - -	ERG1SJ102E	ERG1SJ102E	RADIAL RESISTOR 1,00 kOhm 1 W 5,0 %
R580	ERJ6GEYJ392V	ERJ6GEYJ392V	ERJ6GEYJ392V	SMD RESISTOR 3,90 kOhm 1/8 W 5,0 %
R581	ERJ6GEYJ183V	ERJ6GEYJ183V	ERJ6GEYJ183V	SMD RESISTOR 18,00 kOhm 1/8 W 5,0 %
R582	ERJ6GEYJ154V	ERJ6GEYJ154V	ERJ6GEYJ154V	SMD RESISTOR 150,00 kOhm 1/8 W 5,0 %
R583	ERJ6GEYJ274V	ERJ6GEYJ274V	ERJ6GEYJ274V	SMD RESISTOR 270,00 kOhm 1/8 W 5,0 %
R584	ERJ6GEYJ563V	ERJ6GEYJ563V	ERJ6GEYJ563V	SMD RESISTOR 56,00 kOhm 1/8 W 5,0 %
R585	ERJ6GEYJ272V	ERJ6GEYJ272V	ERJ6GEYJ272V	SMD RESISTOR 2,70 kOhm 1/8 W 5,0 %
R586	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
R587	ERJ6GEYJ823V	ERJ6GEYJ823V	ERJ6GEYJ823V	SMD RESISTOR 82,00 kOhm 1/8 W 5,0 %
R588	ERJ6GEYJ104V	ERJ6GEYJ104V	ERJ6GEYJ104V	SMD RESISTOR 100,00 kOhm 1/8 W 5,0 %
R589	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R590	ERJ6GEYJ333V	ERJ6GEYJ333V	ERJ6GEYJ333V	SMD RESISTOR 33,00 kOhm 1/8 W 5,0 %
R591	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R592	ERJ6GEYJ222V	ERJ6GEYJ222V	ERJ6GEYJ222V	SMD RESISTOR 2,20 kOhm 1/8 W 5,0 %
R593	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R594	ERJ6GEYJ104V	ERJ6GEYJ104V	ERJ6GEYJ104V	SMD RESISTOR 100,00 kOhm 1/8 W 5,0 %
R601	ERJ6GEYJ153V	ERJ6GEYJ153V	ERJ6GEYJ153V	SMD RESISTOR 15,00 kOhm 1/8 W 5,0 %
R603	ERJ6GEYJ393V	ERJ6GEYJ393V	ERJ6GEYJ393V	SMD RESISTOR 39,00 kOhm 1/8 W 5,0 %
R604	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R605	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R606	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R607	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R608	ERJ6GEYJ273V	ERJ6GEYJ273V	ERJ6GEYJ273V	SMD RESISTOR 27,00 kOhm 1/8 W 5,0 %
R609	ERJ6GEYJ333V	ERJ6GEYJ333V	ERJ6GEYJ333V	SMD RESISTOR 33,00 kOhm 1/8 W 5,0 %
R612	ERJ6GEYJ102V	ERJ6GEYJ102V	ERJ6GEYJ102V	SMD RESISTOR 1,00 kOhm 1/8 W 5,0 %
R614	ERJ6GEYJ392V	ERJ6GEYJ392V	ERJ6GEYJ392V	SMD RESISTOR 3,90 kOhm 1/8 W 5,0 %
R617	ERJ6GEYJ391V	ERJ6GEYJ391V	ERJ6GEYJ391V	SMD RESISTOR 390,00 Ohm 1/8 W 5,0 %
R619	ERJ6GEYJ121V	ERJ6GEYJ121V	ERJ6GEYJ121V	SMD RESISTOR 120,00 Ohm 1/8 W 5,0 %
R620	ERJ6GEYJ121V	ERJ6GEYJ121V	ERJ6GEYJ121V	SMD RESISTOR 120,00 Ohm 1/8 W 5,0 %
R623	ERJ6GEYJ331V	ERJ6GEYJ331V	ERJ6GEYJ331V	SMD RESISTOR 330,00 Ohm 1/8 W 5,0 %
R633	ERJ6GEYJ470V	ERJ6GEYJ470V	ERJ6GEYJ470V	SMD RESISTOR 47,00 Ohm 1/8 W 5,0 %
R634	ERJ6GEYJ750V	ERJ6GEYJ750V	ERJ6GEYJ750V	SMD RESISTOR 75,00 Ohm 1/8 W 5,0 %
R640	ERJ6GEYJ822V	ERJ6GEYJ822V	ERJ6GEYJ822V	SMD RESISTOR 8,20 kOhm 1/8 W 5,0 %
R672	ERJ6GEYJ181V	ERJ6GEYJ181V	ERJ6GEYJ181V	SMD RESISTOR 180,00 Ohm 1/8 W 5,0 %
R687	ERJ6GEYJ472V	ERJ6GEYJ472V	ERJ6GEYJ472V	SMD RESISTOR 4,70 kOhm 1/8 W 5,0 %
R688	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R801	D0D72R2KA002	D0D72R2KA002	D0D72R2KA002	RADIAL RESISTOR 2,20 Ohm 7 W 10,0 %
R810	ERG2FJ470	ERG2FJ470	ERG2FJ470	METALIC RESISTOR 47,00 Ohm 2 W 5,0 %
R811	ERG2FJ104H	ERG2FJ104H	ERG2FJ104H	METALIC RESISTOR 100,00 kOhm 2 W 5,0 %
R817	ERDS1TJ100T	ERDS1TJ100T	ERDS1TJ100T	AXIAL RESISTOR 10,00 Ohm 1/2 W 5,0 %
R818	ERG2FJ683H	ERG2FJ683H	ERG2FJ683H	METALIC RESISTOR 68,00 kOhm 2 W 5,0 %
R820	ERX12SJR39E	- - - - - O - - - - -	- - - - - O - - - - -	METALIC FILM RESISTOR 0,39 Ohm 1/2 W 5,0 %
R820	- - - - - O - - - - -	ERX12SJR33E	ERX12SJR33E	RADIAL RESISTOR 0,33 Ohm 1/2 W 5,0 %
R821	ERX12SJR47E	- - - - - O - - - - -	- - - - - O - - - - -	METALIC FILM RESISTOR 0,47 Ohm 1/2 W 5,0 %
R821	- - - - - O - - - - -	ERX12SJR27E	ERX12SJR27E	AXIAL RESISTOR 0,27 Ohm 1/2 W 5,0 %
R824	ERDS2TJ561T	- - - - - O - - - - -	- - - - - O - - - - -	CARBON RESISTOR 560,00 Ohm 1/4 W 5,0 %
R824	- - - - - O - - - - -	ERDS2TJ152T	ERDS2TJ152T	AXIAL RESISTOR 1,50 kOhm 1/4 W 5,0 %
R825	ERDS2TJ102T	ERDS2TJ102T	ERDS2TJ102T	AXIAL RESISTOR 1,00 kOhm 1/4 W 5,0 %
R830	ERDS2TJ121T	- - - - - O - - - - -	- - - - - O - - - - -	CARBON RESISTOR 120,00 Ohm 1/4 W 5,0 %
R830	- - - - - O - - - - -	ERDS2TJ101T	ERDS2TJ101T	AXIAL RESISTOR 100,00 Ohm 1/4 W 5,0 %
R831	ERDS2TJ272T	- - - - - O - - - - -	- - - - - O - - - - -	CARBON RESISTOR 2,70 kOhm 1/4 W 5,0 %
R831	- - - - - O - - - - -	ER0S2THF1102	ER0S2THF1102	AXIAL RESISTOR 11,00 kOhm 1/2 W 1,0 %
R832	ERDS2TJ473T	ERDS2TJ473T	ERDS2TJ473T	AXIAL RESISTOR 47,00 kOhm 1/4 W 5,0 %
R840	ERD75TAJ825	ERC12ZGM825V	ERC12ZGM825V	AXIAL RESISTOR 8,20 MOhm 1/2 W
R861	ERDS1TJ221T	ERDS1TJ221T	ERDS1TJ221T	AXIAL RESISTOR 220,00 Ohm 1/2 W 5,0 %
R864	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R866	ERJ6GEYJ472V	ERJ6GEYJ472V	ERJ6GEYJ472V	SMD RESISTOR 4,70 kOhm 1/8 W 5,0 %
R867	ERDS2TJ362T	ERDS2TJ362T	ERDS2TJ362T	AXIAL RESISTOR 3,60 kOhm 1/4 W 5,0 %
R868	ERDS1TJ471T	ERDS1TJ471T	ERDS1TJ471T	AXIAL RESISTOR 470,00 Ohm 1/2 W 5,0 %
R871	ERDS1TJ103T	ERDS1TJ103T	ERDS1TJ103T	AXIAL RESISTOR 10,00 kOhm 1/2 W 5,0 %
R872	ERJ6GEYJ272V	ERJ6GEYJ272V	ERJ6GEYJ272V	SMD RESISTOR 2,70 kOhm 1/8 W 5,0 %
R873	ERJ6GEYJ472V	ERJ6GEYJ472V	ERJ6GEYJ472V	SMD RESISTOR 4,70 kOhm 1/8 W 5,0 %
R875	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R1016	ERJ6ENF1651V	ERJ6ENF1651V	ERJ6ENF1651V	SMD RESISTOR 1,65 kOhm 1/10 W 1,0 %
R1017	ERJ6ENF2151V	ERJ6ENF2151V	ERJ6ENF2151V	SMD RESISTOR 2,15 kOhm 1/10 W 1,0 %
R1018	ERJ6ENF3091V	ERJ6ENF3091V	ERJ6ENF3091V	SMD RESISTOR 3,09 kOhm 1/10 W 1,0 %

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
R1019	ERJ6ENF4421V	ERJ6ENF4421V	ERJ6ENF4421V	SMD RESISTOR 4,42 kOhm 1/10 W 1,0 %
R1020	ERJ6ENF7501V	ERJ6ENF7501V	ERJ6ENF7501V	SMD RESISTOR 7,50 kOhm 1/10 W 1,0 %
R1021	ERJ6ENF1871V	ERJ6ENF1871V	ERJ6ENF1871V	SMD RESISTOR 1,87 kOhm 1/10 W 1,0 %
R1059	ERJ6GEYJ222V	ERJ6GEYJ222V	ERJ6GEYJ222V	SMD RESISTOR 2,20 kOhm 1/8 W 5,0 %
R1060	ERJ6GEYJ683V	ERJ6GEYJ683V	ERJ6GEYJ683V	SMD RESISTOR 68,00 kOhm 1/8 W 5,0 %
R1104	ERJ6GEYJ562V	ERJ6GEYJ562V	ERJ6GEYJ562V	SMD RESISTOR 5,60 kOhm 1/8 W 5,0 %
R1105	ERJ6GEYJ562V	ERJ6GEYJ562V	ERJ6GEYJ562V	SMD RESISTOR 5,60 kOhm 1/8 W 5,0 %
R1106	ERJ6GEYJ102V	ERJ6GEYJ102V	ERJ6GEYJ102V	SMD RESISTOR 1,00 kOhm 1/8 W 5,0 %
R1108	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R1109	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R1110	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R1111	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R1112	ERJ6GEYJ332V	ERJ6GEYJ332V	ERJ6GEYJ332V	SMD RESISTOR 3,30 kOhm 1/8 W 5,0 %
R1116	ERJ6GEYJ332V	ERJ6GEYJ332V	ERJ6GEYJ332V	SMD RESISTOR 3,30 kOhm 1/8 W 5,0 %
R1120	ERJ6GEYJ102V	ERJ6GEYJ102V	ERJ6GEYJ102V	SMD RESISTOR 1,00 kOhm 1/8 W 5,0 %
R1122	ERJ6GEYJ332V	ERJ6GEYJ332V	ERJ6GEYJ332V	SMD RESISTOR 3,30 kOhm 1/8 W 5,0 %
R1123	ERJ6GEYJ751V	ERJ6GEYJ751V	ERJ6GEYJ751V	SMD RESISTOR 0,75 kOhm 1/8 W 5,0 %
R1124	ERJ6GEY0R00V	ERJ6GEY0R00V	ERJ6GEY0R00V	SMD RESISTOR 0,00 Ohm 1/8 W
R1125	ERJ6GEYJ331V	ERJ6GEYJ331V	ERJ6GEYJ331V	SMD RESISTOR 330,00 Ohm 1/8 W 5,0 %
R1130	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R1131	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R1132	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R1133	ERJ6GEYJ562V	ERJ6GEYJ562V	ERJ6GEYJ562V	SMD RESISTOR 5,60 kOhm 1/8 W 5,0 %
R1140	ERJ6ENF1002V	ERJ6ENF1002V	ERJ6ENF1002V	SMD RESISTOR 10,00 kOhm 1/10 W 1,0 %
R1141	ERJ6GEYJ182V	ERJ6GEYJ182V	ERJ6GEYJ182V	SMD RESISTOR 1,80 kOhm 1/8 W 5,0 %
R1142	ERJ6GEYJ100V	ERJ6GEYJ100V	ERJ6GEYJ100V	SMD RESISTOR 10,00 Ohm 1/8 W 5,0 %
R2302	ERJ6GEYJ153V	ERJ6GEYJ153V	ERJ6GEYJ153V	SMD RESISTOR 15,00 kOhm 1/8 W 5,0 %
R2303	ERJ6GEYJ472V	ERJ6GEYJ472V	ERJ6GEYJ472V	SMD RESISTOR 4,70 kOhm 1/8 W 5,0 %
R2380	ERJ6GEYJ151V	ERJ6GEYJ151V	ERJ6GEYJ151V	SMD RESISTOR 150,00 Ohm 1/8 W 5,0 %
R2381	ERJ6GEYJ102V	ERJ6GEYJ102V	ERJ6GEYJ102V	SMD RESISTOR 1,00 kOhm 1/8 W 5,0 %
R2382	ERJ6GEYJ102V	ERJ6GEYJ102V	ERJ6GEYJ102V	SMD RESISTOR 1,00 kOhm 1/8 W 5,0 %
R2383	ERJ6GEYJ103V	ERJ6GEYJ103V	ERJ6GEYJ103V	SMD RESISTOR 10,00 kOhm 1/8 W 5,0 %
R2384	ERJ6GEYJ100V	ERJ6GEYJ100V	ERJ6GEYJ100V	SMD RESISTOR 10,00 Ohm 1/8 W 5,0 %
R3015	ERJ6GEYJ101V	ERJ6GEYJ101V	ERJ6GEYJ101V	SMD RESISTOR 100,00 Ohm 1/8 W 5,0 %
R3048	ERJ6GEYJ184V	ERJ6GEYJ184V	ERJ6GEYJ184V	SMD RESISTOR 180,00 kOhm 1/8 W 5,0 %
SWITCHES				
S801	ESB92DA1B	ESB92DA1B	ESB92DA1B	POWER SWITCH
S1001	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
S1002	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
S1003	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
S1004	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
S1005	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
S1006	EVQ11G05R	EVQ11G05R	EVQ11G05R	TOUCH SWITCH
TRANSFORMERS				
T501	ZTFN81001A	ZTFN82007A	ZTFN82007A	FLY BACK TRANSFORMER 15.750 Hz 0,040 kVA
T553	ETH19Y210AZZ	ETH19Y210AZZ	ETH19Y210AZZ	HORIZONTAL DRIVER TRANSFORMER 15.750 Hz
T801	ETS29AV156AC	- - - - - O - - - - -	- - - - - O - - - - -	CHOPPER TRANSFORMER 0,093 kVA (93VA) FREQUENCIA : 161980 HZ
T801	- - - - - O - - - - -	ETS29AV136AD	ETS29AV136AD	CHOPPER TRANSFORMER 0,095 kVA (95VA) FREQ.:107,21 KHZ
TUNER				
TNR001	ENV56K05G3	ENV56K05G3	ENV56K05G3	TUNER
OSCILLATORS				
X101	M1971M	M1971M	M1971M	SAW FILTER 45,75 MHZ
X181	EFCT4R5MW5	EFCT4R5MW5	EFCT4R5MW5	TRAP FILTER 4,50 MHZ
X601	H0D120500006	H0D120500006	H0D120500006	PIEZO CRYSTAL 2,00 MHz

Ref. No.	TC-14A04P	TC-20A04P	TC-20B04	Part Name & Description
OTHERS				
E-E	TXAJTFFCB14A12	TXAJTFFCB14A12	TXAJTFFCB14A12	FLEXIBLE JUMPER W/ TERMINAL
F801	K5D402BK0004	K5D402BK0004	K5D402BK0004	FUSE 4A 250V
F801-L	K3GD9BB00001	K3GD9BB00001	K3GD9BB00001	FUSE SUPPORT
F801-R	K3GD9BB00001	K3GD9BB00001	K3GD9BB00001	FUSE SUPPORT
SPR451	TESA031	TESA031	TESA031	SPRING
SPR801	- - - - - O - - - - -	TESA031	TESA031	SPRING
	- - - - - O - - - - -	TMW2B212-1	TMW2B212-1	BRACKET LED
	XTV4+12C	XTV4+12C	XTV4+12C	SCREW

Panasonic da Amazônia S.A.

CS DIVISION - TECHNICAL SUPPORT

Rod. Presidente Dutra, Km 155
São José dos Campos - SP