

Alan 8001 O legendário chassis EPT3600-14B



Os transceptores para a faixa do cidadão das marcas **Alan**, **Superstar**, **Voyager**, **Galaxy**, **Texas Ranger** e **Midland** para o mercado **de exportação** são manufaturados por um único fabricante: a **Uniden**, que utiliza a placa **EPT3600-14B** em praticamente todos esses modelos.

Lançado em 1979 com os modelos da linha de exportação **Cobra 148 GTL-DX** e **Superstar 360** (última versão para ambos), estes transceptores, **não homologados pelo FCC para o mercado norte-americano**, eram banda larga e já vinham com seletor permitindo a cobertura de um número maior de canais, além de maior potência. Embora tenha mais de trinta anos e seja proibido nos Estados Unidos, os equipamentos com o chassis **EPT3600-14B** continuam entre os transceptores da faixa do cidadão de maior sucesso no mundo.

Devido a sua robustez, por sua simplicidade, pelo baixo custo, por sua confiabilidade e pela excelente qualidade de recepção e transmissão o chassis **EPT3600-14B** um dos equipamentos mais versáteis para o radioamador experimentador, pois além de poder ser convertido num excelente equipamento QRP para a faixa dos 10 metros, ele pode ainda ser utilizado como f.i. para transceptores e conversores para outras faixas, o que o torna um equipamento sem igual.

Além dos modelos mencionados, essa placa também é utilizada nos rádios : **Alan 8001**, **Alan 87**, **Alan 88**, Cherokee CBS2100, NR100, NR150, **Cobra 148F-GTL DX+**, Connex 3300, 3500, 4800, Dirland 3300, 3600, 3900, Eagle 2000, 5000, Excalibur base, Excalibur Samurai, Galaxy 2100, Galaxy II, Galaxy 11B, Galaxy 22B, Galaxy 2517, **Galaxy DX2547**, DX33, DX44, DX48T, DX55, **DX66**, DX73V, DX77, DX88, DX93T, DX99, Galaxy Jupiter, Galaxy Melaka, **Galaxy Pluto**, Galaxy Saturn, Galaxy Sirius, Galaxy Uranus, General GRANT, Mirage II, Mirage III, Mirage 44, Mirage 6600, Mirage 88, Mirage 9900, Northstar 3000, 4000, 6000, 9000, 9500, President FRANKLIN, Ranger 99, RCI2960, RCI6300, RCI6900FJB, Super Galaxy, **Superstar 3300**, **3600**, **3900**, Tek 506, Texas Star, **Texas Ranger 396/399**, Texas Ranger 696/699, Texas Ranger série 900. Também os rádios **Voyager VR-94**, **VR-95** e **VR-9000**, produzidos para a empresa Gloria Center do Paraguai, utilizam a placa **EPT3600-14B**.

A placa **EPT3600-14C** utilizada em alguns modelos da **Galaxy** é semelhante, porém utiliza alguns componentes **SMD**, como o TDA6130. A **Texas Ranger** está produzindo atualmente as novas placas **EPT0696** e **EPT6900**, que são basicamente a mesma EPT-3600, mas com componentes SMD.

Existem diversas variações da placa **EPT3600**, mas em regra as alterações de um modelo para outro são mínimas. O circuito é clássico, utilizando o famoso PLL **MC145106P**, fabricado pela Motorola, que permite 512 programações.

Devido a grande versatilidade desses equipamentos, que além de serem robustos, baratos e confiáveis, tem uma excelente qualidade de recepção, estes transceptores acabam sendo uma excelente opção para radioamadores experimentadores, pois além de poderem ser utilizados como equipamento QRP para a faixa de 10 metros, podem ainda serem utilizados como f.i. de transversores e conversores, possibilitando assim sua utilização em diversas outras faixas.

A intenção desse trabalho sobre o chassis **EPT3600-14B** foi reunir tudo aquilo **já publicado** na internet sobre esse modelo, justamente para possibilitar o máximo de informações **em português** ao radioamador experimentador interessado na utilização desse equipamento nas faixas de radioamador.

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Características Gerais do Alan 8001 :

Cobertura de Frequência (original) :	26.965 - 27.405MHz
Modos de Emissão :	AM / FM / USB / LSB / CW
Controle de frequência :	Sintetizador por PLL
Tolerância de Frequência	$\pm 0.005 \%$.
Estabilidade de Frequência :	$\pm 0.001 \%$.
Temperatura de Trabalho :	-30°C to +50°C.
Microfone :	dinâmico 600 Ohms
Tensão de Alimentação :	13.8V DC nominal $\pm 15\%$.
Dreno de Corrente :	AM mod. total <2.2A ; SSB <2.0A
Dreno de Corrente :	squelch <0.5A. máx. áudio <0.6A
Conector de Antena :	UHF SO-239
Dimensões :	60 (H) x 200 (W) x 235 (D)
Peso :	2,250 kg

TRANSMISSÃO

Potencia de Saída de RF : PEP	AM/FM : 7 W ; SSB : 12W
Modos de transmissão de RF :	AM / FM / USB / LSB / CW
Modulação :	Classe B, AM e SSB
Emissão de Espúrios :	-55 dB
Supressão de Portadora :	-55 dB
Resposta de Frequência de Áudio :	300 a 2500 Hz
Impedância de Antena :	50 Ohms desbalanceada

RECEPÇÃO

Sensibilidade 10dB S/N (AM) :	<0.5 uV
Sensibilidade 20dB S/N (FM) :	< 1 uV
Sensibilidade 10dB S/N (SSB) :	<0.25 uV
Frequências de f.i. em AM :	1ª f.i. 10.695 MHz – 2ª f.i. 455 KHz
Rejeição de Imagem :	-65 dB
Seletividade do Canal Adjacente :	-70 dB SSB ; - 60 dB AM
Controle do ganho de RF :	45 dB ajustável para ótimo sinal de recepção
AGC :	10 a 100 mV para 10 dB com carga na saída de áudio
Squelch Ajustável :	ponto inicial menor que 0.5 uV
Noise Blanker :	RF
Potência de Saída de Áudio :	4 watts em 8 Ohms
Resposta de Frequência de Áudio AM e SSB :	300 a 2800 Hz.
Alto Falante interno :	8 Ohms, 5 Watts.

Documentação técnica

Diagrama esquemático :

<http://www.cbtricks.com/radios/alan/alan8001/graphics/Alan%208001.pdf> (A8001)

http://www.cbtricks.com/radios/superstar/3900/graphics/ss3900_sch.gif (SS3900)

http://www.cbtricks.com/radios/galaxy/dx33hml/graphics/dx33hml_sch_main.pdf
(Galaxy DX-33)

Conexões dos fios :

http://www.cbtricks.com/radios/galaxy/dx33hml/graphics/dx33hml_inter_wiring.gif

Manual de serviço do Galaxy DX-33, que utiliza a placa EPT3600-14B :

<http://www.cbtricks.com/radios/galaxy/dx33hml/index.htm>

Manual de instruções :

<http://www.cbradio.nl/alan/image/Midland%20Alan%208001/Manual%20Midland%20Alan%208001%20Euro.pdf>

Componentes do Alan 8001

MC145106P	PLL Sintetizador de frequência
S042P (ou TDA6130)	Misturador de TX
uPC1028H	Amplificador e detector da f.i. de FM
AN612	Modulador Balanceado de SSB
TA7222AP	Amplificador de Áudio
NJM4558	Amplificador operacional duplo
TA6324	Amplificador operacional quádruplo
2SC1969	Transistor de saída de RF (Superstar 3900)
2SC2312	Transistor de saída de RF (Alan 8001)
2SC2166	Transistor Driver de RF
2SC2086	Transistor Pré-Driver de RF
2SB754	Transistor de potência de áudio
2SA473	Transistor de potência de áudio

Alinhamento do Alan 8001 - chassis EPT360014B

As instruções do procedimento de alinhamento do **Alan 8001** foram retiradas do manual de serviço do fabricante (Uniden), dos manuais de serviço da CBC International e da Galaxy.

Embora detalhadas, **essas modificações são indicadas apenas para técnicos de radiocomunicação ou radioamadores avançados, com conhecimentos e prática em alinhamento de equipamentos de radiocomunicação**. Para leigos, atrever-se a realizar um alinhamento sem ter prática, conhecimentos avançados e instrumental adequado é o mesmo que incentivar um leigo atrever-se a realizar uma delicada cirurgia apenas lendo um roteiro de procedimentos cirúrgicos num manual de medicina.

Desaconselhamos a qualquer colega que não tenha prática e conhecimentos avançados a realizar esses procedimentos, pois isso os danos podem ser irreparáveis !

Informações gerais para alinhamento

Todos os ajustes deverão ser realizados no centro do segmento de canais onde o rádio será utilizado (na faixa do cidadão ou se convertido, na faixa de 10 metros).

Posição dos controles de painel :

Clarificador : na posição de “meio-dia”

Squelch : no máximo

Ganho de áudio : no máximo

Ganho de RF : no máximo

Ganho de Microfone : no máximo

MOD S/RF : S/RF

NB/ANL : desligado

Equipamentos Necessários para o Alinhamento :

Fonte estabilizada de 13,8 volts que suporte ao mínimo 5 ampéres reais

Um bom multímetro digital

Gerador de áudio

Gerador de RF

Frequencímetro com resolução mínima de 10 Hz e alcance de no mínimo 50 MHz

Ferramentas adequadas para ajuste das bobinas (com ponta plástica, de fibra de vidro ou de cerâmica)

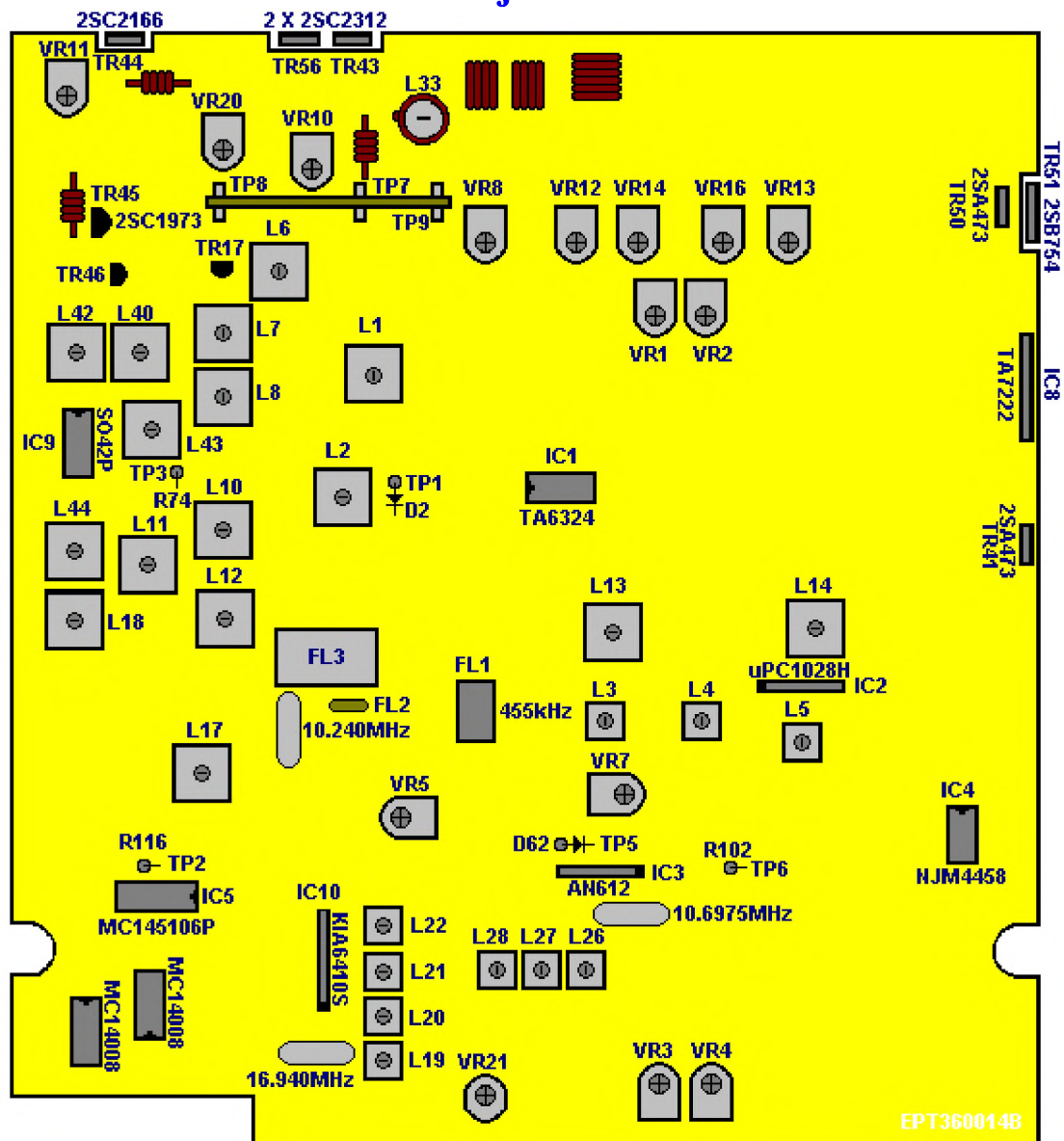
Osciloscópio com alcance de até 50MHz

Carga não irradiante de 50 Ohms por no mínimo 50 watts

Carga fictícia de 8 Ohms por no mínimo 5 watts

Documentação técnica do equipamento (esquema e/ou manual de serviço)

Pontos de ajuste



Procedimentos de Alinhamento do Alan 8001

Ponto de leitura	Condição	Ajuste	Procedimento
PLL			
Pino 3 do ic 5	-	verifique	10.2400MHz
TP2	Banda:D, Canal:40	L17	5,0 Volts
TP3	-	L18	Máximo no Osciloscópio
OSCILADOR			
13.560MHz X-tal			
Pino 9 IC10	AM	L19	16.0400MHz
Pino 9 IC10	USB	L20	16.0425MHz
Pino 9 IC10	LSB	L21	16.0375MHz
Pino 9 IC10	TX AM	VR21	16.0400MHz (Frequência de TX)
14.010MHz X-tal			
Pino 9 IC10	AM	L19	16.4900MHz
Pino 9 IC10	USB	L20	16.4925MHz
Pino 9 IC10	LSB	L21	16.4875MHz
Pino 9 IC10	TX AM	VR21	16.4900MHz (Frequência de TX)
14.460MHz X-tal			
Pino 9 IC10	AM	L19	16.9400MHz
Pino 9 IC10	USB	L20	16.942525MHz
Pino 9 IC10	LSB	L21	16.9375MHz
Pino 9 IC10	TX AM	VR21	16.9400MHz (Frequência de TX)
Todos modelos:			
TP5	TX AM	L26	10.6950MHz
TP6	RX USB	L27	10.6925MHz
TP6	RX LSB	L28	10.6975MHz
TP5	TX USB	VR7	Balanço Modulador SSB

RECEPÇÃO			
	RX AM	L6 L7 L8	Entrada de RF
	RX AM	L10 L11 L12	F.I. AM/FM/SSB
	RX AM	L3 L4	F.I. AM/FM
	RX FM	L5	Bobina Discriminadora (demod. FM)
TP1	RX USB	L1 L2	F.I. do Noise Blanker
	RX USB	VR3	Squelch SSB
	RX AM	VR4	Squelch AM/FM
S- Meter AM/FM	RX AM	VR1	
S- Meter SSB	RX SSB	VR2	
TRANSMISSÃO			
TP9 (+) TP8 (-)	Bias Driver	VR11	10mA
TP9 (+) TP7 (-)	Bias Saída RF	VR10	100mA
TP9 (+) TP7 (-)	Bias Saída RF	VR20	100mA
	TX AM	L42	Máximo
	TX AM	L43	Bobina misturadora (freq. entr.VCO)
	TX AM	L44	Bobina misturadora (entrada de 10.695 Mhz)
	TX AM	L40 L42	Máxima saída de RF
	TX AM	L33	Mínimo de harmônicos
	TX AM	VR13	15 Watts (30 Watts com saída dupla) AM/FM
	TX USB	VR12	20 Watts (40 Watts com saída dupla) SSB (ALC)
	TX AM	VR14	90% Modulação AM (AMC)
	TX FM	VR5	2 kHz Desvio FM
	TX CW	VR16	Tom de CW (Não em todos modelos)
Medidor de RF	TX AM	VR8	

Alinhamento do PLL:

SETTINGS	CONNECTION	ADJUST	ADJUST FOR
10.240 MHz PLL REFERENCE: RX Mode, AM, Freq. to 26.965MHz Band E Fine and coarse clarifier control to center detent.	Connect Frequency counter to IC5 Pin 4.		Check for 10.2400MHz $\pm$ 200 Hz. If tolerance is beyond this, replace X1 (10.240MHz).
VCO BUFFER: RX Mode, AM, Freq. to 26.965MHz Band E Fine and coarse clarifier control to center detent.	Connect scope to TP3 (top bare lead of R74)	L18	Adjust for max. RF (0.80V p-p typical).
	Connect scope to L22 secondary (bare lead of L50).	L22	Adjust for max. RF (2.0V p-p typical)
VCO: RX Mode, AM, Freq. to 26.965MHz Band E Fine and coarse clarifier control to center detent.	Connect DC voltmeter to TP2 (top bare lead of R116)	L17	Adjust for 3.20 VDC $\pm$ 0.1 Vdc. Recheck at 25.165MHz for approx 2.0V. and 28.755MHz for approx 6.0V.
PLL OFFSET OSCILLATOR: RX Mode, AM, Freq. to 26.965MHz Band E Fine and coarse clarifier control to center detent. Modes as indicated.	Connect Frequency Counter to TP3 (top bare lead of R74).	L20	AM: Adjust for 16.2700MHz $\pm$ 20 Hz.
FREQUENCY COUNTER: Set mode to AM Freq. to 26.965MHz Band E		VC1 on Counter PCB	Adjust VC1 on counter PCB for 26.965Mhz on display

Alinhamento da recepção:

SETTINGS	CONNECTION	ADJUST	ADJUST FOR
AM/FM RF & IF SENSITIVITY: Frequency to 26.965 MHz Mode AM Clarifier controls at center detent. RF GAIN fully clockwise. SQUELCH fully counter clockwise NB/ANL to OFF VOLUME to comfortable level. RF Generator output to 26.965 MHz at 1uV modulated 30% with 1 KHz audio tone.	Connect AF VTVM or scope across speaker terminals. RF Generator to ANT Jack	(in order) L6, L7 L8, L10 L11, L12 L3, L4	Adjust for max. output reading on AF VTVM or Scope.
Set mode to AM.	Same as above	L6, L7	Recheck sensitivity across full

Set frequency to Ch.1 lowest band, then Ch.40 highest band as required.			radiobandwidth. If necessary, retune L6 & L7 to balance RF sensivity across bandwidth.
FM DETECTOR: Mode FM. Set FM RF Generator to 26.965 MHz 0.5uV deviated 3 KHz with 1KHz audio tone. Reduce VOLUME as required.	Connect AF VTVM or scope to IC2 Pin 7. RF Generator to ANT Jack	L5	Adjust for maximum audio output.
AM/FM S-METER: Set mode to AM. RF Generator output to 100uV unmodulated. Set Squelch fully counterclockwise.	Same as above	VR1	Adjust for "S-9" meter reading.
AM/FM SQUELCH RANGE: Increase RF Generator output to 10mV. Set Squelch Control fully clockwise.	Same as above	VR4	Adjust to the squelch just closes.
NOISE BLANKER: Set radio to 26.975MHz Set mode to AM. Set RF generator output to 26.965MHz at 1000uV unmodulated. Set NOISE BLANKER switch to "ON".	Connect DC Voltmeter to TP1 (Cathode of D2).	L1, L2	Adjust for maximum DC voltage.

Alinhamento da transmissão:

SETTINGS	CONNECTION	ADJUST	ADJUST FOR
CARRIER OSCILLATOR OFFSET, AM TX ADJUST: TX Mode Freq. to 26.965MHz Band E	Connect Frequency Counter to (top bare lead of R151).	L26	AM/TX mode: Adjust for 10.6950MHz $\pm$ 20 Hz.
RF AMP CHAIN: Set mode to AM. Set RF power MAX .	Connect wattmeter to ANT output.	L43, L44, L42, L40, L33	Key TX & adjust (in order) for maximum RF output . Recheck power at lowest & highest channels; readjust if necessary for balance across entire bandwidth.
AM CARRIER POWER	Connect wattmeter to ANT output.	VR13	Key TX; adjust for for 7 watts

HIGH: Set mode to AM, MIKE GAIN at minimum. RF Power to MAX.			CAUTION! Do not exceed this level. Damage to power transistors and inability to achieve 100% modulation from insufficient audio power will result.
AM CARRIER POWER LOW: RF Power to LO .	Connect wattmeter to ANT output.	VR16	Key TX & adjust for 1 Watt output
RF METER: Set mode to AM, MIKE GAIN at minimum.	Connect wattmeter to ANT output.	VR8	Adjust so panel meter agrees with Wattmeter.
AMC: Mode to AM. MIKE GAIN to maximum. Inject audio signal of 1KHz 30mV (-18 dBm) at MIC jack.	Connect modulation meter to ANT output.	VR14	Adjust for 100% modulation depth.
FM DEVIATION: Mode to FM MIKE GAIN to maximum. Inject 1 KHz, 30 mV audio signal at mike jack.	Connect deviation meter to ANT output.	VR5	Adjust for total deviation of 4.5 KHz.

Conversão do Alan 8001 para a faixa de 10 metros (26.065 a 29.655MHz):

1. Remova as tampas do radio e localize o cristal X2 (grid de localização E2 da placa principal). Substitua o cristal X2 13.560MHz por um cristal de **14.460MHz**.
2. Alinhe completamente o radio.
3. Monte novamente o radio e cheque todas as bandas e funções de operação.

Isto dará as seguintes frequências, na ordem:

Banda A = 26.065 a 26.505
 Banda B = 26.515 a 26.955
 Banda C = 26.965 a 27.405
 Banda D = 27.415 a 27.855
 Banda E = 27.865 a 28.305
 Banda F = 28.315 a 28.755
 Banda G = 28.765 a 29.205
 Banda H = 29.215 a 29.655

OBS: As bandas G e H existem apenas nos modelos mais novos que usam uma placa com um microcontrolador. Os modelos antigos com seletor normal (cor verde claro) só vão até a letra F.

Essa modificação cobrirá a faixa completa de 10 metros e manterá a faixa de 11 metros.

Tabela de tensões dos transistores do Alan 8001

Dis	Função	transistor		LOC	B	C	E
TR1	NB Amp	2SC1675L	NPN 	B-3	1.90 NB On	8.00 NB On	1.10 NB On
TR2	NB Amp	2SC1675L	NPN 	C-2	0.70 NB On	2.60 NB On	0.00 NB On
TR3	NB Amp	2SC945P	NPN 	C-3	2.60 NB On	8.00 NB On	1.80 NB On
TR4	NB AGC	2SC945P	NPN 	B-2	0.00 NB On	8.30 NB On	1.12 NB On
TR5	NB Pulse Amp	2SC945P	NPN 	C-3	0.00 NB On	7.70 NB On	0.00 NB On
TR6	NB Pulse Amp	2SA733P	PNP 	C-2	7.70 NB On	0.00 NB On	8.30 NB On
TR7	NB Shunt Switch	2SC945P	NPN 	C-2	0.00 NB On	0.00 NB On	0.00 NB On
TR8	2nd RX Mixer	2SC1674L	NPN 	D-2	0.70	7.40 AM / FM	0.20 AM / FM
TR9	AM/FM IF Amp	2SC1675L	NPN 	D-3	0.70 AM / FM	3.20 AM / FM	0.00
TR10	AM/FM IF Amp	2SC1675L	NPN 	D-4	3.20 AM / FM	7.40 AM / FM	2.40 AM / FM
TR11	AM/FM IF Amp	2SC1675L	NPN 	D-4	2.40 AM / FM	7.20 AM / FM	1.70 AM / FM
TR15	AF PreAmp	2SC945P	NPN 	E-4	1.30	5.40	0.70
TR16	Squelch Switch	2SC945P	NPN 	E-5	0.80 TX & SQ	0.00	0.00
TR17	RFX RF Amp	2SC1674L	NPN 	B-2	2.20	8.00	1.50
TR18	1st. RX Mixer	J310	FET 	C-2	(S) 1.90	(D) 8.36	(G) 0.00
TR19	1st IF Amp	2SC1674L	NPN 	D-3	1.6	6.60	0.80
TR23	AM Det. Switch	2SC945P	NPN 	D-4	0.70 AM	0.00	0.00
TR24	PLL Ref. Osc.	2SC1675L	NPN 	D-2	2.50	6.40	1.80
TR25	VCO	2SC1675L	NPN 	D-1	2.10	7.30	1.40
TR26	VCO Buffer	2SC1675L	NPN 	D-1	0.60	3.80	0.00
TR30	Carrier Osc.	2SC1675L	NPN 	C-5	3.00	6.40	2.40
TR32	AMC Shunt	2SC945P	NPN 	E-6	0.70 RX 0.00 TX	0.00	0.00
TR34	AMC/ALC Amp	2SA733P	PNP 	B-3	7.80 TX	0.60 TX	8.30 TX
TR36	RX Voltage Sw.	2SA1282	PNP 	F-6	7.80	8.52 RX 0.00 TX	8.55
TR37	RX Voltage Sw.	2SC945P	NPN 	E-6	0.00 TX 0.70 RX	0.10 RX 8.00 TX	0.00
TR38	TX Voltage Sw.	2SA1282	PNP 	F-6	8.03 RX 7.75 TX	0.00 RX 8.37 TX	8.55
TR40	Voltage Reg.	2SC945	NPN 	C-6	1.60	12.66 RX 12.42 AM / FM TX	1.08

Tabela de tensões dos circuitos integrados do Alan 8001

Ic 1 TA6324	SQ. & AGC Amp
1 = NC	8 = 7.04 Sq; 0.68 No Sq.
2 = NC	9 = 2.26
3 = NC	11 = 0.00
4 = 8.40	12 = 0.30
5 = 0.00	13 = 0.30
6 = 0.00	14 = 0.60
7 = 0.00	10 = 1.53-3.32 Tight Sq.

Ic2 uPC1028H	FM Det.
1 = 1.30 FM	5 = 3.20 FM
2 = 1.30 FM	6 = 3.30 FM
3 = 7.30 FM	7 = 4.43 FM
4 = 0.00	

ic4 NJM4558	Mike Amp & T/R Sw.
1 = 4.50 TX	5 = 4.48 RX; 2.25 TX
2 = 4.50 TX	6 = 3.2 RX / TX
3 = 4.50 TX	7 = 7.30 RX; 2.68 TX
4 = 0.00	8 = 8.17 TX

Ic5 MC145106	PLL Synth.
1 = 8.02	7 = 1.60 to 4.70, LOW to HIGH Band
2 = 3.90	8 = 7.96
3 = 4.18	9 = 0.00 Band A-D, 6.3V Band E-G
4 = NC	10 = 0.00
5 = NC	11-17 = 0.00 or 8.30; Depends on channel

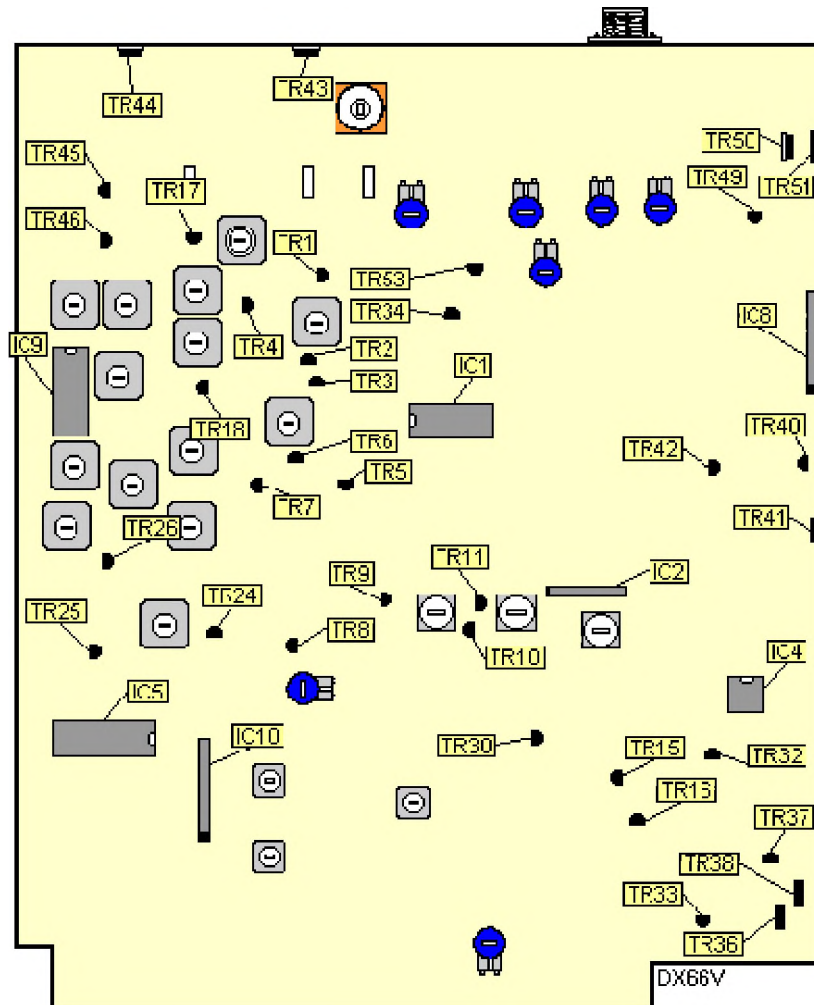
IC8 TA7222AP	Audio Power Amp
1 = 13.35	6 = 1.17
2 = 6.60	7 = 0.00
3 = 0.00	8 = 0.00
4 = 0.00	9 = 6.63
5 = 1.17	10 = 12.62

IC9 SO42P	TX Mixer
1 = 0.21 TX	8 = 3.22TX
2 = 8.10 TX	9 = 0.00 TX
3 = 8.10 TX	10 = 1.39 TX
4 = 0.00 TX	11 = 1.63 TX
5 = 8.10 TX	12 = 1.16 TX
6 = 0.00 TX	13 = 1.63 TX
7 = 3.22	14 = 0.00

IC10 TA7310	PLL Mixer
1=2.71	6=5.43
2=2.14	7=2.10
3=1.48	8=7.44
4=2.69	9=5.44
5 = 0.00	
6 = NC	18 = 0.00

Localização dos componentes na placa:

TR 1.....NB Amp
TR 2.....NB Amp
TR 3.....NB Amp
TR 4.....NB AGC
TR 5.....NB Pulse Amp
TR 6.....NB Pulse Amp
TR 7.....NB Shunt Switch
TR 8.....2nd RX Mixer
TR 9.....AM/FM IF Amp
TR 10.....AM/FM IF Amp
TR 11.....AM/FM IF Amp
TR 15.....AF Preamp
TR 16.....Squelch Switch
TR 17.....RX RF Amp
TR 18.....1st RX Mixer
TR 19.....1st IF Amp
TR 23.....AM Det. Switch
TR 24.....PLL Ref. Osc.
TR 25.....VCO
TR 26.....VCO Buffer
TR 30.....Carrier Osc.
TR 32.....AMC Shunt
TR 34.....AMC/ALC Amp
TR 36.....RX Voltage Switch
TR 37.....RX Voltage Switch
TR 38.....TX Voltage Switch
TR 40.....Voltage Reg.
TR 41.....Voltage Reg.
TR 42.....AF Preamp
TR 43.....RF Final Amp
TR 44.....RF Driver Amp
TR 45.....RF Predriver Amp
TR 46.....RF Amp And Buffer
TR 49.....AM Mod. Amp
TR 50.....AM Mod. Amp
TR 51.....AM Mod. Amp
TR 53.....AMC Amp



IC 1.....Squelch & AGC Amp
IC 2.....FM Det.
IC 4.....Mike Amp & TR Switch
IC 5.....PLL Synth.

IC 8.....Audio Power Amp
IC 9.....TX Mixer
IC 10.....PLL Mixer

Lista de capacitores:

Ref#	Bd Loc	Description	MFR. Part No.
C1	C2	C/C 10PF 50WV SL J	CC0501004L
C2	B2	C/C 0.01UF 50WV SL Z	CC0501037L
C3	B2	C/C 0.01UF 50WV SL Z	CC0501037L
C4	C3	C/C 100PF 50WV SL K	CC0501015L
C5	C2	C/C 0.047UF 50WV SL Z	CC0504737L
C6	C2	C/C 0.01UF 50WV SL Z	CC0501037L
C7	C3	C/C 0.001UF 50WV SL Z	CC0501027L
C8	C3	C/C 82PF 50WV SL J	CC0508204L
C9	B2	C/C 0.01UF 50WV SL Z	CC0501037L
C10	B2	E/C 0.47UF 50WV Z	CE0504747Z
C11	C3	C/C 330PF 50WV SL K	CC0503315L
C12	D3	E/C 10UF 25WV Z	CE0251067Z
C13	C3	M/C 0.0022UF 50WV K	CM0502225Z
C14	C2	C/C 0.01UF 50WV SL Z	CC0501037L
C15	C2	C/C 330PF 50WV SL K	CC0503315L
C16	D2	C/C 0.01UF 50WV SL Z	CC0501037L
C17	D3	C/C 0.047UF 50WV SL Z	CC0504737L
C18	D4	M/C 0.047UF 50WV K	CM0504735Z
C19	D4	E/C 10UF 25WV Z	CE0251067Z
C20	D4	E/C 10UF 25WV Z	CE0251067Z
C21	D4	C/C 560PF 50WV SL K	CC0505615L
C22	D4	C/C 68PF 50WV SL J	CC0506804L
C23	D4	C/C 0.047UF 50WV SL Z	CC0504737L
C24	D3	E/C 1UF 50WV Z	CE0501057Z
C25	D4	C/C 22PF 50WV CH J	CC0502204A
C26	D4	E/C 47UF 10WV Z	CE0104767Z
C27	D4	M/C 0.01UF 50WV K	CM0501035Z
C28	D5	M/C 0.001UF 50WV K	CM0501025Z
C29	D5	C/C 270PF 50WV SL K	CC0502715L
C30	C4	C/C 0.0047UF 50WV SL Z	CC0504727L
C32	C4	E/C 47UF 10WV Z	CE0104767Z
C33	C4	M/C 0.047UF 50WV K	CM0504735Z
C35	E5	E/C 47UF 10WV Z	CE0104767Z
C36	E4	M/C 0.001UF 50WV K	CM0501025Z
C37	E5	E/C 47UF 10WV Z	CE0104767Z
C38	E4	M/C 0.022UF 50WV K	CM0502235Z
C39	E4	M/C 0.1UF 50WV K	CM0501045Z
C40	D5	E/C 22UF 25WV Z	CE0252267Z
C41	E5	M/C 0.0056UF 50WV K	CM0505625Z
C42	B2	C/C 0.0047UF 50WV SL Z	CC0504727L
C43	A3	C/C 18PF 50WV RH J	CC0501804D
C44	B3	E/C 10UF 25WV Z	CE0251067Z
C45	B2	C/C 0.0047UF 50WV SL Z	CC0504727L
C46	B2	C/C 0.0047UF 50WV SL Z	CC0504727L
C47	B2	C/C 0.001UF 50WV SL Z	CC0501027L
C48	B2	C/C 0.047UF 50WV SL Z	CC0504737L
C49	B2	C/C 10PF 50WV SL J	CC0501004L
C50	B2	C/C 0.001UF 50WV SL Z	CC0501027L
C51	B2	C/C 0.01UF 50WV SL Z	CC0501037L

C52	B2	C/C 5PF 50WV CH C	CC0500501A
C55	C2	C/C 0.001UF 50WV SL Z	CC0501027L
C56	C2	C/C 0.01UF 50WV SL Z	CC0501037L
C58	C2	C/C 5PF 50WV CH C	CC0500501A
C59	C2	C/C 5PF 50WV CH C	CC0500501A
C62	C2	C/C 0.047UF 50WV SL Z	CC0504737L
C65	D3	C/C 0.01UF 50WV SL Z	CC0501037L
C66	C4	C/C 0.047UF 50WV SL Z	CC0504737L
C70	D5	C/C 220PF 50WV SL K	CC0502215L
C71	E5	E/C 1UF 50WV Z	CE0501057Z
C75	E2	C/C 68PF 50WV UJ J	CC0506804G
C76	E2	C/C 39PF 50WV SL J	CC0503904L
C77	D1	C/C 10PF 50WV SL J	CC0501004L
C78	D1	C/C 15PF 50WV SL J	CC0501504L
C79	D1	C/C 0.047UF 50WV SL Z	CC0504737L
C80	D1	C/C 18PF 50WV UJ J	CC0501804G
C81	D2	C/C 68PF 50WV CH J	CC0506804A
C82	D2	C/C 270PF 50WV UJ K	CC0502715G
C83	D2	C/C 30PF 50WV CH J	CC0503004A
C84	E2	C/C 0.047UF 50WV SL Z	CC0504737L
C85	D2	C/C 390PF 50WV UJ K	CC0503915G
C86	D2	C/C 100PF 50WV SL K	CC0501015L
C87	D2	M/C 0.0022UF 50WV K	CM0502225Z
C88	D2	C/C 0.047UF 50WV SL Z	CC0504737L
C89	D2	C/C 15PF 50WV CH J	CC0501504A
C90	D2	E/C 100UF 16WV Z	CE0161077Z
C91	D1	C/C 150PF 50WV CH K	CC0501515A
C92	D1	C/C 27PF 50WV SL J	CC0502704L
C93	D1	C/C 560PF 50WV SL K	CC0505615L
C94	D1	C/C 270PF 50WV SL K	CC0502715L
C95	D1	E/C 220UF 10WV Z	CE0102277Z
C96	D1	C/C 0.047UF 50WV SL Z	CC0504737L
C97	D1	C/C 10PF 50WV SL J	CC0501004L
C98	D1	C/C 10PF 50WV SL J	CC0501004L
C99	D1	C/C 0.01UF 50WV SL Z	CC0501037L
C100	D1	M/C 0.001UF 50WV K	CM0501025Z
C101	E1	T/C 2.2UF 16WV M	CT0162256Z
C102	D1	T/C 0.47UF 16WV M	CT0164746Z
C103	E1	C/C 5PF 50WV CH C	CC0500501A
C104	E2	C/C 0.047UF 50WV SL Z	CC0504737L
C105	E2	C/C 0.001UF 50WV SL Z	CC0501027L
C106	E2	C/C 33PF 50WV SL J	CC0503304L
C107	E2	C/C 0.01UF 50WV SL Z	CC0501037L
C108	E2	E/C 100UF 16WV Z	CE0161077Z
C109	E2	C/C 15PF 50WV SL J	CC0501504L
C110	E3	M/C 0.01UF 50WV K	CM0501035Z
C111	E3	C/C 0.047UF 50WV SL Z	CC0504737L
C112	E3	C/C 0.047UF 50WV SL Z	CC0504737L
C113	E4	C/C 0.01UF 50WV SL Z	CC0501037L
C114	E4	C/C 150PF 50WV SL K	CC0501515L
C115	E4	C/C 270PF 50WV SL K	CC0502715L
C116	E3	C/C 39PF 50WV RH J	CC0503904D
C120	E2	C/C 120PF 50WV SL K	CC0501215L

C123	E4	C/C 18PF 50WV SL J	CC0501804L
C126	D4	E/C 2.2UF 50WV Z	CE0502257Z
C127	D6	C/C 0.047UF 50WV SL Z	CC0504737L
C128	E6	T/C 0.22UF 16WV M	CT0162246Z
C129	E6	E/C 1UF 50WV Z	CE0501057Z
C130	E6	M/C 0.015UF 50WV K	CM0501535Z
C131	D6	E/C 100UF 16WV Z	CE0161077Z
C132	D6	E/C 1UF 50WV Z	CE0501057Z
C133	B4	E/C 10UF 25WV Z	CE0251067Z
C134	E6	E/C 2.2UF 50WV Z	CE0502257Z
C135	E6	C/C 0.047UF 50WV SL Z	CC0504737L
C136	E5	C/C 0.001UF 50WV SL Z	CC0501027L
C137	F5	M/C 0.0047UF 50WV K	CM0504725Z
C138	F5	M/C 0.0047UF 50WV K	CM0504725Z
R140		C/C 0.01UF 50WV SL Z	CC0501037L
C143	D6	E/C 1UF 50WV Z	CE0501057Z
C144	B3	C/C 0.001UF 50WV SL Z	CC0501027L
C145	B6	E/C 330UF 16WV Z	CE0163377Z
C146	B6	E/C 47UF 10WV Z	CE0104767Z
C147	B6	M/C 0.068UF 50WV K	CM0506835Z
C148	B6	M/C 0.001UF 50WV K	CM0501025Z
C149	B6	M/C 0.1UF 50WV K	CM0501045Z
C150	B6	E/C 22UF 25WV Z	CE0252267Z
C151	C6	E/C 4.7UF 50WV Z	CE0504757Z
C152	B6	M/C 0.01UF 50WV K	CM0501035Z
C154	C6	M/C 0.047UF 50WV K	CM0504735Z
C155	C5	M/C 0.1UF 50WV K	CM0501045Z
C156	C6	E/C 47UF 10WV Z	CE0104767Z
C157	C5	E/C 1UF 50WV Z	CE0501057Z
C158	A4	C/C 68PF 50WV CH J	CC0506804A
C159	A3	C/C 0.01UF 50WV SL Z	CC0501037L
C160	A3	C/C 150PF 50WV UJ K	CC0501515G
C161	A3	C/C 0.5PF 50WV CH C	CC0500591A
C164	A3	E/C 1UF 50WV Z	CE0501057Z
C165	A3	C/C 560PF 50WV UJ K	CC0505615G
C166	A3	MICA/C 0.001UF 300WV J	CD3001024Z
C167	A3	C/C 150PF 50WV UJ K	CC0501515G
C169	A3	C/C 0.1UF 50WV SL Z	CC0501047L
C171	A2	C/C 560PF 50WV UJ K	CC0505615G
C172	A2	M/C 0.1UF 50WV K	CM0501045Z
C174	A1	E/C 2.2UF 50WV Z	CE0502257Z
C175	A1	C/C 680PF 50WV SL K	CC0506815L
C176	A1	C/C 0.01UF 50WV SL Z	CC0501037L
C177	A1	C/C 0.01UF 50WV SL Z	CC0501037L
C178	B1	C/C 470PF 50WV SL K	CC0504715L
C179	B1	C/C 0.0047UF 50WV SL Z	CC0504727L
C180	B1	C/C 180PF 50WV SL K	CC0501815L
C182	B1	C/C 5PF 50WV SL C	CC0500501L
C183	B1	C/C 0.01UF 50WV SL Z	CC0501037L
C184	B1	C/C 0.01UF 50WV SL Z	CC0501037L
C185	C1	C/C 0.01UF 50WV SL Z	CC0501037L
C187	D6	M/C 0.047UF 50WV K	CM0504735Z
C188	A6	C/C 0.047UF 50WV SL Z	CC0504737L

C189	A6	C/C 0.047UF 50WV SL Z	CC0504737L
C190	A6	E/C 100UF 16WV Z	CE0161077Z
C191	D6	M/C 0.047UF 50WV K	CM0504735Z
C192	B6	M/C 0.001UF 50WV K	CM0501025Z
C194	C6	E/C 1000UF 25WV Z H=20mm	CE0251087Z
C195	A5	E/C 1000UF 25WV Z H=20mm	CE0251087Z
C196	A6	C/C 0.001UF 50WV SL Z	CC0501027L
C197	A6	C/C 0.001UF 50WV SL Z	CC0501027L
C199	D6	E/C 330UF 16WV Z	CE0163377Z
C200	A1	C/C 0.01UF 50WV SL Z	CC0501037L
C201	A4	C/C 0.01UF 50WV SL Z	CC0501037L
C202	D1	C/C 0.047UF 50WV SL Z	CC0504737L
C203	A2	C/C 0.047UF 50WV SL Z	CC0504737L
C204	A1	C/C 0.047UF 50WV SL Z	CC0504737L
C212	B5	M/C 0.1UF 50WV K	CM0501045Z
C213	A5	C/C 0.001UF 50WV SL Z	CC0501027L
C216	A3	C/C 0.047UF 50WV SL Z	CC0504737L
C217	C1	C/C 0.001UF 50WV SL Z	CC0501027L
C219	E3	E/C 22UF 25WV Z	CE0252267Z
C220	E3	E/C 4.7UF 50WV Z	CE0504757Z
C221	F2	C/C 0.001UF 50WV SL Z	CC0501027L
C225	E2	C/C 10PF 50WV SL J	CC0501004L
C226	E2	C/C 100PF 50WV SL K	CC0501015L
C228	E2	C/C 0.001UF 50WV SL Z	CC0501027L
C230	E2	C/C 0.01UF 50WV SL Z	CC0501037L
C231	F2	C/C 0.001UF 50WV SL Z	CC0501027L
C275		C/C 10PF 50WV SL J	CC0501004L
C277	D3	C/C 0.01UF 50WV SL Z	CC0501037L
C330	F2	C/C 6PF 50WV SL D	CC0500602L
C331	F2	E/C 10UF 25WV Z	CE0251067Z
C332	A5	C/C 0.0047UF 50WV SL Z	CC0504727L
C333	B3	E/C 10UF 25WV Z	CE0251067Z
C335	A4	C/C 0.0047UF 50WV SL Z	CC0504727L
DCx2		C/C 0.01UF 50WV SL Z	CC0501037L
		C/C 3PF 50WV SL C	CC0500301L

Lista dos resistores do Alan 8001:

Potenciômetros

Ref#	Bd Loc	Description	MFR. Part No.
VR1	B4	S/F/R 10K OHM L	RE10300009
VR4	F4	S/F/R 500K OHM L	RE50400021
VR5	D3	S/F/R 10K OHM L	RE10300009
VR8	B3	S/F/R 100K OHM L	RE10400020
VR13	B5	S/F/R 1K OHM L	RE10200003
VR14	B4	S/F/R 1K OHM L	RE10200003
VR16	B4	S/F/R 1K OHM L	RE10200003

Resistores

Ref#	Bd Loc	Description	MFR. Part No.
R1	B2	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R2	B3	C/F/R 33K OHM 1/4W U	RCU143334Z
R3	B2	C/F/R 680 OHM 1/4W U	RCU146814Z
R4	B3	C/F/R 220 OHM 1/4W U	RCU142214Z
R5	B2	C/F/R 330 OHM 1/4W U	RCU143314Z
R6	C2	C/F/R 47K OHM 1/4W U	RCU144734Z
R7	C3	C/F/R 2.7K OHM 1/4W U	RCU142724Z
R8	C2	C/F/R 330 OHM 1/4W U	RCU143314Z
R9	C3	C/F/R 68 OHM 1/4W M	RCM146804B
R10	C2	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R11	C3	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R12	C3	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R13	C3	C/F/R 470K OHM 1/4W U	RCU144744Z
R14	C2	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R15	C2	C/F/R 330 OHM 1/4W U	RCU143314Z
R16	C2	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R17	D3	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R18	D3	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R19	D2	C/F/R 68K OHM 1/4W U	RCU146834Z
R20	D2	C/F/R 330 OHM 1/4W U	RCU143314Z
R21	D2	C/F/R 180 OHM 1/4W U	RCU141814Z
R22	D3	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R23	D3	C/F/R 2.7K OHM 1/4W P	RCP142724Z
R24	D3	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R25	D3	C/F/R 2.7K OHM 1/4W U	RCU142724Z
R26	D4	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R27	D3	C/F/R 47K OHM 1/4W M	RCM144734B
R28	D4	C/F/R 150 OHM 1/4W U	RCU141514Z
R29	D4	C/F/R 270 OHM 1/4W U	RCU142714Z
R30	D4	C/F/R 100 OHM 1/4W M	RCM141014B
R31	D4	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R32	D4	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R33	D4	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R34	D5	C/F/R 1.5M OHM 1/4W U	RCU141554Z
R35	D5	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R36	C3	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R37	B3	C/F/R 82K OHM 1/4W U	RCU148234Z
R38	C3	C/F/R 39K OHM 1/4W M	RCM143934B
R39	C4	C/F/R 220K OHM 1/4W M	RCM142244B
R40	C4	C/F/R 820K OHM 1/4W U	RCU148244Z
R41	C3	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R42	C4	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R43	C4	C/F/R 270K OHM 1/4W U	RCU142744Z
R44	C4	C/F/R 680 OHM 1/4W U	RCU146814Z
R45	C3	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R46	C3	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R47	B4	C/F/R 3.9K OHM 1/4W P	RCP143924Z
R50	B4	C/F/R 3.9K OHM 1/4W U	RCU143924Z
R53	C4	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R54	C4	C/F/R 47K OHM 1/4W U	RCU144734Z

R55	E5	C/F/R 47K OHM 1/4W U	RCU144734Z
R56	C4	C/F/R 1K OHM 1/4W M	RCM141024B
R57	E5	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R58	E5	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R59	E4	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R60	E5	C/F/R 470 OHM 1/4W U	RCU144714Z
R61	E4	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R62	E5	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R63	B3	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R64	B3	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R66	B2	C/F/R 1K OHM 1/4W M	RCM141024B
R67	B1	C/F/R F-TYPE 820 OHM 1/4W U	RCU148214Z
R68	B2	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R69	B2	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R73	C2	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R74	C1	C/F/R 1.5K OHM 1/4W P	RCP141524Z
R75	D4	C/F/R 68K OHM 1/4W U	RCU146834Z
R76	D2	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R83	D1	C/F/R 220K OHM 1/4W U	RCU142244Z
R97	D4	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R98	E4	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R99	E4	C/F/R 68K OHM 1/4W U	RCU146834Z
R100	E5	C/F/R 1M OHM 1/4W U	RCU141054Z
R101	E5	C/F/R 68K OHM 1/4W U	RCU146834Z
R103	E4	C/F/R 270K OHM 1/4W U	RCU142744Z
R104	D1	C/F/R F-TYPE 1.5K OHM 1/4W U	RCU141524Z
R105	D1	C/F/R 56 OHM 1/4W U	RCU145604Z
R106	D1	C/F/R 180 OHM 1/4W U	RCU141814Z
R107	D1	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R108	D2	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R109	D1	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R110	D2	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R111	D2	C/F/R 220K OHM 1/4W U	RCU142244Z
R112	D1	C/F/R 56 OHM 1/4W U	RCU145604Z
R113	D1	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R114	D1	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R115	E1	C/F/R 560 OHM 1/4W U	RCU145614Z
R116	E1	C/F/R 5.6K OHM 1/4W P	RCP145624Z
R117	E1	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R118	D1	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R119	D2	C/F/R 220K OHM 1/4W M	RCM142244A
R120	D2	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R121	D2	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R122	E2	C/F/R 33 OHM 1/4W P	RCP143304Z
R123	D4	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R124	E2	C/F/R 47 OHM 1/4W P	RCP144704Z
R125	E2	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R126	E2	C/F/R 560 OHM 1/4W U	RCU145614Z
R127	E2	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R128	E2	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R131	E3	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R134	F2	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R135	F2	C/F/R 18K OHM 1/4W U	RCU141834Z

R138	F3	C/F/R 4.7K OHM 1/4W M	RCM144724A
R140	F3	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R140A	E3	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R142	D3	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R151	E4	C/F/R P-TYPE 1K OHM 1/4W P	RCP141024Z
R152	E4	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R153	E4	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R154	E4	C/F/R 220 OHM 1/4W U	RCU142214Z
R160	D4	C/F/R F-TYPE 15K OHM 1/4W U	RCU141534Z
R162	D6	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R164	E6	C/F/R 10K OHM 1/4W M	RCM141034B
R165	D6	C/F/R 270K OHM 1/4W U	RCU142744Z
R166	D6	C/F/R F-TYPE 15K OHM 1/4W U	RCU141534Z
R167	E6	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R168	E6	C/F/R 470K OHM 1/4W U	RCU144744Z
R169	E6	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R170	E6	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R171	E6	C/F/R 47K OHM 1/4W U	RCU144734Z
R172	D6	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R173	E6	C/F/R 12K OHM 1/4W U	RCU141234Z
R174	E6	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R175	B3	C/F/R 470 OHM 1/4W U	RCU144714Z
R176	D5	C/F/R 3.3K OHM 1/4W P	RCP143324Z
R177	D5	C/F/R 1.2K OHM 1/4W U	RCU141224Z
R178	E6	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R179	E6	C/F/R 1.5M OHM 1/4W U	RCU141554Z
R180	F6	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R181	F6	C/F/R 220K OHM 1/4W U	RCU142244Z
R182	F6	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R183	F6	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R187	E6	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R190	F4	C/F/R F-TYPE 1.5K OHM 1/4W U	RCU141524Z
R193	F6	C/F/R F-TYPE 1.5K OHM 1/4W U	RCU141524Z
R194	E6	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R195	E6	C/F/R 22K OHM 1/4W P	RCP142234Z
R196	E6	C/F/R 680 OHM 1/4W P	RCP146814Z
R197	C5	C/F/R 10K OHM 1/4W M	RCM141034B
R198	C6	C/F/R 56 OHM 1/4W U	RCU145604Z
R199	C6	C/F/R 47 OHM 1/4W U	RCU144704Z
R200	C6	C/F/R 1K OHM 1/4W M	RCM141024B
R201	C6	C/F/R 47K OHM 1/4W U	RCU144734Z
R202	B6	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R203	B6	C/F/R 56 OHM 1/4W U	RCU145604Z
R205	C6	C/F/R 1.8K OHM 1/4W M	RCM141824B
R206	C6	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R207	C6	C/F/R F-TYPE 4.7K OHM 1/4W U	RCU144724Z
R208	C6	C/F/R 470 OHM 1/4W U	RCU144714Z
R209	C6	C/F/R F-TYPE 1K OHM 1/4W U	RCU141024Z
R210	C6	C/F/R 680K OHM 1/4W P	RCP146844Z
R220	B1	C/F/R F-TYPE 4.7 OHM 1/4W	RCU144794Z
R221	B1	C/F/R 1.5K OHM 1/4W M	RCM141524A
R222	B1	C/F/R 330 OHM 1/4W U	RCU143314Z
R223	B1	C/F/R 150 OHM 1/4W M	RCM141514A

R224	B1	C/F/R 47 OHM 1/4W U	RCU144704Z
R225	B1	C/F/R 330 OHM 1/4W U	RCU143314Z
R226	B1	C/F/R 1.5K OHM 1/4W M	RCM141524B
R230	B1	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R231	C1	C/F/R F-TYPE 100 OHM 1/4W U	RCU141014Z
R232	C1	C/F/R 220 OHM 1/4W U	RCU142214Z
R235	D6	C/F/R F-TYPE 15K OHM 1/4W U	RCU141534Z
R237	B4	C/F/R 100 OHM 1/4W M	RCM141014A
R238	B5	C/F/R 5.6K OHM 1/4W U	RCU145624Z
R239	B5	C/F/R 5.6K OHM 1/4W M	RCM145624B
R240	B6	C/F/R 560 OHM 1/4W U	RCU145614Z
R241	B6	C/F/R F-TYPE 22 OHM 1/4W U	RCU142204Z
R242	B6	C/F/R 10K OHM 1/4W M	RCM141034A
R244	C5	C/F/R F-TYPE 10K OHM 1/4W U	RCU141034Z
R245	B4	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R246	B4	C/F/R F-TYPE 1.5K OHM 1/4W U	RCU141524Z
R247	B3	C/F/R F-TYPE 100K OHM 1/4W U	RCU141044Z
R248	B4	C/F/R F-TYPE 8.2K OHM 1/4W U	RCU148224Z
R249	B3	C/F/R 10K OHM 1/4W M	RCM141034B
R252	F6	C/F/R 47 OHM 1/4W U	RCU144704Z
R254	D4	C/F/R 6.8K OHM 1/4W U	RCU146824Z
R255	C1	C/F/R 470 OHM 1/4W U	RCU144714Z
R256	D6	C/F/R 220 OHM 1/4W U	RCU142214Z
R257	B3	C/F/R 2.2K OHM 1/4W U	RCU142224Z
R259	F1	C/F/R 3.3K OHM 1/4W U	RCU143324Z
R274	C3	C/F/R 270K OHM 1/4W M	RCM142744B
R275	F2	C/F/R 560 OHM 1/4W U	RCU145614Z
J106	F3	C/F/R 1K OHM 1/4W M	RCM141024B

Lista de componentes da placa do Alan 8001 PCB EPT360014B

Cristais

Ref#	Bd Loc	Description	MFR. Part No.
X1	D2	CRYSTAL HC-49U 10.240MHZ 20PPM	EYCAB10240
X2	E2	CRYSTAL HC-49U 13.560MHz 20PPM	EYCAA13560
X4	E3	CRYSTAL HC-49U 10.6975MHZ 10PPM	EYBAE10697

Filtros

Ref#	Bd Loc	Description	MFR. Part No.
FL1	D3	CERAMIC FILTER CFW-455HT	EFCFW455HT
FL2	D2	CERAMIC FILTER SFE10.7MX RED	EFCFE107MX
FL3	D2	JUMPER WIRE 7x15mm x7	WX01070715

Indutores

Ref#	Bd Loc	Description	MFR. Part No.
L1	B3	I.F.T.	ECIFT12000
L2	C2	I.F.T.	ECIFT12001
L3	D3	I.F.T.	ECIFT12002
L4	D4	I.F.T.	ECIFT12002
L5	D4	I.F.T.	ECIFT12003
L6	B2	I.F.T.	ECIFT12004
L7	B2	I.F.T.	ECIFT12005
L8	B2	I.F.T.	ECIFT12022
L10	C2	I.F.T.	ECIFT12007
L11	C1	I.F.T.	ECIFT12007
L12	C2	I.F.T.	ECIFT12008
L15	E2	BEAD COIL D 3.5X6X1.2	ECBAD18504
L17	D2	I.F.T.	ECIFT12017
L18	C1	I.F.T.	ECIFT12010
L20	E2	I.F.T.	ECIFT12012
L22	E2	I.F.T.	ECIFT12258
L24	E2	BEAD COIL D 3.5X6X1.2	ECBAD18504
L25	F2	CHOKE COIL 470UH	ECCHK16003
L26	E3	I.F.T. 113CN-6344Z	ECIFT12016
L31	A3	SPRING COIL 0.8x6x8.5t	ECSPG18075
L33	A3	RF COIL 0.16UH	ECRFZ10045
L34	A3	SPRING COIL 0.8x4x7t	ECSPG18087
L35	A2	CHOKE COIL 22UH (R215-R216)	ECCHK16070
L36	A2	BEAD COIL FRH3.5x6.0x0.8 AT	ECBAD18506
L37	A1	SPRING COIL 0.8x3.5x7t	ECSPG18001
L38	A1	BEAD COIL FRH3.5x6.0x0.8 AT	ECBAD18506
L39	B1	SPRING COIL 0.8x4.2x6.5t	ECSPG18000
L40	B1	I.F.T.	ECIFT12014
L41	A1	BEAD COIL WBRH-3.5x6x0.8-U16	ECBAD18555
L42	B1	I.F.T.	ECIFT12015
L43	C1	I.F.T.	ECIFT12010
L44	C1	I.F.T.	ECIFT12007
L47	A1	CHOKE COIL 22UH	ECCHK16070
L50	E2	CHOKE COIL 22UH	ECCHK16070

L51	A3	SPRING COIL 0.8x6x3.5t	ECSPG18089
L52	A3	SPRING COIL 0.8x6x3.5t	ECSPG18089
L503	DC SCK	CHOKE COIL 0.47UH	ECCHK16000
L503		TUBE 1.2x15mm	WX0012015A
L504	DC SCK	CHOKE COIL 0.47UH	ECCHK16000
L504		TUBE 1.2x15mm	WX0012015A
T1	B5	CHOKE COIL 1.1MH EI-19	ECCHK16004

Lista de diodos do Alan 8001:

Ref#	Bd Loc	Description	MFR. Part No.
D1	C3	DIODE 1N60P	ED1N00060P
D2	C3	DIODE 1N60P	ED1N00060P
D3	C2	DIODE 1N4148	ED1N04148Z
D6	C3	DIODE 1N4148	ED1N04148Z
D7	C3	DIODE 1N4148	ED1N04148Z
D8	C4	DIODE 1N4148	ED1N04148Z
D9	C4	DIODE 1N4148	ED1N04148Z
D10	D5	DIODE 1N60P	ED1N00060P
D11	C5	DIODE 1N60P	ED1N00060P
D12	B4	DIODE 1N4148	ED1N04148Z
D14	F4	DIODE 1N4148	ED1N04148Z
D15	B2	DIODE 1SS53	EDSS00053Z
D16	B2	DIODE 1SS53	EDSS00053Z
D23	D4	DIODE 1N60P	ED1N00060P
D24	E4	DIODE 1N60P	ED1N00060P
D26	E4	DIODE 1N4148	ED1N04148Z
D28	C5	DIODE 1N4148	ED1N04148Z
D29	B6	DIODE 1N4007	ED1N04007Z
D31	D3	DIODE 1N4148	ED1N04148Z
D32	D4	DIODE 1N4148	ED1N04148Z
D33	D1	DIODE 1N4148	ED1N04148Z
D35	E2	DIODE 1N4148	ED1N04148Z
D61	E5	DIODE 1N4148	ED1N04148Z
D65	D6	DIODE MA27W-A	EDMA00027W
D66	E5	DIODE 1N4148	ED1N04148Z
D67	D6	DIODE 1N4148	ED1N04148Z
D68	D6	DIODE 1N4148	ED1N04148Z
D69	D6	DIODE 1N4148	ED1N04148Z
D70	C4	DIODE 1N4148	ED1N04148Z
D71	C5	DIODE 1N4148	ED1N04148Z
D76	E6	ZENER DIODE 0.5W 5.1V	EDZD05519Z
D77	E6	DIODE MA27T-A	EDMA00027T
D78	C6	ZENER DIODE 0.5W 7.5V	EDZD05759Z
D79	C6	DIODE MA27W-A	EDMA00027W
D80	B6	DIODE 1N4148	ED1N04148Z
D81	E6	DIODE 1N4148	ED1N04148Z
D82	E6	DIODE 1N4148	ED1N04148Z
D83	B3	DIODE 1N60P	ED1N00060P

D86	A3	DIODE 1N4148	ED1N04148Z
D87	A3	DIODE 1N4148	ED1N04148Z
D91	A5	DIODE 1N4148	ED1N04148Z
D92	B3	DIODE 1N4148	ED1N04148Z
D93	A5	DIODE 1N4003	ED1N04003Z
D94	D1	DIODE SVC-251SPA	EDSV00251Z
D94A	F3	DIODE 1N4148	ED1N04148Z
D114		DIODE 1N4148	ED1N04148Z
D123	D1	DIODE 1N4148	ED1N04148Z
D124	F2	DIODE SVC-251SPA	EDSV00251Z
D125	C3	DIODE 1N4148	ED1N04148Z
J64	E1	DIODE MA27T-A	EDMA00027T

Lista dos semicondutores do Alan 8001:

Ref#	Bd Loc	Description	MFR. Part No.
IC1	C3	I.C.(JRC) NJM324D 14PIN	ENJR00324D
IC2	D4	I.C.(NEC) UPC-1028H 7PIN	ENNE01028H
IC4	D6	I.C.(ROHM) BA4558 8PIN	ENRO04558Z
		I.C.(SONY) CXA4558P	ENSO04558P
IC5	E1	I.C.(MOTOROLA) MC145106P 18PIN	ENMC45106P
IC8	B6	I.C.(TOSHIBA) TA7222AP 10PIN	ENTA07222A
		SET SCREW M3x0.5Px6	JS013006MV
		IC SHIELD B	LZZZ61008Z
IC9	C1	I.C. TDA6130 14PIN DIP (EPT360014B Only)	ENSM06130Z
		I.C. (SIEMENS) SMD TDA6130-5X4 14PIN (EPT360014C Only) (SOLDER SIDE)	YNSM6130X4
IC10	E2	I.C.(KEC) KIA6410S 9PIN	ENKE06410S
		I.C.(TOSHIBA) TA7310P 9PIN	ENTA07310P

Ref#	Bd Loc	Description	MFR. Part No.
TR1	B3	T/R 2SC1675L	T2SC01675L
TR2	C2	T/R 2SC1675L	T2SC01675L
TR3	C2	T/R 2SC945P	T2SC00945P
TR4	B2	T/R 2SC945P	T2SC00945P
TR5	C3	T/R 2SC945P	T2SC00945P
TR6	C2	T/R 2SA733P	T2SA00733P
TR7	C2	T/R 2SC945P	T2SC00945P
TR8	D2	T/R 2SC1674L	T2SC01674L
TR9	D3	T/R 2SC1675L	T2SC01675L
TR10	D4	T/R 2SC1675L	T2SC01675L
TR11	D4	T/R 2SC1675L	T2SC01675L
TR15	E4	T/R 2SC945P	T2SC00945P
TR16	E5	T/R 2SC945P	T2SC00945P
TR17	B2	T/R 2SC1674L	T2SC01674L
TR18	C2	F.E.T. J310(MOTOROLA)	FMOJ00310Z
TR24	D2	T/R 2SC1675L	T2SC01675L

TR25	D1	T/R 2SC1675L	T2SC01675L
TR26	D1	T/R 2SC1675L	T2SC01675L
TR30	E4	T/R 2SC1675L	T2SC01675L
TR32	E6	T/R 2SC945P	T2SC00945P
TR33	F6	T/R 2SC945P	T2SC00945P
TR34	B3	T/R 2SA733P	T2SA00733P
TR36	F6	T/R 2SA934Q	T2SA00934Q
TR37	E6	T/R 2SC945P	T2SC00945P
TR38	F6	T/R 2SA934Q	T2SA00934Q
TR39	C5	T/R 2SC945P	T2SC00945P
TR40	C6	T/R 2SC945P	T2SC00945P
TR41	D6	T/R 2SA1869	T2SA01869Z
		SET SCREW M2x0.4Px8	JS052008MN
		INSULATING RING	XZZZ90003Z
		INSULATING PLATE 12x16x1t	XZZZ90064Z
TR42	C6	T/R 2SC945P	T2SC00945P
TR43	A2	T/R 2SC1969C	T2SC01969C
		SET SCREW M2x0.4Px12	JS052012MN
		NUT M2x1.2t	JN242012ZS
		INSULATING PLATE 10x14x1.55mm	XZZZ90358Z
		INSULATING RING	XZZZ90003Z
TR44	A1	T/R 2SC2166C	T2SC02166C
		INSULATING RING	XZZZ90003Z
		INSULATING PLATE 10x14x1.55mm	XZZZ90358Z
		SET SCREW M2x0.4Px12	JS052012MN
		NUT M2x1.2t	JN242012ZS
TR45	B1	T/R 2SC2538	T2SC02538Z
TR46	B1	T/R 2SC1906	T2SC01906Z
TR49	B6	T/R 2SC945P	T2SC00945P
TR50	B6	T/R 2SA473	T2SA00473Z
		or T/R 2SA1869	T2SA01869Z
TR51	A6	T/R 2SB754Y	T2SB00754Y
		INSULATING PLATE 18x13mm	XZZZ90020Z
		SET SCREW M2x0.4Px10	JS052010MN
TR53	B3	T/R 2SC945P	T2SC00945P

Fios e jumpers do Alan 8001:

Main PCB (EPT360014B) (EPT360014C)

Connectores

Ref#	Bd Loc	Description	MFR. Part No.
J101		PCB CONNECTOR/S 4P T PH=2.5(WHITE)	EX07N41343
J101		WIRE CONNECTOR/H 4P 160MM	EX07N41355
J102		PCB CONNECTOR/S 2P T PH=2.5(WHITE)	EX07N41330
J102		WIRE CONNECTOR/H 2P L=180MM	EX07N48041
J103		PCB CONNECTOR/S 12P T PH=2.5 WHITE	EX07N41309
J103		WIRE CONNECTOR/H 12P	EX07N48103

J104		PCB CONNECTOR/S 4P T PH=2.5(WHITE)	EX07N41343
J104		WIRE CONNECTOR/H 4P 160MM	EX07N41355
J105		PCB CONNECTOR/S 3P T PH=2.5(WHITE)	EX07N41227
J106		PCB CONNECTOR/S 3P T PH=2.5(WHITE)	EX07N41227
J107		PCB CONNECTOR/S 2P T PH=2.5(WHITE)	EX07N41330
J108		PCB CONNECTOR/S 14P TPH=2.5 WHITE	EX07N41369
J108		WIRE CONNECTOR/H 14P	EX07N48104
J109		PCB CONNECTOR/S 2P T PH=2.5(WHITE)	EX07N41330
J109		WIRE CONNECTOR/H 2P L=180MM	EX07N48041
ECHO(J2)		WIRE CONNECTOR/H 3P L=120MM	EX07N48192

Fios

Ref#	Description	MFR. Part No.
	LEAD WIRE #26 50MM BLACK 5:5	WL0005005Z
	LEAD WIRE #26 60MM RED 5:5	WL0206005Z
	LEAD WIRE #26 50MM RED 5:5	WL0205005Z
	LEAD WIRE #26 120MM RED 5:5	WL0212005Z
(SLIDE SW)-D113	LEAD WIRE #26 150MM BLUE 5:15	WL0615004Z
R/SW-9	LEAD WIRE #26 60MM ORANGE 5:5	WL0306005Z
R210-211	LEAD WIRE #26 150MM YELLOW 15:15	WL0415009Z
J62-TR54	LEAD WIRE #26 150MM RED 15:15	WL0215009Z
J15-G	LEAD WIRE #26 170MM WHITE 15:15	WL0917009Z
J10-G	LEAD WIRE #26 200MM GREEN 15:15	WL0520009Z
AMP-G	LEAD WIRE #26 200MM RED 15:15	WL0220009Z
L29-SPK	LEAD WIRE #26 250MM VIOLET 15:15	WL0725009Z
L30-PA	LEAD WIRE #26 250MM WHITE 15:15	WL0925009Z
L29-SPK	LEAD WIRE #26 250MM VIOLET 15:15	WL0725009Z
R212-VR12	LEAD WIRE #26 50MM BLUE 15:4	WL0605009Z
R275-G	LEAD WIRE #26 250MM VIOLET 15:15	WL0725009Z
R275-G	LEAD WIRE #26 200MM VIOLET 15:15	WL0720009Z

Jumpers

Ref#	Bd Loc	Description	MFR. Part No.
J3		JUMPER WIRE 7x15x7mm	WX01070715
J3		TUBE 1.2x13mm	WX0012013A
J4		JUMPER WIRE 7x30x7mm	WX01070730
J5		JUMPER WIRE 7x15x7mm	WX01070715
J5		TUBE 1.2x13mm	WX0012013A
J6		JUMPER WIRE 7x6x7mm	WX01070706
J7		JUMPER WIRE 7x15x7mm	WX01070715
J8		JUMPER WIRE 7x5x7mm	WX01070705
J9		TUMPER WIRE 7X9X7mm	WX01070709
J10		TUBE 1.2x15mm	WX0012015A
J12		JUMPER WIRE 7x20x7mm	WX01070720
J13		JUMPER WIRE 7x8x7mm	WX01070708
J14		JUMPER WIRE 7x12x7mm	WX01070712
J18		JUMPER WIRE 7x8x7mm	WX01070708
J19		JUMPER WIRE 7x25x7mm	WX01070725
J20		JUMPER WIRE 7x15x7mm	WX01070715

J21		JUMPER WIRE 7x35x7mm	WX01070735
J22		JUMPER WIRE 7x8x7mm	WX01070708
J23		JUMPER WIRE 7x25x7mm	WX01070725
J25		TUMPER WIRE 7X9X7mm	WX01070709
J26		JUMPER WIRE 7x15x7mm	WX01070715
J27		JUMPER WIRE 7x15x7mm	WX01070715
J28		JUMPER WIRE 7x14x7mm	WX01070714
J29		JUMPER WIRE 7x20x7mm	WX01070720
J30		JUMPER WIRE 7x6x7mm	WX01070706
J31		JUMPER WIRE 7x7x7mm	WX01070707
J32		JUMPER WIRE 7x15x7mm	WX01070715
J33		JUMPER WIRE 7x7x7mm	WX01070707
J35		JUMPER WIRE 7x6x7mm	WX01070706
J37		JUMPER WIRE 7x22x7mm	WX01070722
J38		JUMPER WIRE 7x14x7mm	WX01070714
J39		JUMPER WIRE 7x12x7mm	WX01070712
J40		JUMPER WIRE 7x8x7mm	WX01070708
J41		JUMPER WIRE 7x14x7mm	WX01070714
J42		JUMPER WIRE 7x8x7mm	WX01070708
J43		JUMPER WIRE 7x8x7mm	WX01070708
J44		JUMPER WIRE 7x6x7mm	WX01070706
J45		JUMPER WIRE 7x8x7mm	WX01070708
J46		JUMPER WIRE 7x12x7mm	WX01070712
J49		JUMPER WIRE 7x5x7mm	WX01070705
J50		JUMPER WIRE 7x6x7mm	WX01070706
J51		TUMPER WIRE 7X9X7mm	WX01070709
J52		JUMPER WIRE 7x6x7mm	WX01070706
J53		JUMPER WIRE 7x10x7mm	WX01070710
J54		JUMPER WIRE 7x5x7mm	WX01070705
J57		JUMPER WIRE 7x12x7mm	WX01070712
J58		JUMPER WIRE 7x10x7mm	WX01070710
J59		JUMPER WIRE 7x18x7mm	WX01070718
J60		JUMPER WIRE 7x8x7mm	WX01070708
J61		JUMPER WIRE 7x8x7mm	WX01070708
J63		JUMPER WIRE 7x8x7mm	WX01070708
J65		JUMPER WIRE 7x10x7mm	WX01070710
J66		JUMPER WIRE 7x5x7mm	WX01070705
J67		JUMPER WIRE 7x8x7mm	WX01070708
J68		TUMPER WIRE 7X9X7mm	WX01070709
J69		JUMPER WIRE 7x7x7mm	WX01070707
J71		JUMPER WIRE 7x7x7mm	WX01070707
J72		JUMPER WIRE 7x10x7mm	WX01070710
J73		JUMPER WIRE 7x7x7mm	WX01070707
J74		JUMPER WIRE 7x10x7mm	WX01070710
J75		JUMPER WIRE 7x5x7mm	WX01070705
J76		JUMPER WIRE 7x12x7mm	WX01070712
J79		JUMPER WIRE 7x5x7mm	WX01070705
J80		JUMPER WIRE 7x13x7mm	WX01070713
J83		JUMPER WIRE 7x5x7mm	WX01070705
J85		JUMPER WIRE 7x10x7mm	WX01070710
J86		JUMPER WIRE 7x7x7mm	WX01070707
J87		JUMPER WIRE 7x8x7mm	WX01070708
J88		JUMPER WIRE 7x6x7mm	WX01070706

J89		JUMPER WIRE 7x5x7mm	WX01070705
J91		JUMPER WIRE 7x5x7mm	WX01070705
J92		JUMPER WIRE 7x6x7mm	WX01070706
J94		JUMPER WIRE 7x12x7mm	WX01070712
J95		JUMPER WIRE 7x8x7mm	WX01070708
J99		JUMPER WIRE 7x5x7mm	WX01070705
J100		JUMPER WIRE 7x5x7mm	WX01070705
J102A	D2	JUMPER WIRE 7x10x7mm	WX01070710
R80		JUMPER WIRE 7x12x7mm	WX01070712
R139		JUMPER WIRE 7x4x7mm	WX01070704
R156-J10		JUMPER WIRE 7x8x7mm	WX01070708
R157		JUMPER WIRE 7x3x7mm	WX01070703
R233		JUMPER WIRE 7x10x7mm	WX01070710
R275		JUMPER WIRE 7x3x7mm	WX01070703
C93		JUMPER WIRE 7x4x7mm	WX01070704
C96		JUMPER WIRE 7x4x7mm	WX01070704
C111		JUMPER WIRE 7x4x7mm	WX01070704
D18		JUMPER WIRE 7x15x7mm	WX01070715
D19		JUMPER WIRE 7x15x7mm	WX01070715
D39		JUMPER WIRE 7x3x7mm	WX01070703
D57		JUMPER WIRE 7x3x7mm	WX01070703
D74		JUMPER WIRE 7x6x7mm	WX01070706
FL3		JUMPER WIRE 7x15x7mm	WX01070715
TR13		JUMPER WIRE 7x3x7mm	WX01070703
TP7-TP8		JUMPER WIRE 7x20x7mm	WX01070720
JTP7-TP8		JUMPER WIRE 7x25x7mm	WX01070725
TP7-TP9		JUMPER WIRE 7x13x7mm	WX01070713
IC3-C119		JUMPER WIRE 7x15x7mm	WX01070715
J11-C198		JUMPER WIRE 7x15x7mm	WX01070715

Componentes do lado cobreado da placa do Alan 8001:

Ref#	Description	MFR. Part No.
D30	DIODO SMD HVU359	EDHU00359Y
	SHIELD PLATE (A)	MT1200060N
	SHIELD PLATE	MT2710060X
	SHIELD PLATE (A)	PT1200020A

Correções e notas sobre o chassi EPT360014B:

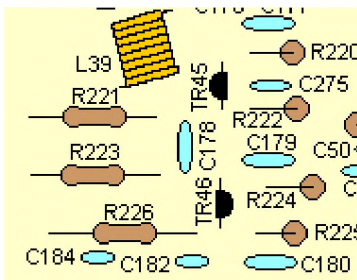
Galaxy DX Radios EPT360014B and EPT360014C Notes:

In doing this I have made a few notes you may find of interest.

I have seen 3 different silk screens used on the EPT3600-14B (main PCB).

They have the following markings KAI HWA2-002 V0, SM YGOI 94 V0, M-294 HB-C

There will be updates to this section as I get along with this project, so check back.



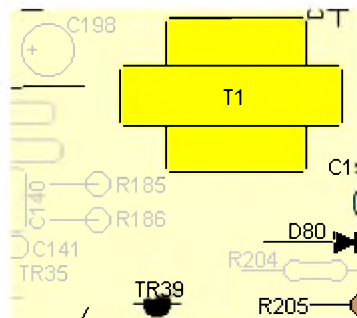
Grid de localização B1 na placa

TR45 silk screen shows the flat to the left on all silk screens used.

If a 2SC1973 is installed in the location the flat is to the left.

If a 2SC2538 is installed in this location the flat is to the right.

All the board layouts on this site will show TR45 flat is to the right.

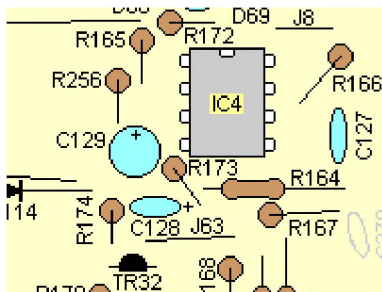


Grid de localização C5 na placa

There is two places marked TR30 on the following silk screens KAI HWA2-002 V0, SM YGOI 94 V0.

The Transistor in grid location C5 is TR39 TR30 is at Grid Location E4. The layout drawing on this site has TR39 labeled as TR39.

Note that on the M-294 HB-C PCB silk screen TR39 is marked as TR39



Grid de localização D6 e E6 na placa

C128 and C129 are swapped on the factory schematics (aka Tube schematics set) on some radios but not all. On all the layouts on this site C128 and C129 will be as the drawing to the left and this also this is also the way all versions of the silk screens used are. And the schematics on the site will be changed.

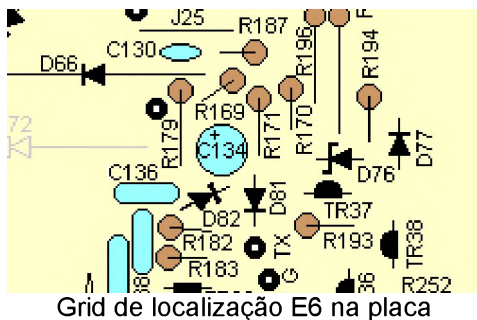
Tube schematics errors

On the following schematics the part labels are swapped the part value's are right.

DX77HML, DX88HL, DX99V

On the following schematics the part labels are NOT swapped.

DX55V, DX66V, DX73V



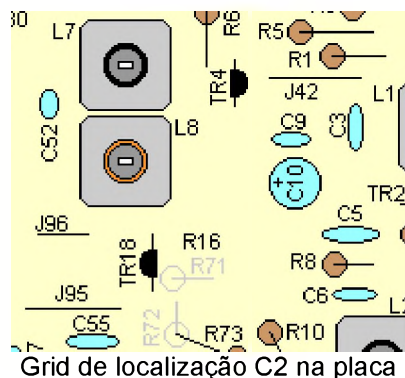
On the KAI HWA2-002 V0, SM YGOI 94 V0 boards C130 silk screen label is closest to the front.
On the M-294 HB-C PCB C136 silk screen label is closest to the front.

Also these parts are swaped on the factory schematics (aka Tube schematics set) on some radios but not all.

On the following schematics the part labels are swaped the part value's are right.
DX55V, DX66V, DX73V

On the following schematics the part labels are NOT swaped.
DX77HML, DX88HL, DX99V

All the board layouts on this site will show C136 closest to the front and the schematics on this site will be change to show this.

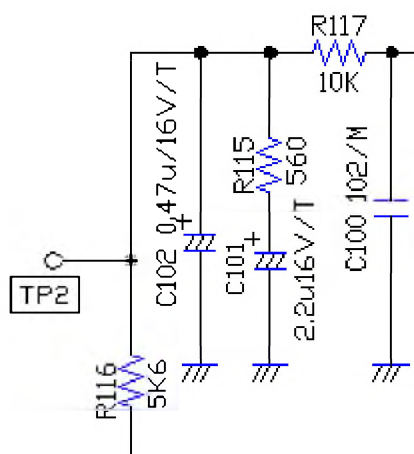
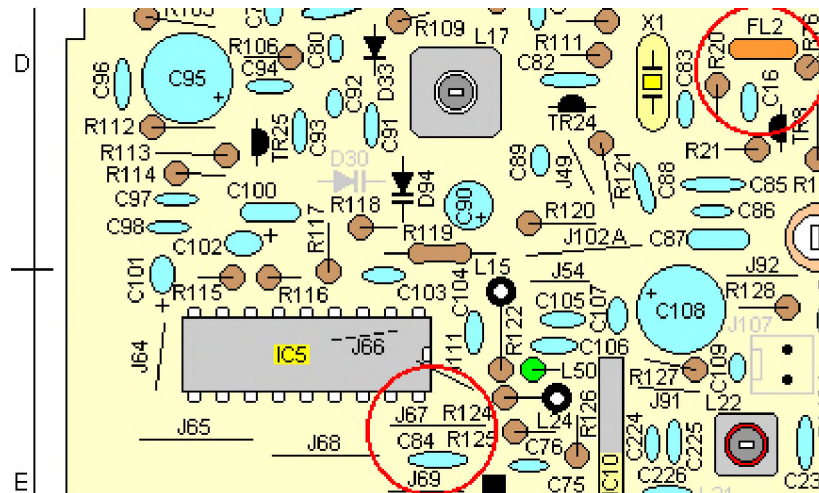
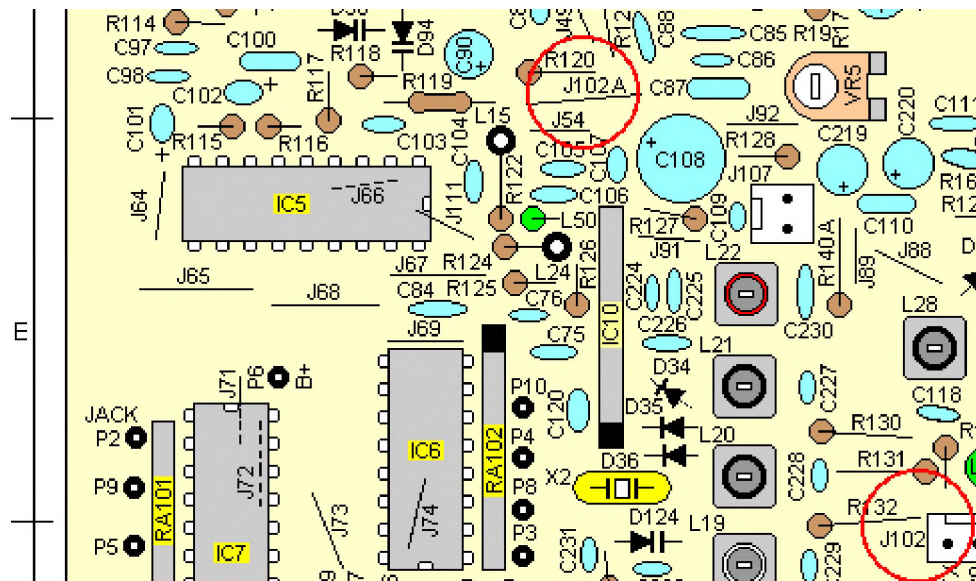


O silk screen de todas placas PCB mostra o lado chato do transistor TR18 a esquerda.

With a J310 installed in this location the flat is to the right as shown on all layouts on this site.

The following applies to all PCB's

- (a) **Existem dois lugares marcados como R140.** The layout drawing and parts list shows these as R140A at grid location E3 and R140 at grid Location F3.
- (b) **Existem dois lugares marcados como R275.** The layout drawing and parts list shows these as R275 at grid Location F2 and R275A at grid Location E4.
- (c) **Existem dois lugares marcados como D94.** The layout drawing and parts list shows these as D94 at grid location D1 and D94A at grid location F3.
- (d) **Existem dois lugares marcados como L50.** The layout drawing and parts list shows these as L50 at grid location E2 and L50A at grid location A2.
- (e) **Existem dois lugares marcados como C84.** The layout drawing and parts list shows these as C84 at grid location E2 and FL2 at grid location D2.
- (f) **Existem dois lugares marcados como J102.** The layout drawing and parts list shows these as J102A at grid location D2 and J102 at grid location F3.
- (g) **Existem dois lugares marcados como C84.** The layout drawing and parts list shows these as C84 at grid location E2 and FL2 at grid location D2.



Factory schematics (Tube schematics set) there is an error on C101 and R115. The schematics show R115 to ground, but in fact C101 is on the ground side of R115 as shown in the diagram on the left.

DX33 - In current production C170 is not in the radio and should not be on the schematic. In early production C170 was installed on the solder side of the main pcb and the value was 100pf.

DX44 - In current production C170 is not in the radio and should not be on the schematic.
In early production C170 was installed on the solder side of the main pcb and the value was 100pf.

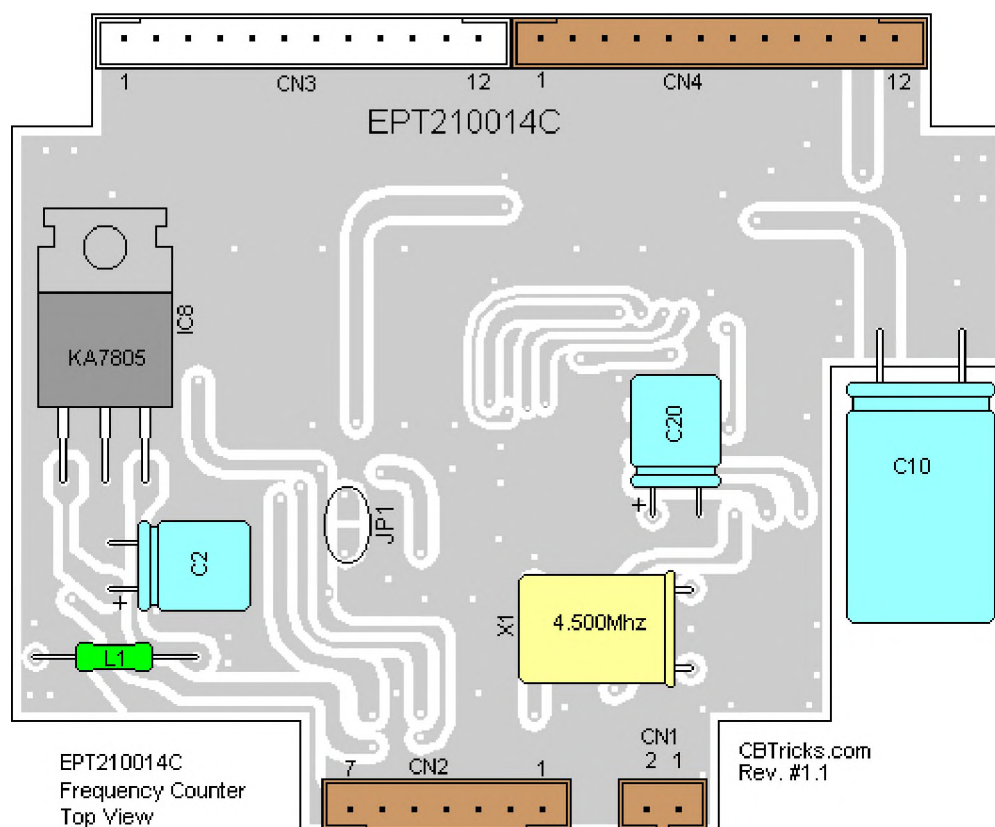
DX55 - In current production C170 is not in the radio and should not be on the schematic.
In early production C170 is not in the radio and should not be on the schematic.

DX66 - In current production C170 is not in the radio and should not be on the schematic.
In early production C170 is not in the radio and should not be on the schematic.

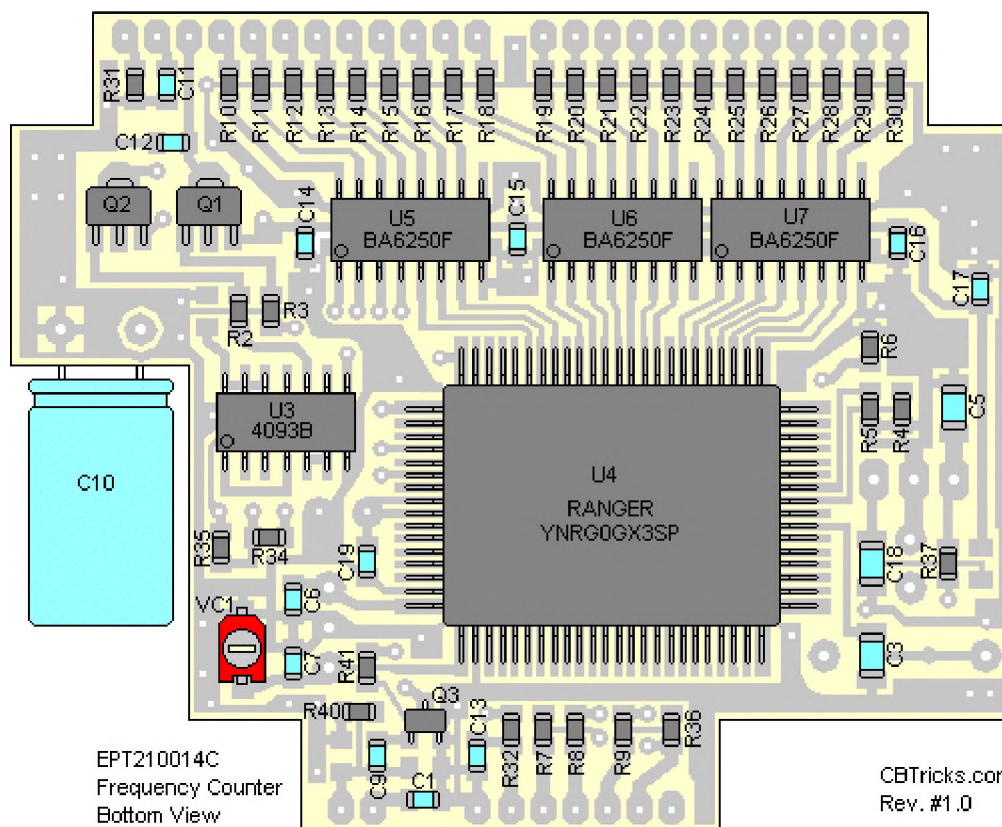
DX73 - C170 was installed on the solder side of the main pcb and the value was 150pf.
This model is discontinued so all or most of them had C170 installed.

Frequencímetro do Alan 8001:

OBS: Nos rádios mais antigos, existe a versão EPT210014B, com um integrado da Toshiba.



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Ref#	Description	MFR. Part No.
	COUNTER P.C.B. EPT210014C Complete with Components	#MT-140R-P10
	COUNTER P.C.B. 62x51x1.6tmm(d)	EPT210014C

Resistors

Ref#	Description	MFR. Part No.
R2	CHIP/F/R (SMD) 4.7K OHM 0.1W	RCY014724Z
R3	CHIP/F/R (SMD) 4.7K OHM 0.1W	RCY014724Z
R4	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R5	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R6	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R7	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R8	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R9	CHIP/F/R (SMD) 22K OHM 0.1W	RCY012234Z
R10	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R11	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R12	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R13	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R14	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R15	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R16	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R17	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R18	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R19	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z

R20	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R21	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R22	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R23	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R24	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R25	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R26	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R27	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R28	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R29	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R30	CHIP/F/R (SMD) 100 OHM 0.1W	RCY011014Z
R31	CHIP/F/R (SMD) 330 OHM 0.1W	RCY013314Z
R32	CHIP/F/R (SMD) 10 OHM 0.1W	RCY011004Z
R35	CHIP/F/R (SMD) 470 OHM 0.1W	RCY014714Z
R36	CHIP/F/R (SMD) 10K OHM 0.1W	RCY011034Z
R37	CHIP/F/R (SMD) 47 OHM 0.1W	RCY014704Z
R40	CHIP/F/R (SMD) 10K OHM 0.1W	RCY011034Z
R41	CHIP/F/R (SMD) 33K OHM 0.1W	RCY013334Z
R42	CHIP/F/R (SMD) 0 OHM 0.1W	RCY010004Z

Capacitors

Ref#	Description	MFR. Part No.
C1	CHIP/C (SMD) 0.1UF 50WV Z F Y5V	CK1104AB7R
C2	E/C 100UF 16WV Z (MINI)	CEM161077Z
C3	CHIP/C (SMD) 0.1UF 25WV M Z5U	CK2104AA6U
C5	CHIP/C (SMD) 0.1UF 25WV M Z5U	CK2104AA6U
C6	CHIP/C (SMD) 33PF 50WV J CH	CK1330AB4A
C7	CHIP/C (SMD) 15PF 50WV J CH	CK1150AB4A
C9	CHIP/C (SMD) 0.001UF 50WV Z SL(K X7R)	CK1102AB7L
C10	E/C 1000UF 16WV Z	CE0161087Z
C11	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C12	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C13	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C14	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C15	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C16	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C17	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C18	CHIP/C (SMD) 0.1UF 25WV M Z5U	CK2104AA6U
C19	CHIP/C (SMD) 0.01UF 50WV M Z5U	CK1103AB6U
C20	E/C 100UF 16WV Z (MINI)	CEM161077Z
VC1	TRIMMER/C (SMD)20PF TCZ03P200A110B00	CV038200AY

Integrated Circuits

Ref#	Description	MFR. Part No.
U1	IC (SMD) TC4093BFN 14PIN	YNTA04093B
U4	I.C. LC7232N-8985 80PIN	YNRG0GX3SP
U5	IC (SMD) BA6250F-TP 16PIN	YNRO06250F
U6	IC (SMD) BA6250F-TP 16PIN	YNRO06250F
U7	IC (SMD) BA6250F-TP 16PIN	YNRO06250F
IC8	I.C.(SGS) L7805	ENSG07805Z

Transistors

Ref#	Description	MFR. Part No.
Q1	T/R (SMD) 2SB798DL-(T1)	TY2SB0798Z
Q2	T/R (SMD) 2SB798DL-(T1)	TY2SB0798Z
Q3	T/R (SMD) 2SC2714-TE85L	TY2SC2714Z

Inductors

Ref#	Description	MFR. Part No.
L1	CHOKE COIL 470UH	ECCHK16096

Crystals

Ref#	Description	MFR. Part No.
X1	CRYSTAL HC-49/U 4.500MHz	EYCAP04500

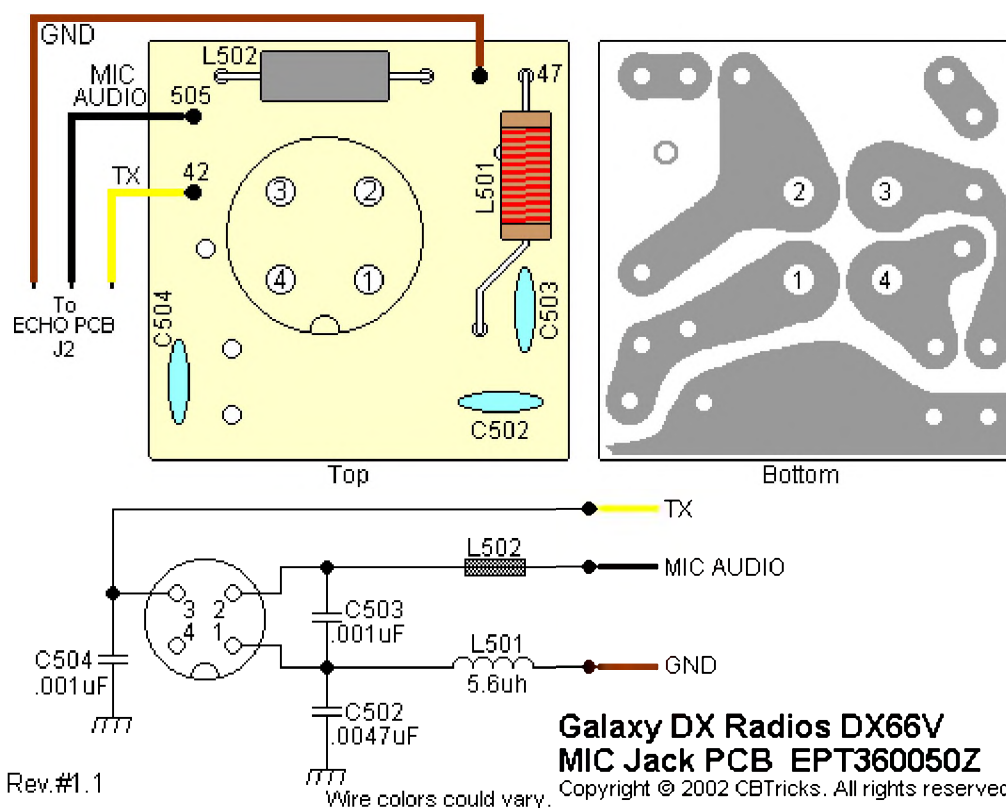
Connectors

Ref#	Description	MFR. Part No.
CN1	PCB CONNECTOR/S 2P PH=2MM	EX07N48223
CN1	WIRE CONNECTOR/H 2P-2P	EX07N48745
CN2	PCB CONNECTOR/S 7P PH=2MM	EX07N48224
CN2	WIRE CONNECTOR/H 7P L=200MM PH=2MM	EX07N48875
CN3	PCB CONNECTOR/S 12P PH=2(WHITE)	EX07N48767
CN4	PCB CONNECTOR/S 12P PH=2	EX07N48150

Hardware

Ref#	Description	MFR. Part No.
	COUNTER COVER	MT2100061X
	COUNTER BOX	MT2100070X
	BRACKET COUNTER BOX	MT2100081X
	SPONGE 50x30x3t	XZZZ90198Z
	SET SCREW M3x0.5Px6	JS053006MN
(1)	SET SCREW M3x0.5Px8	JS013008MV

Placa do microfone:



Ref#	Description	MFR. Part No.
	MIC P.C.B. EPT360050Z Complete with Components	#MT-101-P05
	MIC P.C.B. 25x25x1.6mm	EPT360050Z

Capacitors

Ref#	Description	MFR. Part No.
C502	C/C 0.0047UF 50WV SL Z	CC0504727L
C503	C/C 0.001UF 50WV SL Z	CC0501027L
C504	C/C 0.001UF 50WV SL Z	CC0501027L

Inductors

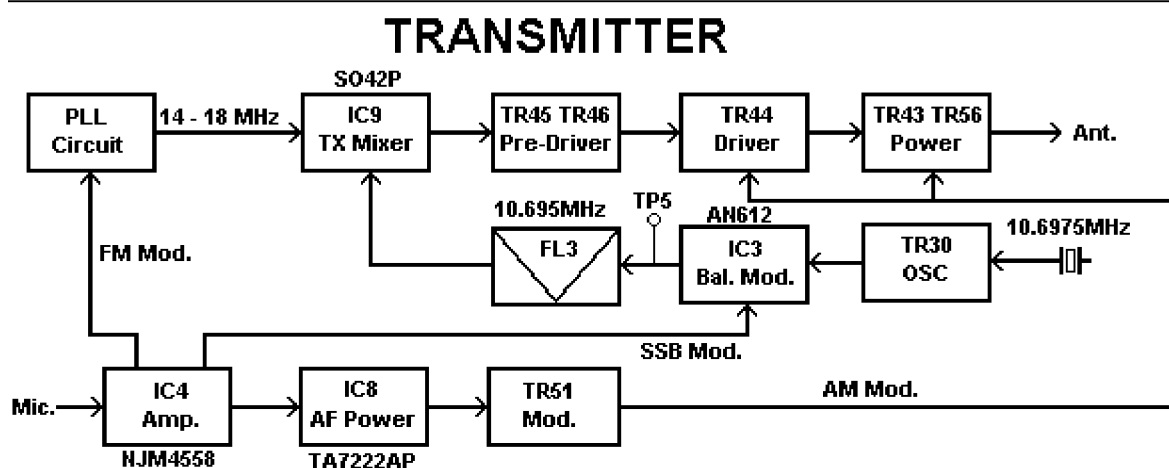
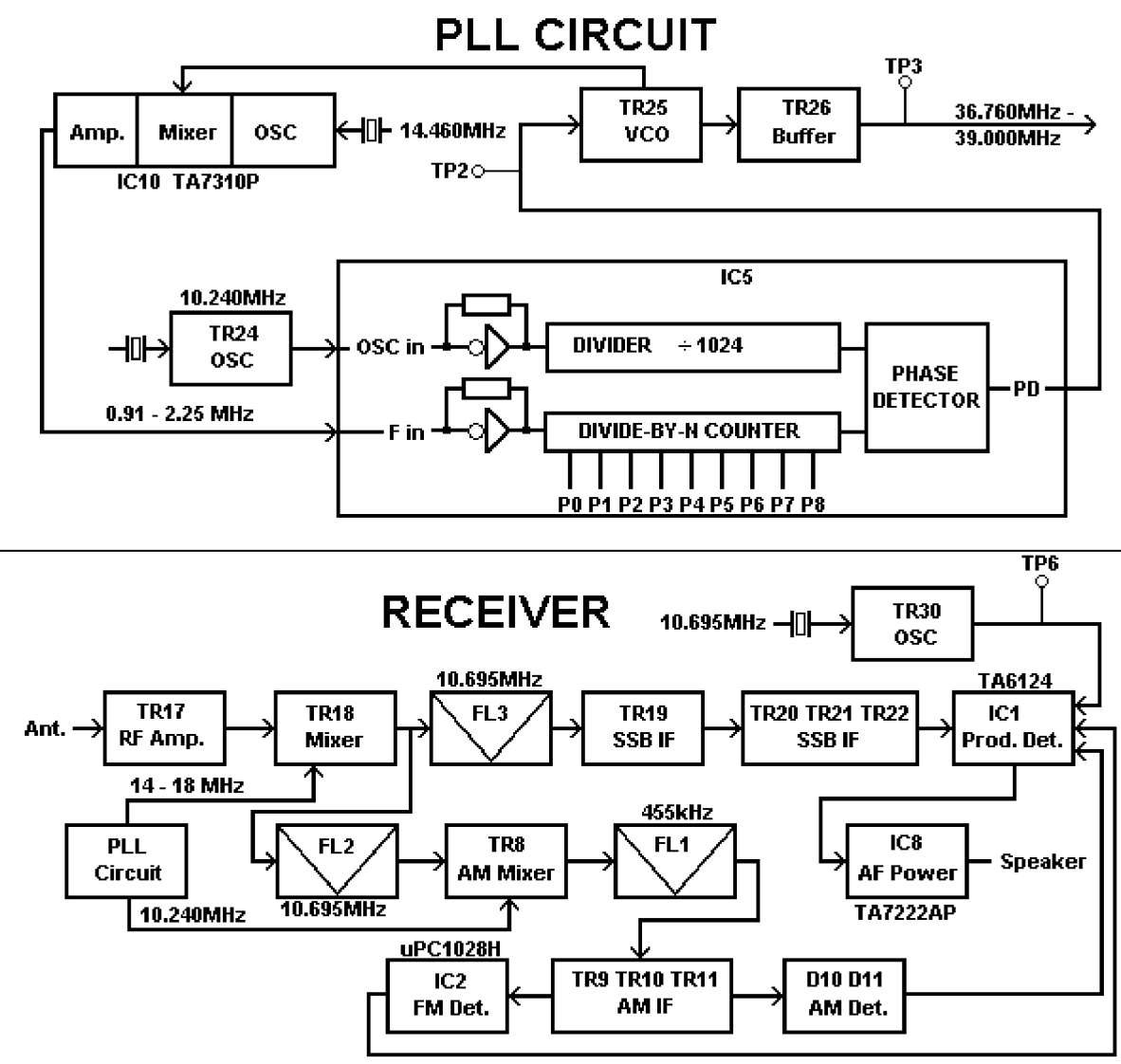
Ref#	Description	MFR. Part No.
L501	CHOKE COIL 5.6UH	ECCHK16001
L502	BEAD COIL 3.5X6X1.2 PH=12.5	ECBAD18550

Connectors

Ref#	Description	MFR. Part No.
	MIC JACK SCS-16-4(R)	EX06N41020

Diagrama em blocos do Alan 8001

Esse diagrama do PLL tem um erro grotesco : a saída do TR26 (TP3) é em 14 a 18MHz (por ex: 16.430 para o canal 14 (27.125) que é misturado com o oscilador de 10.695). Essas anotações são do Luciano Sturaro, PY2BBS.



PLL Circuit. PLL is an abbreviation of the phase-locked loop which is fundamental composed of a closed loop feedback circuit. The feedback component is the balance of frequency drift and the PLL circuit acts to cancel it out. To detect out the frequency drift of the PLL output, a fixed reference oscillator (10 kHz, 1/1024 divided down from 10.240 MHz) is compared constantly with the input frequency (10 kHz). The input frequency is obtained by dividing the VCO frequency.

Off-Set frequency oscillator IC10. The off-set-frequency oscillator IC10 oscillates at 14.460MHz for all band. Switching between these oscillating frequencies is made by biasing the diodes D34 to D36.

The off-set frequency signal is obtained at IC10 Oscillator and flows into IC10 Mixer where it is beat with the VCO signal. The VCO signal is obtained from the following:

$$f_{vco} = f_{off-set} + N_{fr}$$

Where, f_{vco} = VCO frequency, N = programming code for divider output, and fr = reference frequency step (10kHz).

i.e.: At channel #1 in band A, and band corresponding N code is 91:

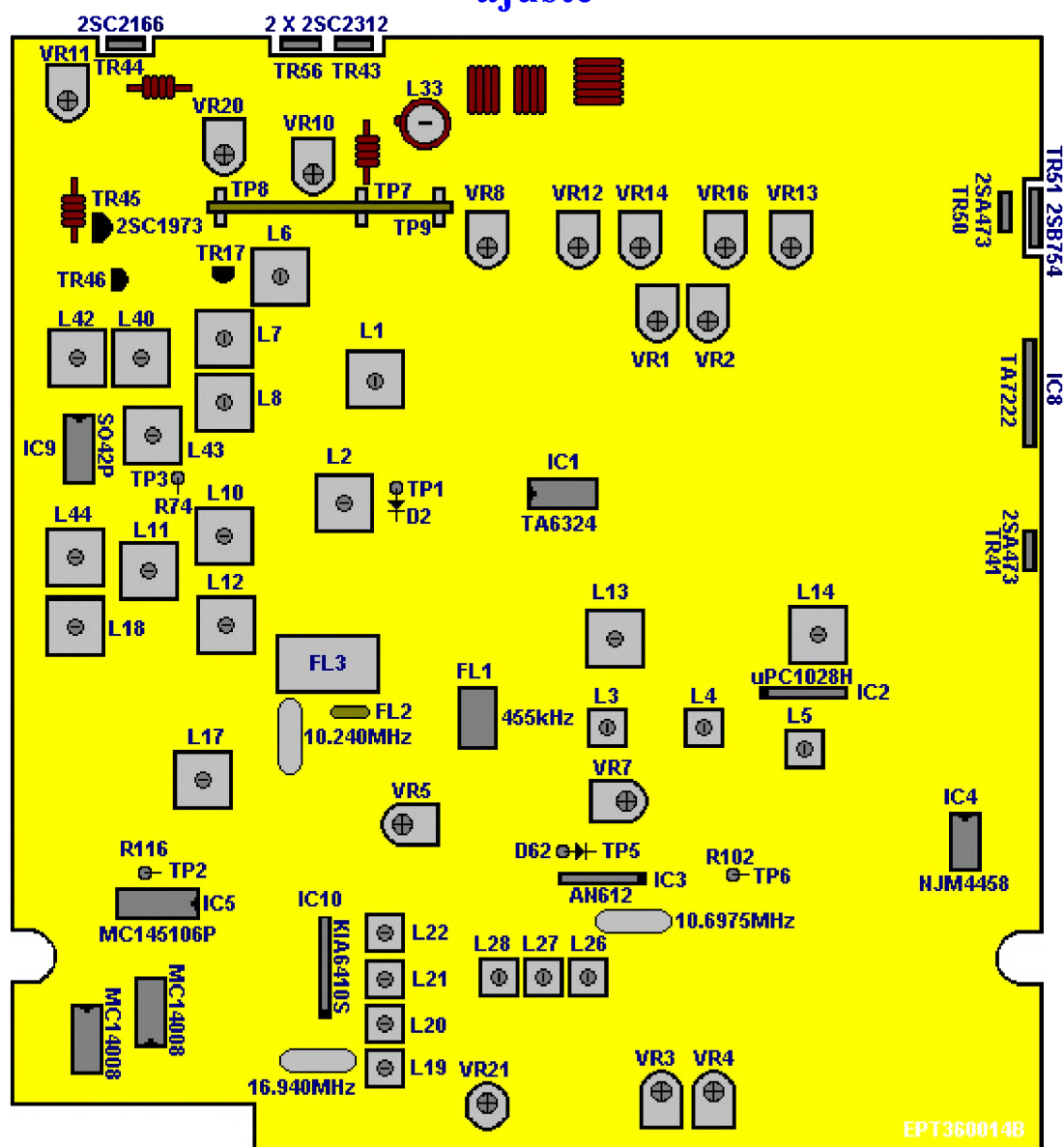
$$f_{vco} = 14.010 + (91 \times 0.01) = 14.920\text{MHz}.$$

Since the mixer output determined by two factors the off-set frequency output (dependent on band selector switch) and the VCO output, the mixer output contains the subtracted frequency of 0.91 to 2.25 MHz. These frequencies appears in pin #2 of IC5, and divided by the programmable divider in IC5 down to 10 kHz which is compared with another 10kHz signal obtained from the reference oscillator TR24 (10.240MHz). The VCO output is mixed with the off-set frequency signal and applied to the TX mixer IC9 through band-pass filters.

i.e. At channel 1 in band A, and AM band, the TX mixer IC9 accepts $14.920 + 10.695\text{MHz} = 25.615\text{MHz}$ is TX frequency.

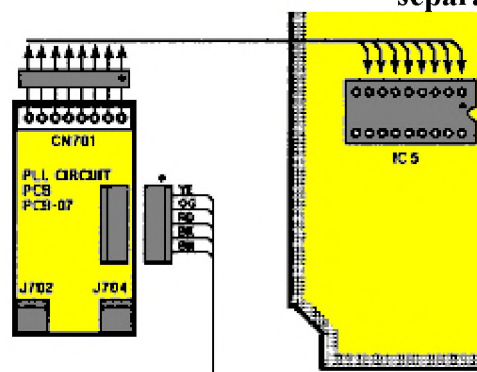
When receiving channel 1 in band A (26.065MHz), the 1st RX mixer TR18 accepts 15.370 local signal at its base, and converts down it down to 10.695MHz IF (for AM/FM mode, this is the 1st intermediate frequency). TR18 off-sets the 10.695MHz signal so that TR30 can oscillate at 10.6975MHz for LSB.

Pontos de ajuste

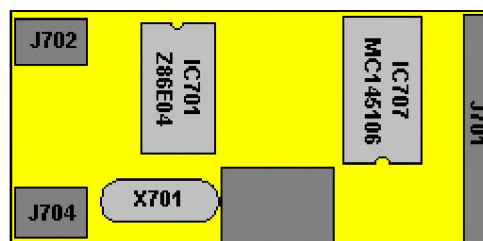


PLL e placa CPU

Em alguns modelos, o PLL foi substituído da placa principal para uma placa separada com CPU.

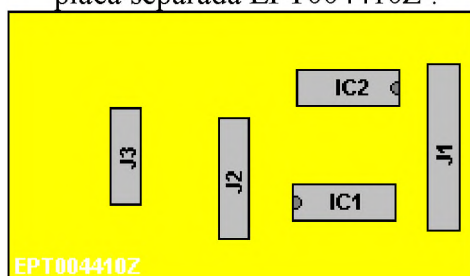


PCB-07 - CPU and PLL Board



Placa do Decoder

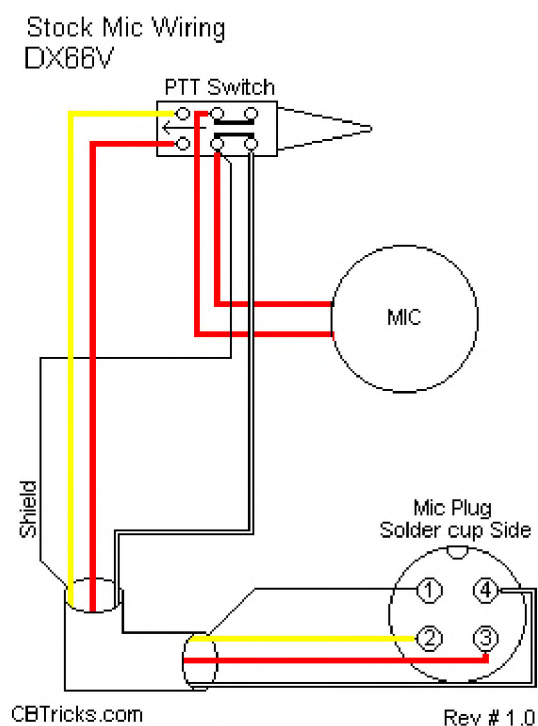
Em alguns modelos os *decoders* (MC14008) da placa principal foram substituídos pela placa separada EPT004410Z .



Incrementando o ganho de recepção

Deixar a recepção de **AM** mais silenciosa e melhorar o ganho dos sinais de entrada são um desejo comum dos operadores de rádio. Nos primeiros estágios da entrada de HF do equipamento está o transistor **2SC1674**. Este transistor é responsável pela amplificação dos pequenos sinais detectados. O problema é que este transistor é muito ruidoso, se o compararmos com outros transistores mais modernos de baixo ruído. Junto com a amplificação dos sinais de entrada vem o ruído do transistor. A substituição deste transistor por um outro de ganho mais elevado e menor índice de ruído melhora extremamente o sinal em relação ao ruído de recepção. Podemos utilizar o transistor **2SC2999** que tem como características baixo ruído e ganho mais elevado. Substitua o **2SC1674** (**TR17**) por um **2SC2999** (ou outro transistor similar de baixo ruído e ganho elevado) para conseguir a melhora de sinais em relação ao nível de ruído. Reajuste as bobinas L6 e L7. O incremento do ganho será superior a 6 dB com o mesmo sinal em relação ao ruído.

Diagrama do microfone:



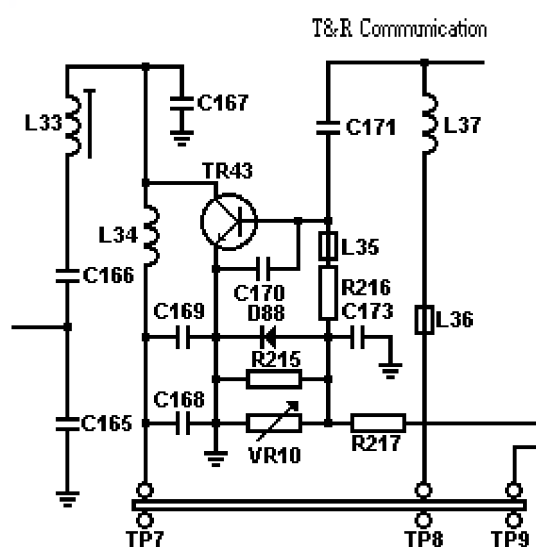
Conexões do microfone

Pino	Descrição
1	Terra
2	Microfone
3	Chaveamento de TX (Conectado ao terra)
4	Alto Falante (Conectado ao terra)

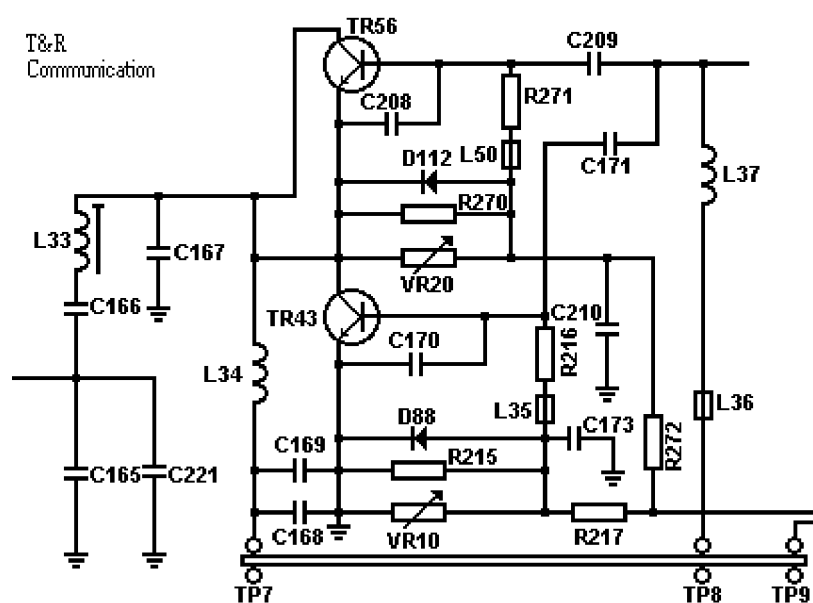
Modificação para dois transistores de saída de RF

(esta modificação só poderá ser efetuada em radios com a placa **EPT360014B** com um único transistor de saída, como o **Superstar 3900**)

Saída de RF do SuperStar 3900

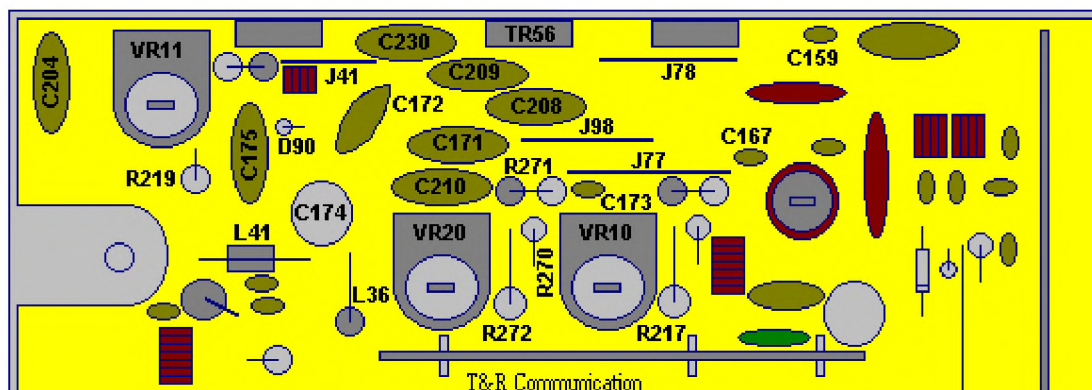


Saída de RF do Alan 8001



Placa do Alan 8001

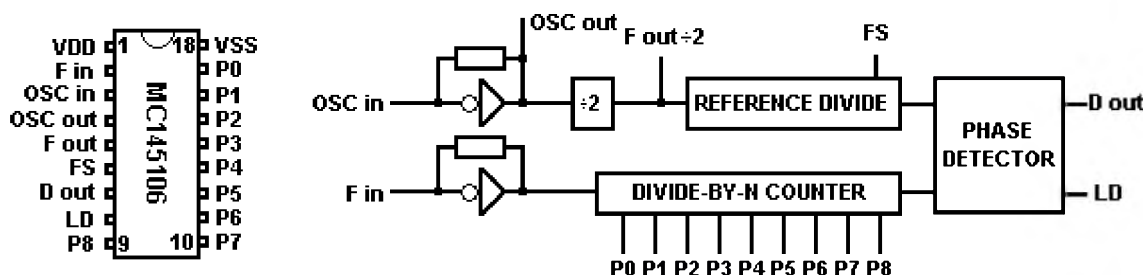
(EPT360014B)



Componente	Componente	Valor
R270	R215	47 ohm
R271	R216	1 ohm
R272	R217	150 ohm
VR20	VR10	100 ohm
C208	C170	560pF
C209	C171	390pF
C212	C173	47nF
D112	D88	MV1Y
L50	L35	Conta de Ferrite num resistor
J77		Jumper
J78		Jumper
J98		Jumper
TR56	TR43	2SC2312 (2SC1969)

PLL Sintetizador de Freqüências MC145106P

(equivalentes: MM55106, MM55116, MM55126)



Visão geral

O MC145106 é um sintetizador de freqüências PLL construído em CMOS numa estrutura monolítica única. Este sintetizador tem aplicações na área de radios da faixa do cidadão e transceptores de FM. Este componente contém um oscilador/amplificador, uma corrente de divisão de 1024 ou 2048 para o sinal do oscilador, uma corrente de divisão programável para a entrada do sinal e um detector de fase.

O MC145106 foi fito para operar com um circuito oscilador de 10.24 MHz ou pode operar com um sinal externo. O circuito fornece um sinal de saída de 5.12 MHz, que pode ser utilizado para triplicar a frequência. Um divisor de 512 programações divide a Frequencia do sinal de entrada para a seleção de canais. As entradas ao divisor programável são padronizadas em aterramento a fonte dos sinais binários. Os resistores *pull-down* nessas entradas normalmente ajustam essas entradas ao terra, inabilitando essas entradas de programação para serem controladas por chaves mecânicas ou circuitos eletrônicos.

O detector de fase pode controlar um VCO e rende um sinal de nível elevado quando a frequência de entrada de é baixa, e um baixo nível de sinal quando a frequência de entrada for alta. Um sinal de *out-of-lock* é fornecido para o detector de trava deste PLL com um nível "0" para condição de *out-of-lock*.

&127; única fonte de alimentação

&127; fonte Wide Range: 4.5 a 12 V

&127; Provisão para cristal oscilador de 10.24 MHz

&127; saída de 5.12 MHz

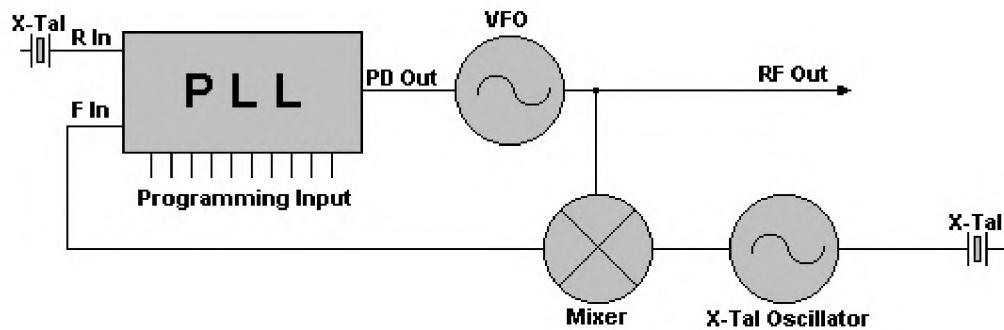
&127; Divisão programável Binária selecionada para N=512

&127; Resistores Pull-Down no PLL ou divisor programável de entradas

&127; Divisor de referência selecionável, 1024 ou 2048 (Incluindo ÷ 2)

&127; Detector de fase de três estados

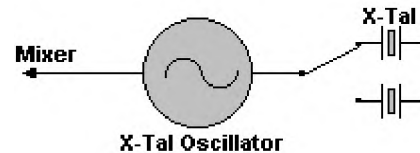
Conversão da frequência para o divisor



Este PLL usa um misturador e um oscilador a cristal para converter a frequência de saída f_{OUT} para a f_{IN} do circuito PLL.

A frequência do cristal é $f_{XTAL} = f_{OUT} - f_{IN}$

A saída de Frequencia pode ser modificada por troca dos cristais misturadores ou adicionando um novo cristal misturador ao oscilador.

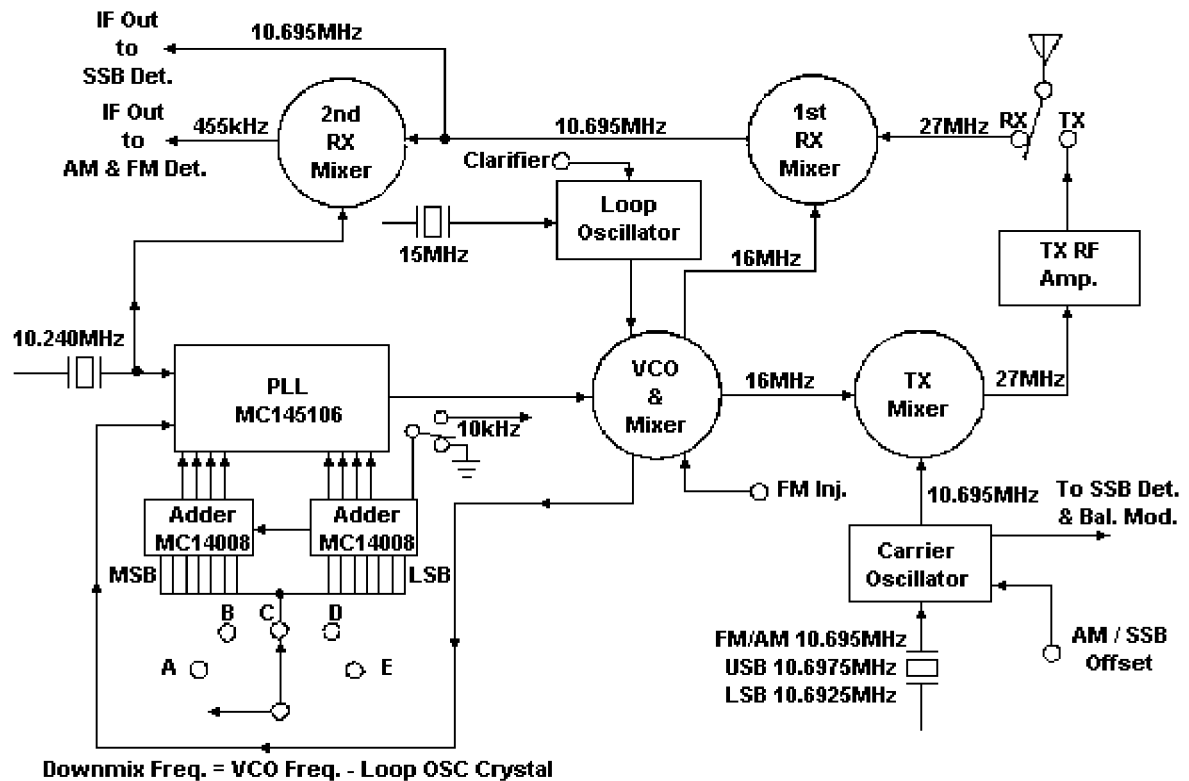


Pino	Nome	Descrição
1	VDD	Alimentação de tensão Positiva
2	F in	Frequencia de entrada ao divisor programável - Max. 3MHz
3	OSC in	Entrada do Oscilador
4	OSC out	Saída do Oscilador
5	F out	Referencia da frequencia do OSC dividida por 2 saídas
6	FS	Reference Oscillator Frequency Division Select. 1=10 kHz, 0=5 kHz
7	D out	Detector de saída (para controle de VCO externo)
8	LD	Detector de trava
9	P8	Entrada de programação (Binária)
10	P7	Entrada de programação (Binária)
11	P6	Entrada de programação (Binária)
12	P5	Entrada de programação (Binária)
13	P4	Entrada de programação (Binária)
14	P3	Entrada de programação (Binária)
15	P2	Entrada de programação (Binária)
16	P1	Entrada de programação (Binária)
17	P0	Entrada de programação (Binária)
18	VSS	Terra

Tabela Verdade do MC145106P

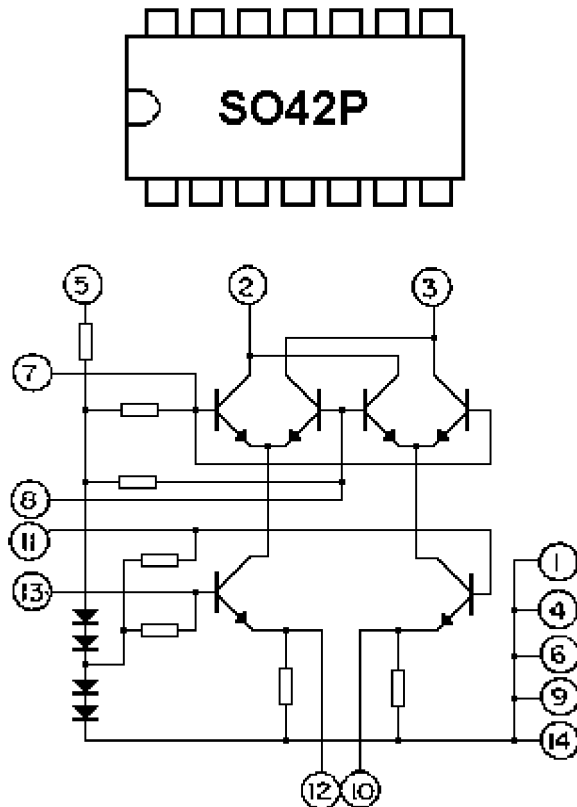
[illegible]

PLL MC145106P no Chassis Uniden AM/FM/SSB EPT360014B



SO42P Modulador Balanceado Duplo

Similar ao TDA 6130-5



Pino 7 Entrada

Pino 8 Entrada

Pino 2 Saída

Pino 3 Saída

Pino 5 Entrada Bias

Pino 11 Entrada

Pino 13 Entrada

Pino 10 Saída

Pino 12 Saída

Pino 1 Terra

Pino 4 Terra

Pino 6 Terra

Pino 9 Terra

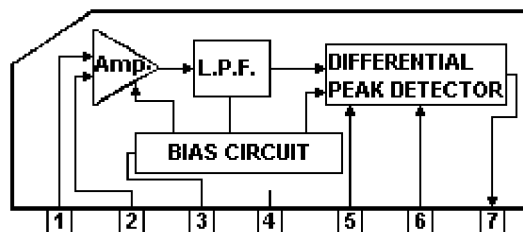
Pino 14 Terra

Datasheet do **SO42P** :

<http://www.cbtricks.com/radios/galaxy/datasheets/ic/pdf/s042p.pdf>

uPC1028H Amplificador e Discriminador de F.I. de FM

Similar ao **TA7130P** AN5212 AN5730 AN5732 LA1150 KA2245 KIA7130
BA403



&127; 3 stage differential IF amplifier.

&127; Differential peak detector.

&127; Easy adjustment.

&127; Large output voltage.

&127; Good limiter characteristic.

&127; Wide operating voltage.

&127; Low distortion.

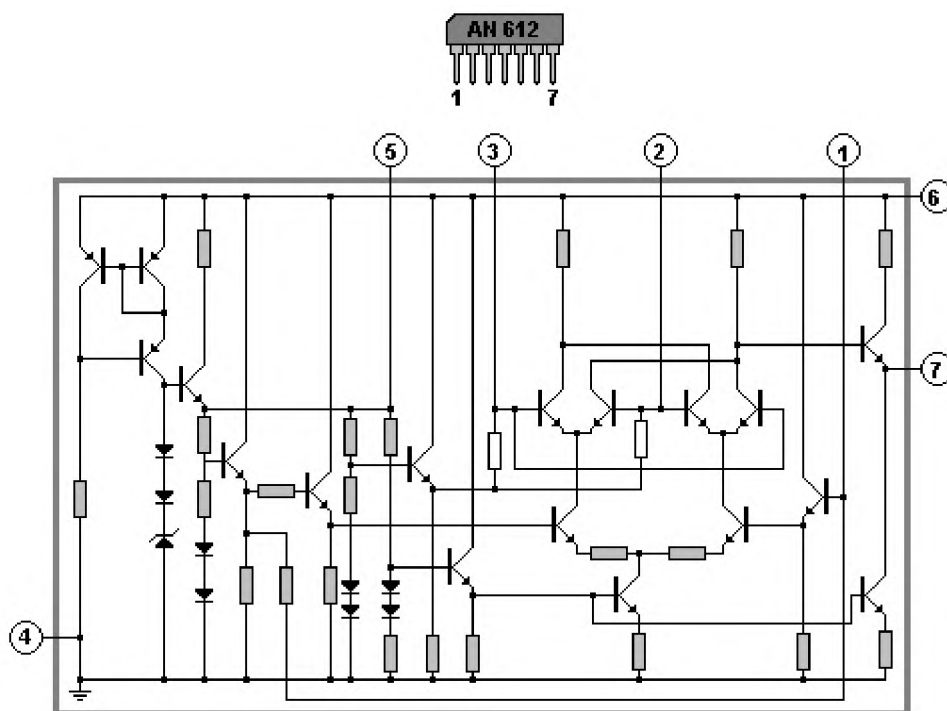
&127; Fewer peripheral parts.

&127; Excellent AM rejection ratio.

Pino	Nome	Descrição
1		Entrada Balanceada
2		Entrada Balanceada
3	Vcc	Ponto de alimentação positiva
4	GND	Terra
5		Entrada positiva do Detector
6		Entrada negativa do Detector
7		Saída de Áudio

AN612 Modulador Balanceado de SSB

Similar ao NTE1249

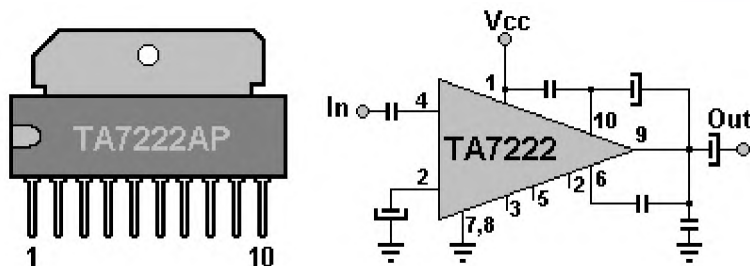


Pino	Nome	Descrição
1		Entrada de Sinal
2		Entrada de Bias
3		Entrada de Sinal
4	GND	Terra
5		Saída de Bias
6	VCC	Entrada de alimentação positiva
7		Saída

Datasheet do AN612 :

<http://pdf1.alldatasheet.com/datasheet-pdf/view/77328/PANASONIC/AN612.html>

TA7222 Amplificador de Potencia de Áudio



Amplificador de Áudio de 5,8 Watts

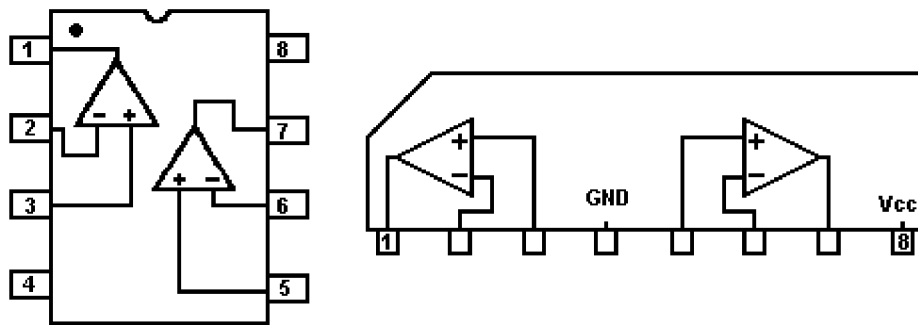
Pino	Nome	Descrição
1	VCC	Entrada de alimentação positiva
2	RR	Rejeição de Ripple
3	MC	Controle de Muting
4	OP	Entrada do sinal de áudio
5	FB	Filtro FB
6	GA	Ajuste de ganho
7	GND	Terra
8	GND	Terra
9	OP	Saída de áudio
10	BS	BootStrap

Datasheet do TA7222P :

<http://pdf1.alldatasheet.com/datasheet-pdf/view/99639/TOSHIBA/TA7222AP.html>

NJM4558 Amplificador Operacional Duplo

Equivalente ao LM4558



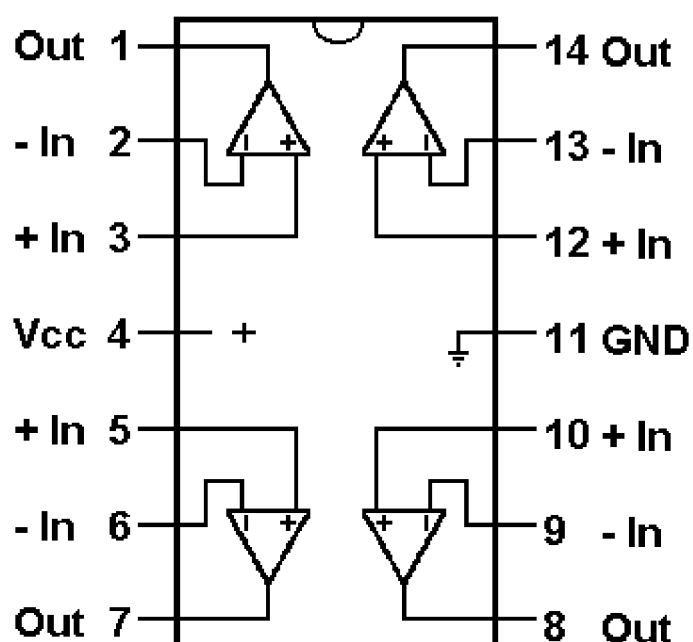
Datasheet do NJM4558 :

<http://pdf1.alldatasheet.com/datasheet-pdf/view/7446/NJRC/NJM4558.html>

<http://pdf1.alldatasheet.com/datasheet-pdf/view/168907/HTC/LM4558D.html>

TA6324 Amplificador Operacional Quádruplo

Equivalente ao LM324



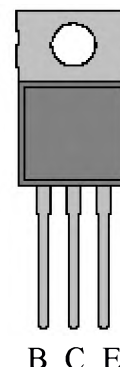
Datasheet do LM324 :

<http://pdf1.alldatasheet.com/datasheet-pdf/view/17870/PHILIPS/LM324A.html>

2SC2312 Transistor de Saída de RF

Description:

The 2SC2312 is a silicon NPN epitaxial planer type transistor designed for RF power amplifiers on HF band mobile radio applications.



Features:

- High Power Gain: $G_{pe} \geq 12\text{dB}$ ($V_{CC} = 12\text{V}$, $P_O = 16\text{W}$, $f = 27\text{MHz}$)
- Ability to Withstand Infinite VSWR Load when Operated at:
 $V_{CC} = 16\text{V}$, $P_O = 20\text{W}$, $f = 27\text{MHz}$

Application:

- 10 to 14 Watt Output Power Class AB Amplifier Applications in HF Band

Absolute Maximum Ratings: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage ($R_{BE} = \text{Infinity}$), V_{CEO}	25V
Collector-Base Voltage, V_{CBO}	60V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	6A
Collector Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	1.7W
Collector Power Dissipation ($T_C = +50^\circ\text{C}$), P_D	20W
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	6.25°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	73.5°C/W

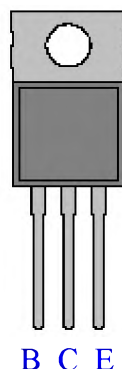
Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $R_{BE} = \text{Infinity}$	25	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5\text{mA}$, $I_C = 0$	5	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	-	-	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$	-	-	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 12\text{V}$, $I_C = 10\text{mA}$, Note 1	10	50	180	
Power Output	P_O	$V_{CC} = 12\text{V}$, $P_{in} = 1\text{W}$, $f = 27\text{MHz}$	16	18	-	W
Collector Efficiency			60	70	-	%

Note 1. Pulse test: Pulse Width = $150\mu\text{s}$, Duty Cycle = 5%.

2SC1969

Transistor NPN de potencia de RF



Características:

- Alto ganho de potência : $G_{pe} \geq 12\text{dB}$ ($V_{CC} = 12\text{V}$, $P_O = 16\text{W}$, $f = 27\text{MHz}$)
- Ability to Withstand Infinite VSWR Load when Operated at:
 $V_{CC} = 16\text{V}$, $P_O = 20\text{W}$, $f = 27\text{MHz}$

Aplicação: como saída de potencia de 10 a 4 Watts de saída em amplificação classe AB na faixa de HF. **É o transistor do P.A. do Cobra 148 GTL.**

Absolute Maximum Ratings: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage ($R_{BE} = \text{Infinity}$), V_{CEO}	25V
Collector-Base Voltage, V_{CBO}	60V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	6A
Collector Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	1.7W
Collector Power Dissipation ($T_C = +50^\circ\text{C}$), P_D	20W
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	6.25°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	73.5°C/W

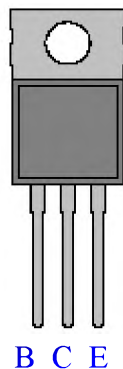
Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $R_{BE} = \text{Infinity}$	25	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 5\text{mA}$, $I_C = 0$	5	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	-	-	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$	-	-	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 12\text{V}$, $I_C = 10\text{mA}$, Note 1	10	50	180	
Power Output	P_O	$V_{CC} = 12\text{V}$, $P_{in} = 1\text{W}$, $f = 27\text{MHz}$	16	18	-	W
Collector Efficiency			60	70	-	%

Note 1. Pulse test: Pulse Width = $150\mu\text{s}$, Duty Cycle = 5%.

2SC2166

Transistor NPN de Potencia de RF



Características: Alto ganho de potência: $G_{pe} \geq 13,8\text{dB}$ ($V_{CC} = 12\text{V}$, $P_O = 6\text{W}$, $f = 27\text{MHz}$)

Aplicação: saída de potência de 3 a 4 Watts em amplificação de potencia classe AB na faixa de HF. **É o driver do P.A. do Cobra 148 GTL.**

Absolute Maximum Ratings: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage ($R_{BE} = \text{Infinity}$), V_{CEO}	75V
Collector-Base Voltage, V_{CBO}	75V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	4A
Collector Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	1.5W
Collector Power Dissipation ($T_C = +50^\circ\text{C}$), P_D	12,5W
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	10°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	83°C/W

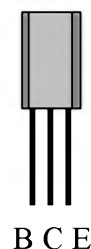
Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	75	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $R_{BE} = \text{Infinity}$	75	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	5	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	-	-	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}$, $I_C = 0$	-	-	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 12\text{V}$, $I_C = 100\text{mA}$, Note 1	35	70	180	
Power Output	P_O	$V_{CC} = 12\text{V}$, $P_{in} = 0,25\text{W}$, $f = 27\text{MHz}$	6	7,5	-	W
Collector Efficiency			55	60	-	%

Note 1. Pulse test: Pulse Width = $150\mu\text{s}$, Duty Cycle = 5%.

2SC2086 Transistor Pré-Driver de RF

The 2SC2086 is a silicon NPN epitaxial planer type transistor designed for RF amplifiers on HF band mobile radio applications.



Features:

- High Power Gain: $G_{pe} \geq 13\text{dB}$ ($V_{CC} = 12\text{V}$, $P_O = 0,3\text{W}$, $f = 27\text{MHz}$)

Application:

- Driver Amplifier Applications in HF Band

Absolute Maximum Ratings: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Collector-Emitter Voltage ($R_{BE} = \text{Infinity}$), V_{CEO}	35V
Collector-Base Voltage, V_{CBO}	75V
Emitter-Base Voltage, V_{EBO}	4V
Collector Current, I_C	1A
Collector Power Dissipation ($T_A = +25^\circ\text{C}$), P_D	0,8W
Operating Junction Temperature, T_J	$+135^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	$137,5^\circ\text{C/W}$

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

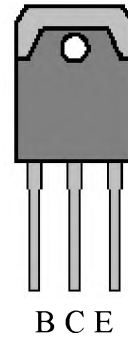
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}$, $I_E = 0$	75	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $R_{BE} = \text{Infinity}$	35	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	4	-	-	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$	-	-	10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 3\text{V}$, $I_C = 0$	-	-	100	μA
DC Forward Current Gain	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 100\text{mA}$, Note 1	35	70	300	
Power Output	P_O	$V_{CC} = 12\text{V}$, $P_{in} = 15\text{mW}$, $f =$	0,3	0,45	-	W
Collector Efficiency		27MHz	50	60	-	%

Note 1. Pulse test: Pulse Width = $150\mu\text{s}$, Duty Cycle = 5%.

2SB754

Silicon PNP Transistor
50 Volt - 7 Ampere - 60 Watt

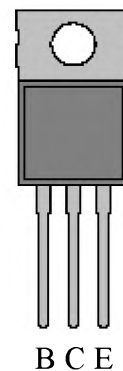
The 2SB754 is a silicon PNP epitaxial planer type transistor in TO-3P package, designed for LF Power applications.



2SA473

Silicon PNP Transistor
30 Volt - 3 Ampere - 10 Watt

The 2SA473 is a silicon PNP epitaxial planer type transistor in TO-220 package, designed for LF Power applications.

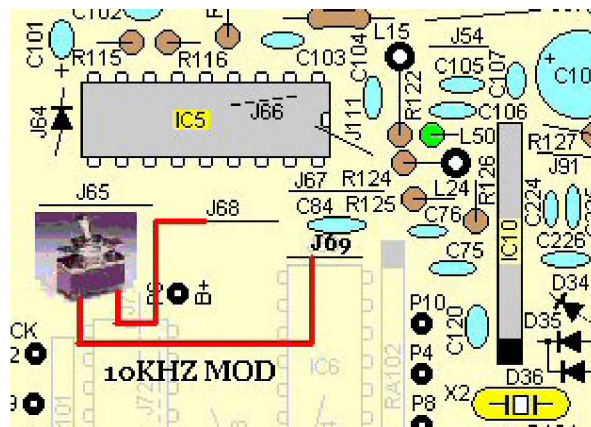


Super Star 3900

Modificações para o chassi EPT3600



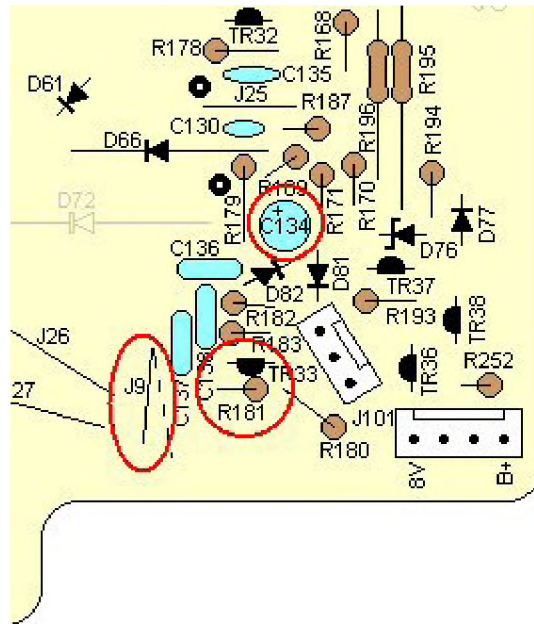
MOD +10KHZ



Modificação para + 10 Khz

Modificação para o Roger Beep

mod roger bepp

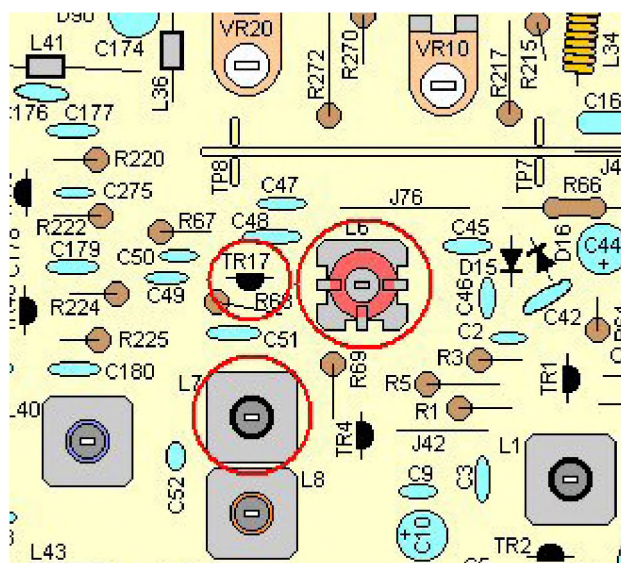


Localizar o resistor 220k (**R-181**) e capacitor (**C-134**) 2,2uF eletrolítico localizados bem atrás do s-meter ou bem ao lado do conector do microfone.

Para aumentar o tempo do beep substituiremos o capacitor **C134** (2,2uF) por um valor superior a este ; 5uf para um beep longo, e se quisermos um beep mais curto, substituiremos por um de 1uf.

Para variar o tom trocaremos o resistor **R-181** de 220k por um trimpot miniatura ajustável que possamos soldar em seu lugar. Para conectar e desconectar o beep desoldaremos o jumper **J9** e em seu lugar soldaremos dois fios para serem comutados num pequeno interruptor na parte traseira do nosso equipamento.

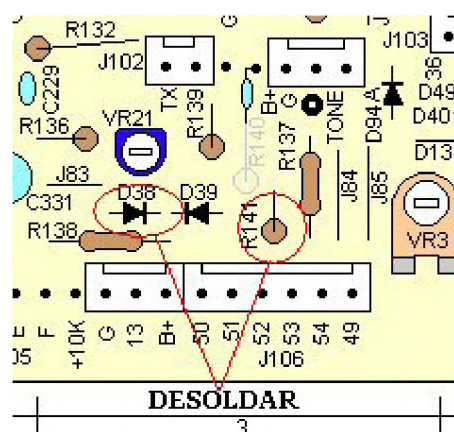
Mod RX

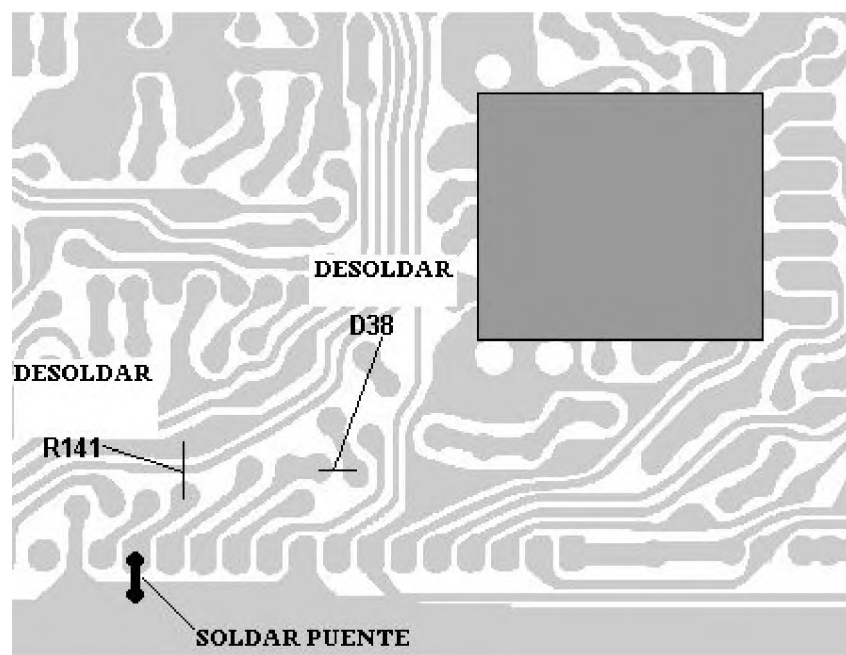


Substitua o transistor da etapa de F.I. **TR17** (2SC1674) por um **2SC2999** ou equivalente (**BF959**) reajuste as bobinas **L6** e **L7** com uma chave cerâmica para um bom equilíbrio na RX e nas seis bandas do radio.

Modificação do clarificador Super Star 3900

(Placa EPT360014c)





Esta modificação consiste em conseguir que o equipamento transmita exatamente na mesma frequência que recebemos. Isto nos será de grande ajuda em SSB já que podemos estar seguros de que sempre nos encontraremos "em cima" da frequência de recepção.

Para começar, desmontaremos as duas tampas do equipamento, e logo localizaremos um maço de cabos na parte frontal e que se conectam a placa através de um conector branco, anotado na placa como **J106**. Continuando, localizaremos o resistor (**R141**) e o diodo (**D38**) e os desoldaremos.

O passo seguinte é soldar um jumper debaixo do conector no lado cobreado da placa e uniremos o fio do conector marcado no desenho com a trilha grossa que passa ao lado.

Agora o equipamento transmitirá e receberá na mesma frequência, e não teremos mais a preocupação de sintonizar corretamente com o *fine* e o *coarse*, estando seguro de que não estamos transmitimos “fora de frequência”.