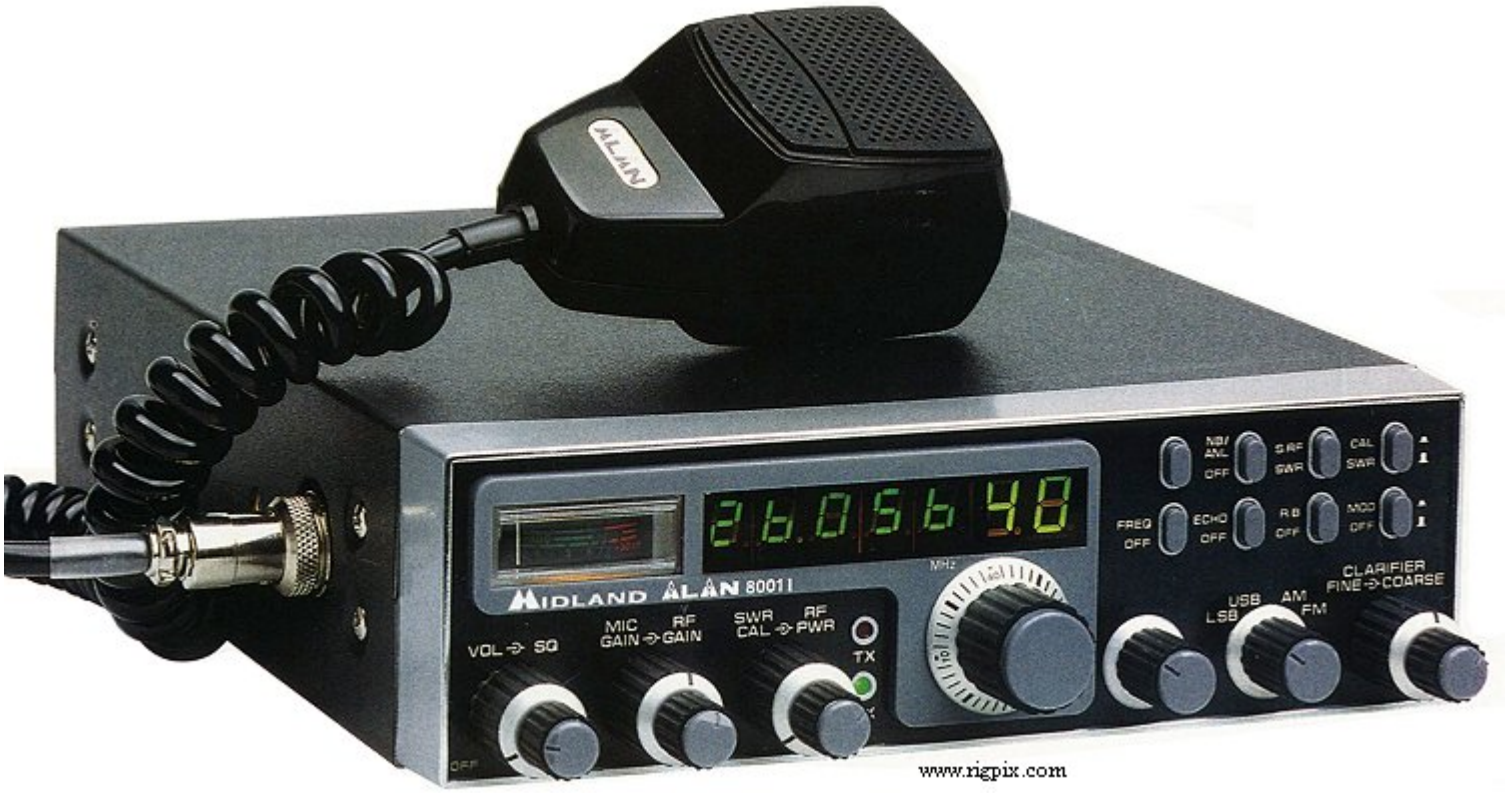
# Alan 8001
# O legendário chassis EPT3600-14B




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 transversores 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 a 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 Freqüência (original) : | 26.965 - 27.405MHz |
| Modos de Emissão : | AM / FM / USB / LSB / CW |
| Controle de freqüência : | Sintetizador por PLL |
| Tolerância de Freqüência | ± 0.005 %. |
| Estabilidade de Freqüência : | ± 0.001 %. |
| Temperatura de Trabalho : | -30°C to +50°C. |
| Microfone : | dinâmico 600 Ohms |
| Tensão de Alimentação : | 13.8V DC nominal ±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 Freqüência 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 |
| Freqüências 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 Freqüência 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 freqüência** |
| **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)

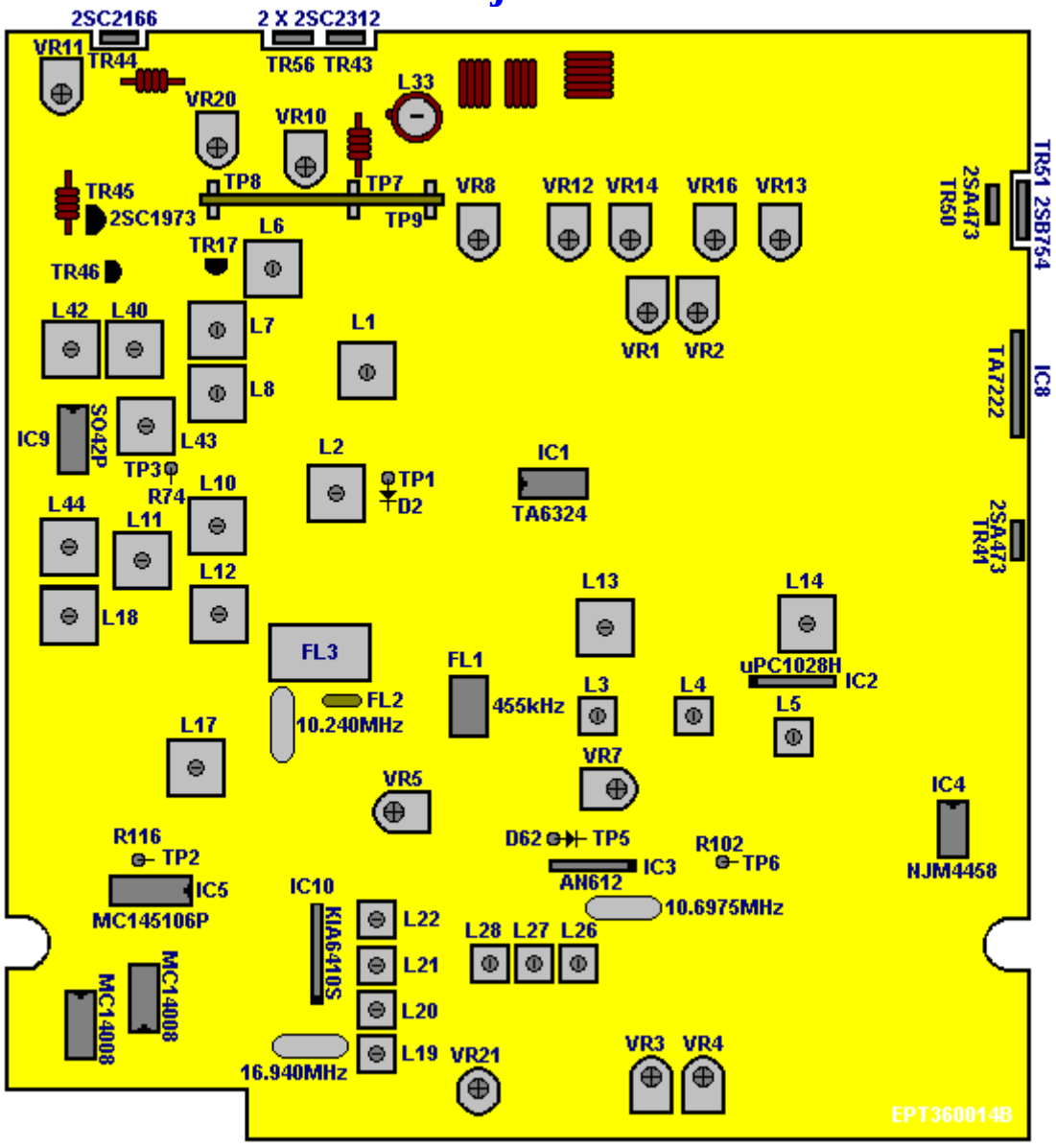
Osciloscópio com alcance de até 50MHz

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 (Freqüência 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 (Freqüência 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 (Freqüência de TX) |
| Todos modelos: | | | |
| TP5 | TX AM | L26 | 10.6950MHz |
| TP6 | RX USB | L27 | 10.6925MHz |
| TP6 | RX LSB | L28 | 10.6975MHz |
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| TP5 | TX USB | VR7 | Balanço Modulador SSB |
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|---|---|---|---|
| **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:**<br>RX Mode, AM,<br>Freq. to 26.965MHz Band E<br>Fine and coarse clarifier control to center detent. | Connect Frequency counter to IC5 Pin 4. | | Check for 10.2400MHz ±200 Hz. If tolerance is beyond this, replace X1 (10.240MHz). |
| **VCO BUFFER:**<br>RX Mode, AM,<br>Freq. to 26.965MHz Band E<br>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:**<br>RX Mode, AM,<br>Freq. to 26.965MHz Band E<br>Fine and coarse clarifier control to center detent. | Connect DC voltmeter to TP2 (top bare lead of R116) | L17 | Adjust for 3.20 VDC ±0.1 Vdc. Recheck at 25.165MHz for approx 2.0V. and 28.755MHz for approx 6.0V. |
| **PLL OFFSET OSCILLATOR:**<br>RX Mode, AM,<br>Freq. to 26.965MHz Band E<br>Fine and coarse clarifier control to center detent.<br>Modes as indicated. | Connect Frequency Counter to TP3 (top bare lead of R74). | L20 | AM: Adjust for 16.2700MHz ±20 Hz.<br>. |
| **FREQUENCY COUNTER:**<br>Set mode to AM<br>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:**<br>Frequency to 26.965 MHz<br>Mode AM<br>Clarifier controls at center detent.<br>RF GAIN fully clockwise.<br>SQUELCH fully counter clockwise<br>NB/ANL to OFF<br>VOLUME to comfortable level.<br>RF Generator output to 26.965 MHz at 1uV modulated 30% with 1 KHz audio tone. | Connect AF VTVM or scope across speaker terminals.<br>RF Generator to ANT Jack | (in order)<br>L6, L7<br>L8, L10<br>L11, L12<br>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:**<br>Mode FM.<br>Set FM RF Generator to 26.965 MHz 0.5uV deviated 3 KHz with 1KHz audio tone.<br>Reduce VOLUME as required. | Connect AF VTVM or scope to IC2 Pin 7.<br><br>RF Generator to ANT Jack | L5 | Adjust for maximum audio output. |
| **AM/FM S-METER:**<br>Set mode to AM.<br>RF Generator output to 100uV unmodulated.<br>Set Squelch fully counterclockwise. | Same as above | VR1 | Adjust for “S-9” meter reading. |
| **AM/FM SQUELCH RANGE:**<br>Increase RF Generator output to 10mV.<br>Set Squelch Control fully clockwise. | Same as above | VR4 | Adjust to the squelch just closes. |
| **NOISE BLANKER:**<br>Set radio to 26.975MHz<br>Set mode to AM.<br>Set RF generator output to 26.965MHz at 1000uV unmodulated.<br>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:**<br>TX Mode<br>Freq. to 26.965MHz Band E | Connect Frequency Counter to (top bare lead of R151). | L26 | AM/TX mode: Adjust for 10.6950MHz ±20 Hz. |
| **RF AMP CHAIN:**<br>Set mode to AM.<br>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:**<br>Set mode to AM,<br>MIKE GAIN at minimum.<br>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:**<br>RF Power to LO . | Connect wattmeter to ANT output. | VR16 | Key TX & adjust for 1 Watt output |
| **RF METER:**<br>Set mode to AM,<br>MIKE GAIN at minimum. | Connect wattmeter to ANT output. | VR8 | Adjust so panel meter agrees with Wattmeter. |
| **AMC:**<br>Mode to AM.<br>MIKE GAIN to maximum.<br>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:**<br>Mode to FM<br>MIKE GAIN to maximum.<br>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 freqüências, 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.**

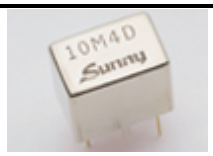
# Tabela de tensões dos transistores do Alan 8001

| 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<br>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<br>0.00 TX | 8.55 |
| **TR37** | RX Voltage Sw. | 2SC945P | NPN |  | E-6 | 0.00 TX<br>0.70 RX | 0.10 RX<br>8.00 TX | 0.00 |
| **TR38** | TX Voltage Sw. | 2SA1282 | PNP |  | F-6 | 8.03 RX<br>7.75 TX | 0.00 RX<br>8.37 TX | 8.55 |
| **TR40** | Voltage Reg. | 2SC945 | NPN |  | C-6 | 1.60 | 12.66 RX<br>12.42 AM / FM TX | 1.08 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TR41** | Voltage Reg. | 2SA473 | PNP |  | D-6 | 12.40 AM / FM TX | 8.53 | 13.27 RX<br>13.16 AM / FM TX |
| **TR42** | AF Amp | 2SC945P | NPN |  | C-6 | 1.33 | 2.08 | 0.74 |
| **TR43** | RF Final Amp | 2SC2312 | NPN |  | A-2 | 0.60 AM / FM TX | 6.64 AM / FM / TX | 0.00 |
| **TR44** | RF Driver | 2SC2166C | NPN |  | A-1 | 0.73 AM / FM TX | 6.64 AM / FM / CW TX | 0.00 |
| **TR45** | RF Predriver | 2SC1973 | NPN |  | B-1 | 1.40 TX | 7.40 AM / FM TX | 0.80 |
| **TR46** | RF Amp & Buffer | 2SC1906 | NPN |  | B-1 | 1.40 TX | 6.10 TX | 0.70 TX |
| **TR49** | AM Mod. Amp | 2SC945 | NPN |  | B-6 | 6.10 AM / FM / CW TX | 12.10 AM / FM TX | 5.60 AM / FM /TX |
| **TR50** | AM Mod. Amp | 2SA473 | PNP |  | B-6 | 12.10 AM / FM TX<br>12.60 CW TX | 5.60 AM / FM /TX | 12.50 AM / FM TX |
| **TR51** | AM Mod. Amp | 2SB754Y | PNP | | B-6 | 12.50 AM / FM TX | 5.60 AM / FM TX | 13.00 AM / FM TX |
| **TR53** | AMC Amp | 2SC945 | NPN |  | B-4 | 0.90 | 7.70 | 1.70 AM / FM |

## Datasheet do filtro cerâmico:

BukDu Electronics




| MODEL | NO of Poles | Pass Bandwidth (dB) (KHz) | Stop Bandwidth (dB) (KHz) | Ripple (dB) | Insertion Loss (dB) | Guaranteed Attenuation (dB) | Terminating Impedance (kΩ//pf) | Package |
|---|---|---|---|---|---|---|---|---|
| **10M4D** | 8 | 6 ±2.0 | 80 ±5 | 2.0 | 4.0 | 90 | 0.9//10 | D1 |

- Monolithic crystal filter
- Compactness and light weight
- Stable temperature characteristics
- Outstanding vibration and shock resistant characteristics
- Amount of attenuation is high in the attenuating range

# 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 to4.70,<br>LOW to HIGH Band |
| 2 = 3.90 | 8 = 7.96 |
| 3 = 4.18 | 9 = 0.00 Band A-D,<br>6.3V Band E-G |
| 4 = NC | 10 = 0.00 |
| 5 = NC | 11-17 = 0.00 or 8.30;<br>Depends on channel |

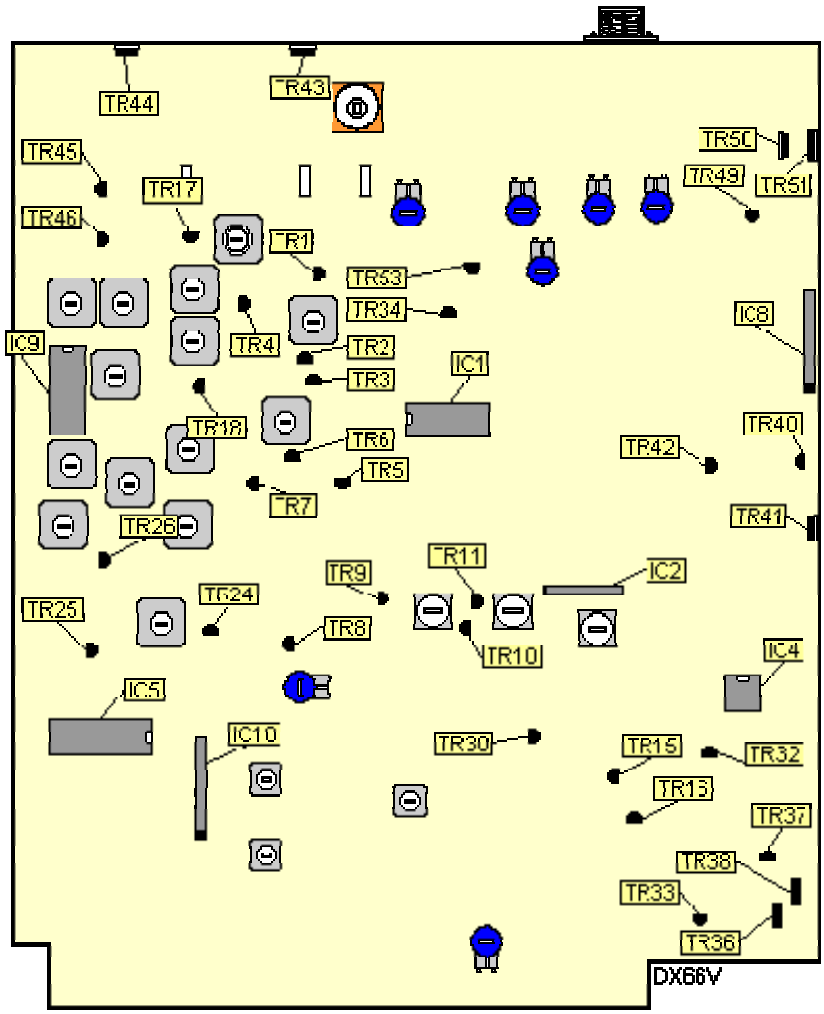
| IC8 TA7222AP | Audio Power Amp |
|---|---|
| 1 = 13.35 | 6 = 1.17 |
| 2 = 6.60 | 7 = 0.00 |
| 3 = 0.00 | 8 = 0.00 |
| 4 = 0.00 | 9 = 6.63 |
| 5 = 1.17 | 10 = 12.62 |

| 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 |

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|---|---|---|---|
| **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 |

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|---|---|---|---|
| **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 |

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| **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 |

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|---|---|---|---|
| **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:

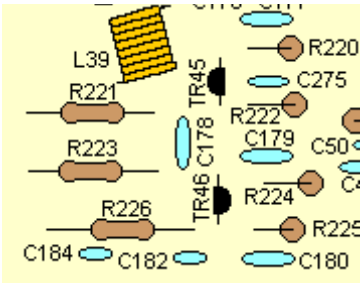
| Ref# | Description | MFR. Part No. |
|---|---|---|
| **D30** | DIODO SMD HVU359 | EDHU00359Y |
| | SHIELD PLATE (A) | MT1200060N |
| | SHIELD PLATE | MT2710060X |
| | SHIELD PLATE (A) | PT1200020A |

# 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

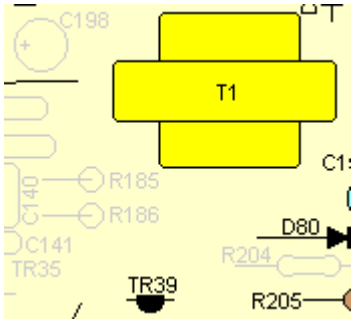
**There will be updates to this section as I get along wth this project, so check back.**



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.

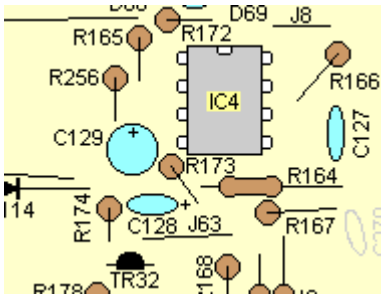


Grid de localização C5 na placa

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

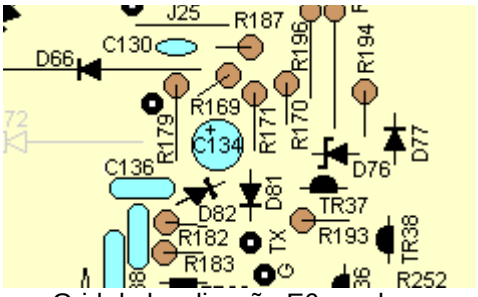


Grid de localização D6 e E6 na placa

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



Grid de localização E6 na placa

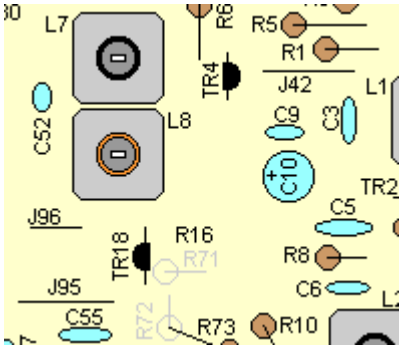
On the KAI HWA2-002 V0,  SM YGOI 94 V0 boards C130 silk screen label is closest to the front.
On the M-294 HB-C PCB C136 silk screen label is closest to the front.

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 swapped the part value's are right.
DX55V, DX66V, DX73V

On the following schematics the part labels are NOT swapped.
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.



Grid de localização C2 na placa

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.

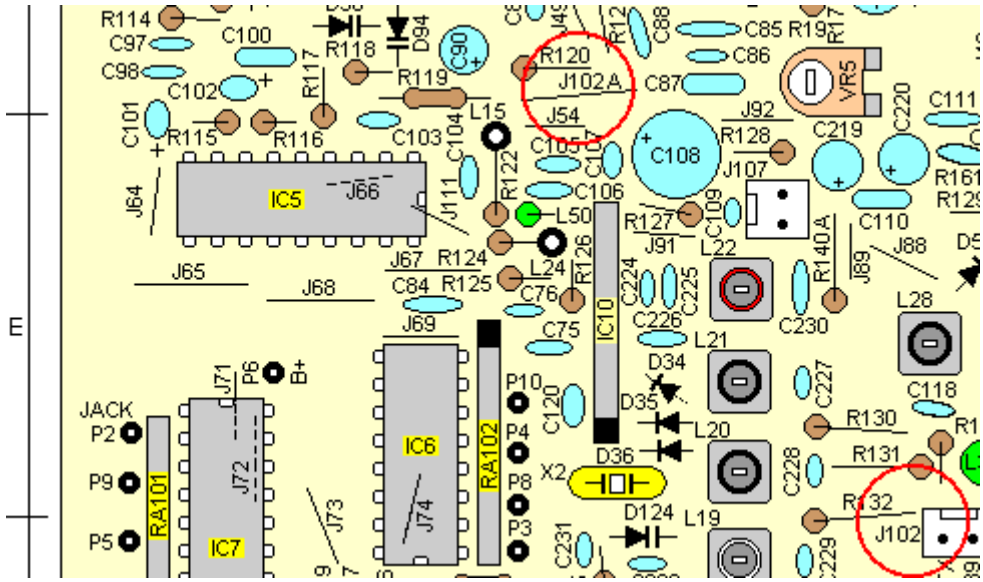
**(c) Existem dois lugares marcados como D94.** The layout drawing and parts list shows these as D94 at grid location D1 and D94A at grid location F3.

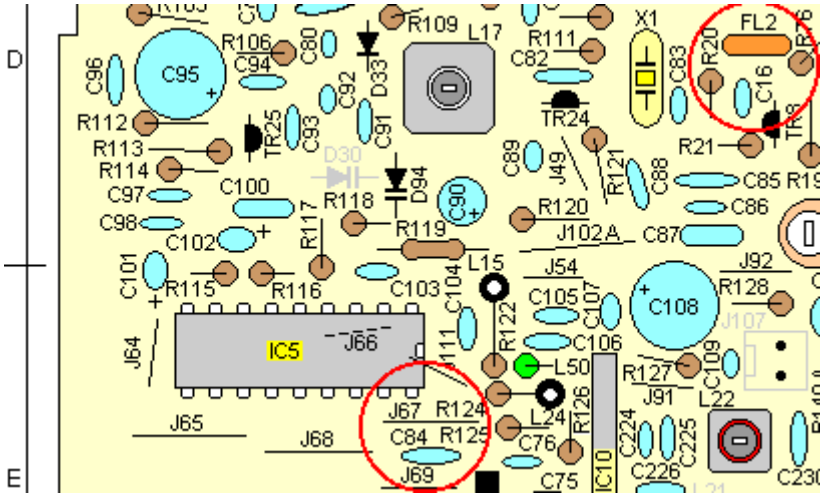
**(d) Existem dois lugares marcados como L50.** The layout drawing and parts list shows these as L50 at grid location E2 and L50A at grid location A2.

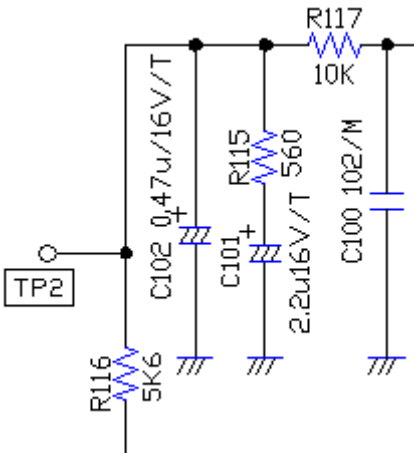
**(e) Existem dois lugares marcados como C84.** The layout drawing and parts list shows these as C84 at grid location E2 and FL2 at grid location D2.

**(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 diagran 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.

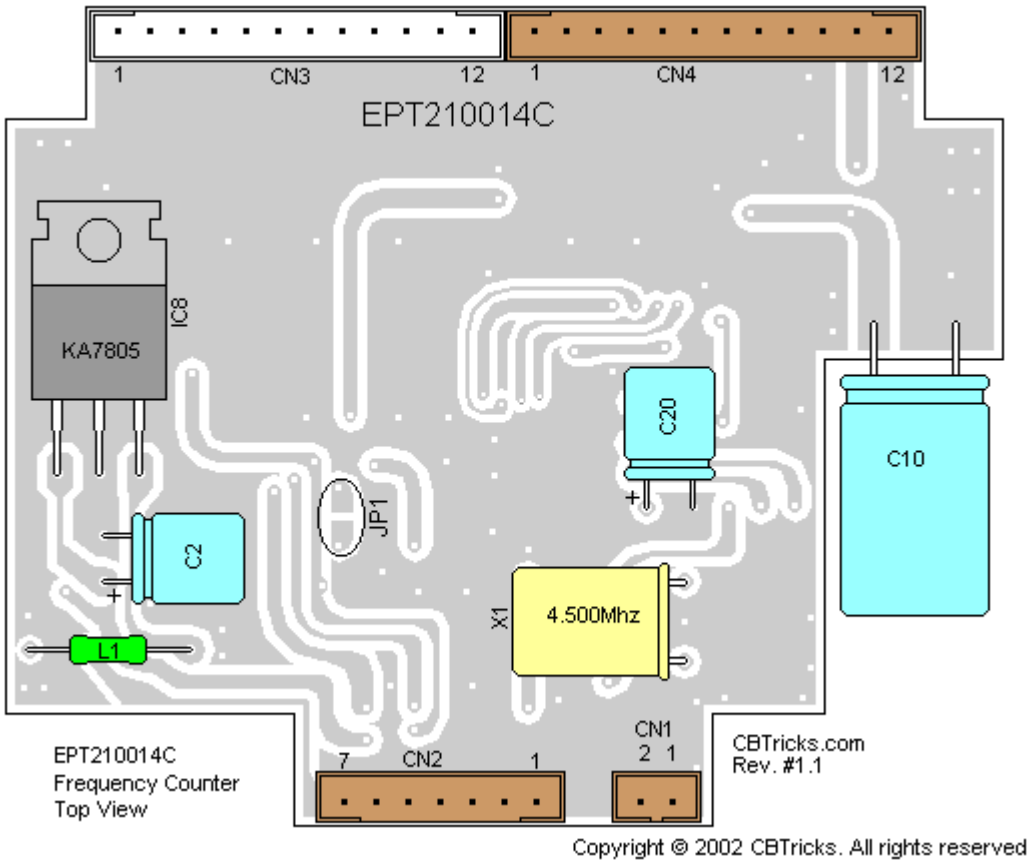
DX55 - In current production C170 is not in the radio and should not be on the schematic. In early production C170 is not in the radio and should not be on the schematic.

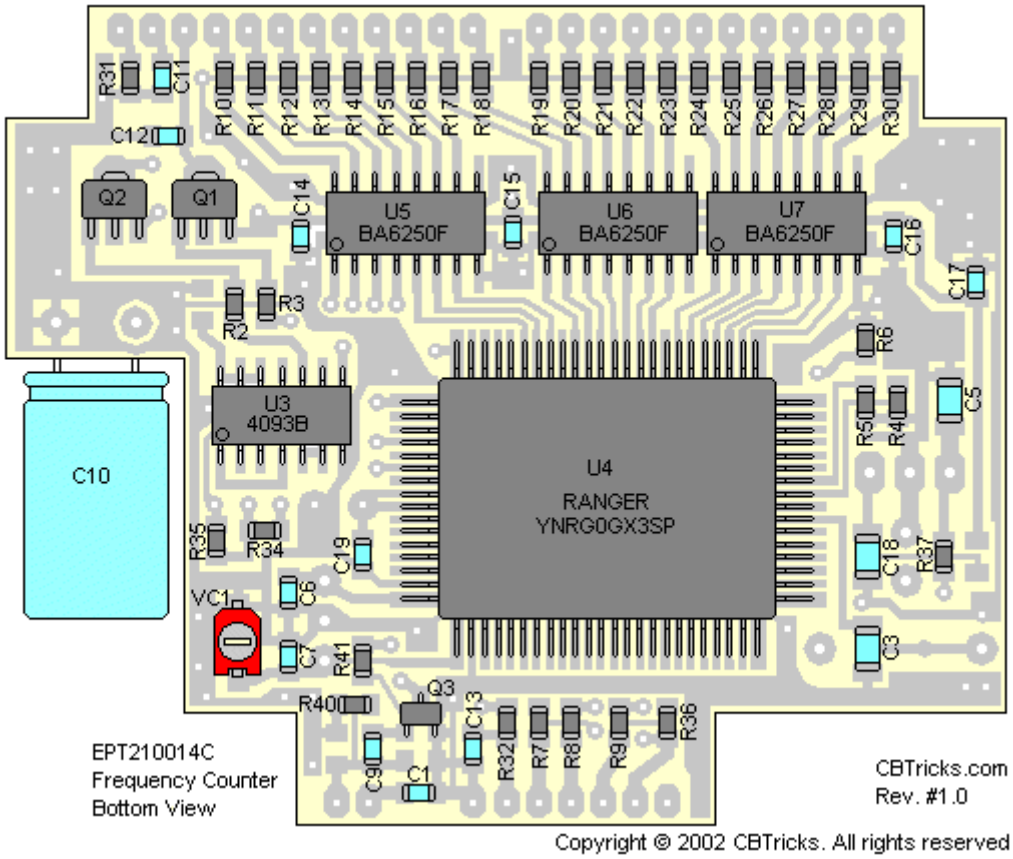
DX66 - In current production C170 is not in the radio and should not be on the schematic. In early production C170 is not in the radio and should not be on the schematic.

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.






| 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 |

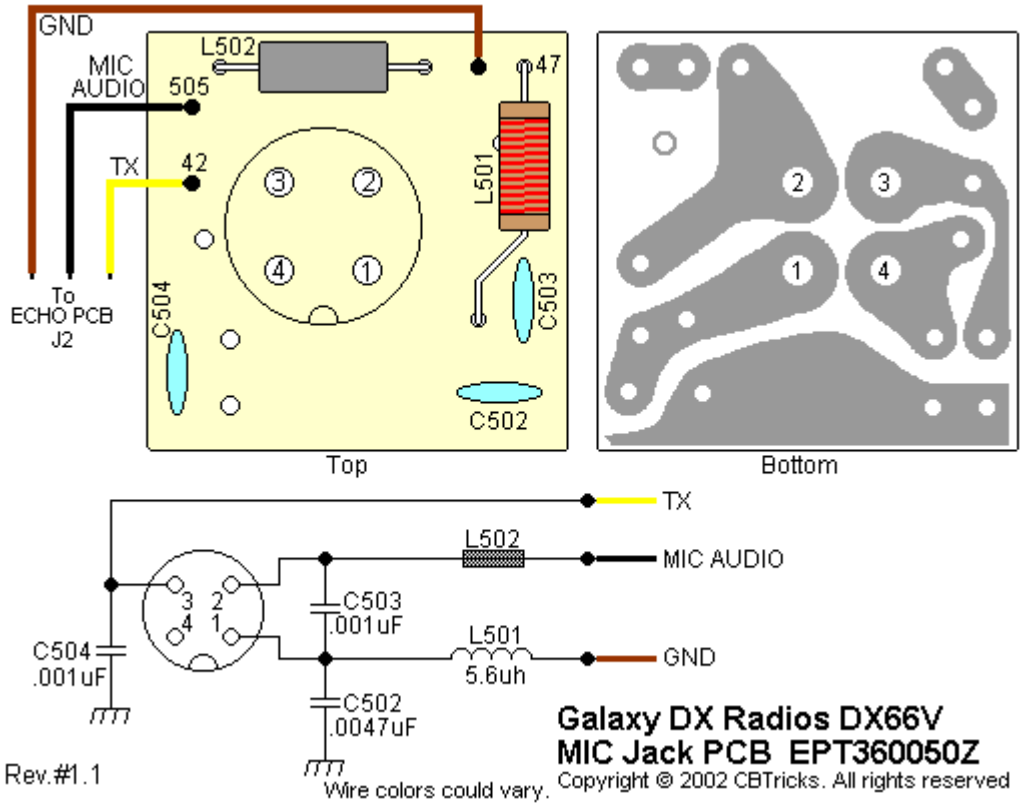
**Connectors**

| 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. 25x25x1.6tmm | 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**

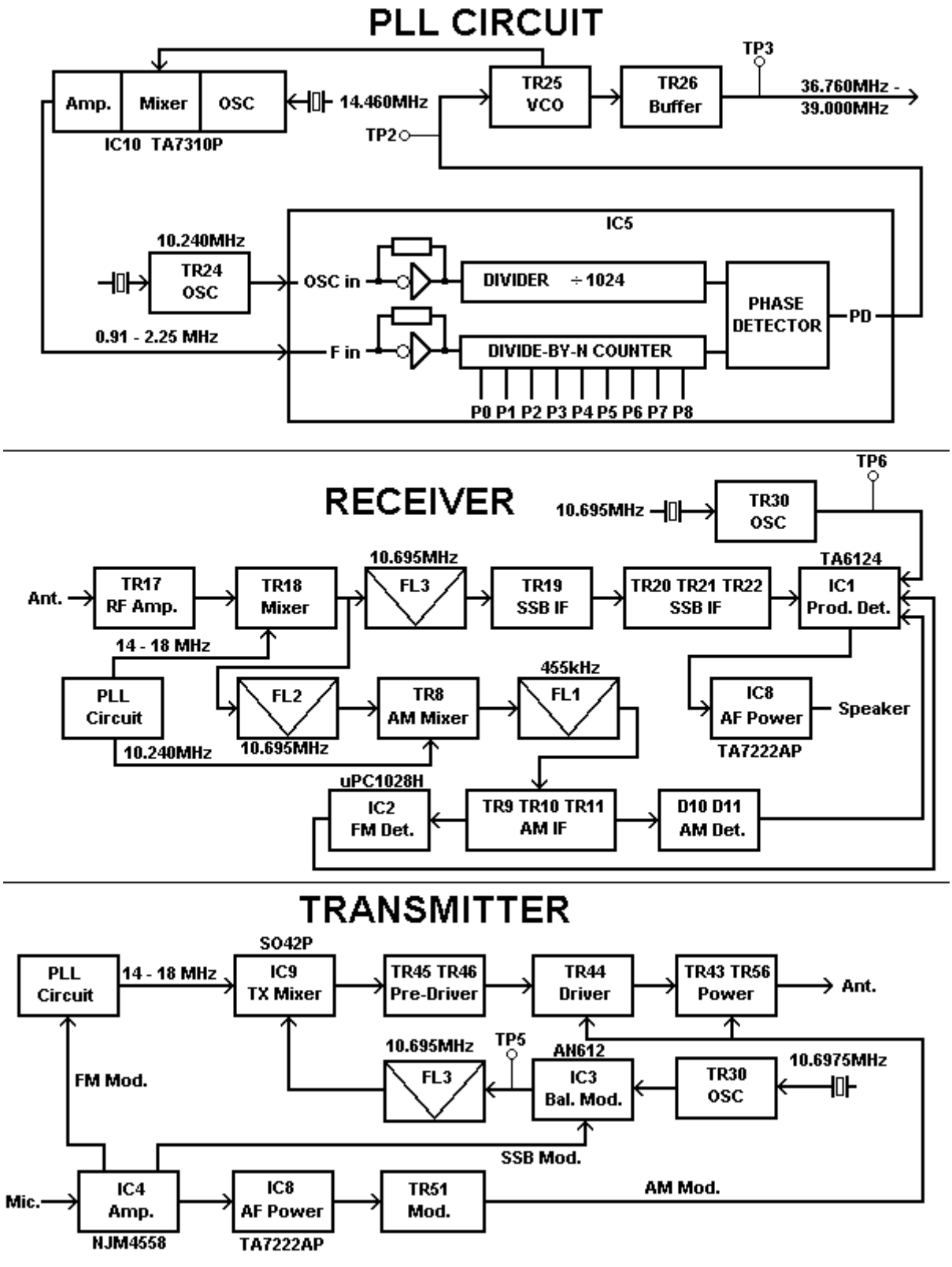
| Ref# | Description | MFR. Part No. |
|---|---|---|
| **L501** | CHOKE COIL 5.6UH | ECCHK16001 |
| **L502** | BEAD COIL 3.5X6X1.2 PH=12.5 | ECBAD18550 |

**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.**



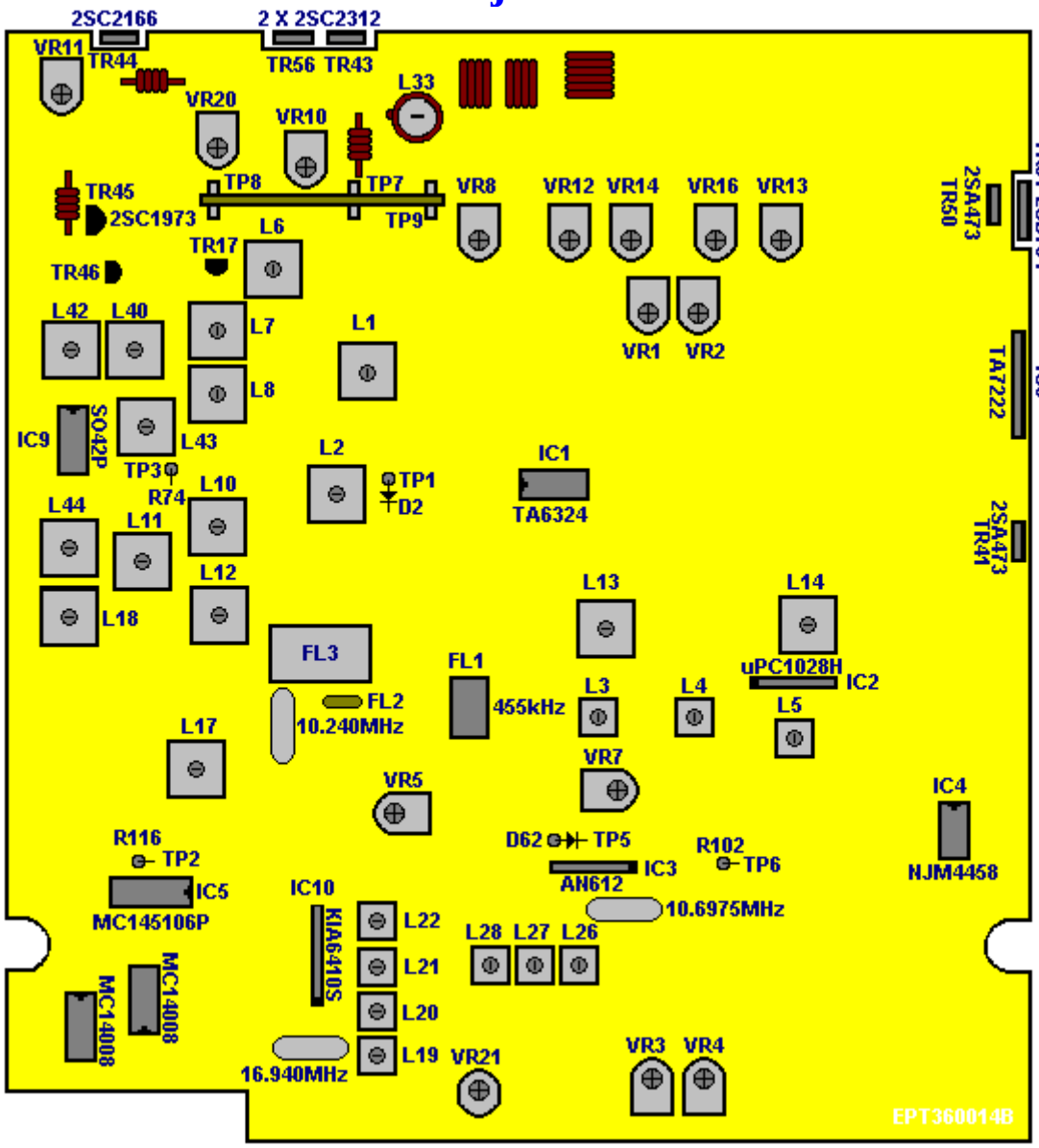
**PLL Circuit.** PLL is an abbreviation of the phase-locked loop which is fundamentary composed of a closed loop feedback citcuit. The feedback component is the balance of frequency drift and the PLL circuit acts to cancel it out. To detect out the frcquency drift of the PLL output, a fixed reference ocillator (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:
$f_{vco} = f_{off\text{-}set} + N_{fr}$
Where, $f_{vco}$ = VCO frequency, N = programming code for divider output, and fr = referency frequency step (10kHz).

i.e.: At channel #1 in band A, and band corresponding N code is 91:
$f_{vco} = 14.010 + ( 91 \times 0.01) = 14.920$MHz.

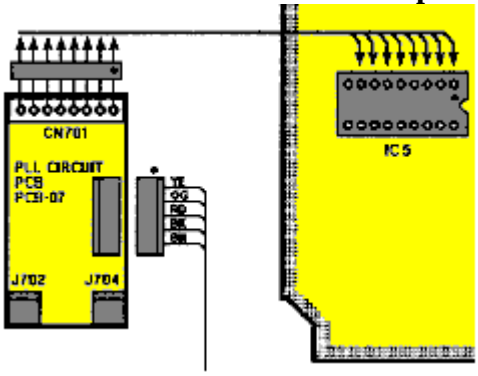
Since the mixer output determined by two factors the off-set frequency output (dependent on band selector switch) and the VCO output, the mixer output contains the subtracted frequency of 0.91 to 2.25 MHz. These frequencies appears in pin #2 of IC5, and divided by the programmable divider in IC5 down 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 + 10.695MHz = 25.615MHz 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.

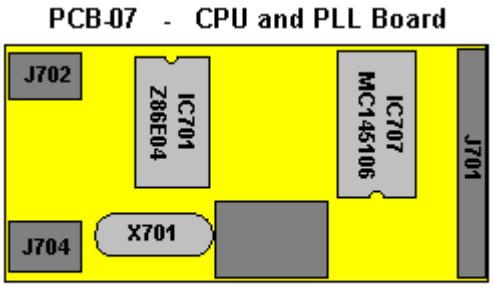
# Pontos de ajuste




## PLL e placa CPU

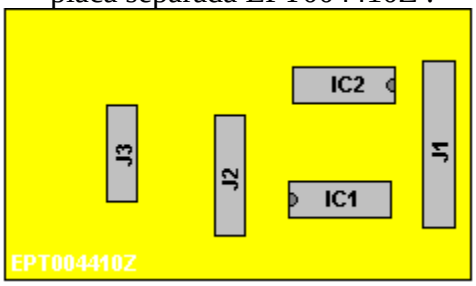
**Em alguns modelos, o PLL foi substituído da placa principal para uma placa separada com CPU.**



**Placa do Decoder**

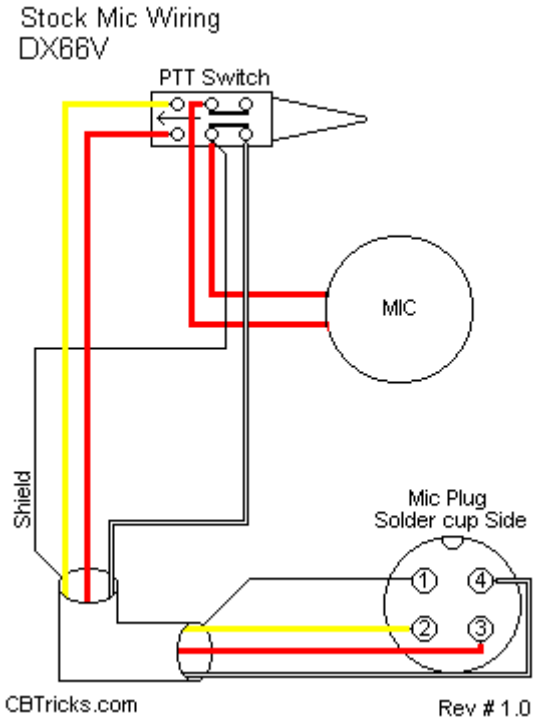
Em alguns modelos os *decoders* (MC14008) da placa principal foram substituídos pela placa separada EPT004410Z .




# 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**)

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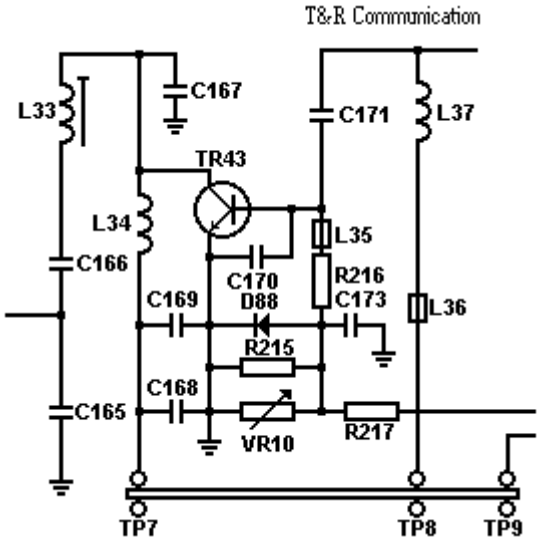
## Saída de RF do SuperStar 3900

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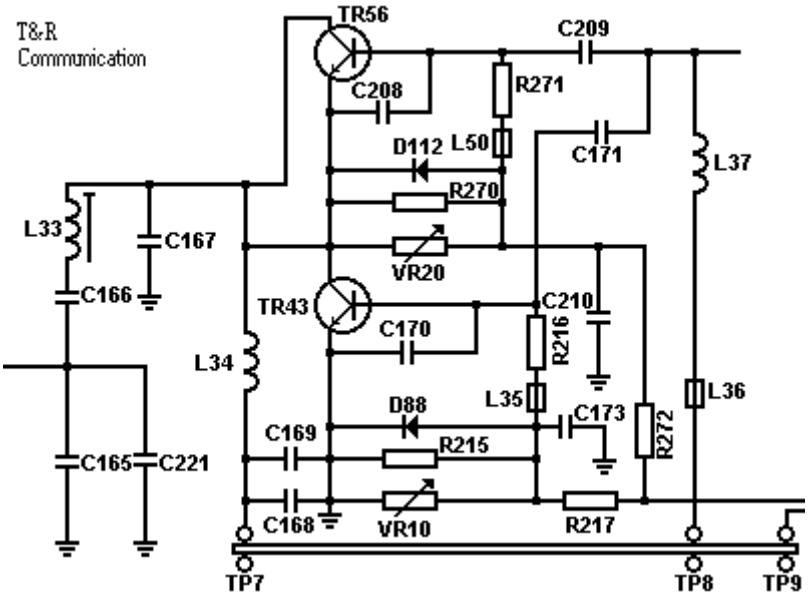
## Saída de RF do Alan 8001

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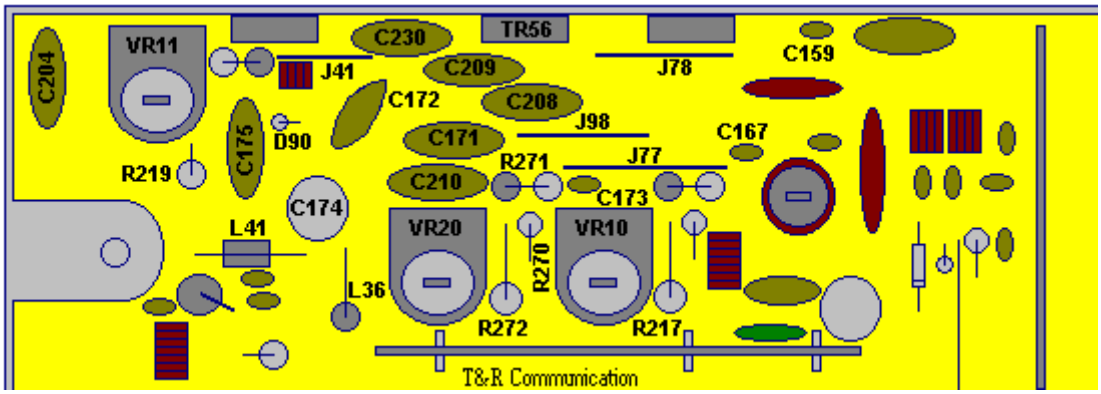
# Placa do Alan 8001

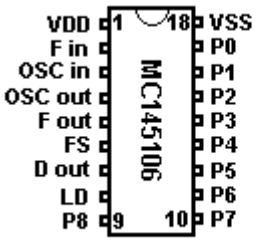
(EPT360014B)

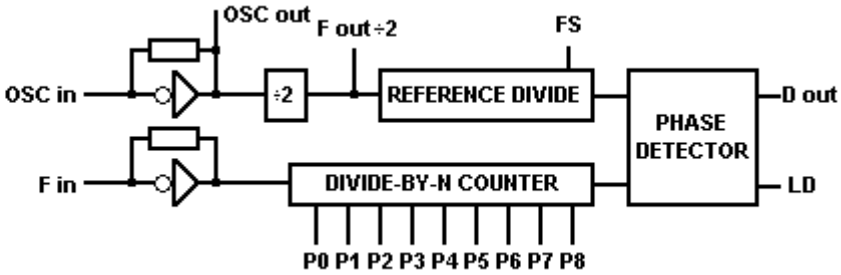



| Componente | Componente | Valor |
|---|---|---|
| R270 | R215 | 47 ohm |
| R271 | R216 | 1 ohm |
| R272 | R217 | 150 ohm |
| VR20 | VR10 | 100 ohm |
| C208 | C170 | 560pF |
| C209 | C171 | 390pF |
| C212 | C173 | 47nF |
| D112 | D88 | MV1Y |
| L50 | L35 | Conta de Ferrite num  resistor |
| J77 | |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

# PLL Sintetizador de Freqüências MC145106P

## (equivalentes: MM55106, MM55116, MM55126)

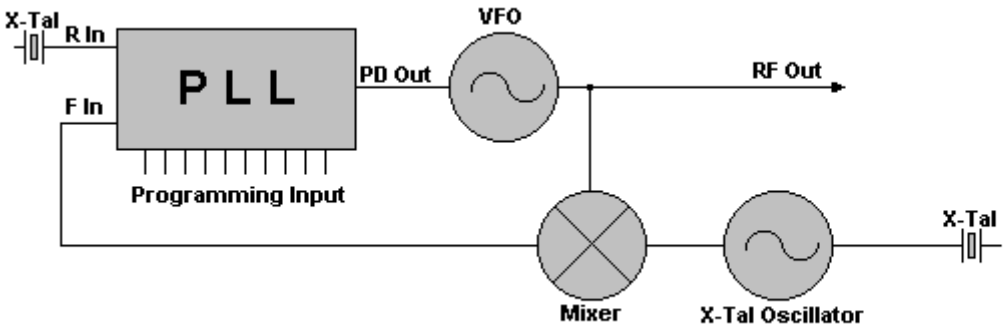



## Visão geral

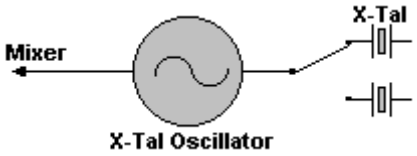
O MC145106 é um sintetizador de freqüências PLL construído em CMOS numa estrutura monolítica única. Este sintetizador tem aplicações na área de radios da faixa do cidadão e transceptores de FM. Este componente contém um oscilador/amplificador, uma corrente de divisão de 1024 ou 2048 para o sinal do oscilador,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




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

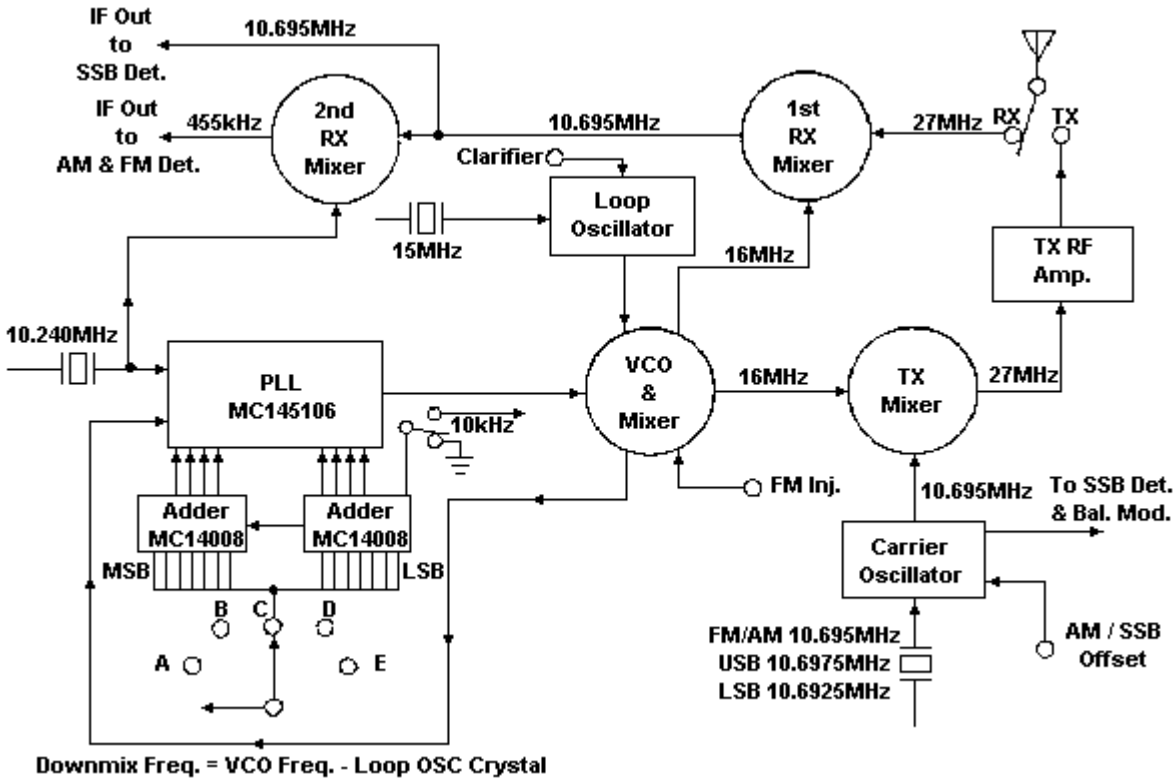



| Pino | Nome | Descrição |
|---|---|---|
| 1 | VDD | Alimentação de tensão Positiva |
| 2 | F in | Frequencia de entrada ao divisor programável - Max. 3MHz |
| 3 | OSC in | Entrada do Oscilador |
| 4 | OSC out | Saída do Oscilador |
| 5 | F out | Referencia da frequencia do OSC dividida por 2 saídas |
| 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**

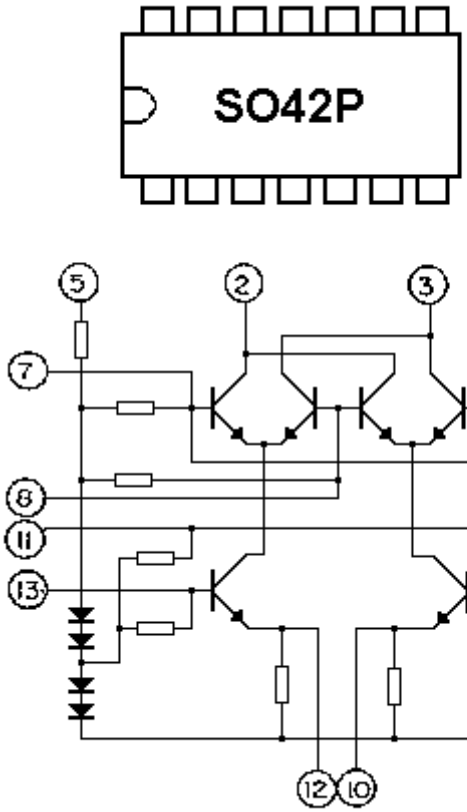
| P8 | P7 | P6 | P5 | P4 | P3 | P2 | P1 | P0 | Dividido por N |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 5 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 7 |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 8 |
| - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 255 |
| - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 511 |

# 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

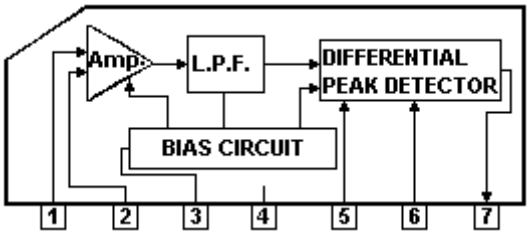
Pino 1 Terra
Pino 4 Terra
Pino 6 Terra
Pino 9 Terra
Pino 14 Terra

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

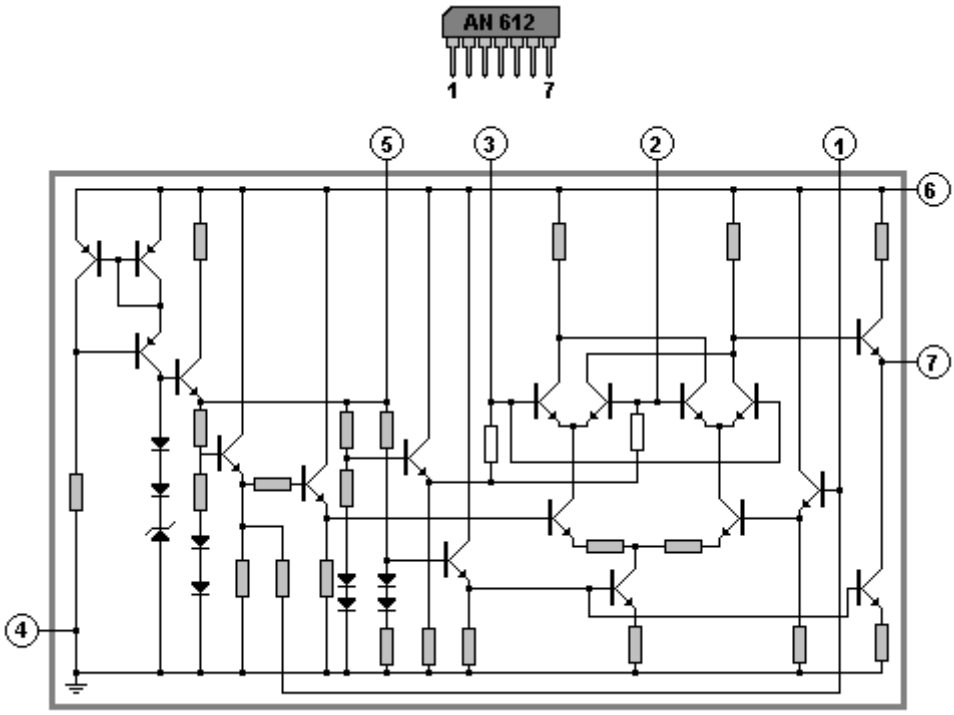



&127; 3 stage differential IF amplifier.
&127; Differential peak detector.
&127; Easy adjustment.
&127; Large output voltage.
&127; Good limiter characteristic.
&127; Wide operating voltage.
&127; Low distortion.
&127; Fewer peripheral parts.
&127; Excellent AM rejection ratio.

| 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**

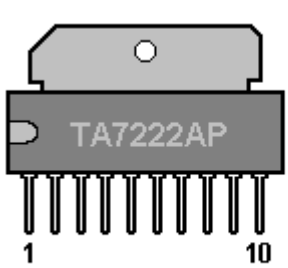


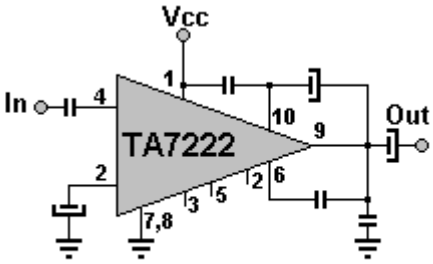

| Pino | Nome | Descrição |
|---|---|---|
| 1 | | Entrada de Sinal |
| 2 | | Entrada de Bias |
| 3 | | Entrada de Sinal |
| 4 | GND | Terra |
| 5 | | Saída de Bias |
| 6 | VCC | Entrada de alimentação positiva |
| 7 | | Saída |

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

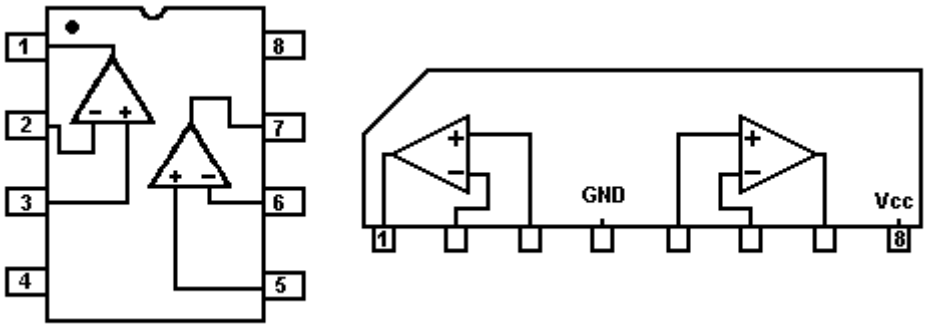
| Pino | Nome | Descrição |
|---|---|---|
| **1** | VCC | Entrada de alimentação positiva |
| **2** | RR | Rejeição de Ripple |
| **3** | MC | Controle de Muting |
| **4** | OP | Entrada do sinal de áudio |
| **5** | FB | Filtro FB |
| **6** | GA | Ajuste de ganho |
| **7** | GND | Terra |
| **8** |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



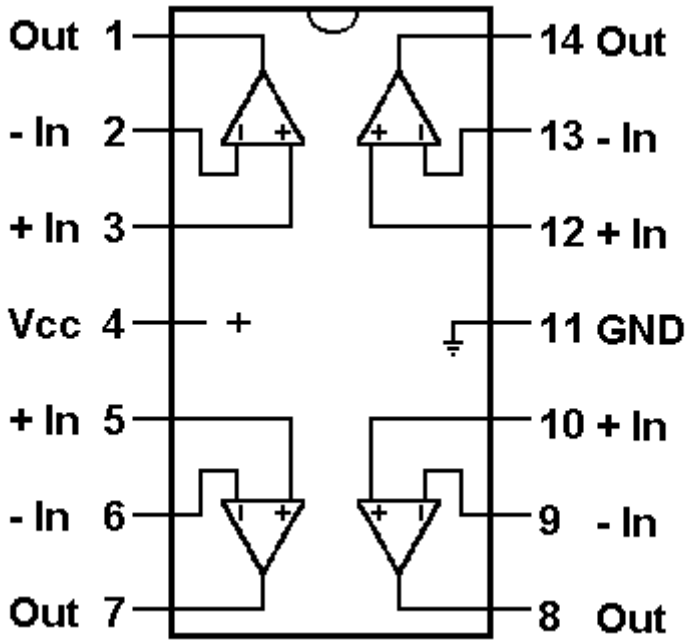

Datasheet do NJM4558 :

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

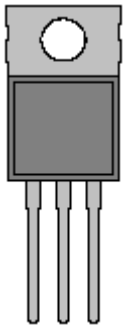
**Equivalente ao LM324**




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

## Application:

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

**Absolute Maximum Ratings:** ($T_C$ = +25°C unless otherwise specified)

| | |
|---|---|
| Collector-Emitter Voltage ($R_{BE}$ = 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°C), $P_D$ | 1.7W |
| Collector Power Dissipation ($T_C$ = +50°C), $P_D$ | 20W |
| Operating Junction Temperature, $T_J$ | +150°C |
| Storage Temperature Range, $T_{stg}$ | -55° to +150°C |
| Thermal Resistance, Junction-to-Case, $R_{thJC}$ | 6.25°C/W |
| Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ | 73.5°C/W |

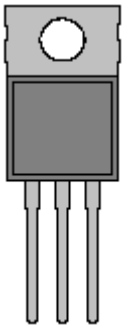
**Electrical Characteristics:** ($T_C$ = +25°C unless otherwise specified)

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

Note 1. Pulse test: Pulse Width = 150µs, Duty Cycle = 5%.

# 2SC1969

# Transistor NPN de potencia de RF



B C E

## Características:

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

**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°C unless otherwise specified)

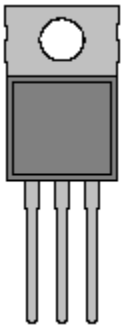
| | |
|---|---|
| Collector-Emitter Voltage ($R_{BE}$ = Infinity), $V_{CEO}$ | 25V |
| Collector-Base Voltage, $V_{CBO}$ | 60V |
| Emitter-Base Voltage, $V_{EBO}$ | 5V |
| Collector Current, $I_C$ | 6A |
| Collector Power Dissipation ($T_A$ = +25°C), $P_D$ | 1.7W |
| Collector Power Dissipation ($T_C$ = +50°C), $P_D$ | 20W |
| Operating Junction Temperature, $T_J$ | +150°C |
| Storage Temperature Range, $T_{stg}$ | -55° to +150°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°C unless otherwise specified)

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

Note 1. Pulse test: Pulse Width = 150µs, Duty Cycle = 5%.

# 2SC2166
# Transistor NPN de Potencia de RF



B C E

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

**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°C unless otherwise specified)

| | |
|---|---|
| Collector-Emitter Voltage ($R_{BE}$ = 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°C), $P_D$ | 1.5W |
| Collector Power Dissipation ($T_C$ = +50°C), $P_D$ | 12,5W |
| Operating Junction Temperature, $T_J$ | +150°C |
| Storage Temperature Range, $T_{stg}$ | -55° to +150°C |
| Thermal Resistance, Junction-to-Case, $R_{thJC}$ | 10°C/W |
| Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ | 83°C/W |

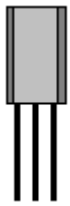
**Electrical Characteristics:** ($T_C$ = +25°C unless otherwise specified)

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

Note 1. Pulse test: Pulse Width = 150µs, 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.**



B C E

## Features:

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

## Application:

- Driver Amplifier Applications in HF Band

**Absolute Maximum Ratings:** ($T_C$ = +25°C unless otherwise specified)

| | |
|---|---|
| Collector-Emitter Voltage ($R_{BE}$ = 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°C), $P_D$ | 0,8W |
| Operating Junction Temperature, $T_J$ | +135°C |
| Storage Temperature Range, $T_{stg}$ | -55° to +150°C |
| Thermal Resistance, Junction-to-Ambient, $R_{thJA}$ | 137,5°C/W |

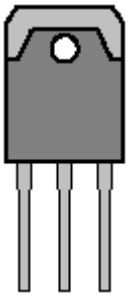
**Electrical Characteristics:** ($T_C$ = +25°C unless otherwise specified)

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

Note 1. Pulse test: Pulse Width = 150µs, Duty Cycle = 5%.

# 2SB754
## Silicon PNP Transistor
## 50 Volt - 7 Ampere - 60 Watt

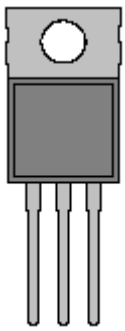
**The 2SB754 is a silicon PNP epitaxial planer type transistor in TO-3P package, designed for LF Power applications.**



B C E

# 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.**

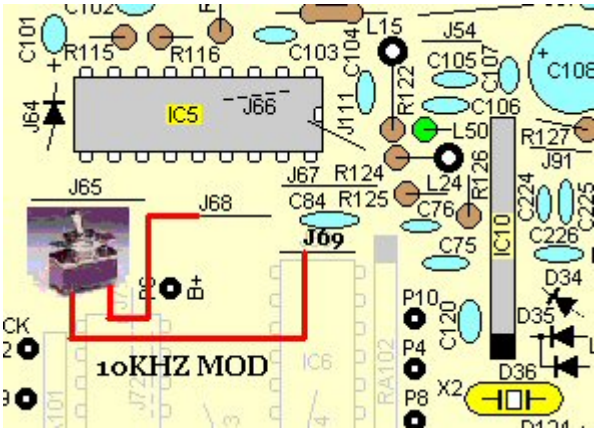


B C E

# Super Star 3900

## Modificações para o chassi EPT3600

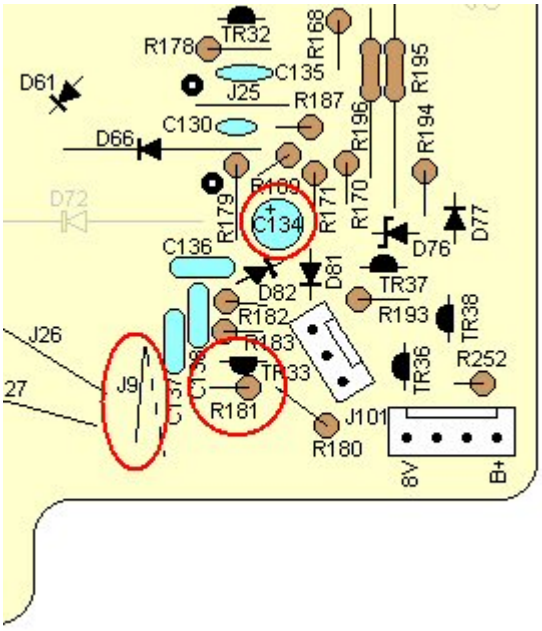
**MOD +10KHZ**




## Modificação para + 10 Khz

# Modificação para o Roger Beep

**mod roger bepp**

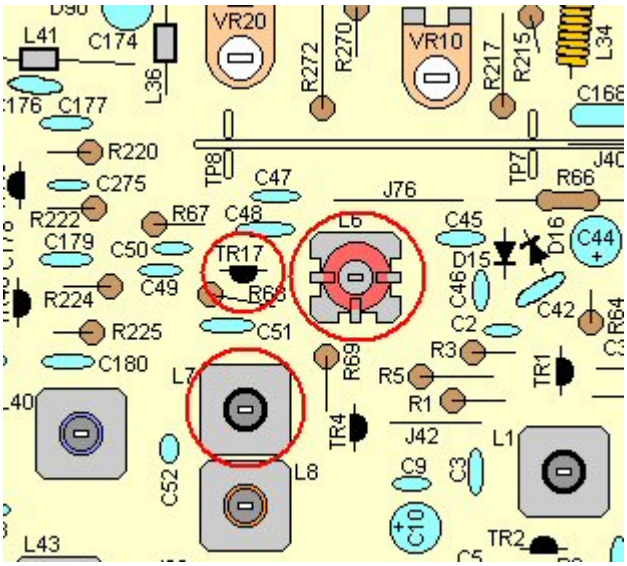



**Localizar o resistor 220k (R-181) e capacitor (C-134) 2,2uF eletrolítico localizados bem atrás do s-meter ou bem ao lado do conector do microfone.**

**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.**

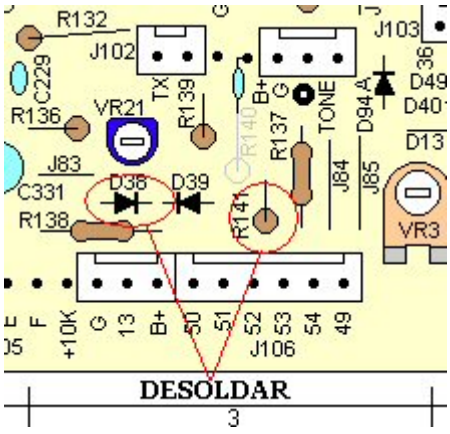
# Mod RX

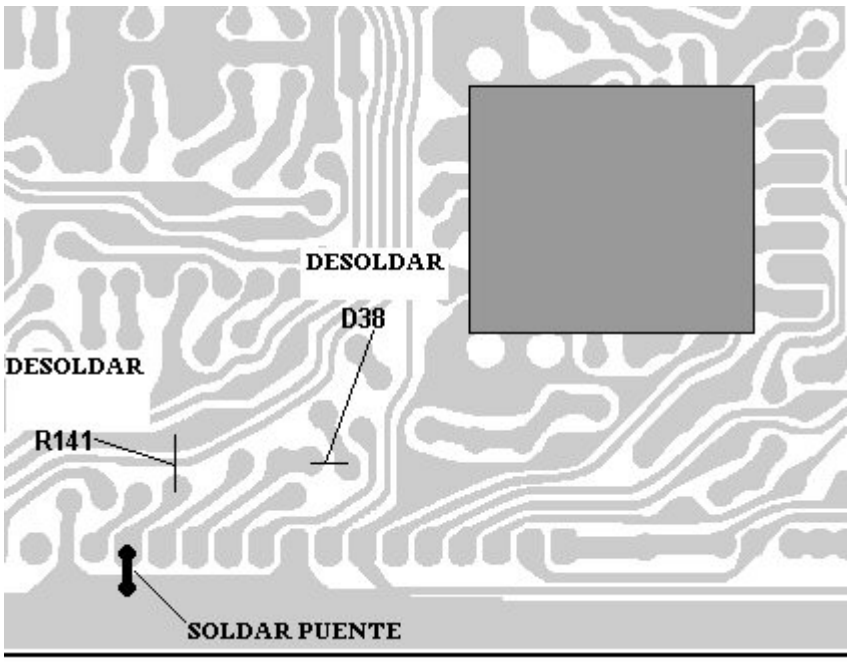



**Substitua o transistor da etapa de F.I. TR17 (2SC1674) por um 2SC2999 ou equivalente (BF959) reajuste as bobinas L6 e L7 com uma chave cerâmica para um bom equilíbrio na RX e nas seis bandas do radio.**

**Modificação do clarificador Super Star 3900**

**(Placa EPT360014c)**






**Esta modificação consiste em conseguir que o equipamento transmita exatamente na mesma frequencia que recebemos. Isto nos será de grande ajuda em SSB já que podemos estar seguros de que sempre nos encontraremos "em cima" da frequencia 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 frequencia, e não teremos mais a preocupação de sintonizar corretamente com o *fine* e o *coarse*, estando seguro de que não estamos transmitimos "fora de frequencia".**