

1: YO3DAC - Homebrew RF Circuit Design Ideas

The two-stage voltage gain can reach more than 40dB before the negative feedback is added, and can greatly increase the input audio signal amplitude. At the same time, inter-stage negative feedback is set between the input tube cathode and the power amplifier output.

Regeneration can increase the detection gain of a detector by a factor of 1, or more. This is quite an improvement, especially for the low-gain vacuum tubes of the s and early s. The type 36 screen-grid tube obsolete since the mids had a non-regenerative detection gain audio frequency plate voltage divided by radio frequency input voltage of only 9. A major improvement in stability and a small improvement in available gain for reception of CW radiotelegraphy is provided by the use of a separate oscillator, known as a heterodyne oscillator or beat oscillator [15] [23]. Providing the oscillation separately from the detector allows the regenerative detector to be set for maximum gain and selectivity - which is always in the non-oscillating condition [15] [24]. Interaction between the detector and the beat oscillator can be minimized by operating the beat oscillator at half of the receiver operating frequency, using the second harmonic of the beat oscillator in the detector [23]. AM reception[edit] For AM reception, the gain of the loop is adjusted so it is just below the level required for oscillation a loop gain of just less than one. The result of this is to greatly increase the gain of the amplifier at the bandpass frequency resonant frequency , while not increasing it at other frequencies. Autodyne For the reception of CW radiotelegraphy Morse code , the feedback is increased just to the point of oscillation. The two frequencies beat in the nonlinear amplifier, generating heterodyne or beat frequencies [26]. Demodulation of a signal in this manner, by use of a single amplifying device as oscillator and mixer simultaneously, is known as autodyne reception [27]. The term autodyne predates multigrid tubes and is not applied to use of tubes specifically designed for frequency conversion. The tuning is adjusted until the demodulated voice is intelligible. Advantages and disadvantages[edit] Regenerative receivers require fewer components than other types of receiver circuit, such as the TRF and superheterodyne. Early vacuum tubes had low gain and tended to oscillate at radio frequencies RF. TRF receivers often required 5 or 6 tubes; each stage requiring tuning and neutralization, making the receiver cumbersome, power hungry, and hard to adjust. A regenerative receiver, by contrast, could often provide adequate reception with the use of only one tube. Since the advent of the transistor in , the low cost of active devices has removed most of the advantage of the circuit. However, in recent years the regenerative circuit has seen a modest comeback in receivers for low cost digital radio applications such as garage door openers , keyless locks , RFID readers and some cell phone receivers. A disadvantage of this receiver, especially in designs that couple the detector tuned circuit to the antenna, is that the regeneration feedback level must be adjusted when the receiver is tuned to a different frequency. The antenna impedance varies with frequency, changing the loading of the input tuned circuit by the antenna, requiring the regeneration to be adjusted. In addition, the Q of the detector tuned circuit components vary with frequency, requiring adjustment of the regeneration control. Another drawback is that when the circuit is adjusted to oscillate it can radiate a signal from its antenna, so it can cause interference to other nearby receivers. Adding an RF amplifier stage between the antenna and the regenerative detector can reduce unwanted radiation, but would add expense and complexity. Other shortcomings of regenerative receivers are the sensitive and unstable tuning. These problems have the same cause: Any movement of the antenna or large objects near the antenna can change the tuning of the detector. History[edit] The inventor of FM radio, Edwin Armstrong , invented and patented the regenerative circuit while he was a junior in college, in Lee De Forest filed a patent in that became the cause of a contentious lawsuit with the prolific inventor Armstrong, whose patent for the regenerative circuit had been issued in The lawsuit lasted twelve years, winding its way through the appeals process and ending up at the Supreme Court. Armstrong won the first case, lost the second, stalemated at the third, and then lost the final round at the Supreme Court. So this design, getting most gain out of one tube, filled the needs of the growing radio community and immediately thrived. Although the superheterodyne receiver is the most common receiver in use today, the regenerative radio made the most out of very few parts. In World War II the regenerative circuit was used in some military

equipment. An example is the German field radio "Torn. A related circuit, the superregenerative detector, found several highly important military uses in World War II in Friend or Foe identification equipment and in the top-secret proximity fuze. An example here is the miniature RK61 thyratron marketed in , which was designed specifically to operate like a vacuum triode below its ignition voltage, allowing it to amplify analog signals as a self-quenching superregenerative detector in radio control receivers, [35] and was the major technical development which led to the wartime development of radio-controlled weapons and the parallel development of radio controlled modelling as a hobby. Even after WWII, the regenerative design was still present in early after-war German minimal designs along the lines of the "peoples receivers" and "small receivers", dictated by lack of materials. Frequently German military tubes like the "RV12P" were employed in such designs. There were even superheterodyne designs, which used the regenerative receiver as a combined IF and demodulator with fixed regeneration. The superregenerative design was also present in early FM broadcast receivers around Later it was almost completely phased out of mass production, remaining only in hobby kits, and some special applications, like gate openers. His prototype 3 tube receiver was as sensitive as conventional receivers with 9 tubes. The superregenerative receiver uses a second lower-frequency oscillation within the same stage or by using a second oscillator stage to provide single-device circuit gains of around one million. This second oscillation periodically interrupts or "quenches" the main RF oscillation. After each quenching, RF oscillation grows exponentially, starting from the tiny energy picked up by the antenna plus circuit noise. The amplitude reached at the end of the quench cycle linear mode or the time taken to reach limiting amplitude log mode depends on the strength of the received signal from which exponential growth started. A low-pass filter in the audio amplifier filters the quench and RF frequencies from the output, leaving the AM modulation. This provides a crude but very effective automatic gain control AGC. Advantages and applications[edit] Superregenerative detectors work well for wide-band signals such as FM, where they perform "slope detection". The superregen uses many fewer components for nearly the same sensitivity as more complex designs. It removes the need for the operator to manually adjust regeneration level to just below the point of oscillation - the circuit automatically is taken out of oscillation periodically, but with the disadvantage that small amounts of interference may be a problem for others. These are ideal for remote-sensing applications or where long battery life is important. For many years, superregenerative circuits have been used for commercial products such as garage-door openers, radar detectors, microwatt RF data links, and very low cost walkie-talkies. Because the superregenerative detectors tend to receive the strongest signal and ignore other signals in the nearby spectrum, the superregen works best with bands that are relatively free of interfering signals. But quenching with overtones acts further as a heterodyne receiver mixing additional unneeded signals from those bands into the working frequency. Thus the overall bandwidth of superregenerator cannot be less than 4 times that of the quench frequency, assuming the quenching oscillator produces an ideal sine wave. Patents[edit] US , Armstrong, E.

TWO-STAGE AMPLIFYING RECEIVER 88 pdf

2: Five Tube Neurodyne Receiver - Two Stage Amplifier

2 Abstract An input amplifier for a FM-radio receiver with RF selection (MHz) has been designed in the radio project. It has about 25 dB gain.

Sony STF stereo decoder Posted: Apr Tue 08, Mar Sat 16, 1: It is probably more meaningful to compare the published specs. The STF claims stereo distortion better than 0. That is what you would want to compare the stereo decoder chip specs with. Present day decoder chips probably have lot better specs, but I am not familiar with them! You are very wise. The MC is very popular, but it is old. HUGE difference, as you noted. It is, however, nice to know that I have a drop-in replacement if any of the fancy bits in the tuner go wrong. If you are looking at these small bookshelf units, the matching amp, the TA, has more serious design problems. The nominal rail-to-rail voltage is 46V, while Sony uses 40V transistors in the final driver stages! If you crank up the volume it is easy to blow the finals! If you add to it that there is only fuse protection for the speakers, the speakers could also be easily damaged at such an event. It is worthwhile to replace the driver transistors with higher voltage components! The finals and some of the driver transistors were blown in my unit when I acquired it, and I corresponded with two other people with similar problems with their amps Thank you for the warning. This explains why people report the output transistors are often fried. I think I know why this happened since Sony engineers should not have made a mistake like this. Or did a bean counter drop a 50v transistor to a 40v one to save some money? Or was it a question of RMS power, because 1. These are great mysteries. Anyway, good to know. Should be easy to fix with higher-voltage transistors. I suspect the audio quality would be improved by moving to a complimentary arrangement with better quality transistors. I read somewhere that complimentary transistors were very expensive in the 60s and early 70s. Nowadays I can afford the two bucks per for the fancy ones. Thank you for the tips.

3: Lawrence Receiver & Two-Stage Amplifier Radio Lawrence Radio

Home Audio Power Amplifier System - 2xW Dual Channel Theater Power Stereo Receiver Box, Surround Sound w/ USB, RCA, AUX, LED, Remote, 12V Adapter - For Speaker, iPhone - Pyle PCAU46A by Pyle \$ \$ 53 66 Prime.

4: Samson " Stage X1U

This video is how to make an Analog FM Radio receiver (88 MHz to MHz) And ic stereo Audio amplifier, 12v DC input power is connected Download Circuit diagram and detail - <https://>

5: Staggered tuning - Wikipedia

Home Audio Power Amplifier System - 2xW Dual Channel Theater Power Stereo Receiver Box, Surround Sound w/ USB, RCA, AUX, LED, Remote, 12V Adapter - For Speaker, iPhone - Pyle PCAU46A.

6: Antique Radio Forums " View topic - Update: Sony STF stereo decoder

The Neurodyne Receiver represents the very latest type of broadcast receiver. It consists of two stages of tuned radio frequency amplification with neutralization of capacity coupling, a non-regenerative detector, and two stages of power audio amplification.

7: Regenerative circuit - Wikipedia

Find best value and selection for your Kenwood KA 88 Stereo Amplifier search on eBay. World's leading marketplace.

Encyclopedia of optimization Dillys big sister diary A Rose and A Star You are psychic book A level human geography notes The Black Alchemists (Phoenix Force, #12 (An Executioner Series) Foundations of Quantum Chromodynamics The Winning Helix Mechanics of materials 10th The nursing of the elderly sick James corden may i have your attention please Kaplan AP European History 2007 The book of the it Responsibility, gratitude, and submission : more to put on Vrat katha in gujarati The art and science of technical analysis Learning Microsoft QuickBasic Through VGA Graphics Rainbow magic fairy books Official AT&T WorldNet Web discovery guide Frameworks Genesis Cornwall (The Buildings of England) Big Sable Point Light Station The common (non)sense revolution Audi a4 manual 2008 Introduction to sunburst andrew york The National Guard (Rescue and Prevention) Hebrew life and literature Owing Happy, Healthy Cats Dhillon publication english book No Men Are Strangers AAA Spiral Guide to Dublin Purchasing supply chain management monczka Eugene Kranz returns Apollo 13 to earth Old West Merchants Swishing down the slide Root causes of Sudans civil wars Folk Fairy Tale Easy Readers Japan after world war 2 Eco chic : clothing, accessories, and jewelry Economics and Theology