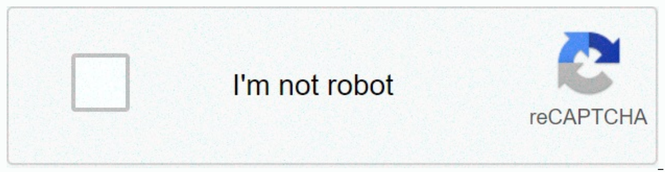

Continue

Kaki transistor ecb

[Click on the image to enlarge it] Pin Number Pin Name Description Description 1 Emitter Current Drains out through emitter, usually connected with Ground 2 Base Controls the biasing of Transistor, Used to let the transistor turn on or off 3 collector current flows in through collector, normally connected with load features: Amplifier NPN Transistor High DC Current Gain (hFE), typically 80, when IC=10mA Continuous Collector Current (IC) is 600mA Collector Emitter Voltage (VCE) is 160 V Collector Base Voltage (VCB) is 180V Emitter Basic Voltage (VBE) 100MHz is available in To-92 Package Note: Full technical details can be found on the 2N5551 data sheet at the end of this page. Alternative NPN transistors: BC549, BC636, BC639, BC547, 2N2369, 2N3055, 2N3904, 2N3906, 2SC5200 2N5551 Equivalent transistors: NTE194, 2N5833, 2N5088, 2N3055, 2N5401 (PNP) Same Family Transistors: 2N5550 Where to use 2N5551: The 2N5551 is an NPN amplifier transistor with an amplification factor (hfe) of 80 when the collector current is 10mA. It also has decent switching properties (transition frequency is 100MHz) can therefore amplify low-level signals. Because of this function, the transistor is often used to amplify audio or other low-power signals. So if you're looking for an NPN transistor for you looking for amplifier circuit, then this transistor may be the right choice. How to use 2N5551: As already mentioned, the 2N5551 NPN transistor is widely used for amplification. A very simple minimum circuit for a transistor that works as an amplifier is shown below. The simulation diagram showing the amplified output sine wave can also be found. Here, the input sine wave of the magnitude 8mV (yellow color) is amplified to 50mV (pink color), as shown in the graphic. In the above circuit, the resistors R3 and R4 form a potential divider that decides the emitter base voltage (VBE). The resistor R1 is the load resistance and the resistor R2 is the emitter resistance. Changing the value of RL affects the amplification of the output wave. A transistor is usually a power amplifier, i.e. the current flows through the base is amplified in the current flowing through the collector. This amplification depends on the amplification factor (hfe), which is 80 for 2N5551. This means that the collector current is increased by 80 times more than that of the base current. Another current we have considered is the emitter current (IE), but due to the transistor action we assume that the emitter current is almost equal to the value of the collector current, but the difference between the two can be found with the value of α Normally, the value of the collector current e is specified by IE = IC + IB The output is obtained via the collector, which is collector-emitter voltage (VCE). This output voltage depends on the input voltage (Vcc, here 12V) without over the load resistance (R1). Therefore, the output voltage Vout can be specified as Vout = VCE = (Vcc – IcRc) applications: Low-power amplifier current amplifier Current amplifier Selise Small Signal Amplifiers Audio or other signal amplifiers Darlington pair 2D model of the component: If you are designing a PCD or Perf board with this component, then the following image from the 2N5551 datasheet will be useful to know its package type and dimensions. [Click on the image to enlarge it] Pin No. Pinname Beschreibung 1. Emitter 2. C-Sammler 3. B Base Features and Technical Specifications Type: p-n-p Power Dissipation: 0.4watts High voltage and High current: Vceo = 50v and Ic = 150mA Low Noise: 1dB Case Material: molded plastic Collector power dissipation: 400mW DC current gain: 400 Collector Emitter and Collector Base breakdown voltage: 50Vdc Base Emitter Saturation Voltage: 1.1Vdc Collector Emitter Saturation Voltage: 0.3Vdc Base Emitter voltage: 1.45Vdc Complementary to 2SC1815 Operating Temperature and Storage Temperature: -55℃ to +150℃ A1015 Equivalent Transistors NTE290A, 2SA495, 2SA561, 2SA564A, 2SA573, 2SA675, 2SA705, 2SA850, 2SA999, KTA1015, BC212, BC257, BC307, BC557, 2N3494, 2SA781, KT3108A Where to Use A1015 PNP Transistors? The main use of 2SA1015 is for audio frequency amplifier applications. It can also be used for switching purposes, just like other PNP transistors. When used as an audio frequency universal amplifier can be operated in the active range. This transistor is further divided into four groups according to the GLEICH current gain O, Y, G and L and has 140, 240, 400 and 700 hfe GLEICH current gain. Group DC current gain (hfe) O 140 Y 240 G 400 L 700 amplification factor usually determined in terms of power, for the calculation of current gain we use the formula: Gain (hfe) = IC / IB Where, IC is the collector current and IB is the base current of the circuit. How to use A1015 Transistor? In the following circuit of LED indicators with 2SA1015, capacitor C1 and R1 used as frequency generator to Q1 transistor, which is used as a switch for Q2. And Q2 is used to increase the current. From capacitor C1 to R2 and LED, Q1 works until the voltage drop rises above C1. As a result, Q2 begins to conduct, and a current flows through LED and it turns on. While C1 is discharged by R1 on a period of time when C1 discharge is off, there would be no pressure to bias the base clamp of the Q1. As a result, the Q1 no longer works, which also stops q2 from working. Therefore, LED will turn off and C1 will restart and this cycle will continue. And turning LED on and off seems like a blinker. Applications Switching Driver Stage Amplifier Action AF Amplifier Can be Used Darlington Pair Used In Herstellung von LED Blinker 2D-Modell A1015 Transistor Datenblatt Transistor has 3 legs that should not be reversed in its installation in electronic assemblies. Foot Legs there are 3 pieces, namely base, emitter and collector, to know that the legs of the transistor can see the data sheet or use a multimeter. In general, transistors are packaged in several variants, which can be detected each leg with the naked eye. Here is a reference form of the transistor packaging, which we can know directly, the base foot, collector and emeitor, without having to determine it with a measuring device. If we do not have a reference image of the transistor packaging above, it can determine the transistor leg with a multimeter. The determination of the transistor leg begins with the determination of the base leg, while the type of transistor, which is carried out by a multimeter setting at the ohm meter, and the resistance between the transistor legs is determined as follows. To determine the base foot, we need to know the character of this base foot, namely a fordward bias relationship based on the collector and the base to the emitter, as well as the bias from the collector to the base and the emitter to the base on the type of the NPN transistor and vice versa on the PNP type. At this stage, we need to share the legs of the transistor with a different name, for example 1 foot 2 and foot 3. Then set the multimeter to ohm meter x10 or x100, then we find the base foot with: Connect the red probe to one of the legs, e.B. feet 1, then the black probe is connected to the other two legs, if the multimeter has a low resistance reading (needle moving far) on both then foot 1 is the base foot for the PNP transistor. And NPN if the probe at the position of foot 1 is a black probe with measurement results as before. If only at a foot 2 or 3 only that moves the probability of a base of 2 or 3. Repeat this, browse the configuration until we find the needle meter that moves everyone. Make sure the base is met and the type of NPN transistor or PNP NPN: The base foot of the probe is black, the emitter's foot and the probe collector red, then the needle moves. then, if behind the base foot of the red probe, the foot of the emitter and the black probe collector's needle do not move. PNP: The base foot of the probe is red, the emitter's foot and the probe collector is black, then the needle moves. then, if behind the base foot of the black probe, the foot of the emitter and the red probe collector's needle do not move. 2. Determine the foot collector and emitter foot base has been determined, then we can determine the feet of collectors and emitters with the concept of transistors as switches. To determine the feet of collectors and emittermultmeter settings in motion to Ohm meter x10KOhm, then perform the following technique. For example, NPN transistors. Attach a black probe to a different leg than the base by attaching the probe with our fingers (the probe and the transistor leg are held together) Connect the red probe to the other foot (also different from the base) and do not touch it with your fingers. Touch the base foot with your fingers. If the measuring needle does not move, rotate its position Touch the base foot again with your fingers. If the meter needle moves wide enough, then it is certain that the foot held with the black probe is a collector, the other leg (red probe) is the emitter for the PNP transistor, just as only the position of the red probe and the black probe is reversed. For the feet of the emitter on certain packaging, fins are usually marked on the transistor packaging. Then the marker for the collector's foot is the letter c, the rounded point, the square point, or the triangle point that is on the transistor packaging. Share the article Determining the Legs of Transistors: Because it is the Light that Always Illuminates Our Lives. Allows to copy the writing on this blog while maintaining the mandate ilmiyah & containing the URL link address of this blog. And please correct if there are errors in the delivery of materials. Hopefully, the article Determining the Legs of Transistors Offers Benefits. Thank you still about the old knowledge .... and of course makom still lives in the style of the transistor BJT (Bipolar Junction Transistor), because quite frankly guruKATRO had no time to learn how and how and or step steps to determine the still good type of the transistor FET (Field Effect Transistor). Since we have been informed together that that Bjt type transistors have 3 legs, namely: Base (B), Collector (C) and Emitter (E) And we also understood together whether the type of BJT transistor has two families, namely: Transistor PNP and Transistor NPN In the schema or there are people who write Schematic, Transistor PNP usually symbolized by the symbol: Transistor type PNP has a symbol with an arrow in the emitor , guruKATRO meant the symbol with the understanding that: - Positive tension (+) enters through the foot of the emitter and exits through the base of the collector, if vice versa means: - Negative tension enters through the collector and leaves through the emitter or with the language: - The foot of the emitter receives a positive voltage absorption (+). and NPN transistor is usually symbolized by the symbol: NPN type transistor has a symbol with an arrow on the foot E (emitter), guruKATRO usually interprets the symbol with the understanding that: - Positive tension (+) occurs through the base of the collector and leaves through the foot of the emitter, or if vice versa: - Negative tension enters through the emitter or is left by the collector or with the language : - The foot of the emitter receives a negative voltage absorption (-). Knowing that the legs of the transistor foot look like this, it will of course be very easy if we want to find that it is still good or has damaged a transistor. I. Pnp enter a. RED Collector Pin Black, b. Red Base Pin Emitter Pin BLACK, In Steps a and b, if - Needle Tester does not move on both step or both, means that the transistor is broken - The needle moves on a different scale between a and means that the transistor is already in a coma, - the tester needle moves on the same scale, indicating that the transistor is still GOOD. but wait a minute... we are not finished yet, because we also have to check the opposite, namely: BLACK pin on the base, while alternating collector and emitter with RED pin, needle should not move at all, there is little movement alone it already shows that the transistor is not worth using. Also check the relationship between collector and emitter, c. Red emitter pin collector BLACK Pin, d. Black pen collector Red Emitter Pin, In Step c. Needle tester can not move or move easily or move further than step d, which means transistor GOOD. In step d. needle tester must not move or move, but much smaller than step c. MEANS GOOD transistor, the further the difference of langklah c, the better the quality of a transistor. II. Type NPN, actually only the opposite of PNP, but also good guruKATRO detailed: e. Base pin black collector red pin, f. Black pin-base red pin emitter pin, In steps e and f, if : - The tester needle does not move either on step or on both, means that the transistor is broken, - The needle moves on a different scale between e and f , which means that the transistor is already comma, - the tester needle moves on the same scale, it indicates that the transistor is still GOOD. but wait a minute... we are not finished yet, because we also have to check the opposite, namely: RED pin on the base, while alternating collector and emitter with BLACK pin, needle should not move at all, there is little movement alone it already shows that the transistor is not worth using. Also check the relationship between the collector and the emitter, g. Black Emitter Pin Collector RED Pin, h. Red Pen Collector Emitor Black Pen, In Step g. Needle Tester can not move or move easily or move further than step h, which means Transistor GOOD. In step h. Needle tester should not move or move, but much smaller than step g. means GOOD transistor, the further the difference of langklah g, the better the quality of a transistor. NB: For certain transistors, such as the usual for Final Horizontal Television CRT, in it there is a jumper diode from the emitter to the base, so that when the emitter pin BLACK and basepin MERAH, needle tester moves often also in the field we find transistors that do not specify letters that indicate how: what foot base, where is the foot collector, and where the foot emitter, a small reference from the experience , there are some differences in the foot arrangement of the foot transistor, under Transistor with a fairly small physical usually and usually with the order: Foot 1 E foot 2 C Foot 3 B Examples of such sequences are usually applied to transistors A1015- A1015- but some types of transistors, as mentioned above by certain manufacturers, and for all transistors type 9011-9012-9013-9014-9015 etc. apply the order: foot 1 E foot 2 B foot 3 C even some types of certain manufacturers, e.B. BC457 applies the order: feet 1 C foot 2 B foot 3 E - transistors with a fairly large physique usually use and use the order : Feet 1 B foot 2 C foot 3 E Examples of such sequences are commonly applied to transistors A1216-A1941 -B507-C1970-C5200-S2922-D313-TIP31-TIP32-TIP2955-TIP3055-dll a kind of LARGE transistor, which is intended as the last radio transmitter guruKATRO has ever seen, e.B. C1971, C1972, C2630, C2782 apply the order: foot 1 B foot 2 E foot 3 C can be the order of BEC, it aims to To have the heat sink board (cooling metal) connected to the foot of the emitter, which directly receives a negative voltage absorption (-) and simultaneously with GND, the result is more channeled heat while reducing the signal intertink. ==========While the transistor body is not listed, Which leg ECB, but there is still a transistor type code: A. Transistor with the initial letter is A or b or 2SA or 2SB, or TIP32 or TIP42 or TIP2955 or 2N2955, etc., almost certainly it is a kind of PNP, emitter gets a POSITIVE voltage recording (+) we first determine the base with: A.1. Meters with scale X1, A.2. Touch the PINMERAH meter on one of the transistor legs and alternately touch the BLACK pin on the other two legs, if the needle knife moves to a certain value on both touches, then the foot touched by the RED pen is the base, then we now assume that the base is the 1st foot after we hit the base , we only determine which single driver is and which emitter (think foot 2 and foot 3), such as: set-meter with X10 or X1K scale or when small transistors sometimes need X10K scale, A.3 touch RED pin on foot 2 and BLACK pin on foot 3, at this time also touch base foot with wet fingertip (slightly wet), Ω carefully observe meter needle. A.4 Touch the BLACK pin on the 2nd foot and the RED pin on the 3rd foot, while touching the base foot with a damp (slightly wet) fingertip, carefully respecting the needle with the meter. A.5 When performing steps A.3 and A.4: Observe the needle knife as you move or move further than vice versa, the foot of the transistor touched by the BLACK pin is the collector, so it is found when the foot touched by the RED pin is the emitter. ========== B. Transistors with the initial letter are C or D or 2SC 2SD, or TIP31 or TIP41 or TIP3055 or 2N3055, etc., it is almost certain that it is the type nPN, the emitter receives a NEGATIVE voltage recording (-) first we determine the base by: B.1. B.1. Scale X1, B.2. Touch the tip of the BLACK pin knife on one of the transistor legs, if the RED pin is touched alternately on the other two legs and the needle of the meter moves to a certain value, then the foot touched by the BLACK pin is the base, then we now assume that the base is foot 1 after we have hit the base, we only determine , which collector and which emitter (think of it 2 feet and 3 feet) , such as: Adjust the meter with the scale X10 or X1K or if a small transistor sometimes needs a scale of X10K, B.3 Touch the RED pin at the base 2 and the BLACK pin at the foot 3, at this time also touch the base foot with a damp fingertip (slightly wet) , carefully observe the needle meters. B.4 Touch the BLACK pin on the 2nd foot and the RED pin on the 3rd foot, while touching the base foot with a damp (slightly wet) fingertip, carefully respecting the needle with the meter. B.5 When performing steps B.3 and B.4: Observe the needle knife as you move or move further than vice versa, the foot of the transistor touched by the RED pin is the collector, so it is found when the foot touched by the BLACK pin is the emitter. NB : Follow steps A.3 - A.4 - B.3 - B.4 require additional precision when damp fingertips are touched at the base, keep the foot and emitter of the collector untouched by all damp objects including our fingers. especially if we use the X10K scale. So about how to determine the base foot - collector - emitter transistor, which is already known NPN or pnp its. If we find a transistor that we do not yet know what PNP or NPN is, then the step is as follows: Try to continue until we find one foot with a color pencil meter and another pen with the other two legs transistor alternately connected until the needle meter moves on both. - P-1. Foot 1 enter RED Pin, Foot 2 and 3 alternately enter BLACK Pin, if you have not found the same needle meter movement, continue with: - P-2. Foot 2 enter RED Pin, Foot 2 and 3 alternately give BLACK Pin, if you have not found the same needle meter movement, try again with: - P-3. Foot 3 give RED pin, foot 2 and 1 alternately give black pin, If transistor PNP type and is still good, surely one of the three steps above will find the same needle movement, can be on P-1 or on P-2 or on P-3. And the foot that gets the RED pin is the base If from P-1, P-2, P-3 can not be found that slide the same needle, maybe it is npn transistor, try to continue: - N-1. Foot 1 give BLACK Pin, Foot 2 and 3 enter RED Pin, if you have not found the same needle meter movement, continue with: - N-2. Foot 2 enter BLACK Pin, Foot 2 and 3 alternately give RED Pin, if you have not found the same needle meter movement, try again with: - N-3. N-3. 3 Enter a BLACK pin, legs 2 and 1 alternately enter a RED pin, if you have not found the same needle meter movement, means that the transistor may be broken or it could be a transistor type PNP If the transistor type NPN and is still good, surely one of the three steps above will find the needle that moves the same, can be on N-1 or on N-2 or on N-2 or on N-3. And the foot that gets the BLACK pin is the base If it has the same P-1, P-2, P-3, N-1, N-2, N-3 steps, there is no sliding of the same needle, maybe it is a transistor type FET, or BJT that has been damaged. Honestly maybe because of factor U, guruKATRO pretty dizzy to describe this explanation because it is very hopeful to correct if there is a caption or image that is wrong / wrong / wrong / wrong