

B-004-002-005 (C)

The electrodes of a semiconductor diode are known as:

- A collector and base
- B cathode and drain
- C anode and cathode
- D gate and source

B-004-002-006 (B)

If alternating current is applied to the anode of a diode, what would you expect to see at the cathode?

- A Pulsating alternating current
- B Pulsating direct current
- C No signal
- D Steady direct current

B-004-002-007 (C)

In a semiconductor diode, electrons flow from:

- A cathode to grid
- B grid to anode
- C cathode to anode
- D anode to cathode

B-004-002-008 (B)

What semiconductor device glows different colours, depending upon its chemical composition?

- A A vacuum diode
- B A light-emitting diode
- C A fluorescent bulb
- D A neon bulb

B-004-002-009 (A)

Voltage regulation is the principal application of the:

- A Zener diode
- B junction diode
- C light-emitting diode
- D vacuum diode

B-004-002-010 (A)

In order for a diode to conduct, it must be:

- A forward-biased
- B close coupled
- C enhanced
- D reverse-biased

B-004-003-001 (A)

Which component can amplify a small signal using low voltages?

- A A PNP transistor
- B A variable resistor
- C An electrolytic capacitor
- D A multiple-cell battery

B-004-003-002 (A)

The basic semiconductor amplifying device is the:

- A transistor
- B tube
- C P-N junction
- D diode

B-004-003-003 (D)

The three leads from a PNP transistor are named:

- A drain, base and source
- B collector, source and drain
- C gate, source and drain
- D collector, emitter and base

B-004-003-004 (A)

If a low level signal is placed at the input to a transistor, a higher level of signal is produced at the output lead. This effect is known as:

- A amplification
- B detection
- C modulation
- D rectification

B-004-003-005 (D)

Bipolar transistors usually have:

- A 1 lead
- B 2 leads
- C 4 leads
- D 3 leads

B-004-003-006 (B)

A semiconductor is described as a "general purpose audio NPN device". This would be:

- A an audio detector
- B a bipolar transistor
- C a silicon diode
- D a triode

B-004-003-007 (D)

The two basic types of bipolar transistors are:

- A diode and triode types
- B varicap and Zener types
- C P and N channel types
- D NPN and PNP types

B-004-003-008 (A)

A transistor can be destroyed in a circuit by:

- A excessive heat
- B excessive light
- C saturation
- D cut-off

B-004-003-009 (D)

In a bipolar transistor, the _____ compares closest to the control grid of a triode vacuum tube.

- A emitter
- B source
- C collector
- D base

B-004-003-010 (D)

In a bipolar transistor, the _____ compares closest to the plate of a triode vacuum tube.

- A gate
- B emitter
- C base
- D collector

B-004-003-011 (B)

In a bipolar transistor, the _____ compares closest to the cathode of a triode vacuum tube.

- A drain
- B emitter
- C collector
- D base

B-004-004-001 (A)

The two basic types of field effect transistors (FET) are:

- A N and P channel
- B NPN and PNP
- C germanium and silicon
- D inductive and capacitive

B-004-004-002 (B)

A semiconductor having its leads labelled gate, drain, and source is best described as a:

- A silicon diode
- B field-effect transistor
- C gated transistor
- D bipolar transistor

B-004-004-003 (A)

In a field effect transistor, the _____ is the terminal that controls the conductance of the channel.

- A gate
- B drain
- C source
- D collector

B-004-004-004 (A)

In a field effect transistor, the _____ is the terminal where the charge carriers enter the channel.

- A source
- B gate
- C drain
- D emitter

B-004-004-005 (B)

In a field effect transistor, the _____ is the terminal where the charge carriers leave the channel.

- A gate
- B drain
- C collector
- D source

B-004-004-006 (D)

Which semiconductor device has characteristics most similar to a triode vacuum tube?

- A Junction diode
- B Zener diode
- C Bipolar transistor
- D Field effect transistor

B-004-004-007 (C)

The control element in the field effect transistor is the:

- A drain
- B base
- C gate
- D source

B-004-004-008 (B)

If you wish to reduce the current flowing in a field effect transistor, you could:

- A increase the forward bias gain
- B increase the reverse bias voltage
- C decrease the reverse bias voltage
- D increase the forward bias voltage

B-004-004-009 (C)

The source of a field effect transistor corresponds to the _____ of a bipolar transistor.

- A drain
- B collector
- C emitter
- D base

B-004-004-010 (A)

The drain of a field effect transistor corresponds to the _____ of a bipolar transistor.

- A collector
- B base
- C source
- D emitter

B-004-004-011 (C)

Which two elements in a field effect transistor exhibit fairly similar characteristics?

- A Gate and drain
- B Source and base
- C Source and drain
- D Source and gate

B-004-005-001 (D)

What is one reason a triode vacuum tube might be used instead of a transistor in a circuit?

- A It uses less current
- B It is much smaller
- C It uses lower voltages
- D It may be able to handle higher power

B-004-005-002 (C)

Which component can amplify a small signal but must use high voltages?

- A An electrolytic capacitor
- B A multiple-cell battery
- C A vacuum tube
- D A transistor

B-004-005-003 (D)

A feature common to triode tubes and transistors is that both:

- A have electrons drifting through a vacuum
- B convert electrical energy to radio waves
- C use heat to cause electron movement
- D can amplify signals

B-004-005-004 (D)

In a vacuum tube, the electrode that is operated with the highest positive potential is the _____.

- A filament (heater)
- B cathode
- C grid
- D plate

B-004-005-005 (B)

In a vacuum tube, the electrode that is usually a cylinder of wire mesh is the _____.

- A plate
- B grid
- C filament (heater)
- D cathode

B-004-005-006 (C)

In a vacuum tube, the element that is furthest away from the plate is the _____.

- A emitter
- B cathode
- C filament (heater)
- D grid

B-004-005-007 (A)

In a vacuum tube, the electrode that emits electrons is the _____.

- A cathode
- B grid
- C collector
- D plate

B-004-005-008 (D)

What is inside the envelope of a triode tube?

- A Argon
- B Air
- C Neon
- D A vacuum

B-004-005-009 (C)

How many grids are there in a triode vacuum tube?

- A Three
- B Three plus a filament
- C One
- D Two

B-004-006-001 (C)

How do you find a resistor's tolerance rating?

- A By reading its Baudot code
- B By using a voltmeter
- C By reading the resistor's colour code
- D By using Thevenin's theorem for resistors

B-004-006-002 (C)

What do the first three-colour bands on a resistor indicate?

- A The power rating in watts
- B The resistance tolerance in percent
- C The value of the resistor in ohms
- D The resistance material

B-004-006-003 (B)

What would the fourth colour band on a 47 ohm resistor indicate?

- A The resistance material
- B The resistance tolerance in percent
- C The value of the resistor in ohms
- D The power rating in watts

B-004-006-004 (D)

What are the possible values of a 100 ohm resistor with a 10% tolerance?

- A 90 to 100 ohms
- B 10 to 100 ohms
- C 80 to 120 ohms
- D 90 to 110 ohms

B-004-006-005 (B)

How do you find a resistor's value?

- A By using the Baudot code
- B By using the resistor's colour code
- C By using a voltmeter
- D By using Thevenin's theorem for resistors

B-004-006-006 (C)

A club project requires that a resistive voltage divider provide a very accurate and predictable ratio. Out of the list below, which resistor tolerance would you select?

- A 10%
- B 20%
- C 0.1%
- D 5%

B-004-006-007 (C)

You need a current limiting resistor for a light-emitting diode (LED). The actual resistance is not critical at all. Out of the list below, which resistor tolerance would you select?

- A 5%
- B 10%
- C 20%
- D 0.1%

B-004-006-008 (C)

If a carbon resistor's temperature is increased, what will happen to the resistance?

- A It will become time dependent
- B It will increase by 20% for every 10 degrees centigrade
- C It will change depending on the resistor's temperature coefficient rating
- D It will stay the same

B-004-006-009 (D)

A gold tolerance band on a resistor indicates the tolerance is:

- A 20%
- B 10%
- C 1%
- D 5%

B-004-006-010 (B)

Which colour band would differentiate a 120-ohm from a 1200-ohm resistor?

- A Fourth band
- B Third band
- C First band
- D Second band

B-004-006-011 (D)

Given that red=2, violet=7 and yellow=4, what is the nominal value of a resistor whose colour code reads "red", "violet" and "yellow"?

- A 274 ohms
- B 72 kilohms
- C 27 megohms
- D 270 kilohms

B-005-001-001 (B)

If a dial marked in megahertz shows a reading of 3.525 MHz, what would it show if it were marked in kilohertz?

- A 0.003525 kHz
- B 3525 kHz
- C 35.25 kHz
- D 3 525 000 kHz

B-005-001-002 (A)

If an ammeter marked in amperes is used to measure a 3000 milliampere current, what reading would it show?

- A 3 amperes
- B 0.003 ampere
- C 0.3 ampere
- D 3 000 000 amperes

B-005-001-003 (D)

If a voltmeter marked in volts is used to measure a 3500 millivolt potential, what reading would it show?

- A 0.35 volt
- B 35 volts
- C 350 volts
- D 3.5 volts

B-005-001-004 (A)

How many microfarads is 1 000 000 picofarads?

- A 1 microfarad
- B 1 000 000 000 microfarads
- C 1000 microfarads
- D 0.001 microfarad

B-005-001-005 (D)

If you have a hand-held transceiver which puts out 500 milliwatts, how many watts would this be?

- A 5
- B 50
- C 0.02
- D 0.5

B-005-001-006 (C)

A kilohm is:

- A 0.001 ohm
- B 10 ohms
- C 1000 ohms
- D 0.1 ohm

B-005-001-007 (B)

6.6 kilovolts is equal to:

- A 66 000 volts
- B 6600 volts
- C 660 volts
- D 66 volts

B-005-001-008 (C)

A current of one quarter ampere may be written as:

- A 0.25 milliampere
- B 250 microamperes
- C 250 milliamperes
- D 0.5 amperes

B-005-001-009 (D)

How many millivolts are equivalent to two volts?

- A 0.000002
- B 2 000 000
- C 0.002
- D 2 000

B-005-001-010 (A)

One megahertz is equal to:

- A 1 000 kHz
- B 100 kHz
- C 0.001 Hz
- D 10 Hz

B-005-001-011 (C)

An inductance of 10 000 microhenrys may be stated correctly as:

- A 10 henrys
- B 1 000 henrys
- C 10 millihenrys
- D 100 millihenrys

B-005-002-001 (A)

Name three good electrical conductors.

- A Gold, silver, aluminum
- B Gold, silver, wood
- C Copper, aluminum, paper
- D Copper, gold, mica

B-005-002-002 (B)

Name four good electrical insulators.

- A Glass, wood, copper, porcelain
- B Glass, air, plastic, porcelain
- C Plastic, rubber, wood, carbon
- D Paper, glass, air, aluminum

B-005-002-003 (B)

Why do resistors sometimes get hot when in use?

- A They absorb magnetic energy which makes them hot
- B Some electrical energy passing through them is lost as heat
- C Their reactance makes them heat up
- D Hotter circuit components nearby heat them up

B-005-002-004 (A)

What is the best conductor among the following materials?

- A copper
- B carbon
- C silicon
- D aluminium

B-005-002-005 (B)

Which type of material listed will most readily allow an electric current to flow?

- A a dielectric
- B a conductor
- C an insulator
- D a semiconductor