

5 Lecture - PHY301

Important Subjective

What is a current divider with two parallel resistances?

Answer: A current divider with two parallel resistances is a circuit that divides the current flowing through a circuit into two branches, using two parallel resistors.

What is the formula for calculating the current flowing through each resistor in a current divider with two parallel resistances?

Answer: The formula is $I_1 = (R_2 / (R_1 + R_2)) \times I$ and $I_2 = (R_1 / (R_1 + R_2)) \times I$, where I is the total current flowing through the circuit, I_1 is the current flowing through R_1 , I_2 is the current flowing through R_2 , R_1 is the resistance of the first resistor, and R_2 is the resistance of the second resistor.

What is the relationship between the current flowing through each resistor and the resistance value?

Answer: The current flowing through each resistor is proportional to the resistance value.

How is the current divider with two parallel resistances used in power supply circuits?

Answer: It is used to distribute current between multiple loads, allowing the power supply to deliver a constant voltage to each load.

What is the importance of the current divider with two parallel resistances in circuit analysis and design?

Answer: It allows us to calculate the current flowing through individual circuit components, which is essential for designing and analyzing complex circuits.

Can the current divider with two parallel resistances be used with more than two resistors?

Answer: Yes, the concept can be extended to multiple resistors in parallel, but the calculation formula becomes more complex.

What happens to the current flowing through each resistor if the resistance value of one resistor is significantly higher than the other?

Answer: The current flowing through the higher resistance resistor is significantly less than the current flowing through the lower resistance resistor.

Can the current divider with two parallel resistances be used in AC circuits?

Answer: Yes, it can be used in AC circuits, but the calculation formula is different, and the impedance value replaces the resistance value.

Why is the current divider with two parallel resistances important in power amplifier circuits?

Answer: It allows the amplifier to deliver a constant voltage to each output load, regardless of the individual current requirements of each load.

Can the current divider with two parallel resistances be used in digital circuits?

Answer: Yes, it can be used in digital circuits to divide the current flowing through a circuit into multiple branches, depending on the individual current requirements of each branch.