

task_klegpky1gugolsq7_with_calculation

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

Exercise E7 Electron flow	2
---------------------------------	---

current, electrons, chapter1 4

Exercise E7 Electron flow

How many electrons pass through a control cross-section of a metallic conductor when the current of 40 mA flows for 4.5 s ?

Solution

$$\begin{aligned} & 1.1 \cdot 10^{18} \text{ electrons} \end{aligned}$$

$$\begin{aligned} Q &= I \cdot t = 0.04 \text{ A} \cdot 4.5 \text{ s} = 0.18 \text{ As} \\ &= 0.18 \text{ C} = 0.18 \text{ C} \cdot \frac{1}{1.6022 \cdot 10^{-19} \text{ C/electron}} = 1.1 \cdot 10^{18} \text{ electrons} \end{aligned}$$

From:

<https://mexle.te.hs-heilbronn.de/> - MEXLE Wiki

Permanent link:

https://mexle.te.hs-heilbronn.de/electrical_engineering_and_electronics/task_klegpky1gugolsq7_with_calculation

Last update: **2023/04/03 11:21**

