

COMPUTER TOOLS

EXAM – 31. 1. 2012

1. Task

In file " c:\izpit\results.txt" IV measurement results of illuminated solar cell are stored. First column represents the voltage, the second current. Columns are tab separated.

Create an application that will have three buttons on the front panel (Load, Calc and Exit) and Graph.

- When you press the "Load" button, you open the file and display the IU characteristic on the graph.
- When you press the "Calc" button, calculate short-circuit current I_{SC} (at $U = 0$), open circuit voltage U_{OC} (at $I = 0$), maximum power (P_{max}) and the associated voltage and current I_{max} and U_{max} and fill factor $FF = \frac{P_{max}}{U_{OC} \cdot I_{SC}}$.
- When you press the "Exit", close the application.

2. Task

In file »c:\izpit\Naloga.asc« a scheme of class AB power amplifier is prepared.

- Determine the value of the current source I_1 to set the output voltage to zero.
 $I_1 =$ _____
- Specify the output voltage range in the temperature range from 0 do 100 °C.
 $V(out) (T = 0^\circ C) =$ _____ $V(out) (T = 100^\circ C) =$ _____

Determine the maximum small signal gain and the upper limit frequency of the amplifier.

$A_{max} =$ _____ $f_{zg} =$ _____

- Set the output singal distorsion if the amplifier is driven by harmonic signal source with amplitude of 1 V and frequency 1 kHz..
THD = _____

3.Naloga

In file "c:\izpit\LT3474.pdf" is a data sheet of the integrated circuit LT3474. Create a new project for an integrated library and add a new library named LT_LED_Power. Create a new component called LT3474, according to the specifications.