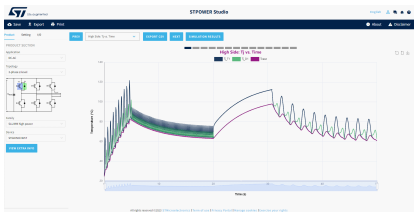
STSW-POWERSTUDIO

Data brief

STPOWER Studio, part of eDesignSuite: dynamic electro-thermal simulation software for STPOWER devices



Features

- Comprehensive power and thermal analysis
- Intuitive and user-friendly interface with grouped device controls
- Very fast computational calculation
- Product selection by family
- Selection of simulation times with very long mission profile duration
- Several thermal set-up input conditions
- Simulation with or without heat sink allowing the user-defined heat sink parameters
- Several PWM modulation techniques
- Self-heating algorithm for temperature estimation
- Additional graphs for power loss analysis vs current load and switching frequency
- Output data for each power device
- Heat sink size estimation enabled (R_{th})
- Exportable report and data table files
- Projects stored in user area
- Web connectivity to product resources
- Multilanguage (English, Chinese, Japanese)
- Mini site for user manual (English)

Product status link
STSW-POWERSTUDIO

Product summary	
Reference	STPOWER Studio
Order code	EDS-POWERSTUDIO

Description

The STPOWER Studio is an online electro-thermal simulation software dedicated to a growing number of STPOWER devices, which is now integrated into the eDesignSuite tool.

The software provides comprehensive power and thermal analysis. It predicts the device performance shortening the design cycle and saving time and resources. Furthermore, the tool helps users to select the best device fitting a specific application mission profile.

STPOWER Studio is based on a very precise built-in electrical and thermal model for each device considering the self-heating effects. It provides a very accurate estimation of power losses as well as junction and case temperatures.

1 General information

The software can simulate a very long mission profile, consisting of many simulation steps, up to thermal steady state.

Several thermal setup input conditions can be simulated, such us:

- devices without heat sink, estimating the case and the junction temperature
- fixed case temperature (with heat sink), estimating the junction temperature and the heat sink R_{th}
- fixed heat sink thermal resistance (R_{th}), estimating the case (or heat sink) and junction temperature
- fixed heat sink thermal impedance (Foster's model of the Z_{th}), estimating the case and junction temperatures based on the thermal inertia of the system.

Simulation results are displayed on tables and dedicated scope views as a function of time, current load and switching frequency. The simulation setup can be saved to a local PC or a dedicated user area of the server (only for registered users) as project file. Furthermore, the simulation results can be exported as data table to a local PC. An output report is generated providing a summary of all information and results for easier legibility and archiving.

STPOWER Studio supports a large selection of power devices (SLLIMM intelligent power modules and ACEPACK modules) and facilitates the connectivity with st.com for dedicated documentation and resources.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
03-Nov-2017	1	Initial release
30-Jan-2023	2	Content reworked to improve readability.
01-Mar-2023	3	Updated *Features* and *Description* in cover page. Updated *Section 1 General information*.
13-Oct-2023	4	Updated figure on cover page. Minor text changes.

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