ISL6420B

DESIGN CALCULATIONS

FOR THE

FIREMC-PIHAT (FIREMC-3.14)

5 VOLTS DC

**REQUIRED REFERENCES:**

INTERSIL ISL6420B DATASHEET <[HTTP://WWW.INTERSIL.COM/EN/PRODUCTS/POWER-MANAGEMENT/SWITCHING-CONTROLLERS/SINGLE-OUTPUT---BUCK-CONTROLLERS/ISL6420B.HTML](http://www.intersil.com/en/products/power-management/switching-controllers/single-output---buck-controllers/ISL6420B.html)>

ST MICROELECTRONICS STD86N3LH5 DATASHEET <[HTTP://WWW.ST.COM/CONTENT/ST\_COM/EN/PRODUCTS/POWER-TRANSISTORS/POWER-MOSFETS/N-CHANNEL-STRIPFET-12-V-TO-30-V/STD86N3LH5.HTML](http://www.st.com/content/st_com/en/products/power-transistors/power-mosfets/n-channel-stripfet-12-v-to-30-v/std86n3lh5.html)>

SCHELLE, D. ET AL: (2006, JUNE). BUCK-CONVERTER DESIGN DEMYSTIFIED. *POWER ELECTRONICS TECHNOLOGY*. RETRIEVED FROM HTTP://POWERELECTRONICS.COM/DC-DC-CONVERTERS/BUCK-CONVERTER-DESIGN-DEMYSTIFIED

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CHOOSE

CHOOSE 3x 150µF

COMBINE CAPS IN PARALLEL TO SO EFFECTIVE ESR IS LESS THAN OR EQUAL TO THE ABOVE VALUE.

TO

TO

ΘJA FROM STD86N3lH5 DATASHEET IS 50°C (Rthj-pcb ON THE DATASHEET)

STD86N3lH5 RDS(ON)25 ≤ 0.0065Ω (FROM DATASHEET)

\*\*\*\*\* ESTIMATE (REQUIRES LAB VERIFICATION \*\*\*\*\*

WHERE AND

\*\*\*\*\* END ESTIMATE \*\*\*\*\*

**THE FOLLOWING CALCULATIONS REQUIRE THE ISL6420B DATASHEET AS THE COMPONENT REFERENCES USED IN THE CALCULATIONS COME RIGHT FROM THE DATASHEET AND NOT THE FIREMC-PIHAT (FIREMC-3.14) DESIGN SCHEMATIC.**

WHERE

CHOOSE 510Ω

WHERE AND

WHERE

WHERE AND

CHOOSE 1.37kΩ

CHOOSE

CHOOSE

CHOOSE