

Table of contents

1.	General Information.	9
1.1.	Selection of the storage inductors.	10
1.1.1	Rated current	13
1.1.2	Saturation current.	15
1.2.	Core material.	17
1.3.	Selection of suitable capacitors	18
1.3.1	Ripple current	18
1.3.2	Impedance	22
1.3.3	Determining Interference current.	31
1.4.	Input filters for DC/ DC converters.	38
1.4.1	Input stability criteria	40
1.4.2	REDEXPERT – EMC Filter Designer.	42
2.	Calculation of common topologies.	45
2.1.	Buck topology.	45
2.1.1	Block diagram and general thoughts	45
2.1.2	Layout considerations	46
2.1.3	Example design	48
2.2.	Boost topology.	52
2.2.1	Block diagram and general thoughts	52
2.2.2	Example design	54
2.3.	SEPIC topology.	58
2.3.1	Block diagram and general thoughts	58
2.3.2	Example design	60
2.4.	Flyback topology	64
2.4.1	Block diagram and general thoughts	64
2.4.2	Example design	65
3.	Appendix.	79
3.1.	Basic formulas of the topologies	79