



USB-PD3.0 / QC4.0 Smart Charging Design Tool


SMART-CHARGING-DST

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The NXP® USB-PD3.0 / QC4.0 smart charging design tool helps you design a fast charging adapter supporting BC1.2, USB-PD3.0 and/or QC4.0 charging protocol. NXP's primary QR Flyback controller TEA1936x and secondary side synchronous rectifier controller TEA199x are very suited for a low-cost solution.


The design tool is downloadable and is able to save/print all design parameters, results and graphs automatically for post-processing or presentation purposes.

USB-PD/QC TA Design Tool Block Diagram



USB-PD/QC TA Design Tool

- QR Flyback: TEA19361, SR: TEA1993, Protocol: TEA19051



Note: "User Input" is for users to enter design or component parameter; "Default" is recommended parameter or calculation result;

1. TA Specifications

1.1. Input

Min AC line voltage
Max AC line voltage
Min AC line frequency
Max ambient temperature

User Input	Default	Unit
90	90	Vrms
264	264	Vrms
47	47	Hz
50	50	C

1.2. Max Output Setting

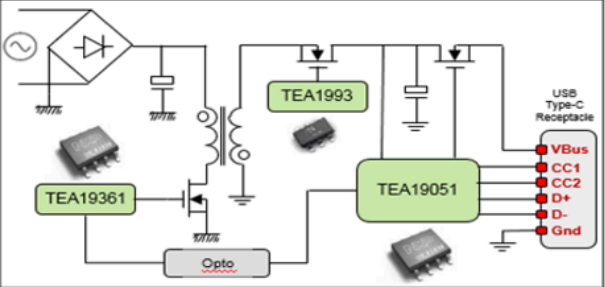
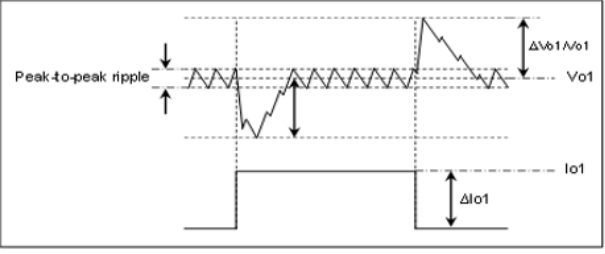
Normal output voltage (Vo1)
Max output current (Io1)
CV regulation tolerance (+/-)
Min CV regulation band
Max output voltage ripple (+/-)
Max output peak-to-peak ripple (+/-)
Max load release step change ($\Delta Io1/Io1$)
Peak transient voltage deviation at load release ($\Delta Vo1/Vo1$)
Output OVP level
Max output voltage (at OVP)
Max output power
Estimated efficiency at min input & max load
Max input power (Pin1)
Forward V drop of output diode or SR MOSFET

User Input	Default	Unit
12.15	12.15	V
2.5	2.5	A
3	3	%
	11.786	V
3	3	%
	364.5	mV
100	100	%
5	5	%
112	112	%
	13.608	V
	30.375	W
90	90	%
	33.75	W
0.1	0.1	V

1.3. Min Output Setting

Normal output voltage (Vo2)
Max output current (Io2)
CV regulation tolerance (+/-)
Min CV regulation band
Min Voltage in CC mode
Estimated efficiency at min input & max load
Max output power
Max input power (Pin2)

User Input	Default	Unit
5.15	5.15	V
3	3	A
3	3	%
	4.996	V
3.5	3.5	V
88	88	%
	15.45	W
	17.56	W

View additional information for [USB-PD3.0 / QC4.0 Smart Charging Design Tool](#).

Note: The information on this document is subject to change without notice.

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