

Parameter	Units	Type	Default	+3.3V_ENV (XAL5030-332) Rmode=243k	+5VALW (+5V) (XGL5050-222) Rmode=243k	+3.3VALW (XGL5050-222) Rmode=14,3k	+1.1VALW (XGL5030-122) Rmode=2,74k	+APU_VDDIO_SUS (XGL5030-122) Rmode=5,9k	+1.2V (XGL5030-122) Rmode=2,74k	*selected* +3.3V (XGL5050-222) Rmode=14,3k	+1.1V (XGL5050-501) Rmode=5,9k	+1V (XGL5050-501) Rmode=5,9k	+1.8V (XGL5030-152) Rmode=5,9k	+1.5V (XGL5030-152) Rmode=5,9k
Rail Name		Req												
Part Number		Req		TPS543320	TPS543820	TPS543320	TPS543320	TPS543320	TPS543320	TPS543320	TPS543820	TPS543820	TPS543320	TPS543320
Vin_min	V	Opt	Vin_nom*0.8	6	7	6	6	6	6	6	6	6	6	6
Vin_nom	V	Req		12	12	12	12	12	12	12	12	12	12	12
Vin_max	V	Opt	Vin_nom*1.1	14	14	14	14	14	14	14	14	14	14	14
Vout	V	Req		3,3	5	3,3	1,1	1,35	1,2	3,3	1,1	1,05	1,8	1,5
Iout	A	Opt	Iout_max_IC	1	4	3	3	3	3	3	8	8	3	3
dVo_trans		Opt	Vout*0.03	0,100	0,250	0,150	0,050	0,050	0,050	0,150	0,050	0,050	0,090	0,050
dVo_dc		Opt	Vout*0.01	0,020	0,050	0,020	0,020	0,020	0,020	0,020	0,020	0,020	0,020	0,020
Iout_step	A	Opt	Iout*0.5	0,5	3	2	1	2	1	2	5	5	2	1
R_fsel		Opt	R_fsel_rec	8,2	12	8,2	8,2	8,2	8,2	8,2	12	12	8,2	8,2
fsw_select		Calc		1500	1000	1500	1500	1500	1500	1500	1000	1000	1500	1500
Lout	µH	Opt	L_rec	3,300	2,200	2,200	1,200	1,200	1,200	2,200	0,500	0,500	1,500	1,500
DCR	mΩ	Opt	Rdson_LS	24,9	8	8	5,9	5,9	5,9	8	2,6	2,6	8	8
Tol_L		Opt	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Ipeak_max	A	Calc		1,32	4,91	3,48	3,35	3,42	3,38	3,48	9,27	9,21	3,44	3,37
N_Cout_cer		Opt	1	2	3	2	2	4	2	2	3	3	3	3
Cout_single_cer	mΩ	Opt	Cout_min	22,0	22,0	22,0	22,0	22,0	22,0	22,0	100,0	100,0	22,0	22,0
Cer_derating		Opt	80%	40%	40%	40%	50%	50%	50%	40%	60%	60%	40%	40%
ESR_single_cer	µF	Opt	1	20	20	20	20	20	20	20	20	20	20	20
N_Cout_bulk		Opt	0	0	0	0	0	1	0	0	0	0	0	0
Cout_single_bulk	µF	Opt	0,1	0	0	0	0	330	0	0	0	0	0	0
ESR_single_bulk	mΩ	Opt	1	0	0	0	0	30	0	0	0	0	0	0
Cout	µF	Calc		18	26	18	22	242	22	18	180	180	26	26
Vo_trans	mV	Calc		30	181	121	48	48	48	121	44	44	80	40
Vo_overshoot	mV	Calc		7	75	76	25	76	23	76	32	33	63	19
Vo_ripple	mV	Calc		7,4	16,4	11,2	7,8	4,0	8,5	11,2	17,0	16,3	6,8	5,8
Vi_ripple_perc		Opt	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Cin	µF	Opt	Cin_min	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0
Cin_derating		Opt	50%											
Vi_ripple	mV	Calc		12	92	36	14	17	16	36	58	56	22	19
Rfb_b	kΩ	Opt	Rfb_b_rec	1,00	10,00	1,00	10,00	10,00	10,00	1,00	10,00	10,00	10,00	10,00
Rfb_t	kΩ	Opt	Rfb_t_std	5,60	91,00	5,60	12,00	17,00	14,00	5,60	17,00	11,00	26,00	20,00
Vout_calc	V	Calc		3,30	5,05	3,30	1,10	1,35	1,20	3,30	1,10	1,05	1,80	1,50
Cff	pF	Opt	Cff_rec_std	100	10	100	100	33	100	100	100	100	33	47
Rff	kΩ	Opt	Rff_rec_std	0,01	0,10	0,01	0,10	0,10	0,10	0,01	0,10	0,10	0,10	0,10
R_mode	kΩ	Opt	R_mode_rec	243,00	243,00	14,30	2,74	5,90	2,74	14,30	5,90	5,90	5,90	5,90
I_lim_sel		Calc		Low	Low	High	High	High	High	High	High	High	High	High
Ramp_sel	pF	Calc		4	4	4	1	2	1	4	2	2	2	2
SS_sel	ms	Calc		2	2	2	2	2	2	2	2	2	2	2
Ren_t	kΩ	Opt	0	47,00	47,00	47,00	47,00	47,00	47,00	47,00	47,00	47,00	47,00	47,00
Ren_b	kΩ	Opt	10000	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00
Vstart_typ	V	Calc		5,83	5,83	5,83	5,83	5,83	5,83	5,83	5,83	5,83	5,83	5,83
Vstop_typ	V	Calc		4,86	4,86	4,86	4,86	4,86	4,86	4,86	4,86	4,86	4,86	4,86
Cbp	µF	Opt	Cbp_rec	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2
Cboot	µF	Opt	Cboot_rec	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Rboot	Ω	Opt	Rboot_rec	1	1	1	1	1	1	1	1	1	1	1
Rpg	kΩ	Opt	Rpg_rec	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00
Rfsel_check		Check		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Lout_check		Check		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Cout_check		Check		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Cin_check		Check		Pass	Caution: Check Cin. Not enough capacitance to meet Vi_ripple_target of 70mV.	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
FB_network_check		Check		Pass	Pass	Pass	Caution: Check Cff. Selected value is 3× the recommended value.	Pass	Caution: Check Cff. Selected value is 3,7× the recommended value.	Pass	Pass	Pass	Pass	Caution: Check Cff. Selected value is 2,6× the recommended value.
Rmode_check		Check		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
EN_divider_check		Check		Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Cbp_Cboot_Rpg_check		Check		Pass	Warning: Change Rboot to 2.2Ohm. This is required for the TPS543820 with Vin_max greater than 13.5V.	Pass	Pass	Pass	Pass	Pass	Warning: Change Rboot to 2.2Ohm. This is required for the TPS543820 with Vin_max greater than 13.5V.	Warning: Change Rboot to 2.2Ohm. This is required for the TPS543820 with Vin_max greater than 13.5V.	Pass	Pass

Sheet Descriptions:

InputSheet = sheet with simplified input for checking component values with the macros described below
DeviceCalculator = sheet where all calculations are done. This sheet can be used by itself to select or check component values.

Macro Directions:

Check/Calculate Selected Column

Select any cell in the column of the design you would like to check.
Click on the Check/Calculate to send the input values to the DeviceCalculator worksheet.
The calculated results on the DeviceCalculator worksheet are then pulled back to this sheet to check the component values used.

Insert New Design

Click on Insert New Design to add another column to check another design.
To delete a design that is no longer needed, right click on the column letter then select delete.

Pull Values from DeviceCalculator Sheet

The DeviceCalculator worksheet has more details to aid in the design.
Updates to the design can be made in the DeviceCalculator sheet.
After making updates, click on Pull Values to use the values on the DeviceCalculator sheet and check them.

Check/Calculate All Columns

This will run Check/Calculate Selected Column on all designs