UCC29002 Controller Setup Tool

Notes:

Please enter design parameters into the YELLOW
Calculated results are in GRAY
Reference schematic shown in "Typical Application "

System Characteristics

Design Parameters	Variable Names	Value	Units
Number of Parallel Power Modules	N	2	Units
Crossover Frequency of Each Module	F_{CO_MOD}	50	kHz
Crossover Frequency of Load Share System	F_{CO_LS}	5000	Hz
Module Gain at desired crossover frequency	$G_{MOD\_}F_{CO\_LS}$ (dB)	1,8	dB
Module Gain at desired crossover frequency	$G_{MOD\_}F_{CO\_LS}$	1,23	V/V
Bias Voltage for UCC29002	VD	13	V
Maximum Output Current of Each Module	$I_{O(MAX)}$	20	A
Nominal Output Voltage of Each Module	$V_{O(NOM)}$	13	V
Internal Sense Resistor of Each Module	R_{SENSE}	205	Ω
Maximum Voltage Adjustment By Way of the Remote Sense Inputs	VADJ	5	%
Calculated Max Voltage Adjustment	$\Delta V_{OUTADJMAX}$	0,65	V

System Calculations

(1) Current Sense Amplifier

Desired Dissipation in Current Shunt	PD	0,5	W
Calculated Value of Shunt Resistor	$R_{SHUNT(CALC)}$	1,25	mΩ
Chosen Value of Shunt Resistor	R_{SHUNT}	2	mΩ
Voltage Drop across Shunt Resistor	V_{RSHUNT}	25	mV
Current Sense Amplifier Max Output	$VCS_{AO(max)}$	11	
Absolute Available Current Sense Gain	A_{CSAMAX}	440	
Chosen Current Sense Amp Gain	A_{CSA}	40	
Current Sense Amp Output at Max Load	V_{CSAO}	1	
Current Gain Feedback Resistor	R_{CSA1}	40	kΩ
Calculated Input Resistor to Current Amp	R_{CSA2}	1,000	kΩ

Chosen Input Resistor to Current Amp	R_{CSA2}	1	kΩ
Actual Gain of Current Amp	G_{CSA}	40,00	
Select High Frequency Pole	$F_{P(CSA)}$	95,00	kHz
Calculated Value of C_{CSA}	C_{CSA}	42	pF
Chosen Value of C_{CSA}	C_{CSA}	42	pF

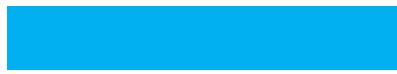## (2) R_{adjust}

R_{adjust} should be greater than either	$R_{adjust\,(min)1}$	31	Ω
$R_{adjust(min)1}$ and $R_{adjust(min)2}$	$R_{adjust\,(min)2}$	216	Ω
Chosen Value for R_{ADJUST}	R_{ADJUST}	250	Ω

(3) Error Amplifier Compensation

Calculated Compensation Capacitor	C_{EAO}	0	μF
Chosen Compensation Capacitor	C_{EAO}	10	
Compensation Resistor	R_{EAO}	3350	Ω
Max possible number of load modules	N_{UNITS_MAX}	5	

The overall crossover frequency is chosen to be about one decade below the module crossover
Measured Gain for single module at desired crossover frequency for shared modules

The maximum voltage adjustment is usually specified as a percentage of the nominal in the mo

Note: This value should be << $\Delta V_{OUTADJMAX}$

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