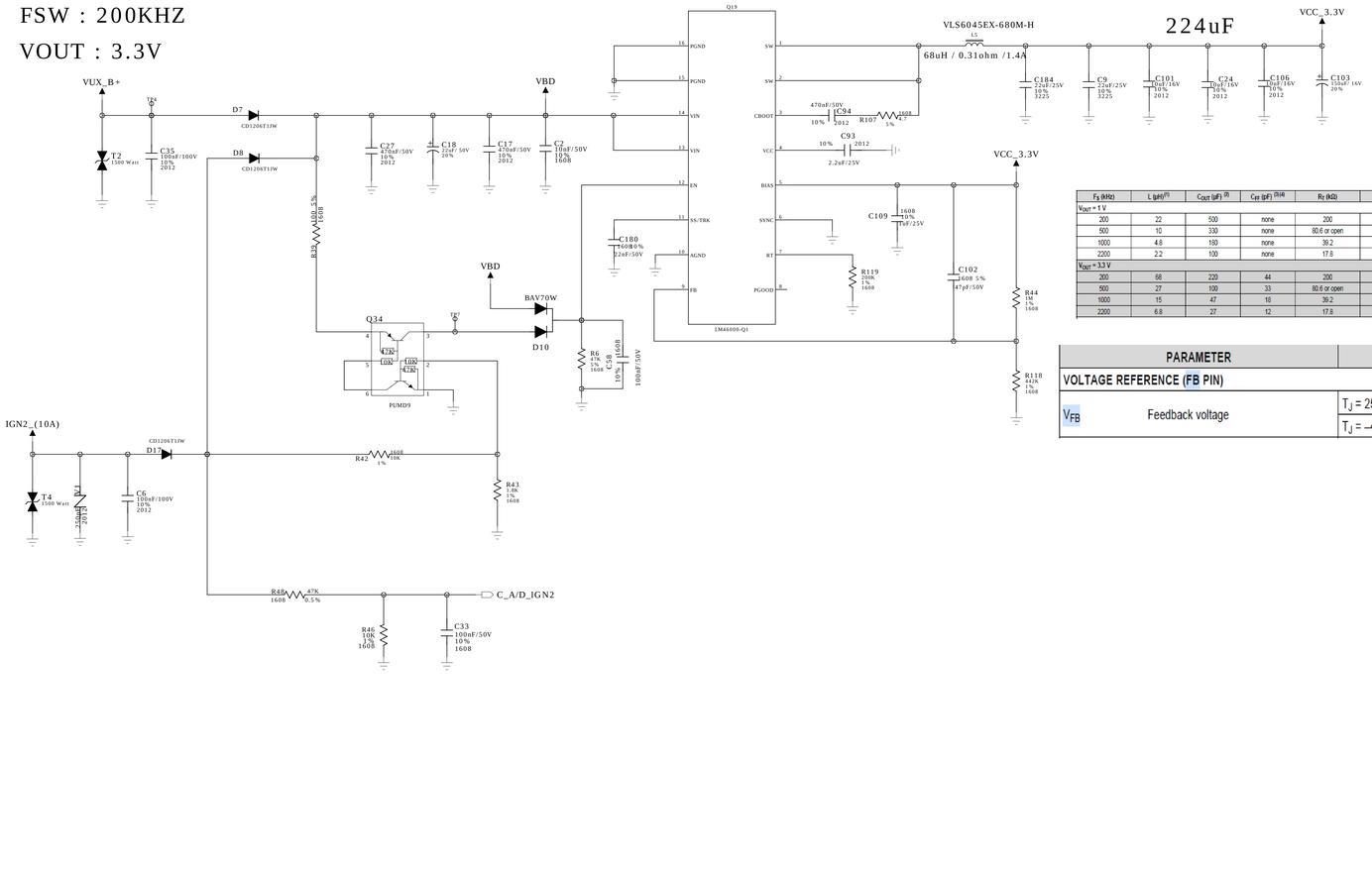
VIN 8~ 16V

FSW : 200KHZ

VOUT : 3.3V



F_S (kHz)	L (µH)[1]	C_{OUT} (µF) [2]	C_{FF} (pF) [3][4]	R_T (kΩ)	R_{FBB} (kΩ) [3][4]
V_{OUT} = 1 V					
200	22	500	none	200	100
500	10	330	none	80.6 or open	100
1000	4.8	180	none	39.2	100
2200	2.2	100	none	17.8	100
V_{OUT} = 3.3 V					
200	68	220	44	200	442
500	27	100	33	80.6 or open	442
1000	15	47	18	39.2	442
2200	6.8	27	12	17.8	442

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
VOLTAGE REFERENCE (FB PIN)						
V_{FB}	Feedback voltage	T_J = 25°C	1.009	1.016	1.023	V
		T_J = –40°C to 125°C	0.999	1.016	1.039	

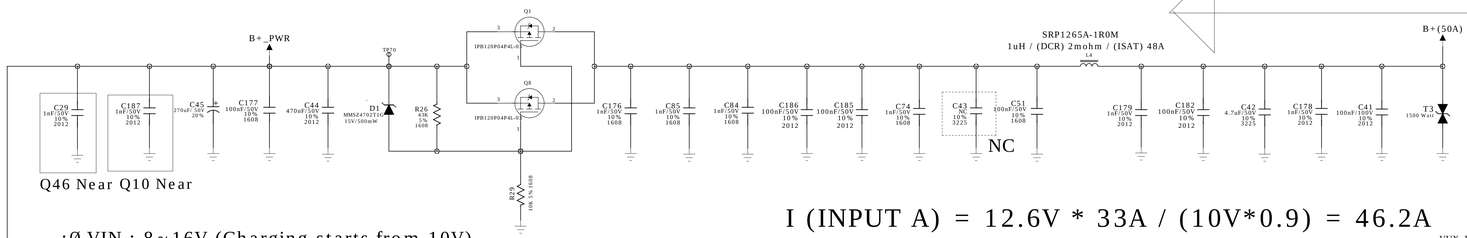
REVISION RECORD

LTR	ECO NO:	APPROVED:	DATE:

DRAWN: JH CHO	DATED: 18.02.28	COMPANY:	
CHECKED: JH CHO	DATED: 12.06.18	TITLE: BMS	
QUALITY CONTROL: <QC By>	DATED: <QC Date>	CODE: <Code> / SIZE: E / DRAWING NO: REVISION / REV: 2.00	
RELEASED: <Released By>	DATED: <Release Date>	SCALE: <Scale>	SHEET: 1 OF 3

ID (FET) = Square ((175-75) / (4.4mohm * 40)) =23.8A (23.8*2 = 47.6A)

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



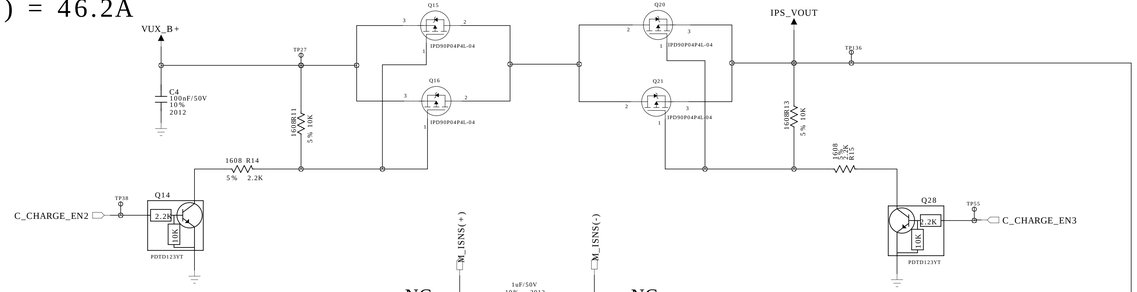
Q46 Near Q10 Near

VIN

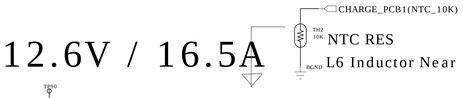
VOUT_CHARGE

I (INPUT A) = 12.6V * 33A / (10V*0.9) = 46.2A

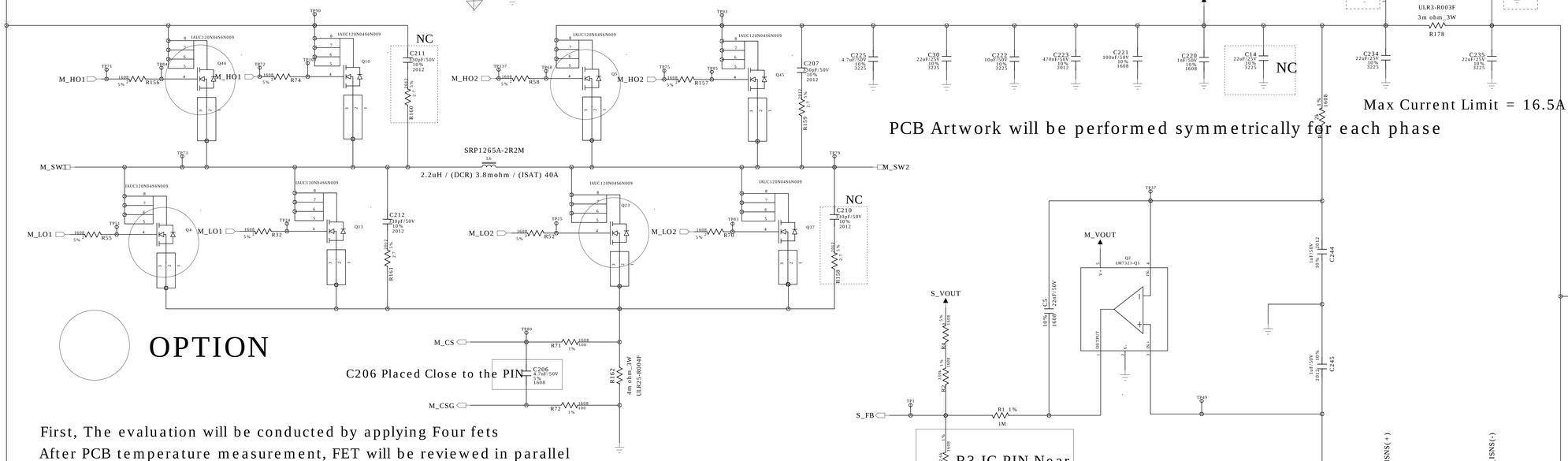
- ¡Ø VIN : 8~16V (Charging starts from 10V)
- ¡Ø FSW : 300KHZ (Master / Slave)
- ¡Ø 2Phase Max Charging Current Limit 33A : 16.5A Per 1Phase
- ¡Ø Charging Voltage : 12.6V
- ¡Ø LM5176 2EA Applications : Master 1EA / Slave 1EA
- ¡Ø CC (Constant Current) Variable Control
- ¡Ø NC : (NOT Connect) Debugging point



Master Control_ 12.6V / 16.5A



Master Load_ 12.6V / 16.5A (20A Pattern width)



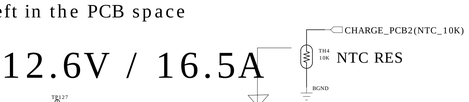
OPTION

C206 Placed Close to the PIN

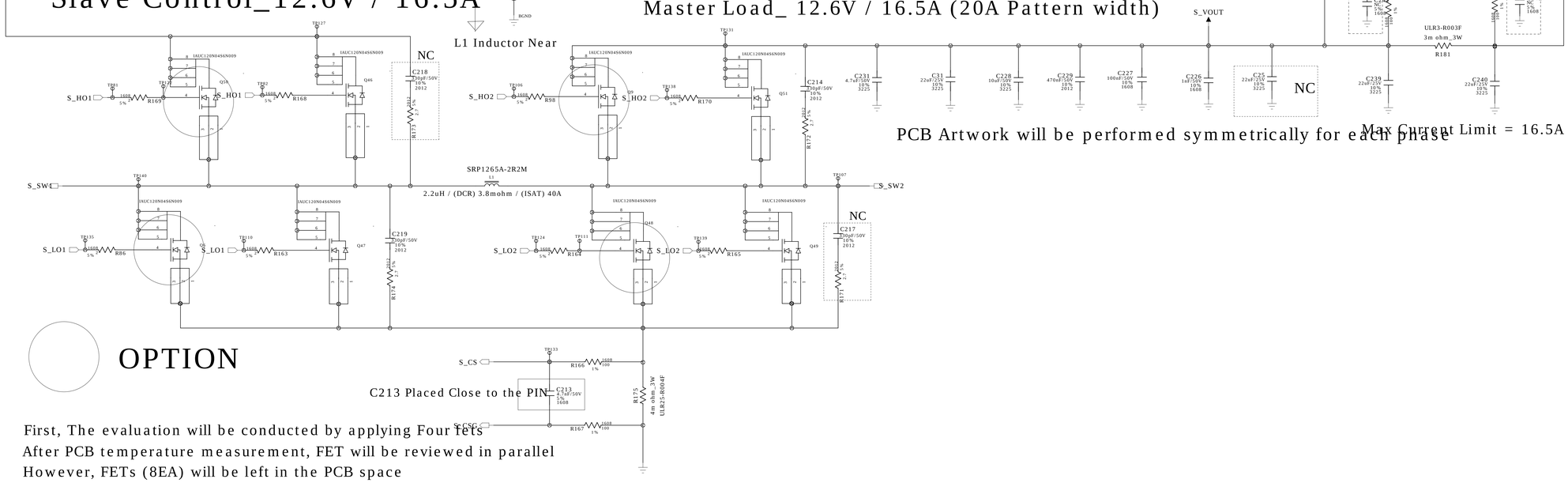
First, The evaluation will be conducted by applying Four fets
After PCB temperature measurement, FET will be reviewed in parallel
However, FETs (8EA) will be left in the PCB space

R3 IC PIN Near

Slave Control_12.6V / 16.5A



Master Load_ 12.6V / 16.5A (20A Pattern width)



OPTION

C213 Placed Close to the PIN

First, The evaluation will be conducted by applying Four fets
After PCB temperature measurement, FET will be reviewed in parallel
However, FETs (8EA) will be left in the PCB space

COMPANY:					
TITLE:	BMS				
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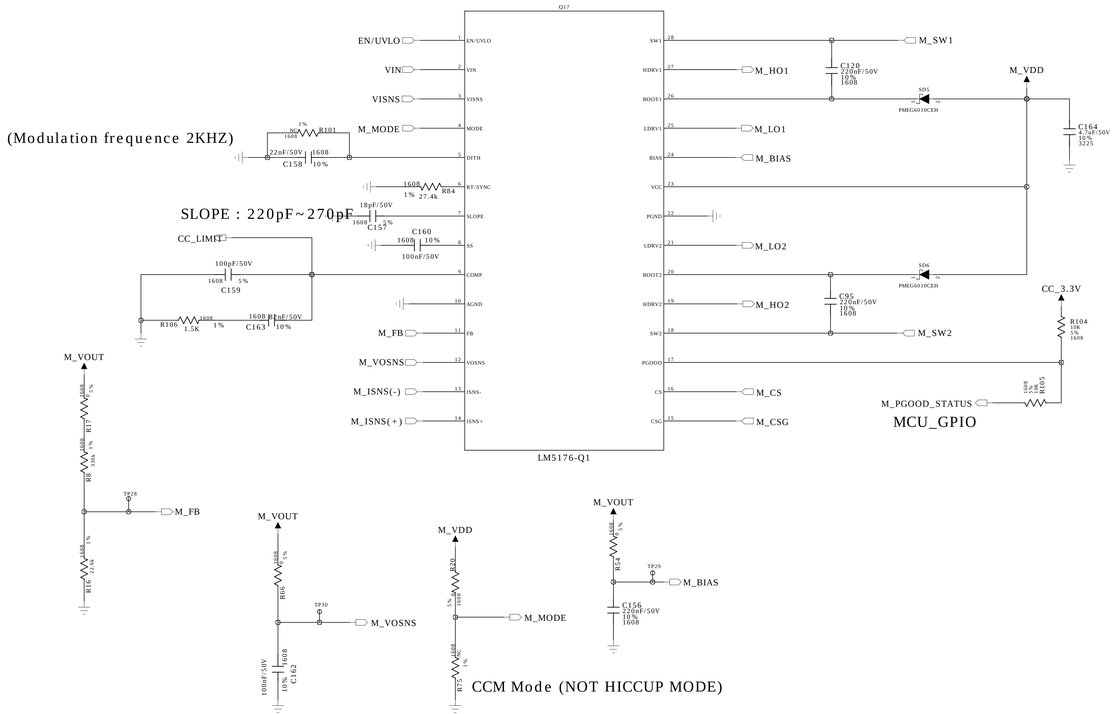
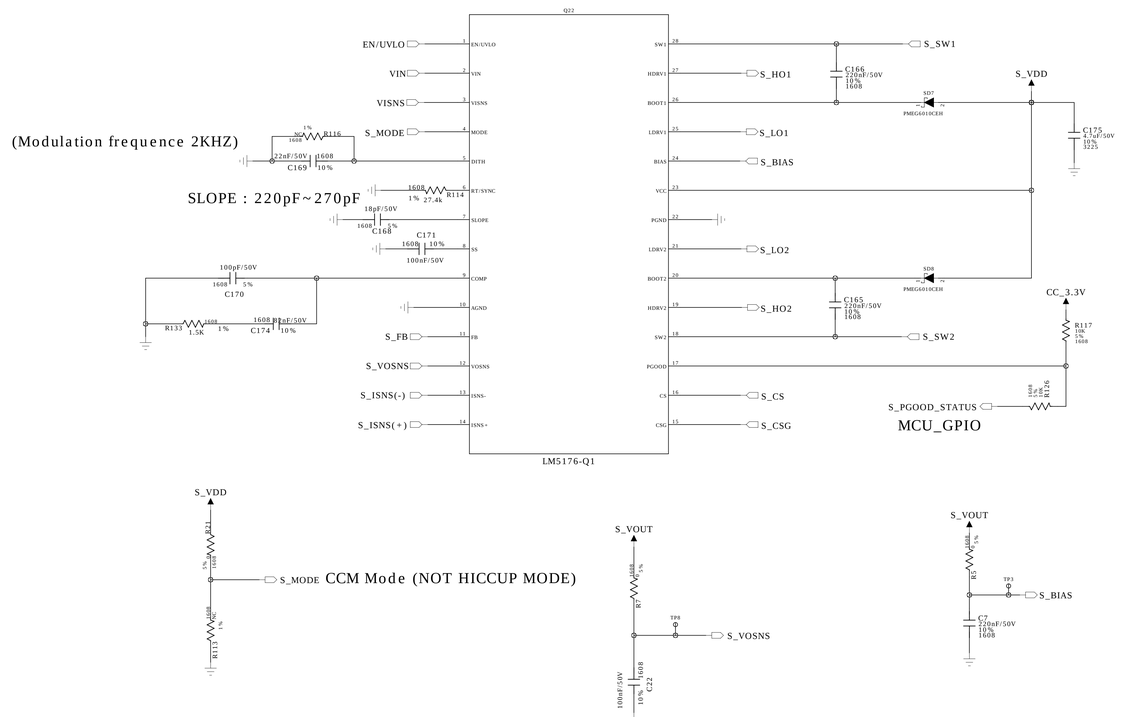
RELEASED: <Released By>	DATED: <Release Date>	SCALE: <Scale>		SHEET: 2 OF 3	

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

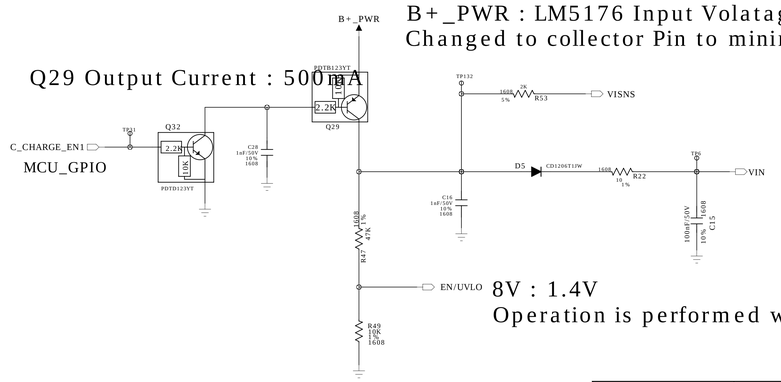
MASTER #1 LM5176



SLAVE #2 LM5176



Power Supply of Master and Slave



B+_PWR : LM5176 Input Volatage (B+_PWR is supplied continuou
Changed to collector Pin to minimize leakage current

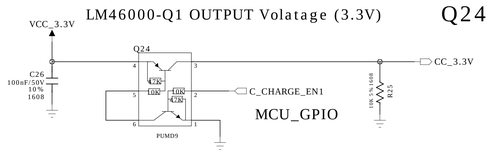
$V_{EN(OP)}$	Operating threshold	EN/UVLO rising	1.17	1.22	1.29	V

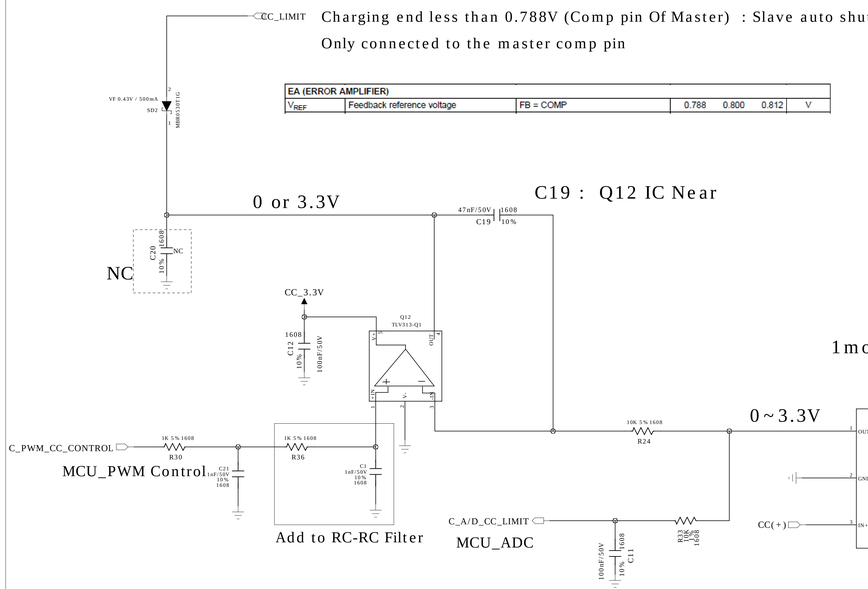
EN/UVLO	VCC	DEVICE MODE
EN/UVLO < $V_{EN(STBY)}$	—	Shutdown: VCC off, No switching
$V_{EN(STBY)}$ < EN/UVLO < $V_{EN(OP)}$	—	Standby: VCC on, No switching
EN/UVLO > $V_{EN(OP)}$	VCC < $V_{UV(VCC)}$	Standby: VCC on, No switching
EN/UVLO > $V_{EN(OP)}$	VCC > $V_{UV(VCC)}$	Operating: VCC on, Switching enabled

CC (Constant Current) Variable Control

(3.3V Power is supplied continuously)

Q24 was applied to minimize leakage current





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