

EI



Robert W Erickson



ECEN 4517/5517 Power Electronics and PV Lab

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Edit Rubric - Exp 4 final report: ECEN4517

Properties

Levels and Criteria

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Criteria	Full credit	Partial credit	No credit
Document PWM controller circuit diagram	4 points	2 points	0 points
Measured waveforms of all 16 pins of UC3525	8 points	4 points	0 points
Document power stage schematic	6 points	3 points	0 points
Document inductor design and measured L values	4 points	2 points	0 points
Open loop measured waveforms and meter readings: v_{ds} , V_g , I_g , V , I , efficiency, at 200V and 85 W	12 points	6 points	0 points
Measured data: G_{vd} magnitude and phase	6 points	3 points	0 points
Fit magnitude asymptotes to measured G_{vd} that follow Bode plot rules	4 points	2 points	0 points
Fit phase asymptotes to measured G_{vd} that follow Bode plot rules	4 points	2 points	0 points
Analytical expression for measured $G_{vd}(s)$ with numerical values of parameters	3 points	2 points	0 points
Simulation of G_{vd} : schematic and output	6 points	3 points	0 points

plots			
Fit magnitude asymptotes to simulated Gvd that follow Bode plot rules	4 points	2 points	0 points
Fit phase asymptotes to simulated Gvd that follow Bode plot rules	4 points	2 points	0 points
Analytical expression for simulated Gvd(s) with numerical values of parameters	3 points	2 points	0 points
Compare measured and simulated Gvd(s)	3 points	2 points	0 points
Feedback: proposed compensated T(s) mag and phase asymptotes	6 points	3 points	0 points
Feedback: proposed op amp compensator Gc(s) mag and phase asymptotes, and op amp circuit	6 points	3 points	0 points
Expected crossover frequency and phase margin, with supporting calculations	4 points	2 points	0 points
Load test: V_g , V , I_g , I , D , efficiency at the two extreme points of load range. Calculate regulation.	4 points	2 points	0 points
Line test: V_g , V , I_g , I , D , efficiency at the two extreme points of V_g range. Calculate regulation.	4 points	2 points	0 points
Soft start: document circuit and value used. Oscilloscope output voltage waveform of turn-on transient.	5 points	2 points	0 points
Overall Score	Level 3 74 or more	Level 2 49 or more	Level 1 0 or more

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