EPI-Hi Bias Supplies

Functional Test Procedure

Document Number: 701005

1.0 Scope: This document is used for functional tests of EPI-Hi Bias supplies board.

2.0 **Applicable Documents**:

2.1 Schematic:	701002_B.SCH
2.2 Layout	701002_A3.PCB
2.3 ICD	EPI-Hi_Bias_Supply_Req_B_9-17-13.PDF

3.0 +25V Output Test: Complete setup per Figure 1. Make measurements per following table. Record results in the following table:

Record Unit Temperature: _____

Input Voltage	Output Voltage	Output Ripple	Input Current	Load Resistor
11.4				30K
12				30K
13				30K
11.4				23.9K
12				23.9K
13				23.9K
11.4				20K
12				20K
13				20K

4.0 Bias Supplies tests: Complete setup per Figure 1. Make measurements per the following table. Record results in the following table. Unit temperature _____. See Figure 1 for MIN, NOM, and MAX Load resistor values. Set DAC1, through DAC5 outputs all the save value as indicated in the following Table. Measure and record output voltage. Also measure and record output ripple in the following table.

Table 2: Output Voltage Measurements

Load	Input Volts	CTRL OUT (DAC1)	V2a Out Volts	V1a Out Volts	V2b Out Volts	V1b Out Volts	V2c Out Volts	V1c Out Volts	V2d Out Volts	V1d Out Volts	V2e Out Volts	V1e Out Volts
Min	11.4	0										
Min	11.4	1										
Min	11.4	2										
Min	11.4	3										
Min	11.4	4										
Min	11.4	5										
Min	12	0										
Min	12	1										
Min	12	2										
Min	12	3										
Min	12	4										
Min	12	5										
Min	13	0										
Min	13	1										
Min	13	2										
Min	13	3										
Min	13	4										
Min	13	5										

Table 3, Output ripple measurements

Load	Input Volts	CTRL OUT (DAC1)	V2a Ripple mV	V1a Ripple mV	V2b Ripple mV	V1b Ripple mV	V2c Ripple mV	V1c Ripple mV	V2d Ripple mV	V1d Ripple mV	V2e Ripple mV	V1e Ripple mV
Min	11.4	0										
Min	11.4	1										
Min	11.4	2										
Min	11.4	3										
Min	11.4	4										
Min	11.4	5										
Min	12	0										
Min	12	1										
Min	12	2										
Min	12	3										
Min	12	4										
Min	12	5										
Min	13	0										
Min	13	1										
Min	13	2										
Min	13	3										
Min	13	4										
Min	13	5										

5.0 Output measurements for Nom Load: Change the load to Nominal values and record data per following tables:

Table 4: Output Voltage Measurements, Nominal Load values

Load	Input Volts	CTRL OUT (DAC1)	V2a Out Volts	V1a Out Volts	V2b Out Volts	V1b Out Volts	V2c Out Volts	V1c Out Volts	V2d Out Volts	V1d Out Volts	V2e Out Volts	V1e Out Volts
Nom	11.4	0										
Nom	11.4	1										
Nom	11.4	2										
Nom	11.4	3										
Nom	11.4	4										
Nom	11.4	5										
Nom	12	0										
Nom	12	1										
Nom	12	2										
Nom	12	3										
Nom	12	4										
Nom	12	5										
Nom	13	0										
Nom	13	1										
Nom	13	2										
Nom	13	3										
Nom	13	4										
Nom	13	5										

Table 5: Output ripple measurements for Nominal load values

Load	Input Volts	CTRL OUT (DAC1)	V2a Ripple mV	V1a Ripple mV	V2b Ripple mV	V1b Ripple mV	V2c Ripple mV	V1c Ripple mV	V2d Ripple mV	V1d Ripple mV	V2e Ripple mV	V1e Ripple mV
Nom	11.4	0										
Nom	11.4	1										
Nom	11.4	2										
Nom	11.4	3										
Nom	11.4	4										
Nom	11.4	5										
Nom	12	0										
Nom	12	1										
Nom	12	2										
Nom	12	3										
Nom	12	4										
Nom	12	5										
Nom	13	0										
Nom	13	1										
Nom	13	2										
Nom	13	3										
Nom	13	4										
Nom	13	5										

6.0 Output measurements for Max Load: Change the load to Max values and record data per following tables:

Table 6: Output Voltage Measurements, Max Load values

Load	Input Volts	CTRL OUT (DAC1)	V2a Out Volts	V1a Out Volts	V2b Out Volts	V1b Out Volts	V2c Out Volts	V1c Out Volts	V2d Out Volts	V1d Out Volts	V2e Out Volts	V1e Out Volts
Max	11.4	0										
Max	11.4	1										
Max	11.4	2										
Max	11.4	3										
Max	11.4	4										
Max	11.4	5										
Max	12	0										
Max	12	1										
Max	12	2										
Max	12	3										
Max	12	4										
Max	12	5										
Max	13	0										
Max	13	1										
Max	13	2										
Max	13	3										
Max	13	4										
Max	13	5										

Table 7: Output ripple measurements for Max load values

Load	Input Volts	CTRL OUT (DAC1)	V2a Ripple mV	V1a Ripple mV	V2b Ripple mV	V1b Ripple mV	V2c Ripple mV	V1c Ripple mV	V2d Ripple mV	V1d Ripple mV	V2e Ripple mV	V1e Ripple mV
Max	11.4	0										
Max	11.4	1										
Max	11.4	2										
Max	11.4	3										
Max	11.4	4										
Max	11.4	5										
Max	12	0										
Max	12	1										
Max	12	2										
Max	12	3										
Max	12	4										
Max	12	5										
Max	13	0										
Max	13	1										
Max	13	2										
Max	13	3										
Max	13	4										
Max	13	5										

7.0 Input current measurements:

7.1 Set all load for all the power supplies to ***NOM*** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+11.4V**. Measure and record input current_____. Record input Voltage_____.

7.2 Set all load for all the power supplies to **MAX** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+11.4V**. Measure and record input current_____. Record input Voltage_____.

7.3 Set all load for all the power supplies to ***NOM*** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+12V**. Measure and record input current_____. Record input Voltage_____.

7.4 Set all load for all the power supplies to **MAX** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+12V**. Measure and record input current_____. Record input Voltage_____.

7.5 Set all load for all the power supplies to ***NOM*** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+13V**. Measure and record input current_____. Record input Voltage_____.

7.6 Set all load for all the power supplies to **MAX** value (6 PS). Set all DAC Values to **+5V**. Set Input Voltage to **+13V**. Measure and record input current_____. Record input Voltage_____.

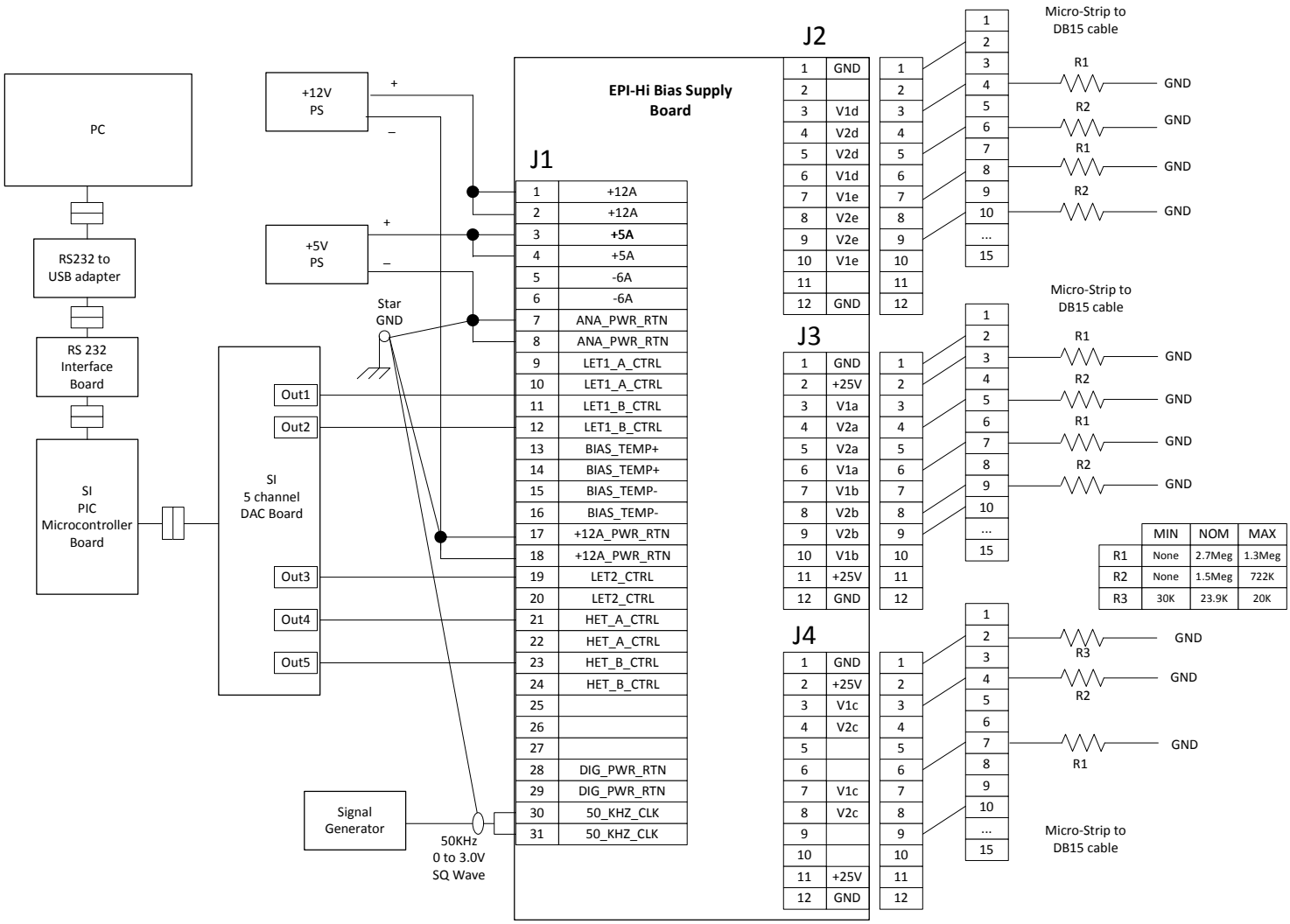

Figure 1, Test setup