参考資料

COSEL

TEST DATA OF MMB50A-4
(100V INPUT)

Regulated DC Power Supply

Date : Feb. 12. 1999

Approved by : K. Takashima
Design Manager

Prepared by : H. Ishikawa
Design Engineer

コーセル株式会社

COSEL CO., LTD.

参考資料

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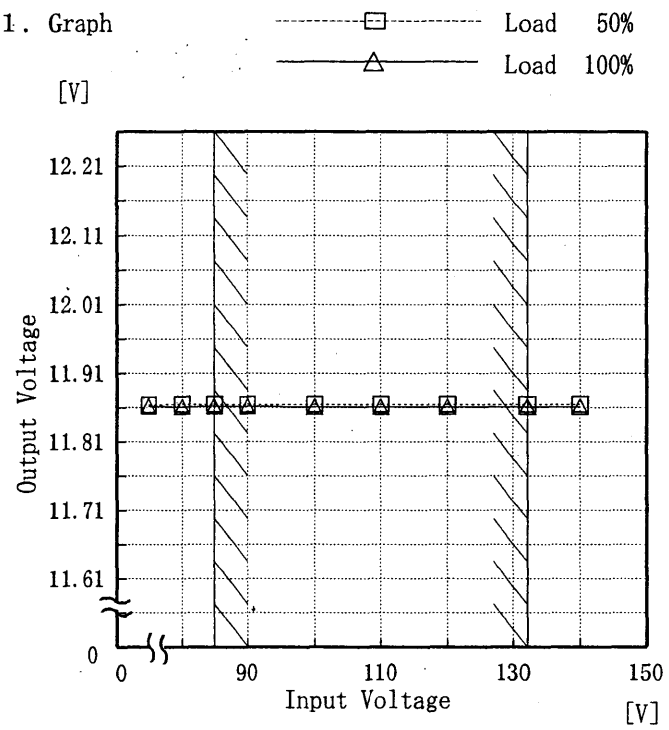
COSEL

Model	MMB50A-4
Item	Line Regulation 静的入力変動

Temperature 25℃
Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph

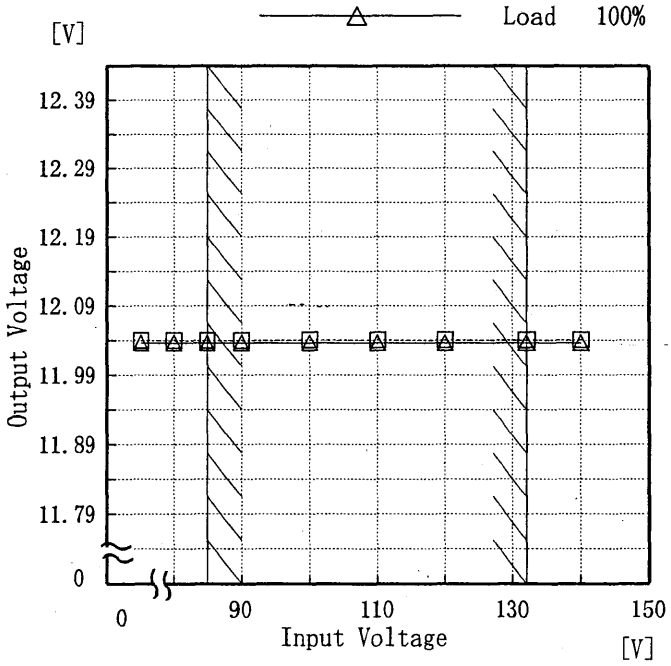


2. Values

Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]
75	11.864	11.862
80	11.864	11.862
85	11.865	11.862
90	11.865	11.862
100	11.865	11.862
110	11.865	11.861
120	11.865	11.862
132	11.865	11.861
140	11.865	11.861
—	—	—
—	—	—
—	—	—

Object +12V2.10A

1. Graph



Note: Slanted line shows the range of the rated input voltage.
(注)斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]
75	12.040	12.037
80	12.040	12.037
85	12.040	12.037
90	12.040	12.037
100	12.041	12.037
110	12.041	12.037
120	12.041	12.037
132	12.041	12.037
140	12.041	12.037
—	—	—
—	—	—
—	—	—

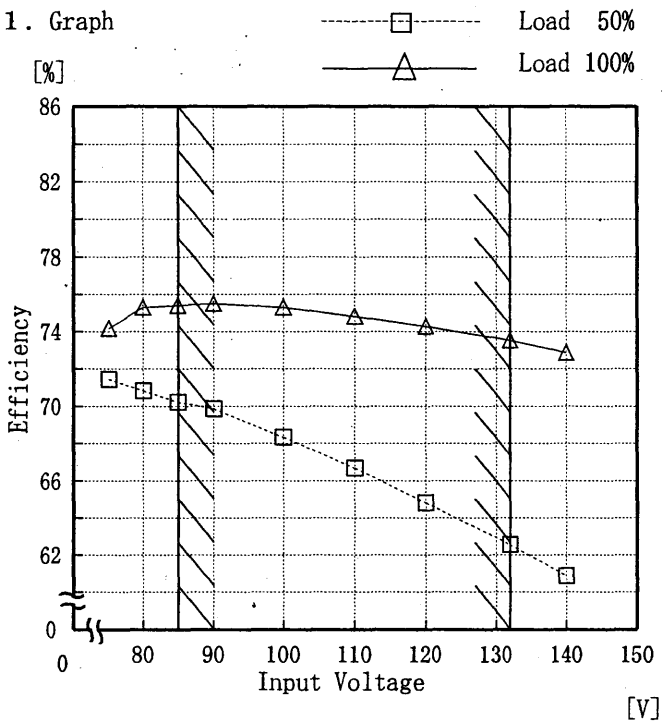
BC−3212

COSEL

Model	MMB50A-4
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	――――――――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

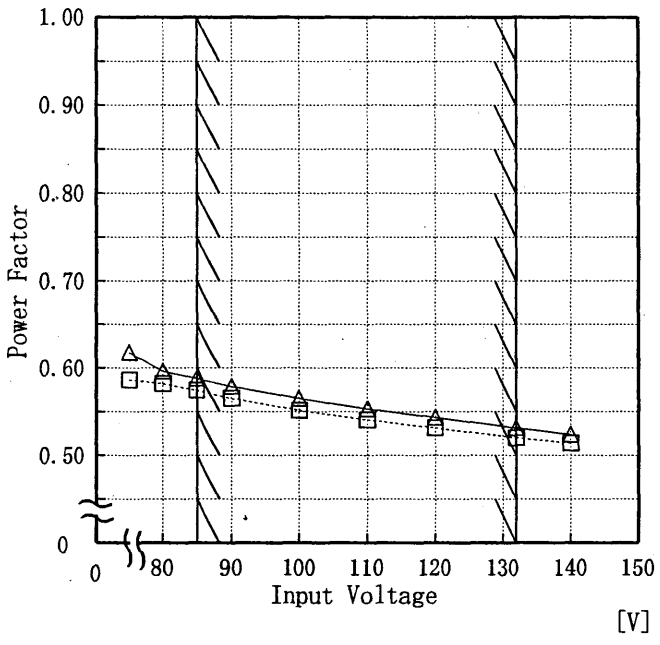
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
75	71.4	74.2
80	70.8	75.3
85	70.2	75.4
90	69.9	75.5
100	68.3	75.3
110	66.7	74.8
120	64.8	74.3
132	62.6	73.5
140	60.9	72.9

COSEL

Model	MMB50A-4
Item	Power Factor (by Input Voltage) 力率（入力電圧特性）
Object	――――――――――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	load 50% Power Factor	load 100% Power Factor
75	0.59	0.62
80	0.58	0.60
85	0.57	0.59
90	0.57	0.58
100	0.55	0.57
110	0.54	0.55
120	0.53	0.54
132	0.52	0.53
140	0.51	0.52

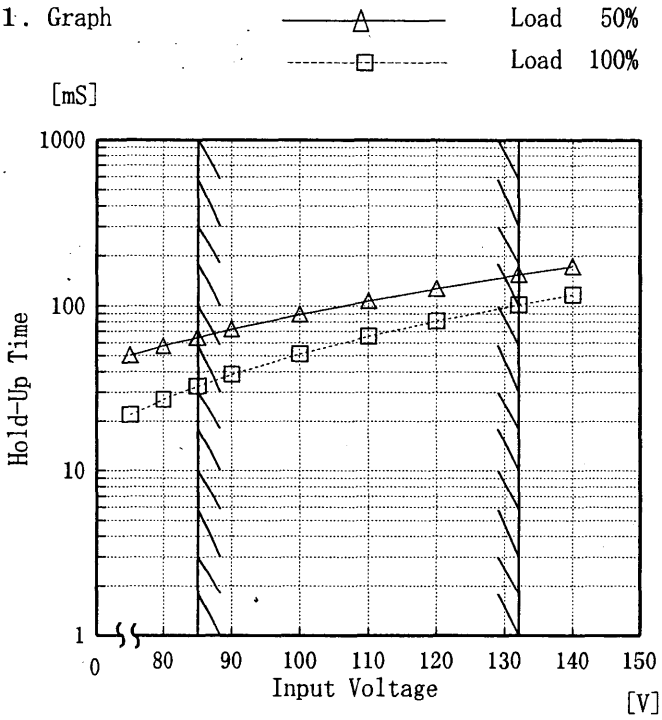
BC－3212

COSEL

Model	MMB50A-4
Item	Hold-Up Time 出力保持時間
Object	+12.0V2.1A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

Note: Slanted line shows the range of the rated input voltage.

出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。

(注)斜線は定格入力電圧範囲を示す。

2. Values

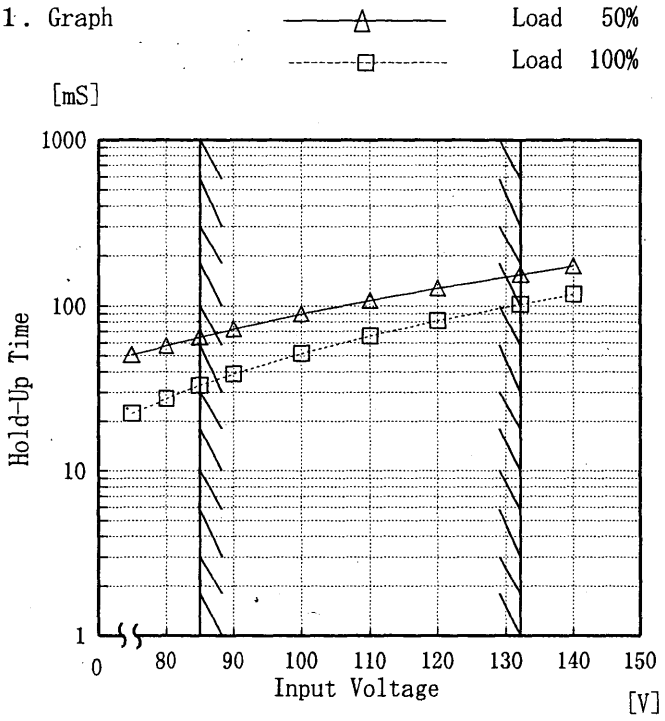
Input Voltage [V]	Load 50% Hold-Up Time [mS]	Load 100% Hold-Up Time [mS]
75	51	22
80	57	27
85	65	33
90	72	38
100	89	51
110	108	65
120	128	81
132	154	102
140	173	117

COSEL

Model	MMB50A-4
Item	Hold-Up Time 出力保持時間
Object	+12.0V2.1A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

Note: Slanted line shows the range of the rated input voltage.

出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。

(注)斜線は定格入力電圧範囲を示す。

2. Values

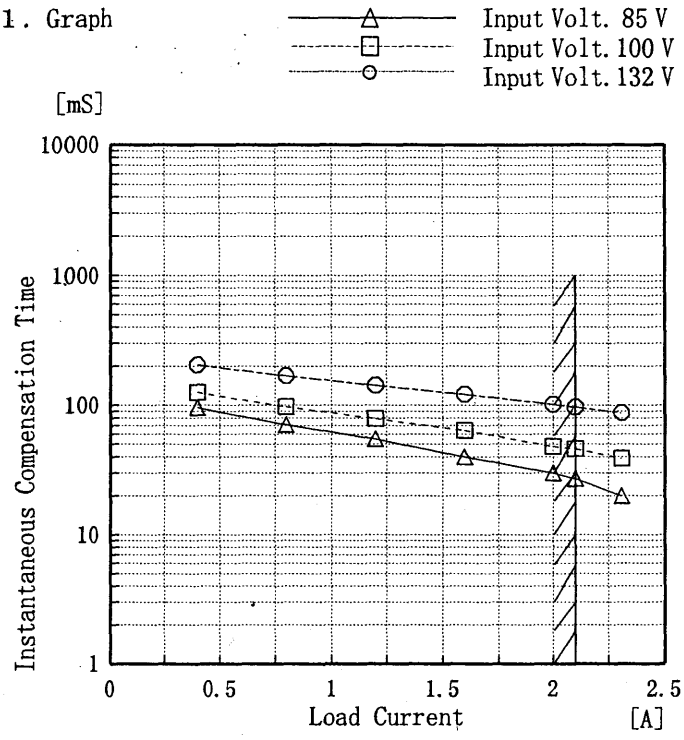
Input Voltage [V]	Load 50% Hold-Up Time [mS]	Load 100% Hold-Up Time [mS]
75	51	22
80	57	27
85	65	33
90	73	39
100	89	52
110	108	66
120	128	82
132	155	102
140	174	117

COSEL

Model	MMB50A-4
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.
Note:Slanted line shows the range of the rated load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。
(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.00	—	—	—
0.40	96	126	206
0.80	71	98	170
1.20	55	79	143
1.60	40	64	122
2.00	30	48	102
2.10	27	46	97
2.31	20	39	88
—	—	—	—
—	—	—	—
—	—	—	—

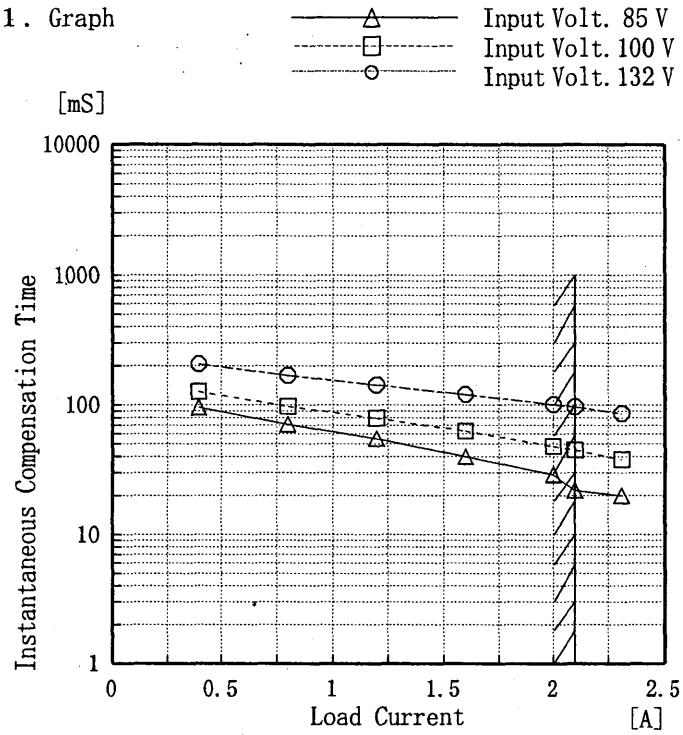
BC−3212

COSEL

Model	MMB50A-4
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.
Note:Slanted line shows the range of the rated load current.

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。
(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.00	—	—	—
0.40	96	127	207
0.80	71	98	170
1.20	55	79	143
1.60	40	63	121
2.00	29	48	101
2.10	22	45	97
2.31	20	38	86
—	—	—	—
—	—	—	—
—	—	—	—

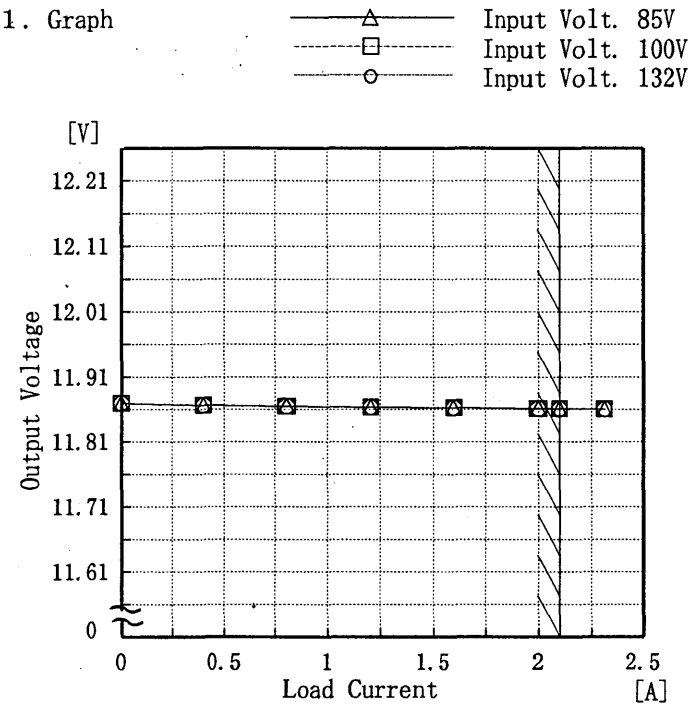
COSEL

Model	MMB50A-4
Item	Load Regulation 静的負荷変動

Temperature 25℃
Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph

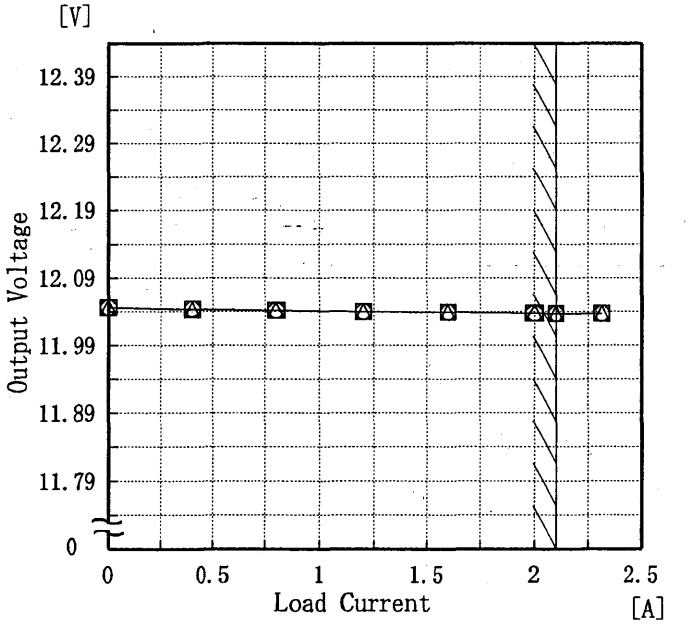


2. Values

Load Current [A]	Input Volt. 85.0[V] Output Volt. [V]	Input Volt. 100.0[V] Output Volt. [V]	Input Volt. 132.0[V] Output Volt. [V]
0.000	11.869	11.870	11.870
0.400	11.867	11.867	11.867
0.800	11.865	11.865	11.865
1.200	11.864	11.864	11.864
1.600	11.863	11.863	11.863
2.000	11.862	11.862	11.862
2.100	11.861	11.862	11.862
2.310	11.861	11.861	11.861
—	—	—	—
—	—	—	—

Object +12V2.10A

1. Graph



Note: Slanted line shows the range of the rated load current.
(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 85.0[V] Output Volt. [V]	Input Volt. 100.0[V] Output Volt. [V]	Input Volt. 132.0[V] Output Volt. [V]
0.000	12.046	12.046	12.046
0.400	12.043	12.044	12.044
0.800	12.042	12.042	12.042
1.200	12.040	12.040	12.040
1.600	12.039	12.039	12.039
2.000	12.038	12.038	12.038
2.100	12.037	12.037	12.037
2.310	12.037	12.037	12.037
—	—	—	—
—	—	—	—

BC−3212

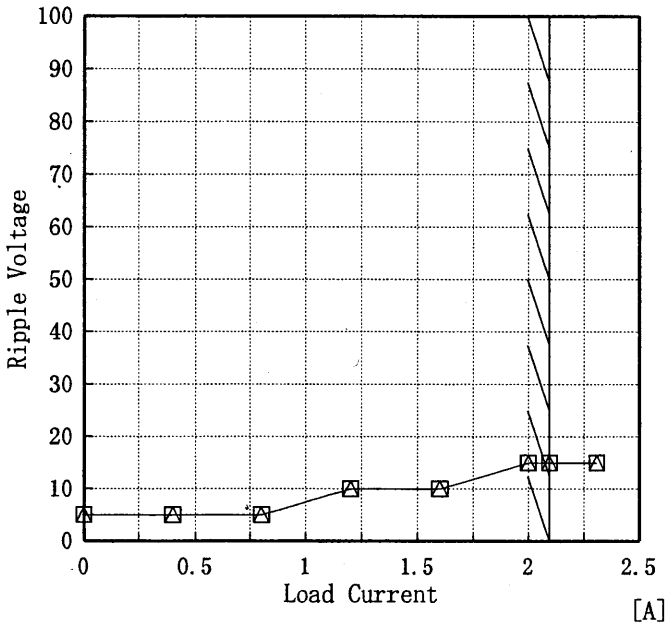
COSEL

Model	MMB50A-4
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph

[mV]



Ripple Voltage is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

リップル電圧は、下図ｐ－ｐ値で示される。
(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

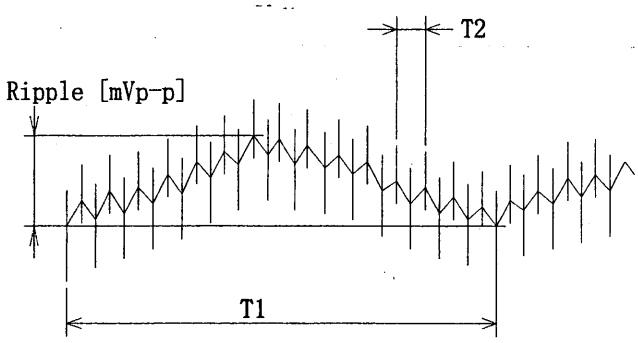


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

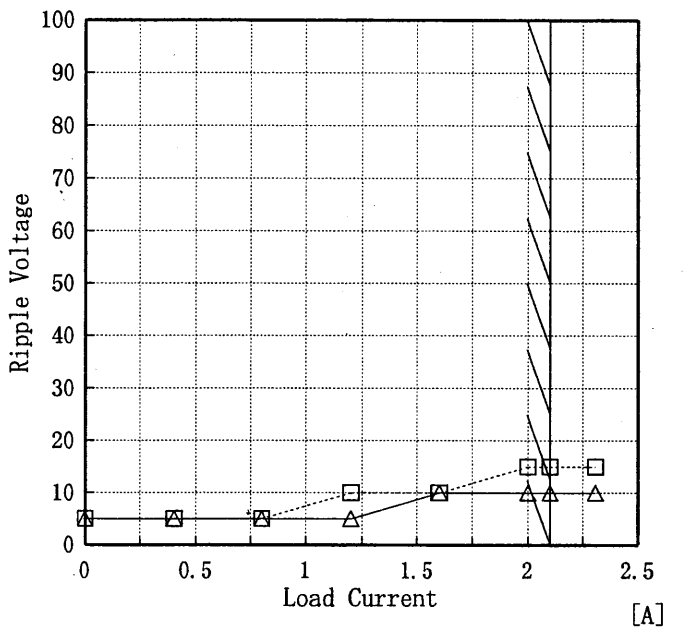
Load Current [A]	Input Volt. 85 [V] Ripple Output Volt. [mV]	Input Volt. 132 [V] Ripple Output Volt. [mV]
0.0	5	5
0.4	5	5
0.8	5	5
1.2	10	10
1.6	10	10
2.0	15	15
2.1	15	15
2.3	15	15
—	—	—
—	—	—
—	—	—

COSEL

Model	MMB50A-4
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple Voltage is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

リップル電圧は、下図ｐ－ｐ値で示される。
(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

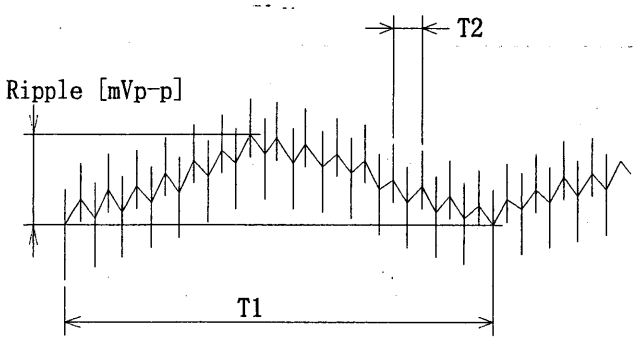


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

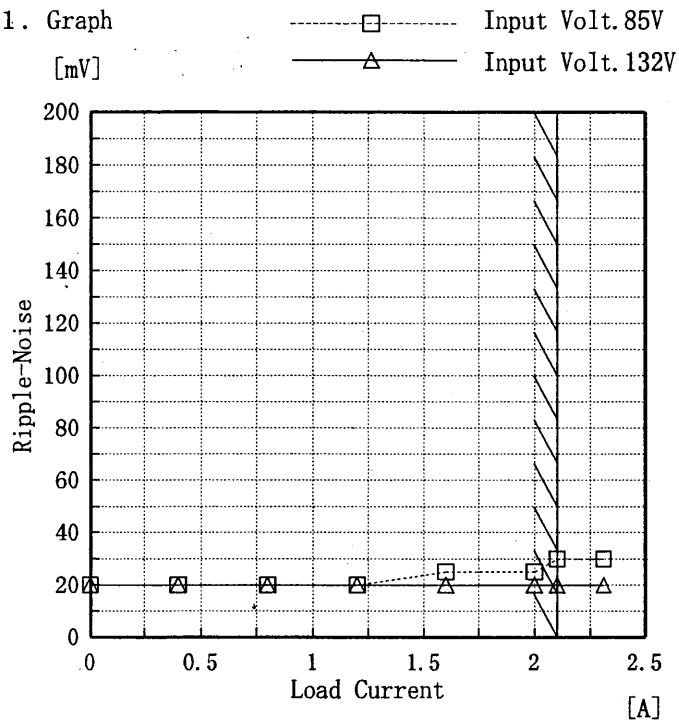
Load Current [A]	Input Volt. 85 [V] Ripple Output Volt. [mV]	Input Volt. 132 [V] Ripple Output Volt. [mV]
0.0	5	5
0.4	5	5
0.8	5	5
1.2	10	5
1.6	10	10
2.0	15	10
2.1	15	10
2.3	15	10
—	—	—
—	—	—
—	—	—

COSEL

Model	MMB50A-4
Item	Ripple-Noise リップルノイズ
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

リップルノイズは、下図ｐ－ｐ値で示される。
(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

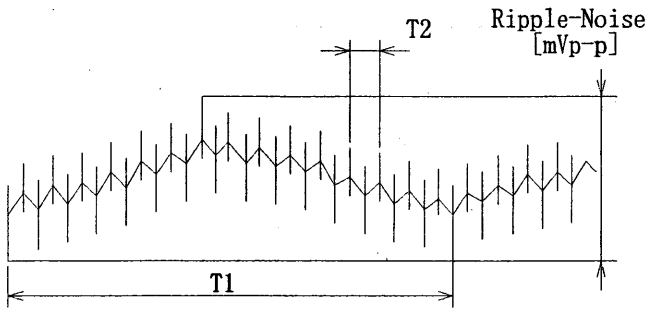


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

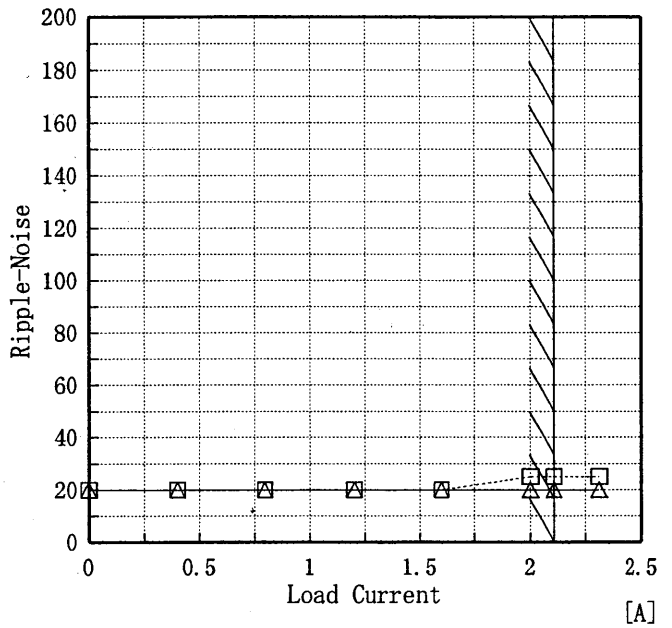
Load current [A]	Input Volt. 85 [V] Ripple-Noise [mV]	Input Volt. 132 [V] Ripple-Noise [mV]
0.0	20	20
0.4	20	20
0.8	20	20
1.2	20	20
1.6	25	20
2.0	25	20
2.1	30	20
2.3	30	20
—	—	—
—	—	—
—	—	—

COSEL

Model	MMB50A-4
Item	Ripple-Noise リップルノイズ
Object	+12.0V2.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

リップルノイズは、下図ｐ－ｐ値で示される。
(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

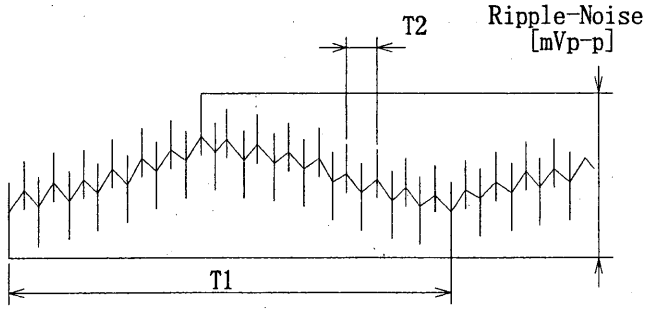


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

Load current [A]	Input Volt. 85 [V] Ripple-Noise [mV]	Input Volt. 132 [V] Ripple-Noise [mV]
0.0	20	20
0.4	20	20
0.8	20	20
1.2	20	20
1.6	20	20
2.0	25	20
2.1	25	20
2.3	25	20
—	—	—
—	—	—
—	—	—

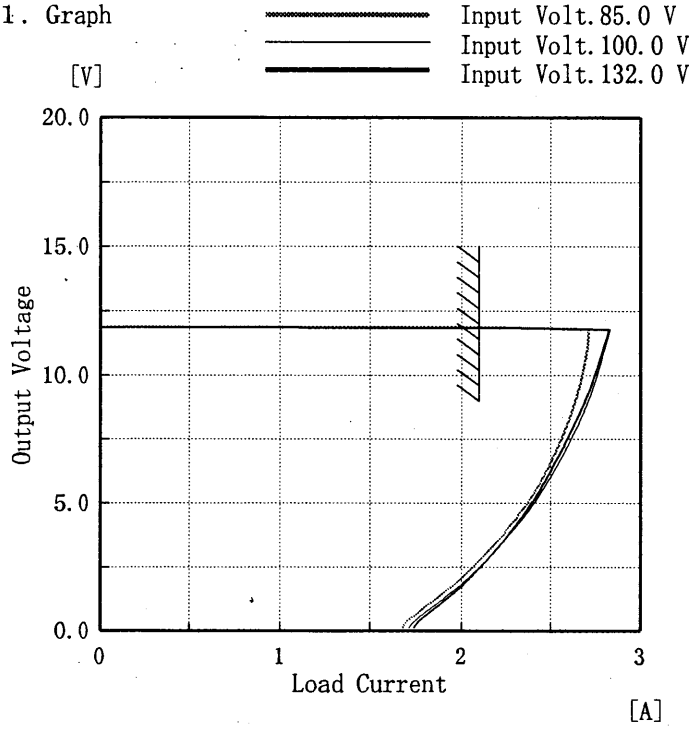
COSEL

Model	MMB50A-4
Item	Overcurrent Protection 過電流保護

Temperature 25℃
Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph

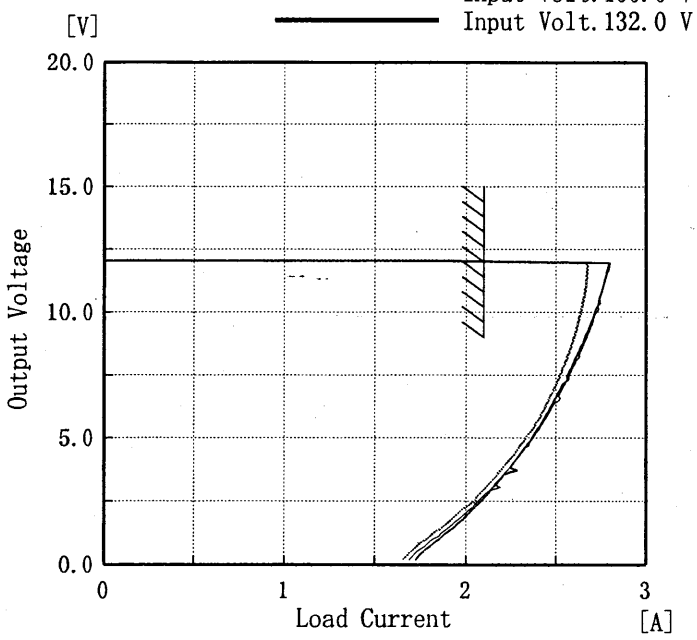


2. Values

Output Voltage [V]	Input Volt. 85.0[V] Load Current [A]	Input Volt. 100.0[V] Load Current [A]	Input Volt. 132.0[V] Load Current [A]
12.00	—	—	—
11.40	2.704	2.814	2.808
10.80	2.692	2.787	2.778
9.60	2.657	2.733	2.717
8.40	2.606	2.667	2.647
7.20	2.540	2.589	2.568
6.00	2.454	2.495	2.476
4.80	2.345	2.381	2.369
3.60	2.210	2.246	2.243
2.40	2.045	2.083	2.090
1.20	1.843	1.881	1.901
0.00	1.674	1.710	1.737

Object +12V2.10A

1. Graph



Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

2. Values

Output Voltage [V]	Input Volt. 85.0[V] Load Current [A]	Input Volt. 100.0[V] Load Current [A]	Input Volt. 132.0[V] Load Current [A]
12.00	—	—	—
11.40	2.665	2.769	2.773
10.80	2.653	2.743	2.743
9.60	2.619	2.692	2.686
8.40	2.571	2.630	2.620
7.20	2.501	2.548	2.535
6.00	2.418	2.458	2.448
4.80	2.312	2.349	2.336
3.60	2.176	2.210	2.209
2.40	2.016	2.049	2.066
1.20	1.803	1.853	1.871
0.00	1.641	1.680	1.715

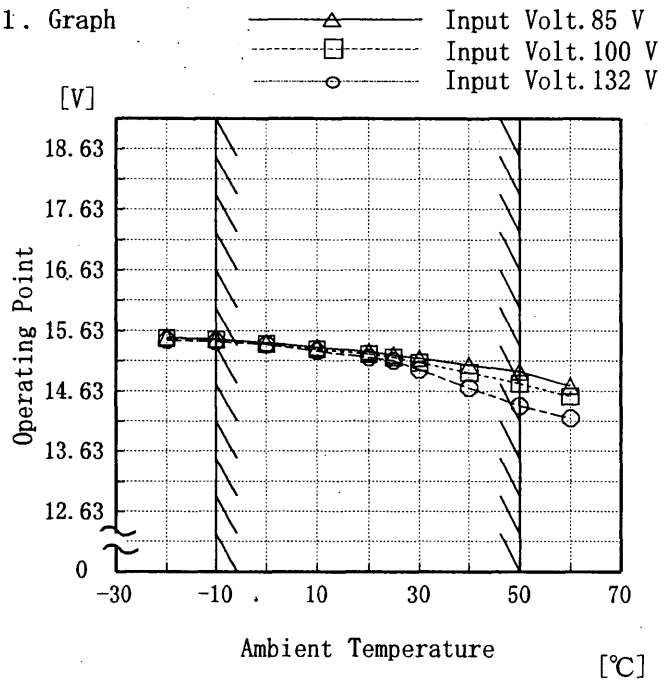
COSEL

Model	MMB50A-4
Item	Overvoltage Protection 過電圧保護

Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph

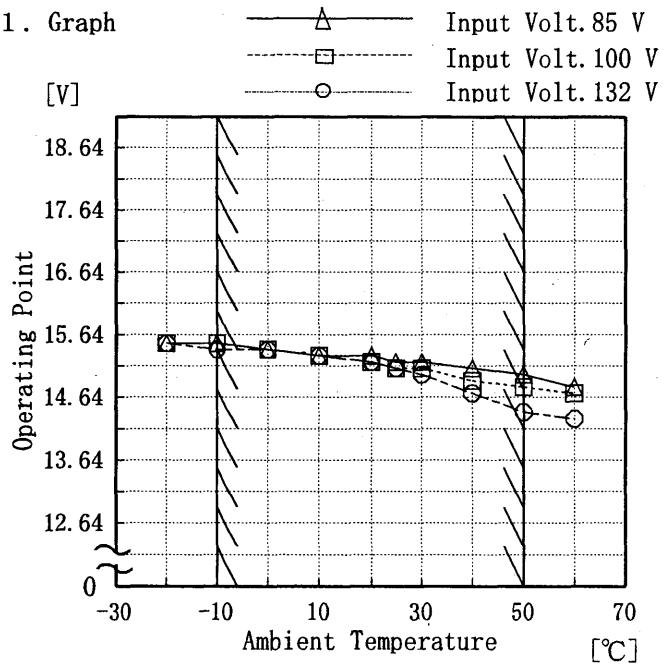


2. Values

Ambient Temp. [℃]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Operating Point [V]		
-20	15.52	15.50	15.47
-10	15.49	15.48	15.45
0	15.43	15.41	15.40
10	15.35	15.32	15.29
20	15.28	15.24	15.19
25	15.23	15.19	15.13
30	15.17	15.10	14.98
40	15.06	14.93	14.68
50	14.95	14.75	14.38
60	14.71	14.54	14.18
-	—	—	—

Object +12V2.10A

1. Graph



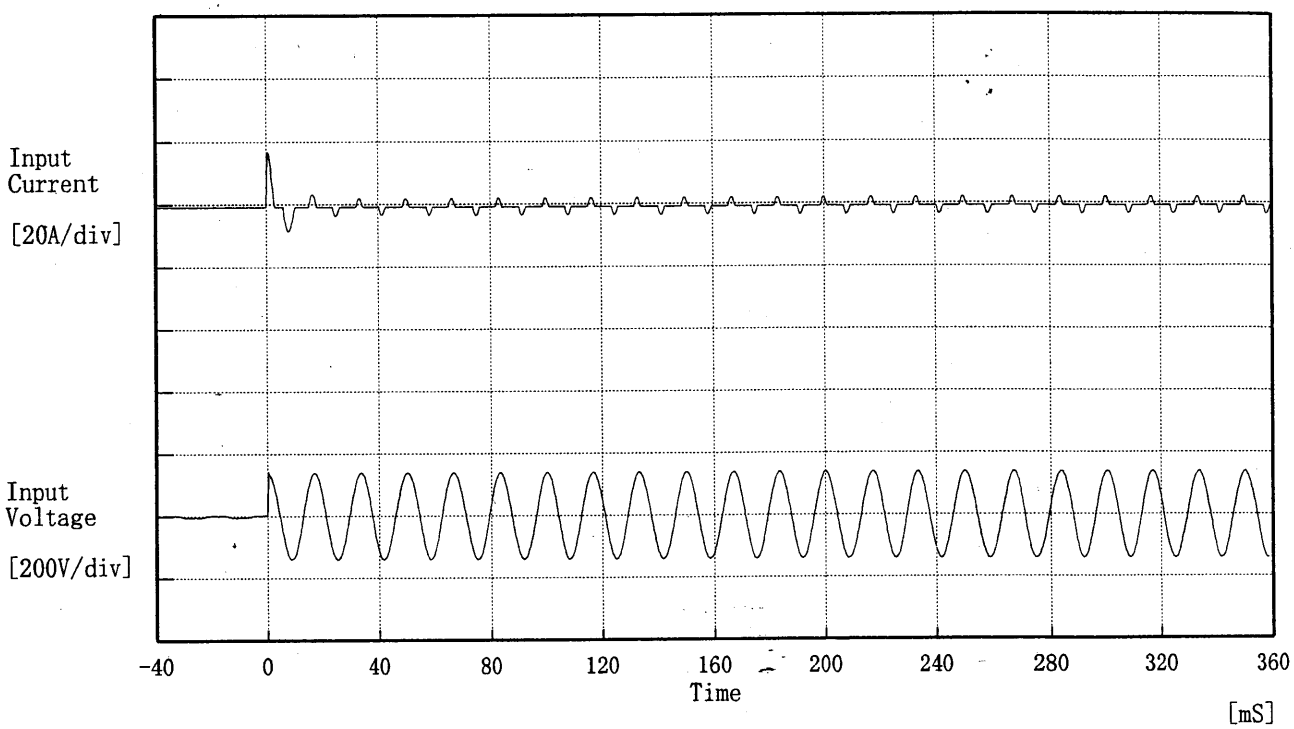
Note: Slanted line shows the range of the rated ambient temperature.
(注)斜線は定格周囲温度範囲を示す。

2. Values

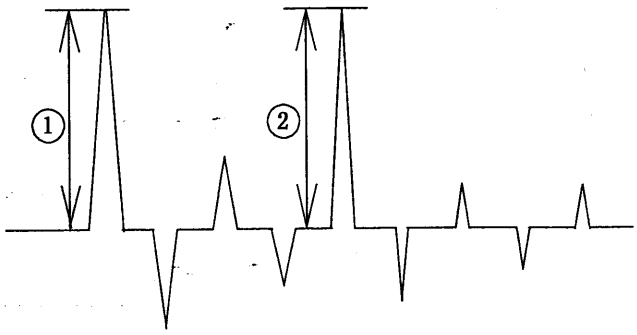
Ambient Temp. [℃]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Operating Point [V]		
-20	15.5	15.5	15.5
-10	15.5	15.5	15.4
0	15.4	15.4	15.4
10	15.3	15.3	15.3
20	15.3	15.2	15.2
25	15.2	15.1	15.1
30	15.2	15.1	15.0
40	15.1	14.9	14.7
50	15.0	14.8	14.4
60	14.8	14.7	14.3
-	—	—	—

COSEL

Model	MMB50A-4	Temperature	25℃
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	――――――――		



Input Voltage 100 V
Frequency 60 Hz
Load 100 %
Inrush Current
① 16.70 [A]
② 3.61 [A]



BC－3212

COSEL

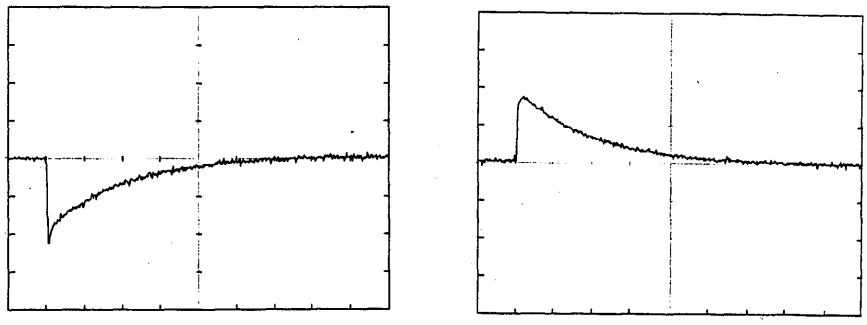
Model	MMB50A-4		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V2.10A		

Input Volt. 100 V

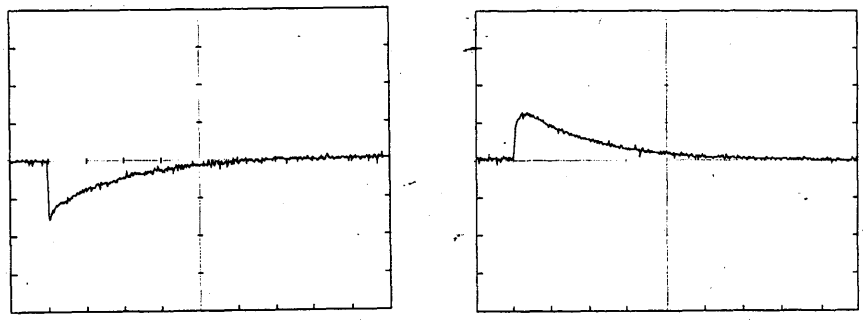
Cycle 200 mS

Load Current

Load 0% ⟷
Load 100 %



Load 0% ⟷
Load 50 %



100 mV/div

10 mS/div

COSEL

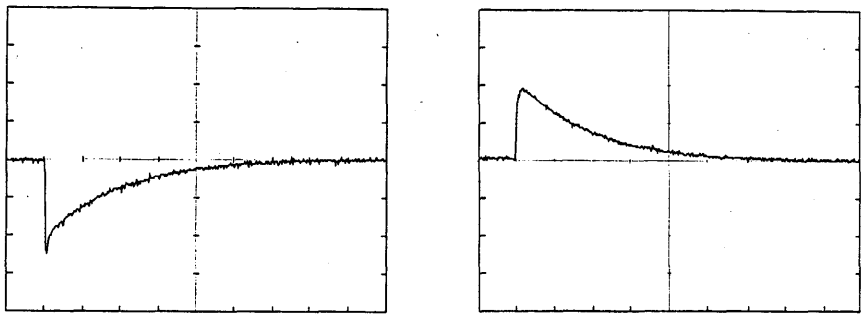
Model	MMB50A-4		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V2.10A		

Input Volt. 100 V

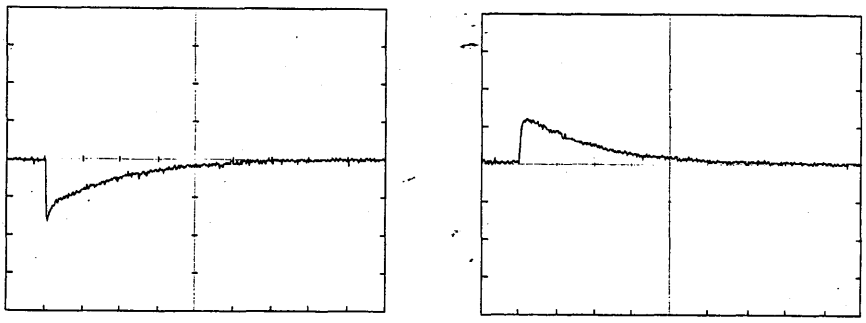
Cycle 200 mS

Load Current

Load 0% ⟷
Load 100 %



Load 0% ⟷
Load 50 %



100 mV/div

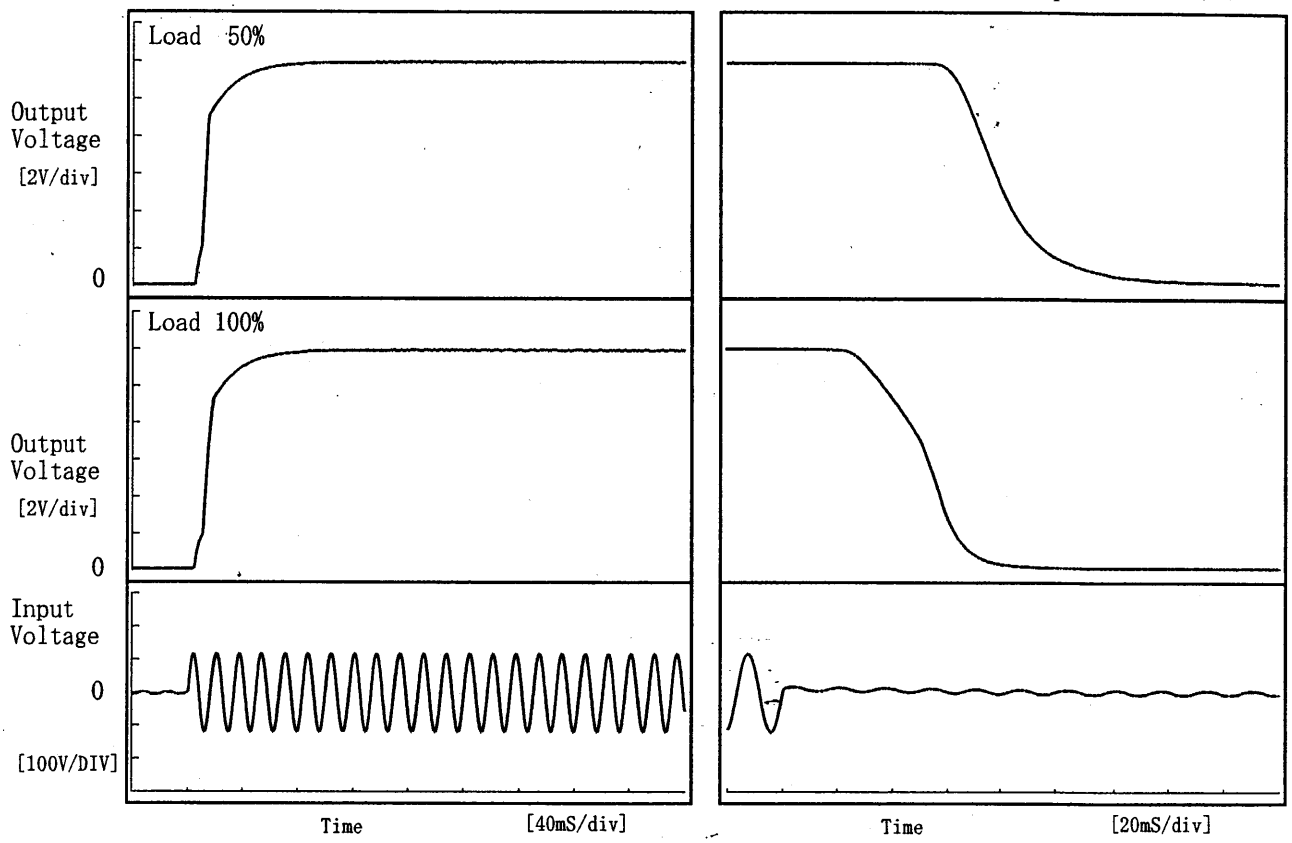
10 mS/div

COSEL

Model	MMB50A-4		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V2.10A		

1. Graph

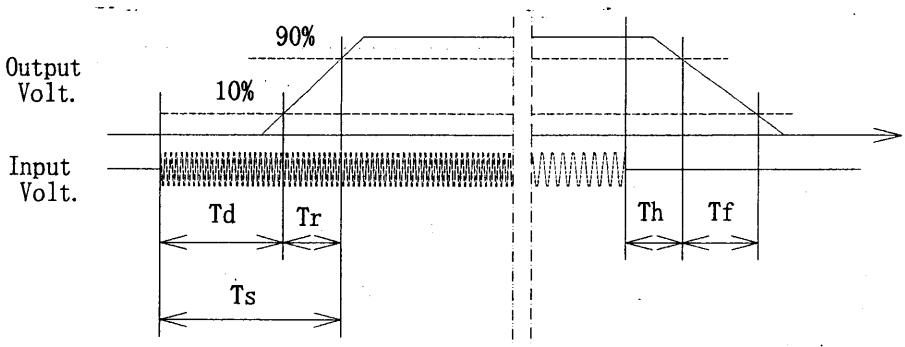
Input Volt. 85 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.6	27.4	34.0	64.0	40.3
100 %	7.0	29.6	36.6	31.9	35.0

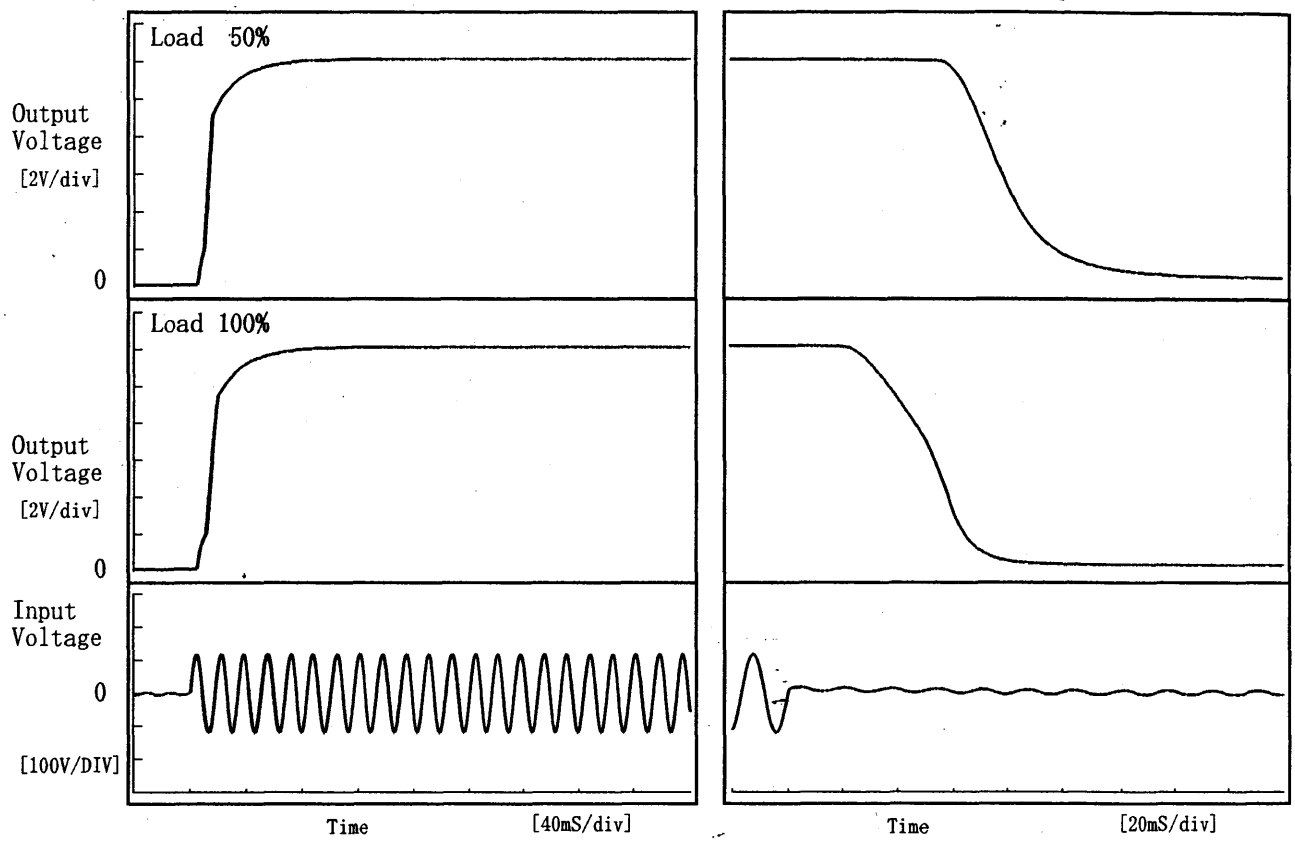


COSEL

Model	MMB50A-4		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V2.10A		

1. Graph

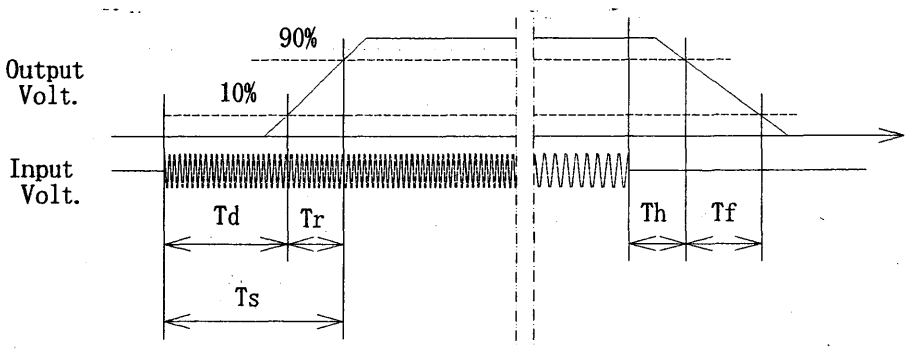
Input Volt. 85 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.8	24.2	31.0	63.8	44.4
100 %	7.0	26.2	33.2	32.3	36.4



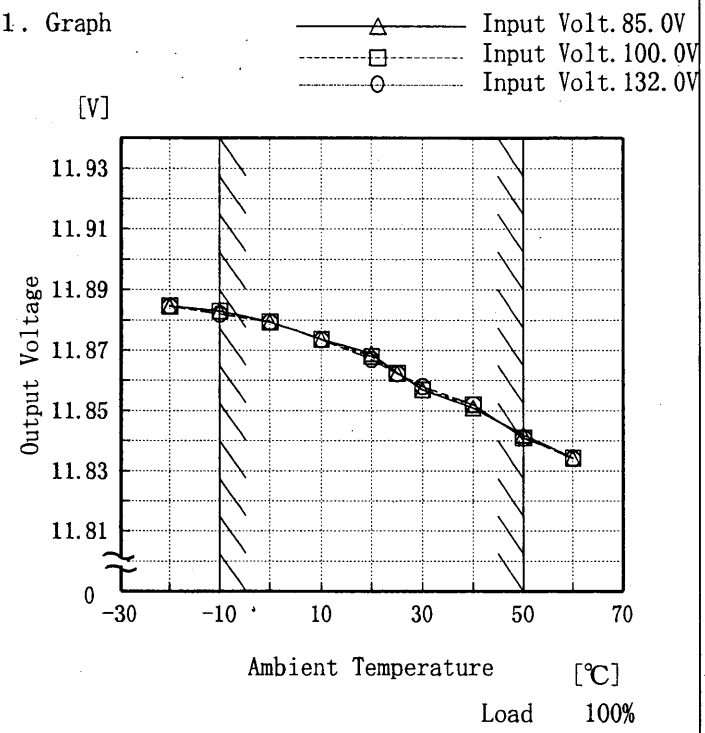
COSEL

Model	MMB50A-4
Item	Ambient Temperature Drift 周囲温度変動

Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph

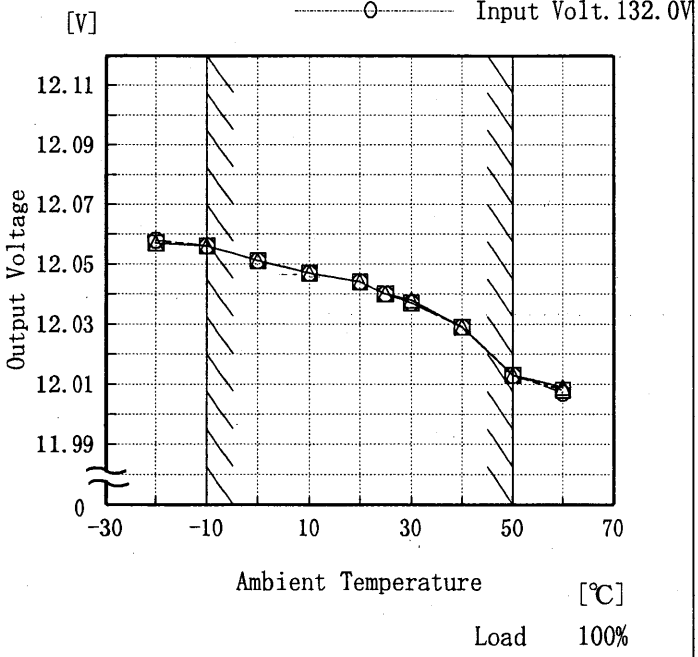


2. Values

Temperature [℃]	Input Volt. 85.0[V] Output Volt. [V]	Input Volt. 100.0[V] Output Volt. [V]	Input Volt. 132.0[V] Output Volt. [V]
-20	11.885	11.885	11.885
-10	11.883	11.883	11.882
0	11.879	11.880	11.879
10	11.874	11.874	11.874
20	11.869	11.868	11.867
25	11.862	11.862	11.862
30	11.857	11.857	11.858
40	11.851	11.852	11.852
50	11.842	11.841	11.841
60	11.834	11.834	11.834
—	—	—	—

Object +12V2.10A

1. Graph



2. Values

Temperature [℃]	Input Volt. 85.0[V] Output Volt. [V]	Input Volt. 100.0[V] Output Volt. [V]	Input Volt. 132.0[V] Output Volt. [V]
-20	12.057	12.057	12.058
-10	12.056	12.056	12.056
0	12.051	12.051	12.051
10	12.047	12.047	12.047
20	12.044	12.044	12.044
25	12.040	12.040	12.040
30	12.038	12.037	12.037
40	12.029	12.029	12.029
50	12.013	12.013	12.013
60	12.009	12.008	12.007
—	—	—	—

Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

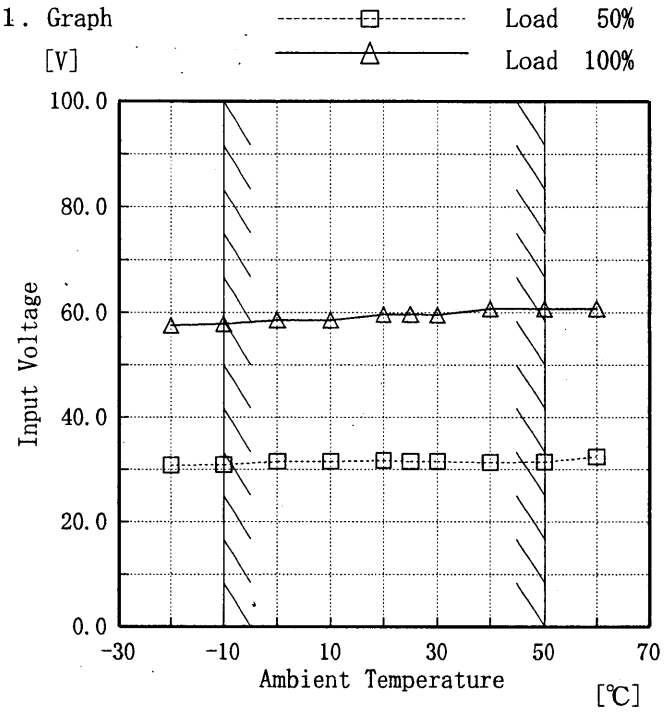
COSEL

Model	MMB50A-4
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧

Testing Circuitry Figure A

Object +12.0V2.10A

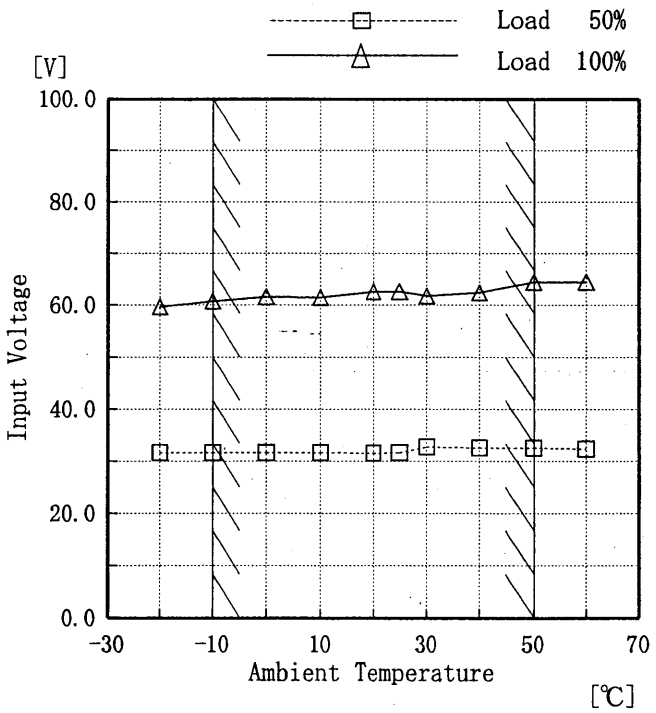
1. Graph



2. Values

Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-20	30.8	57.5
-10	30.9	57.8
0	31.6	58.5
10	31.6	58.5
20	31.7	59.6
25	31.6	59.6
30	31.6	59.5
40	31.4	60.7
50	31.5	60.7
60	32.5	60.7
—	—	—

Object +12V2.10A



Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2. Values

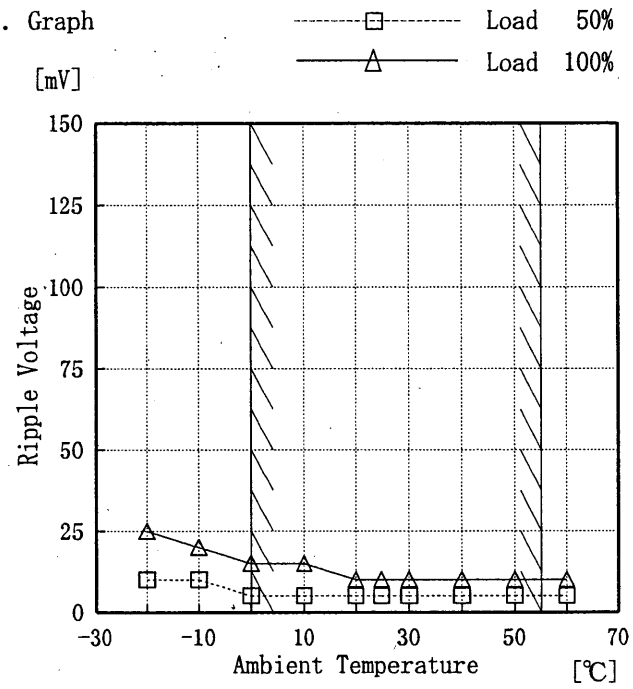
Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-20	31.7	59.7
-10	31.7	60.8
0	31.7	61.6
10	31.7	61.5
20	31.6	62.6
25	31.7	62.6
30	32.8	61.8
40	32.6	62.5
50	32.6	64.5
60	32.4	64.5
—	—	—

COSEL

Model	MMB50A-4
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+12.0V2.10A

Testing Circuitry Figure A

1. Graph



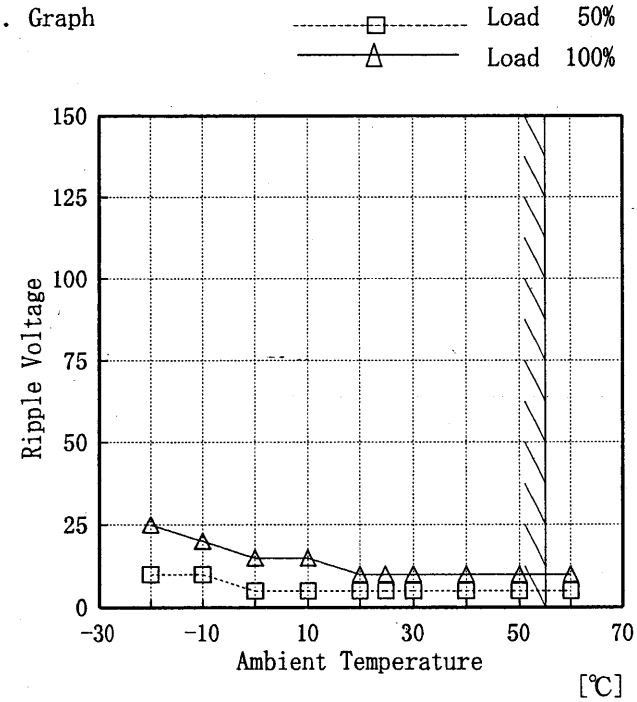
Input Volt. 100 V

2. Values

Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-20	10	25
-10	10	20
0	5	15
10	5	15
20	5	10
25	5	10
30	5	10
40	5	10
50	5	10
60	5	10
—	—	—

Object	+12V2.10A

1. Graph



Input Volt. 100 V

Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-20	10	25
-10	10	20
0	5	15
10	5	15
20	5	10
25	5	10
30	5	10
40	5	10
50	5	10
60	5	10
—	—	—

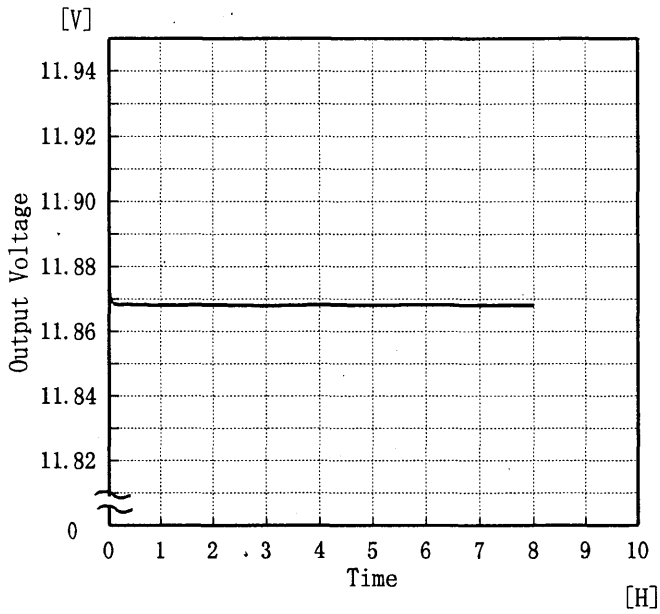
COSEL

Model	MMB50A-4
Item	Time Lapse Drift 経時ドリフト

Temperature 25 ℃
Testing Circuitry Figure A

Object +12.0V2.10A

1. Graph



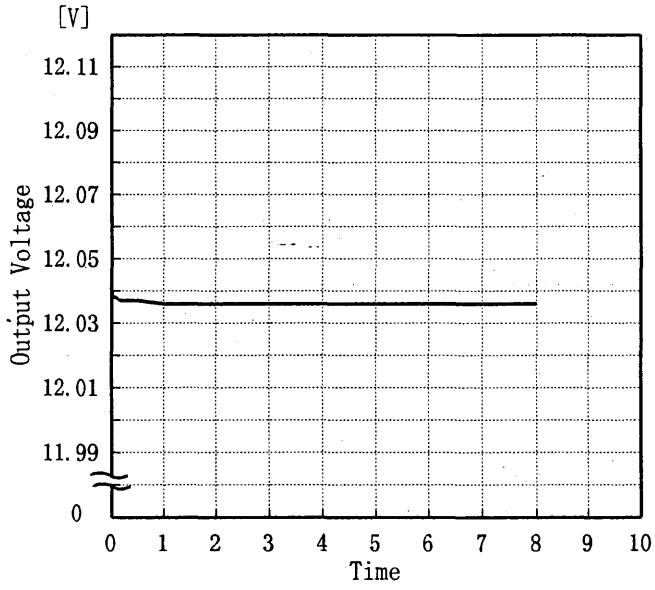
Input Volt. 100.0V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	11.873
0.5	11.868
1.0	11.868
2.0	11.868
3.0	11.868
4.0	11.868
5.0	11.868
6.0	11.868
7.0	11.868
8.0	11.868

Object +12V2.10A

1. Graph



Input Volt. 100.0V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	12.041
0.5	12.037
1.0	12.036
2.0	12.036
3.0	12.036
4.0	12.036
5.0	12.036
6.0	12.036
7.0	12.036
8.0	12.036

COSEL

Model	MMB50A-4	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A

Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10～50 ℃

Input Voltage : 85.0～132.0 V

Load Current (AVR 1) : 0.00～2.10 A

(AVR 2) : 0.00～2.10 A

* Output Voltage Accuracy = ±(Maximum of Output Voltage − Minimum of Output Voltage)／2

$$* \text{ Output Voltage Accuracy (Ration)} = \frac{\text{Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 -10～50 ℃

入力電圧 85.0～132.0 V

負荷電流 (AVR 1) 0.00～2.10 A

(AVR 2) 0.00～2.10 A

* 定電圧精度(変動値) ＝ ±(出力電圧の最高値－出力電圧の最低値)／2

$$* \text{ 定電圧精度(変動率)} = \frac{\text{変動値}}{\text{定格出力電圧}} \times 100$$

Object	+12.0V2.10A

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	100.0	0.00	11.889	±24	±0.2
Minimum Voltage	50	132.0	2.10	11.842		

Object	+12V2.10A

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	85.0	0.00	12.062	±26	±0.3
Minimum Voltage	50	132.0	2.10	12.011		

COSEL

Model	MMB50A-4
Item	Condensation 結露特性
Object	+12.0V2.1A

Testing Circuitry Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

1．結露特性試験

入力を切った状態で、恒温槽で－１０℃に冷却しておき、約１時間後に恒温槽から取り出し、室温２５℃、湿度４０%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	11.687	Input Volt.: 100V, Load Current:2.1A
Line Regulation [mV]	1	Input Volt.: 85～132V, Load Current:2.1A
Load Regulation [mV]	5	Input Volt.: 100V, Load Current:0.0～2.1A

COSEL

Model	MMB50A-4
Item	Condensation 結露特性
Object	+12.0V2.1A

Testing Circuitry Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

1．結露特性試験

入力を切った状態で、恒温槽で－１０℃に冷却しておき、約１時間後に恒温槽から取り出し、室温２５℃、湿度４０％RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	12.04	Input Volt.: 100V, Load Current:2.1A
Line Regulation [mV]	1	Input Volt.: 85～132V, Load Current:2.1A
Load Regulation [mV]	6	Input Volt.: 100V, Load Current:0.0～2.1A

COSEL

Model	MMB50A-4		
Item	Leakage Current 漏洩電流	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.13	0.14	0.18
(B) IEC60950	0.12	0.14	0.18

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	—	—	—

2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

交流入力の両相について測定し、その大きい方を漏洩電流測定値とする。

COSEL

Model	MMB50A-4
Item	Conducted Emission 雑音端子電圧
Object	――――――

Testing Circuitry　Figure D

1. Graph

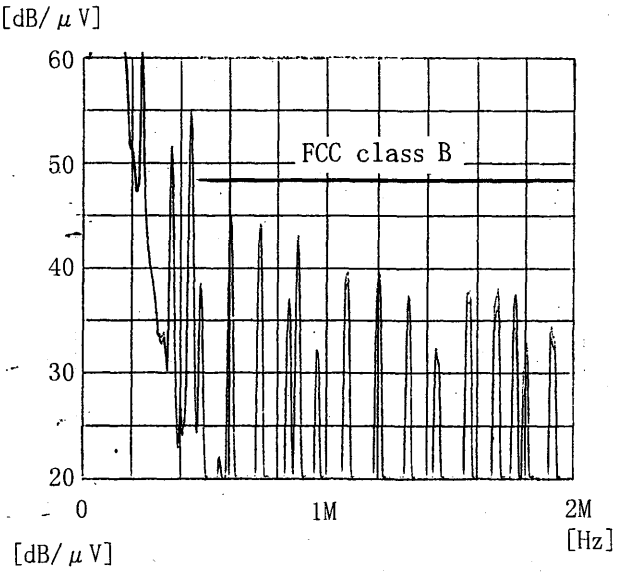
Remarks

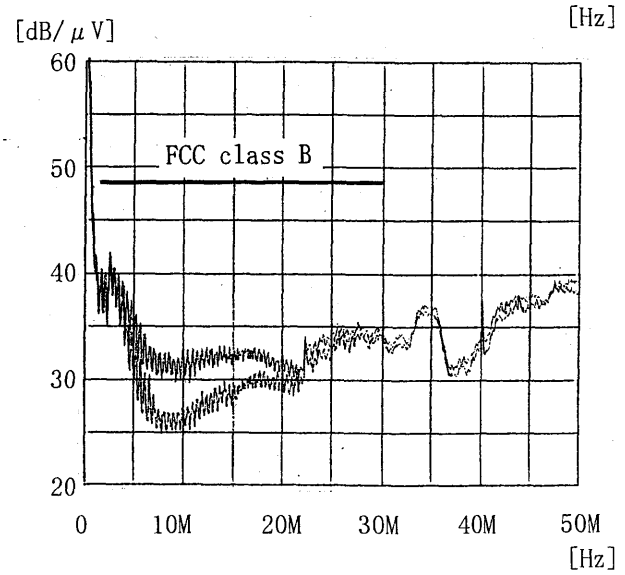
Input Volt.　120 V

Load　100 %

Note: Slanted line shows the range of Tolerance.
(注)斜線は許容値を示す。

NO	Standards	Standards Complied	Frequency [MHz]	Tolerance [dB/μV]
1	FCC class A		0.45～1.6	60
			1.6～30	69.5
2	FCC class B	○	0.45～30	48
3	VCCI class A		0.15～0.5	79
			0.5～30	73
4	VCCI class B		0.15～0.5	66-56
			0.5～5	56
			5～30	60
5	CISPR Pub.22 class A (EN55022)		0.15～0.5	79
			0.5～30	73
6	CISPR Pub.22 class B (EN55022)		0.15～0.5	66-56
			0.5～5	56
			5～30	60





COSEL

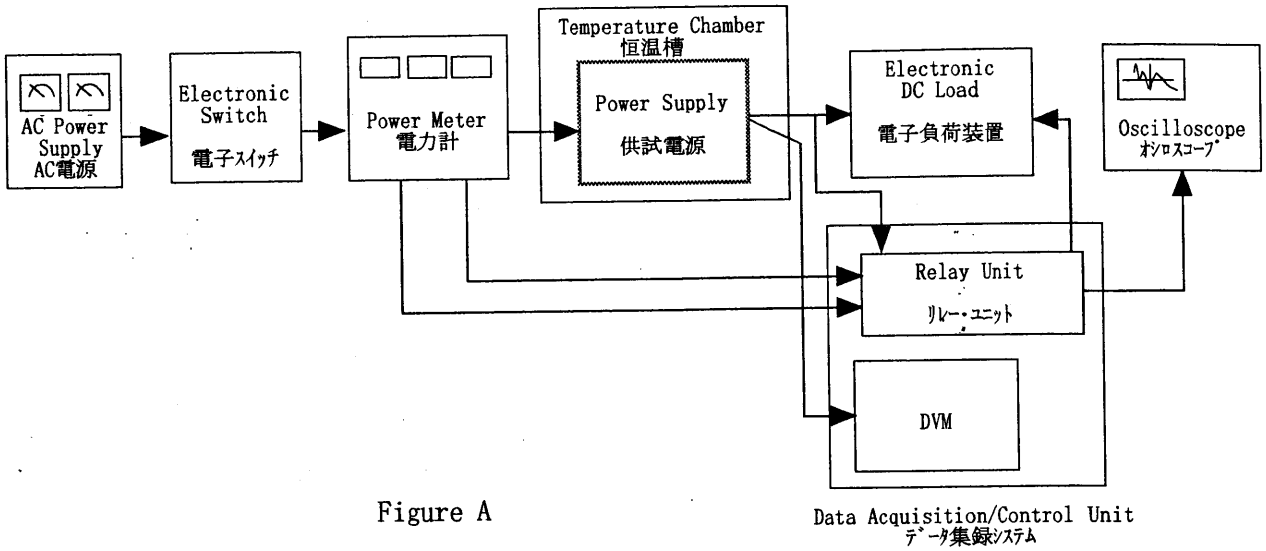


Figure A

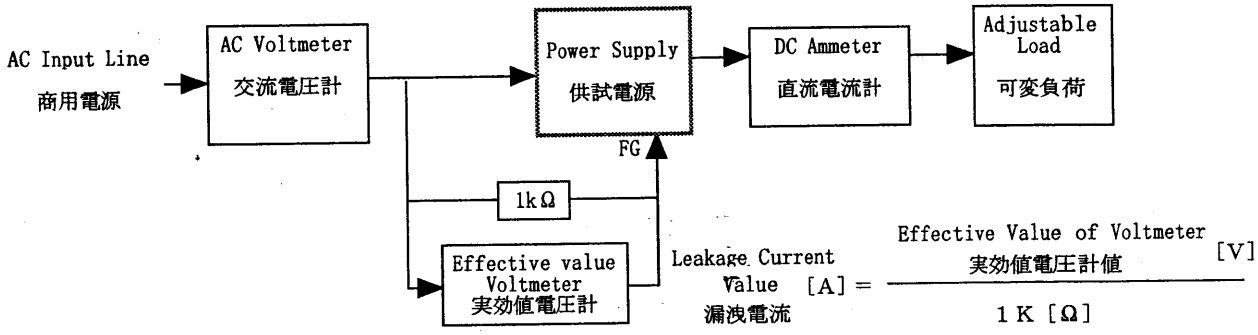


Figure B(DENTORI)

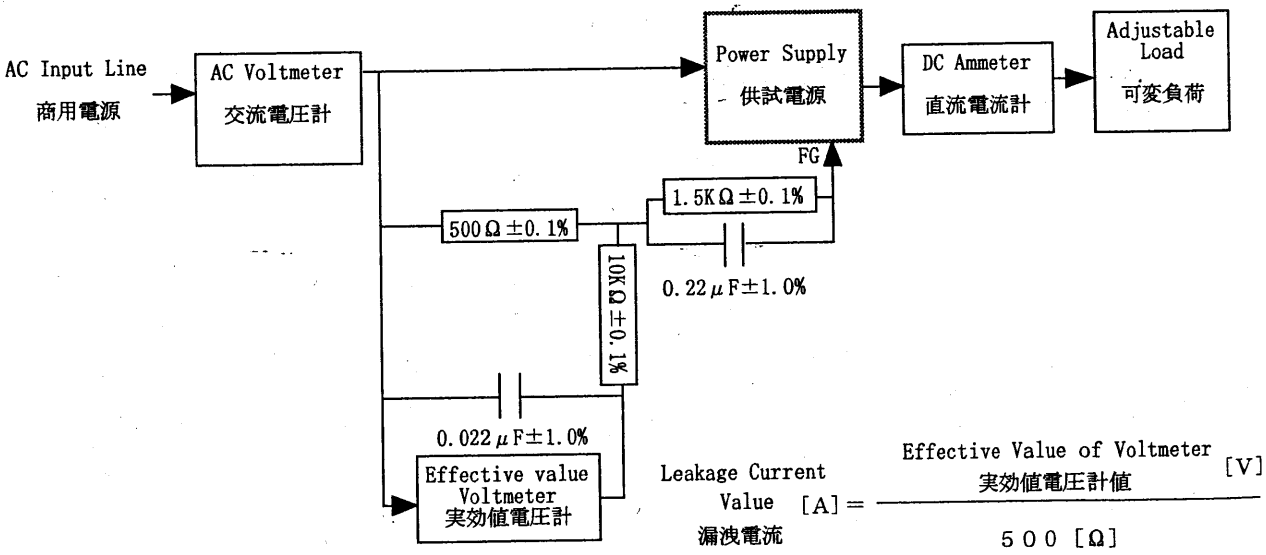


Figure B (IEC60950)

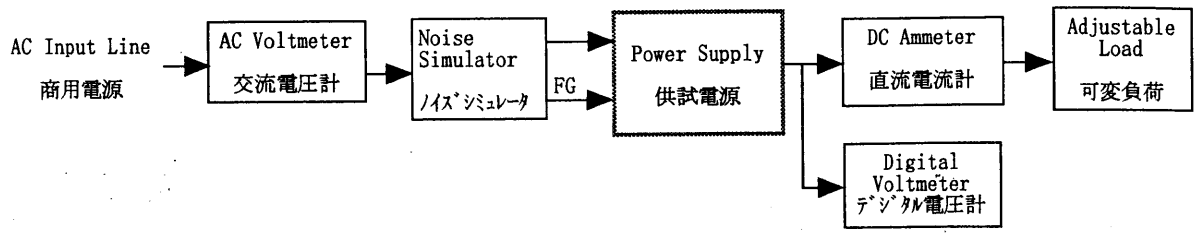


Figure C

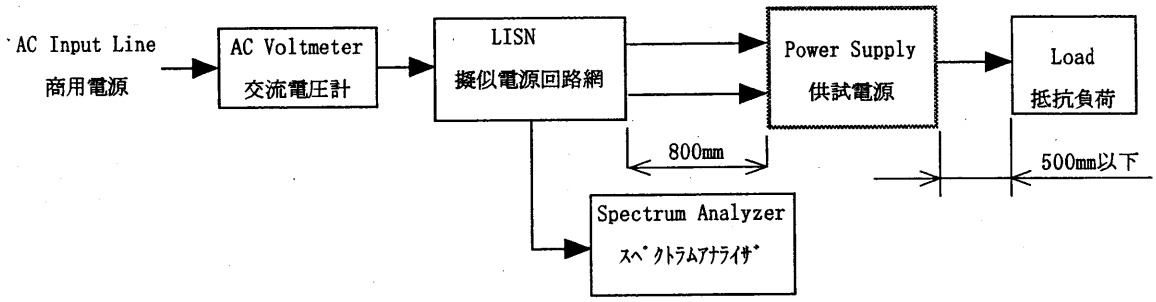


Figure D

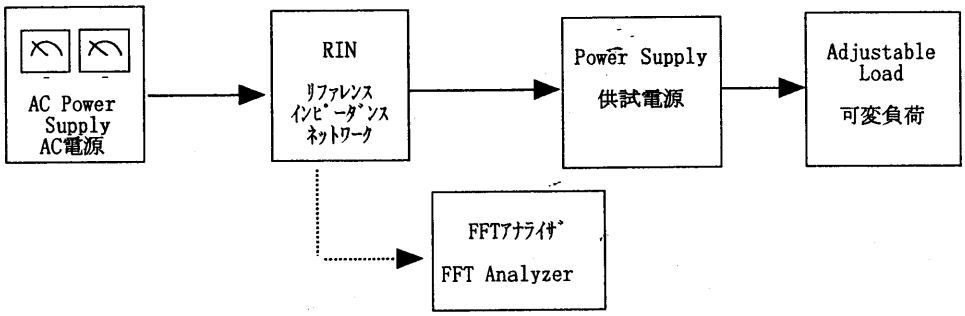


Figure E