参考資料

COSEL

TEST DATA OF MMC8A-1
(100V INPUT)

Regulated DC Power Supply

Date : Mar. 18. 1999

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Design Engineer

コーセル株式会社

COSEL CO., LTD.

参考資料

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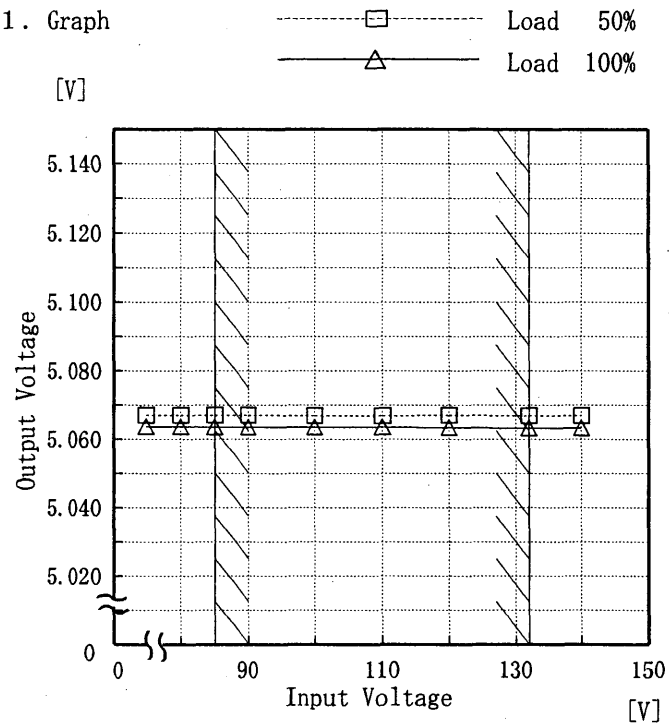
COSEL

Model	MMC8A-1
Item	Line Regulation 静的入力変動

Temperature 25℃
Testing Circuitry Figure A

Object +5.0V1.20A

1. Graph

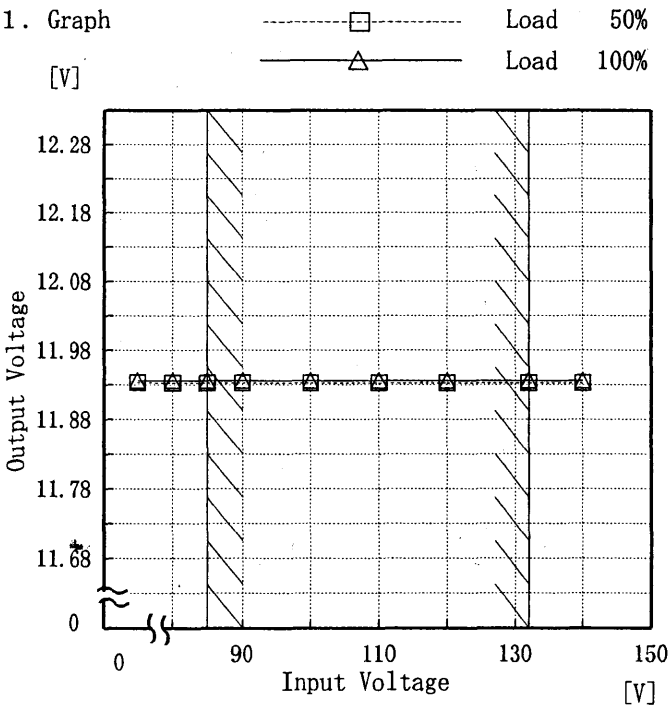


2. Values

Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]
75	5.067	5.064
80	5.067	5.064
85	5.067	5.064
90	5.067	5.064
100	5.067	5.064
110	5.067	5.064
120	5.067	5.063
132	5.067	5.063
140	5.067	5.063
—	—	—
—	—	—
—	—	—

Object +12V0.10A

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	11.934	11.936
80	11.933	11.936
85	11.933	11.937
90	11.933	11.937
100	11.933	11.936
110	11.933	11.937
120	11.933	11.936
132	11.933	11.936
140	11.933	11.936
—	—	—
—	—	—
—	—	—

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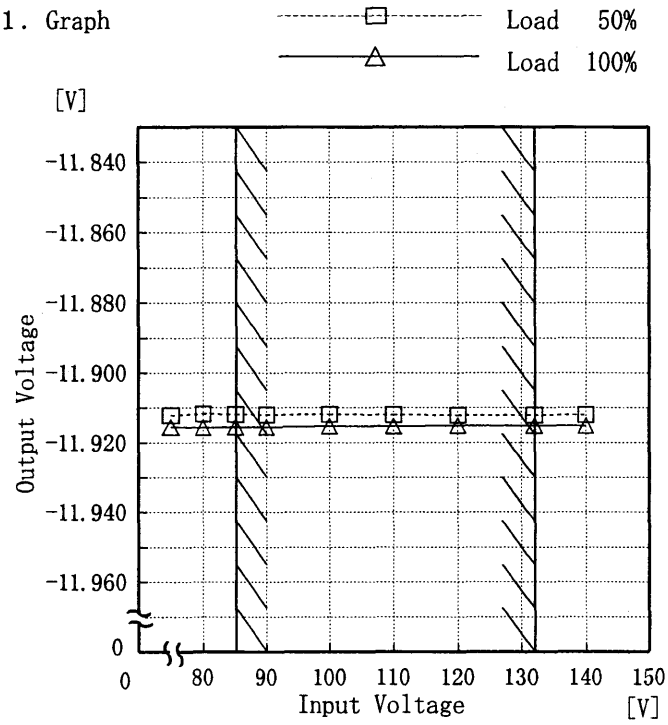
Model	MMC8A-1
Item	Line Regulation 静的入力変動
Object	-12.0V0.10A

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% Output Volt. [V]	Load 100% Output Volt. [V]
75	-11.912	-11.916
80	-11.912	-11.916
85	-11.912	-11.916
90	-11.912	-11.916
100	-11.912	-11.915
110	-11.912	-11.915
120	-11.912	-11.915
132	-11.912	-11.915
140	-11.912	-11.915

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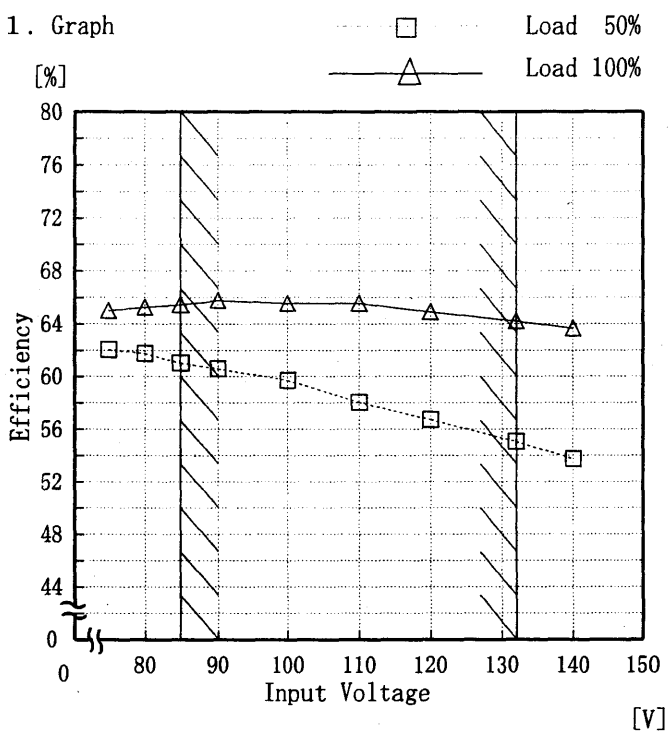
COSEL

Model	MMC8A-1
Item	Efficiency 効率
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

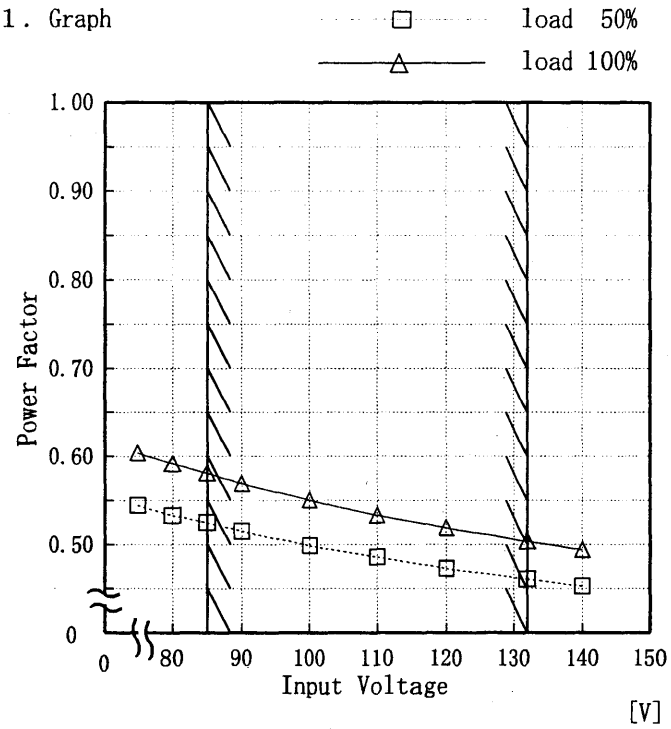
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
75	62.1	65.0
80	61.8	65.3
85	61.1	65.5
90	60.6	65.8
100	59.7	65.6
110	58.0	65.5
120	56.7	64.9
132	55.1	64.2
140	53.7	63.7

COSEL

Model	MMC8A-1
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	0.54	0.60
80	0.53	0.59
85	0.53	0.58
90	0.52	0.57
100	0.50	0.55
110	0.49	0.53
120	0.47	0.52
132	0.46	0.50
140	0.45	0.49

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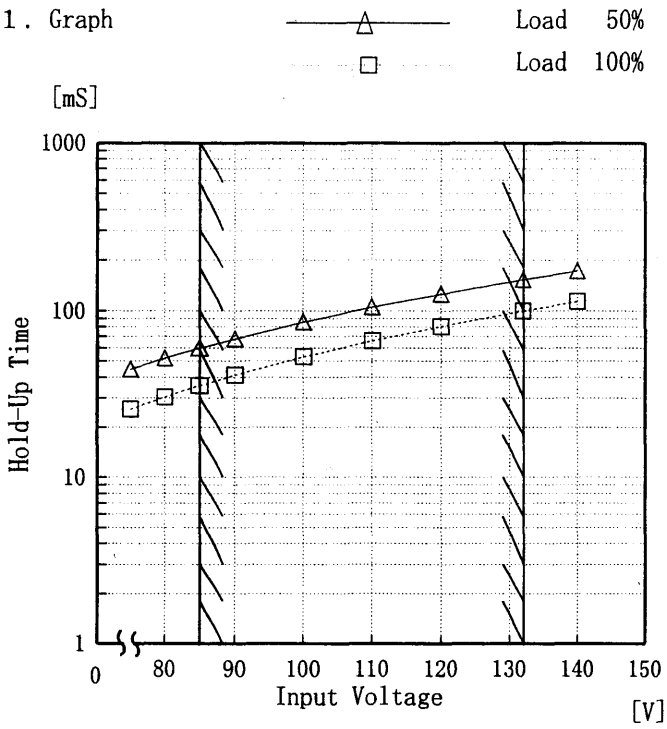
Model	MMC8A-1
Item	Hold-Up Time 出力保持時間
Object	+5.0V1.2A

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	45	26
80	52	30
85	60	36
90	68	41
100	86	53
110	105	66
120	126	81
132	153	100
140	173	114

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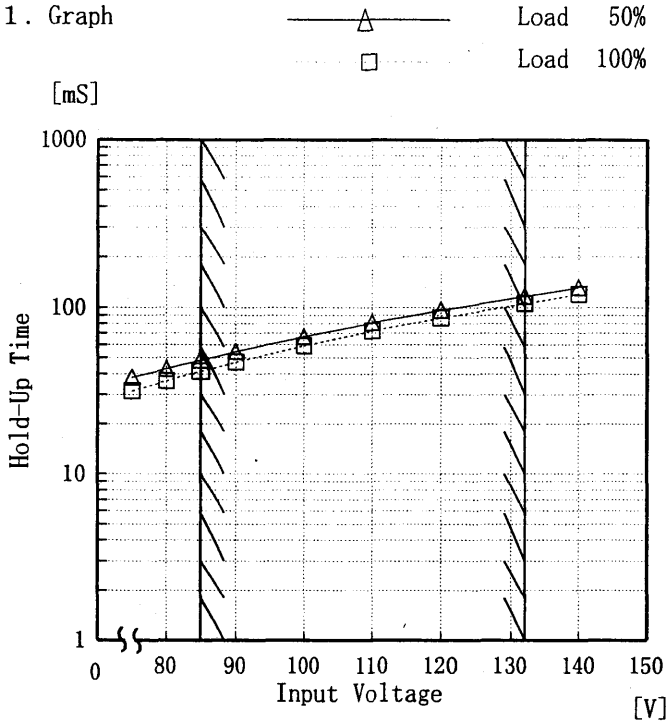
COSEL

Model	MMC8A-1
Item	Hold-Up Time 出力保持時間
Object	+12.0V0.1A

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	38	32
80	43	36
85	48	42
90	54	47
100	67	59
110	81	72
120	97	87
132	117	106
140	132	120

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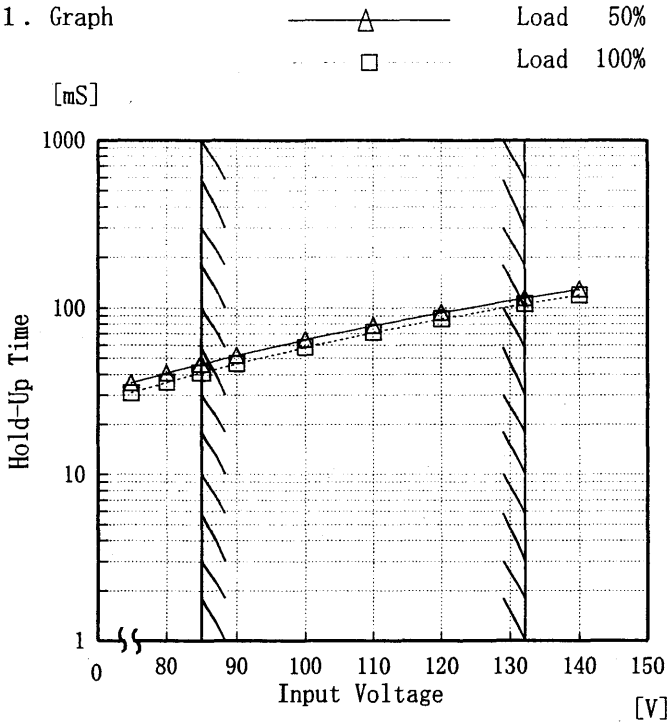
COSEL

Model	MMC8A-1
Item	Hold-Up Time 出力保持時間
Object	-12.0V0.1A

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	36	31
80	41	36
85	46	41
90	52	46
100	65	58
110	79	72
120	94	86
132	114	106
140	129	119

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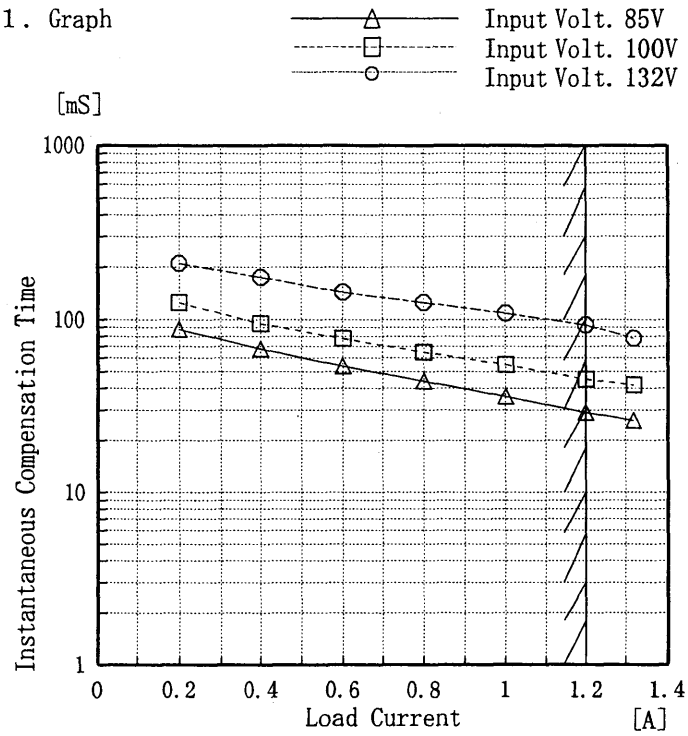
Model	MMC8A-1
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+5.0V1.20A

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

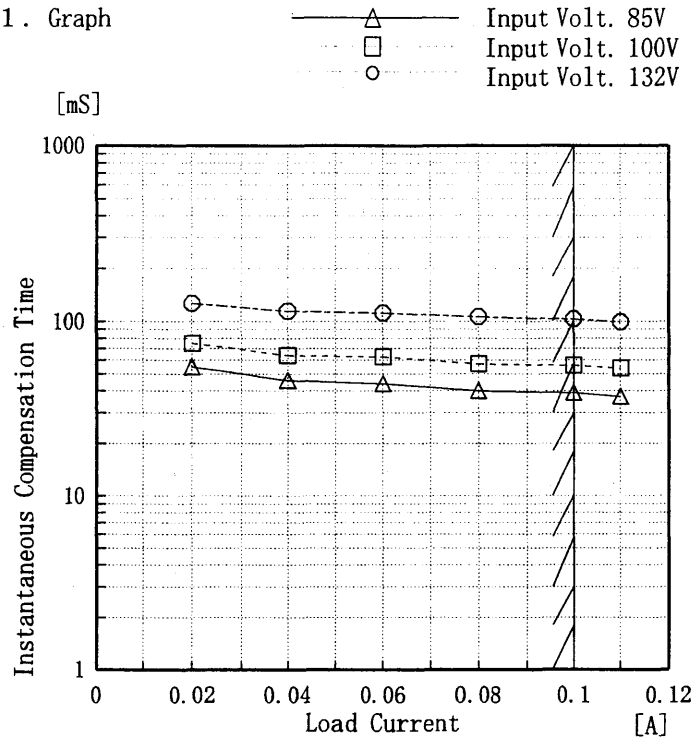
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.0	—	—	—
0.20	88	125	211
0.40	68	95	176
0.60	54	78	144
0.80	44	65	125
1.00	36	55	109
1.20	29	45	93
1.32	26	42	78
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	MMC8A-1
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+12.0V0.10A

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

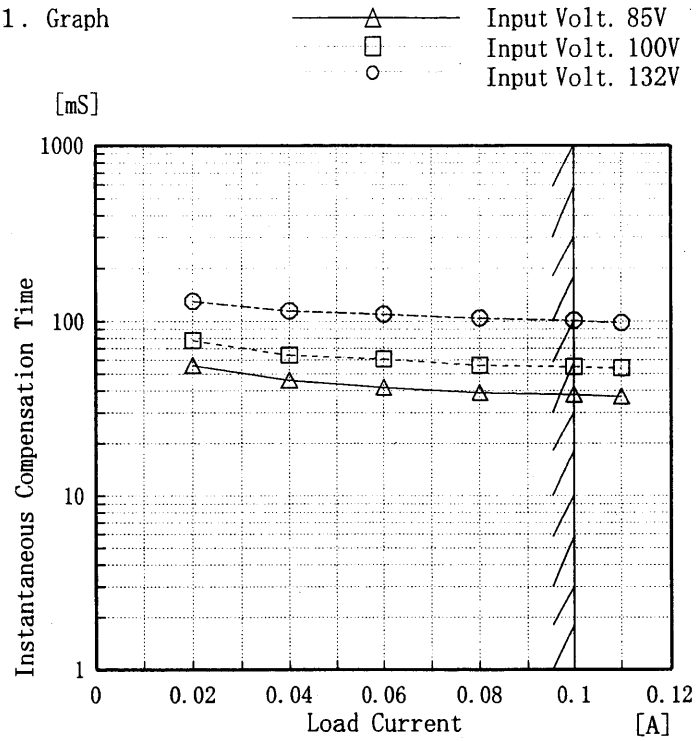
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.0	—	—	—
0.02	55	75	127
0.04	46	64	115
0.06	44	63	112
0.08	40	57	106
0.10	39	56	103
0.11	37	54	99
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	MMC8A-1
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	-12.0V0.10A

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]		
0.0	—	—	—
0.02	56	78	130
0.04	46	64	115
0.06	42	61	110
0.08	39	56	104
0.10	38	55	101
0.11	37	54	98
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

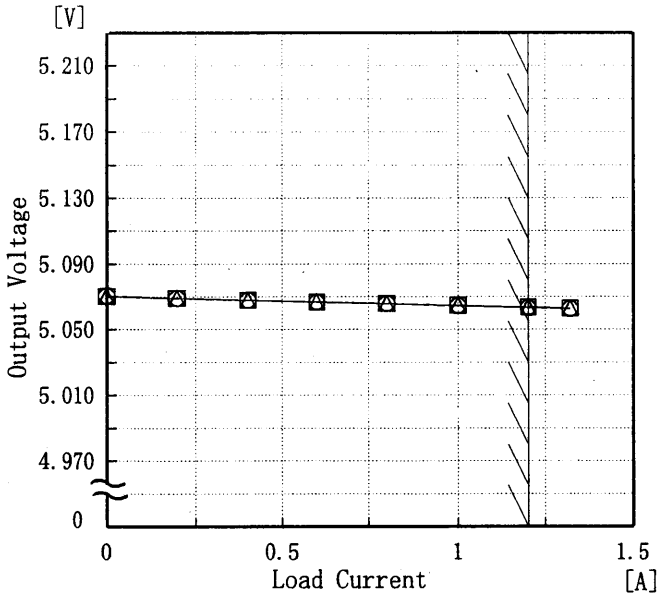
COSEL

Model	MMC8A-1
Item	Load Regulation 静的負荷変動

Temperature 25℃
Testing Circuitry Figure A

Object +5.0V1.2A

1. Graph

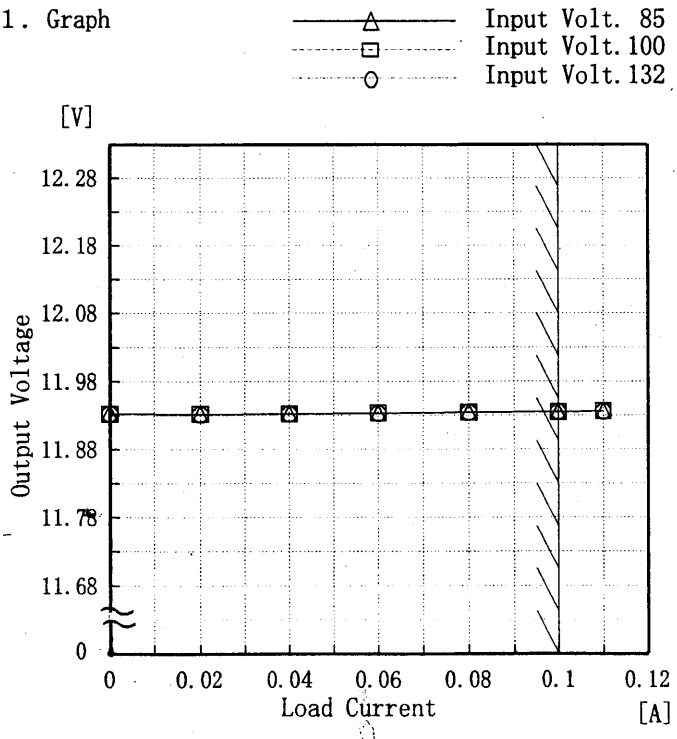


2. Values

Load Current [A]	Input Volt. 85[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]
0.00	5.070	5.070	5.071
0.20	5.069	5.069	5.069
0.40	5.068	5.068	5.068
0.60	5.067	5.067	5.067
0.80	5.066	5.066	5.066
1.00	5.065	5.065	5.065
1.20	5.064	5.064	5.063
1.20	5.064	5.064	5.063
1.32	5.063	5.063	5.063
—	—	—	—

Object +12V0.1A

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[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]
0.00	11.933	11.932	11.932
0.02	11.932	11.932	11.932
0.04	11.933	11.932	11.932
0.06	11.934	11.933	11.933
0.08	11.935	11.934	11.934
0.10	11.936	11.935	11.935
0.11	11.936	11.936	11.936
—	—	—	—
—	—	—	—
—	—	—	—

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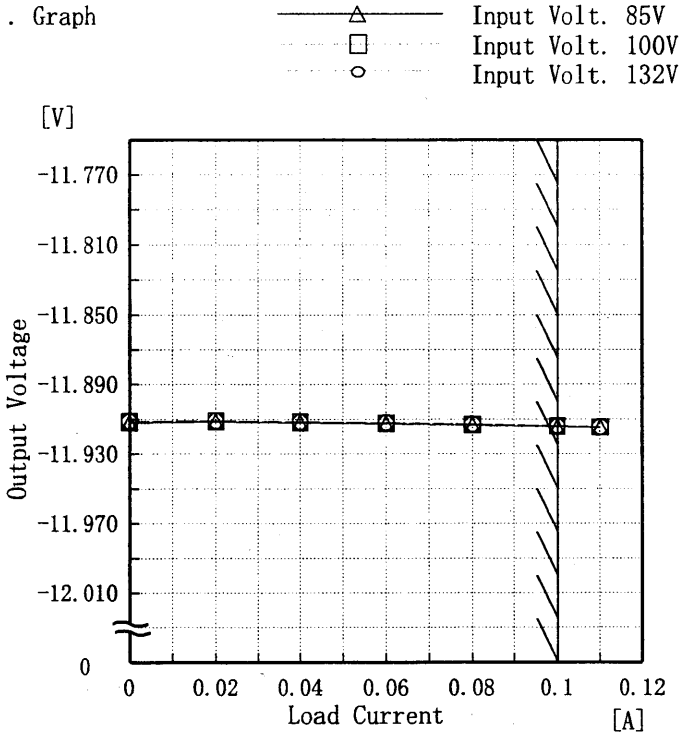
COSEL

Model	MMC8A-1
Item	Load Regulation 静的負荷変動
Object	-12.0V0.10A

Temperature 25℃
Testing Circuitry Figure A

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

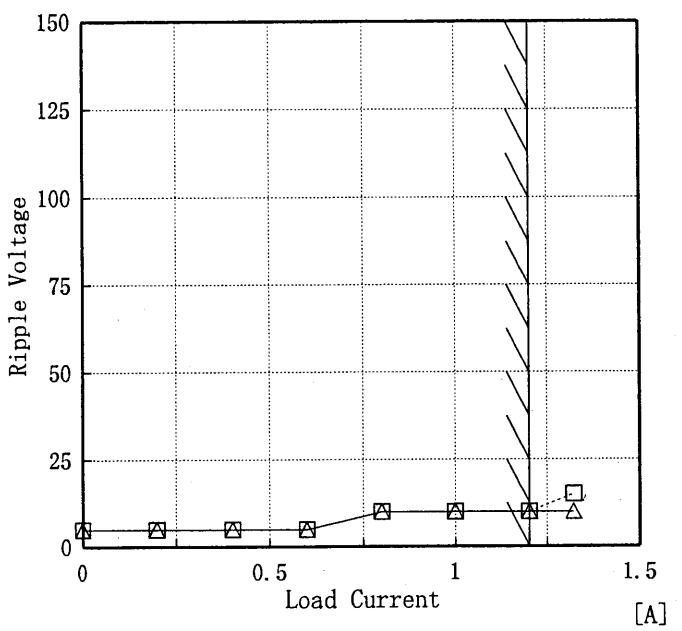
Load Current [A]	Input Volt. 85[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]
0.00	-11.912	-11.911	-11.911
0.02	-11.911	-11.911	-11.911
0.04	-11.912	-11.912	-11.911
0.06	-11.913	-11.912	-11.912
0.08	-11.913	-11.913	-11.913
0.10	-11.914	-11.914	-11.914
0.11	-11.915	-11.915	-11.915
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	MMC8A-1
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+5.0V1.20A

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

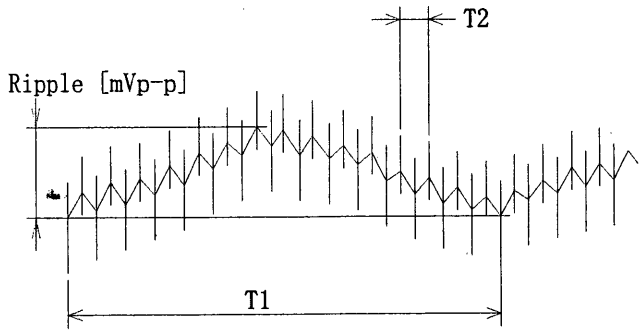


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

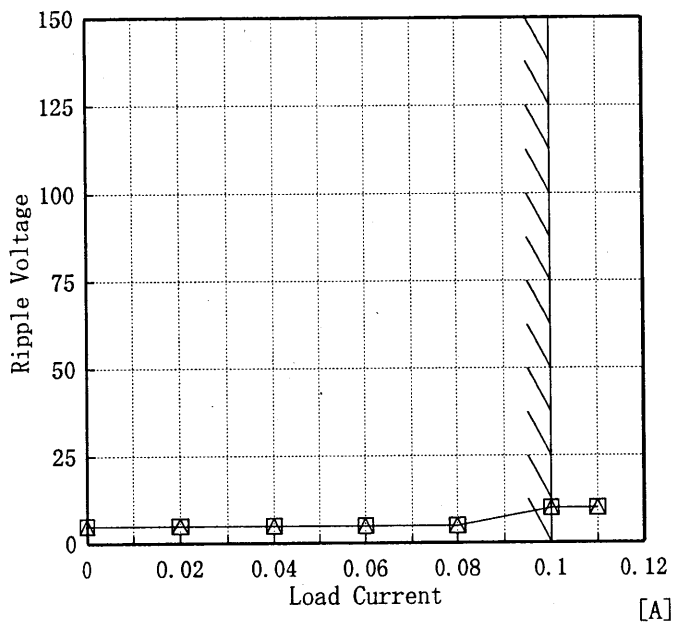
Load Current [A]	Input Volt. 85 [V] Ripple Output Volt. [mV]	Input Volt. 132 [V] Ripple Output Volt. [mV]
0.00	5	5
0.20	5	5
0.40	5	5
0.60	5	5
0.80	10	10
1.00	10	10
1.20	10	10
1.32	15	10
—	—	—
—	—	—
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+12.0V0.10A

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

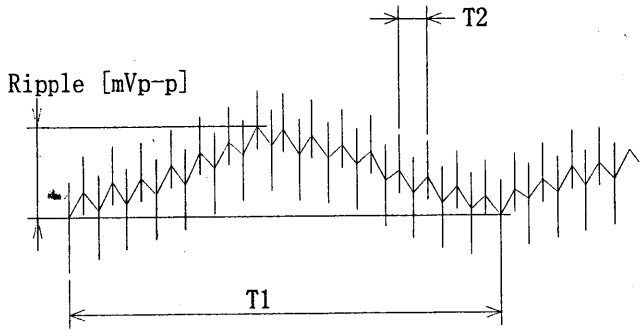


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

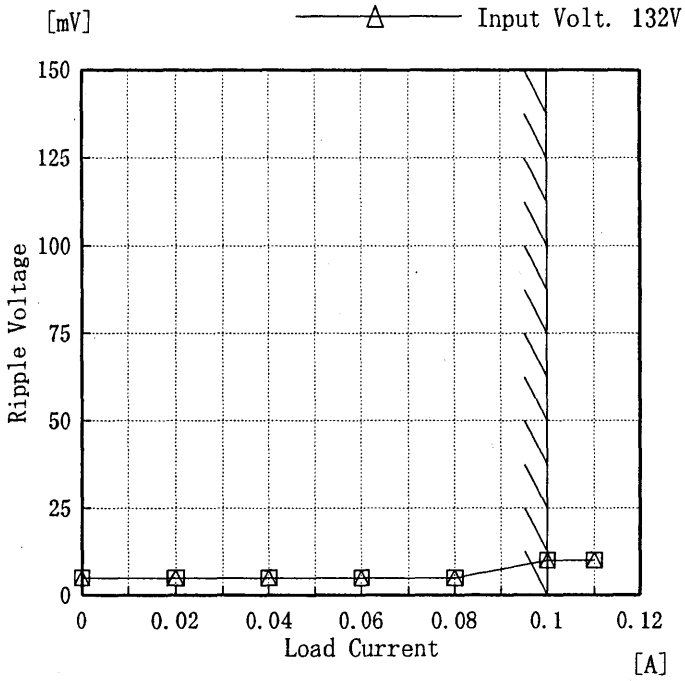
Load Current [A]	Input Volt. 85 [V] Ripple Output Volt. [mV]	Input Volt. 132 [V] Ripple Output Volt. [mV]
0.00	5	5
0.02	5	5
0.04	5	5
0.06	5	5
0.08	5	5
0.10	10	10
0.11	10	10
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	-12.0V0.10A

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

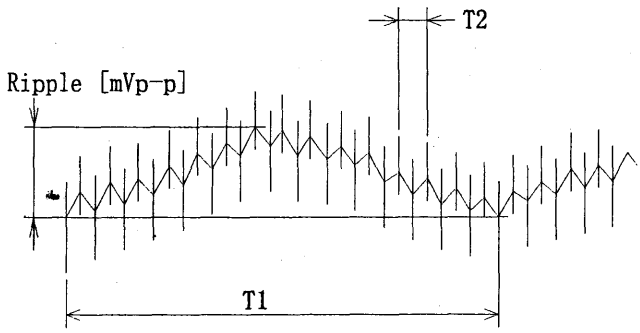


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

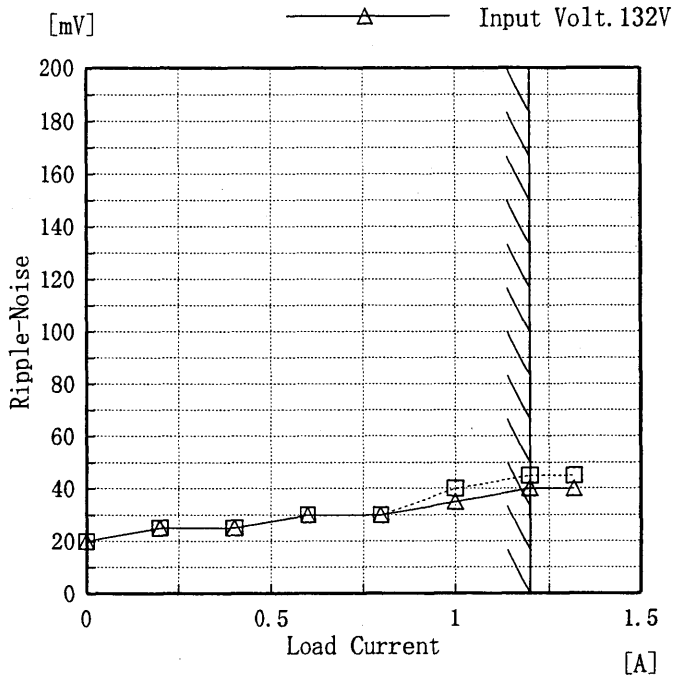
Load Current [A]	Input Volt. 85 [V] Ripple Output Volt. [mV]	Input Volt. 132 [V] Ripple Output Volt. [mV]
0.00	5	5
0.02	5	5
0.04	5	5
0.06	5	5
0.08	5	5
0.10	10	10
0.11	10	10
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple-Noise リップルノイズ
Object	+5.0V1.20A

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

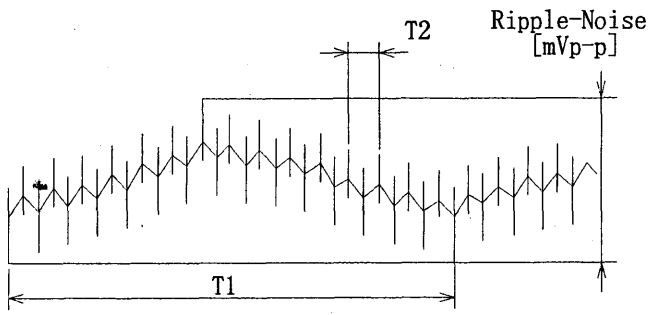


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

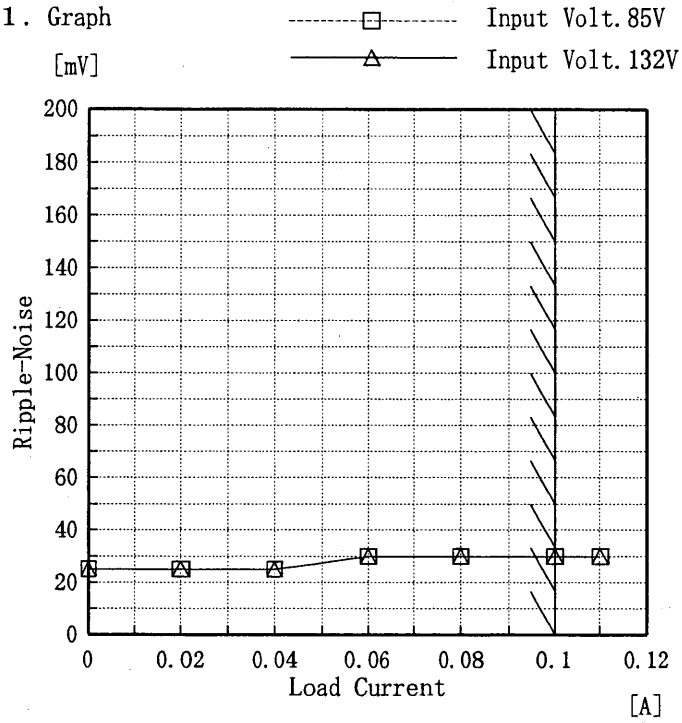
Load current [A]	Input Volt. 85 [V] Ripple-Noise [mV]	Input Volt. 132 [V] Ripple-Noise [mV]
0.00	20	20
0.20	25	25
0.40	25	25
0.60	30	30
0.80	30	30
1.00	40	35
1.20	45	40
1.32	45	40
—	—	—
—	—	—
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple-Noise リップルノイズ
Object	+12.0V0.10A

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

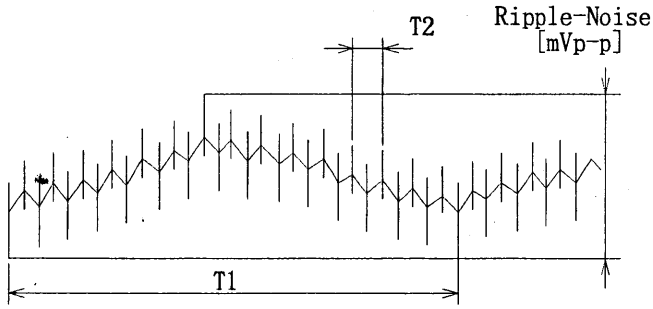


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

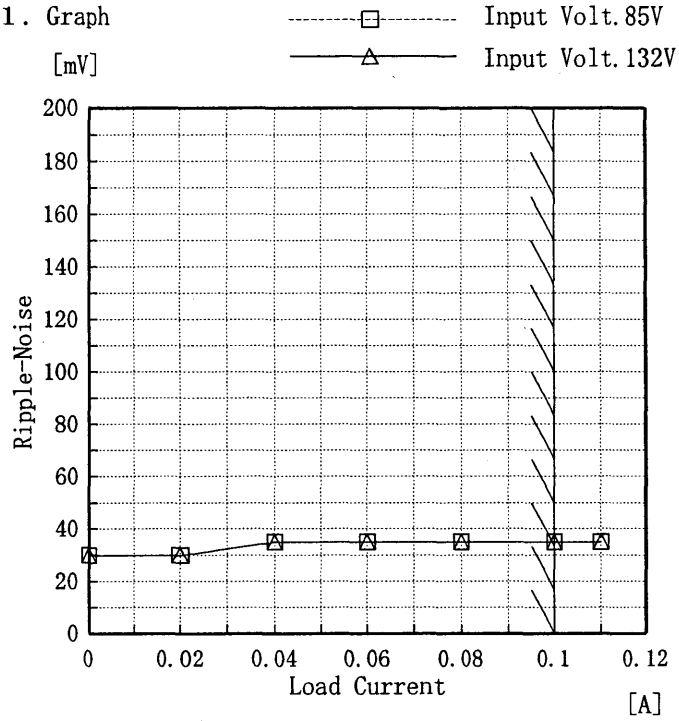
Load current [A]	Input Volt. 85 [V] Ripple-Noise [mV]	Input Volt. 132 [V] Ripple-Noise [mV]
0.00	25	25
0.02	25	25
0.04	25	25
0.06	30	30
0.08	30	30
0.10	30	30
0.11	30	30
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple-Noise リップルノイズ
Object	-12.0V0.10A

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

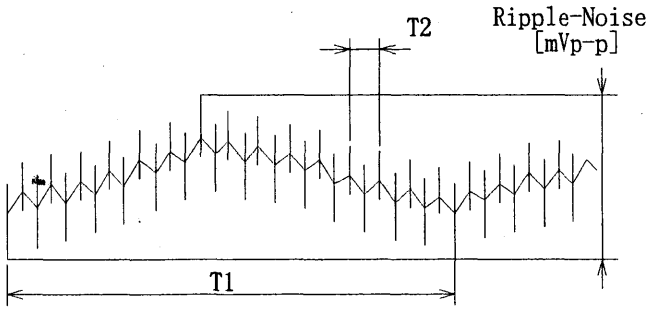


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

Load current [A]	Input Volt. 85 [V] Ripple-Noise [mV]	Input Volt. 132 [V] Ripple-Noise [mV]
0.00	30	30
0.02	30	30
0.04	35	35
0.06	35	35
0.08	35	35
0.10	35	35
0.11	35	35
—	—	—
—	—	—
—	—	—
—	—	—

BC－3219

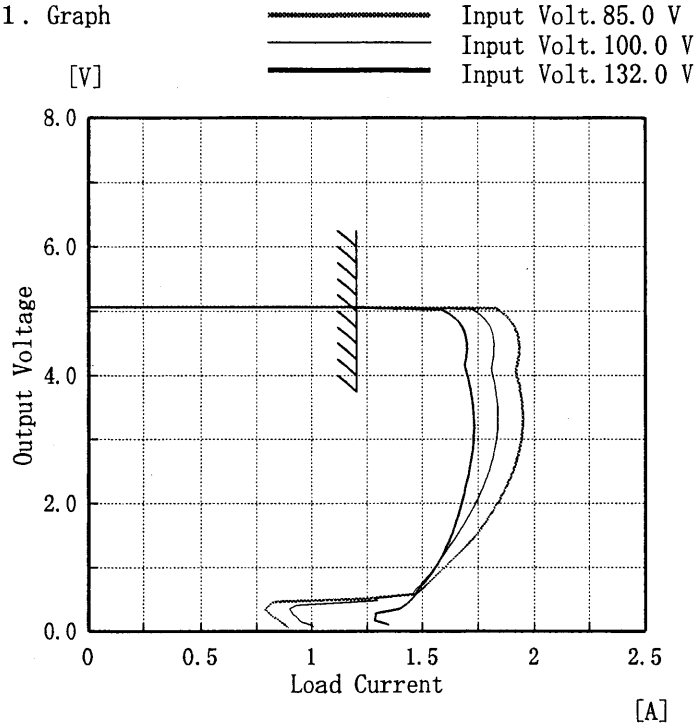
COSEL

Model	MMC8A-1
Item	Overcurrent Protection 過電流保護

Temperature 25℃
Testing Circuitry Figure A

Object +5.0V1.20A

1. Graph

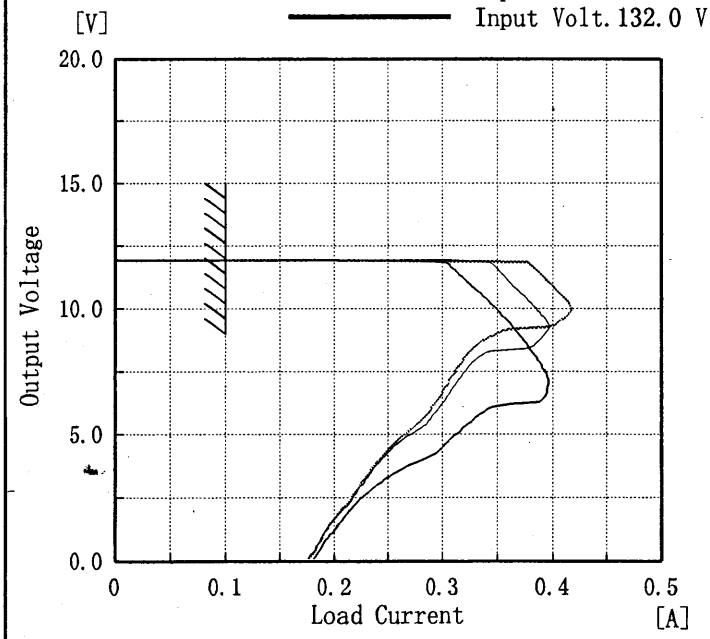


2. Values

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]
5.00	-	-	-
4.75	1.917	1.807	1.683
4.50	1.934	1.822	1.699
4.00	1.926	1.819	1.704
3.50	1.949	1.838	1.726
3.00	1.943	1.831	1.727
2.50	1.901	1.792	1.705
2.00	1.837	1.734	1.674
1.50	1.725	1.645	1.625
1.00	1.600	1.553	1.556
0.50	0.829	1.299	1.446
0.00	0.892	1.011	1.346

Object +12V0.10A

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	0.389	0.354	0.315
10.80	0.402	0.367	0.329
9.60	0.409	0.394	0.358
8.40	0.325	0.344	0.380
7.20	0.306	0.315	0.396
6.00	0.288	0.294	0.338
4.80	0.258	0.262	0.306
3.60	0.233	0.234	0.257
2.40	0.214	0.215	0.221
1.20	0.191	0.191	0.199
0.00	0.175	0.175	0.179

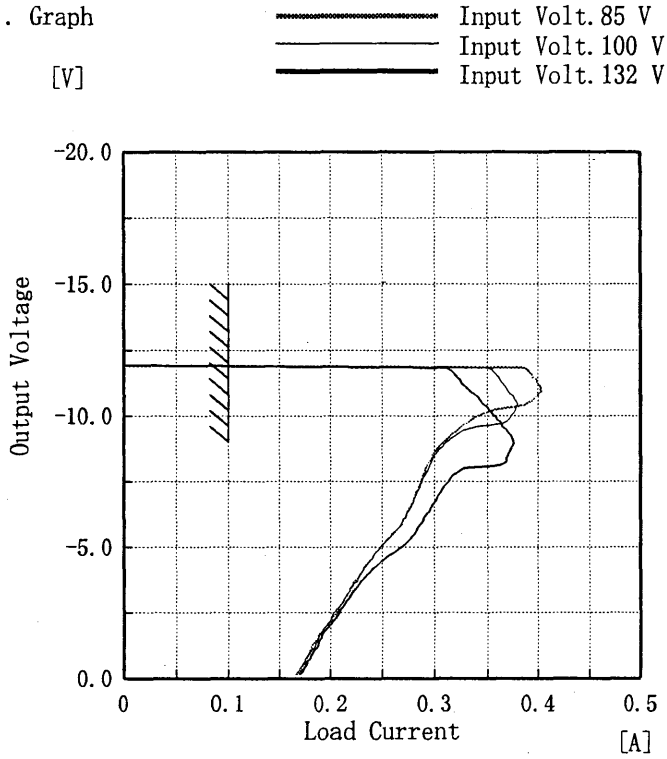
BC−3219

COSEL

Model	MMC8A-1
Item	Overcurrent Protection 過電流保護
Object	-12.0V0.10A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

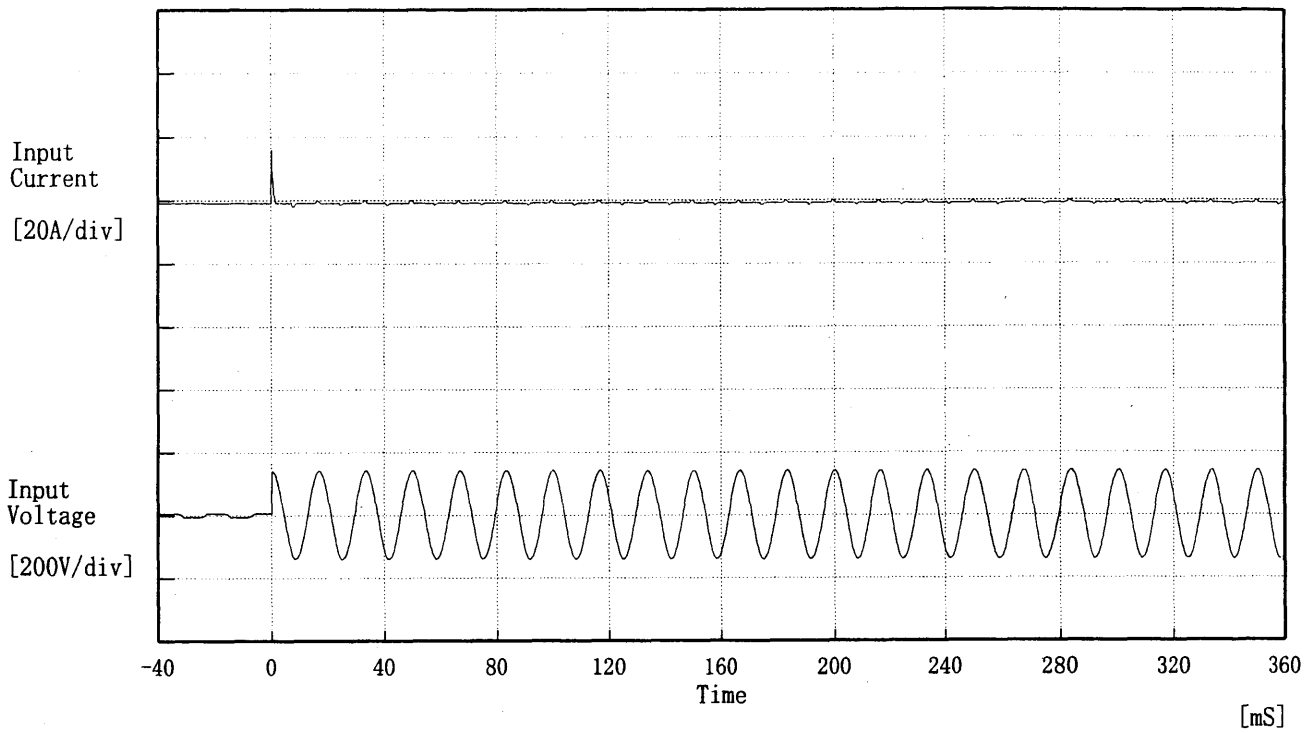
(注)斜線は定格負荷電流範囲を示す。

2. Values

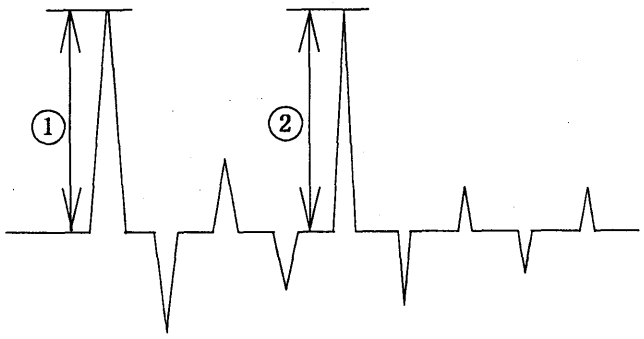
Output Voltage [V]	Input Volt. 85[V] Load Current [A]	Input Volt. 100[V] Load Current [A]	Input Volt. 132[V] Load Current [A]
-12.00	-	-	-
-11.40	0.40	0.36	0.32
-10.80	0.40	0.38	0.34
-9.60	0.32	0.33	0.37
-8.40	0.30	0.30	0.37
-7.20	0.29	0.29	0.31
-6.00	0.27	0.27	0.29
-4.80	0.24	0.24	0.26
-3.60	0.22	0.22	0.23
-2.40	0.20	0.20	0.21
-1.20	0.18	0.18	0.19
0.00	0.17	0.17	0.17

COSEL

Model	MMC8A-1	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 15.92 [A]
② 1.66 [A]



BC－3219

COSEL

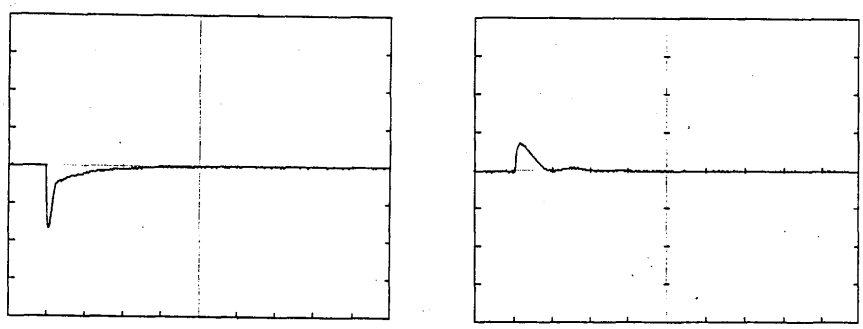
Model	MMC8A-1		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5.0V1.20A		

Input Volt. 100 V

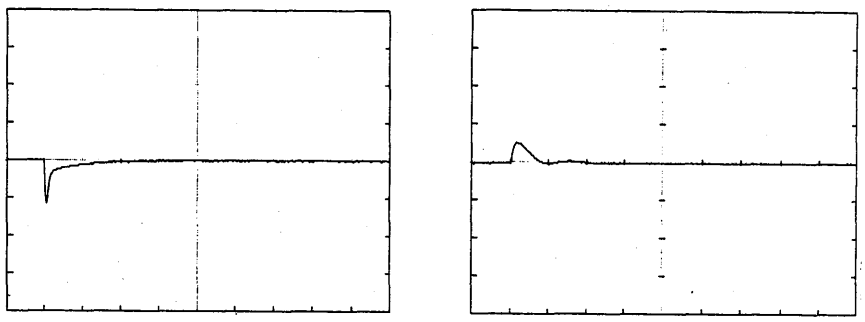
Cycle 200 mS

Load Current

Load 0% ⟷
Load 100 %



Load 0% ⟷
Load 50 %



200 mV/div

10 mS/div

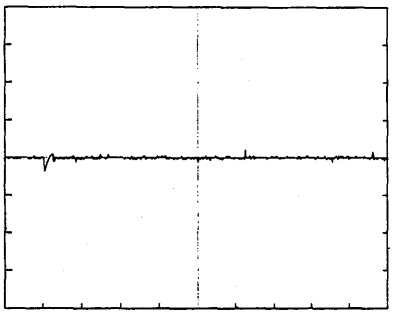
COSEL

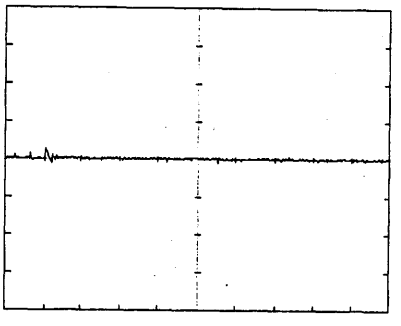
Model	MMC8A-1		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+12.0V0.10A		

Input Volt. 100 V
Cycle 200 mS

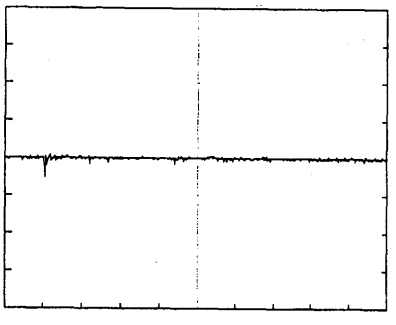
Load Current

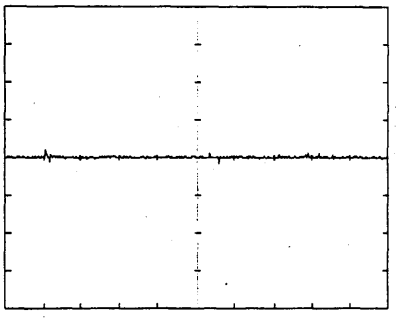
Load 0% ⟷
Load 100 %





Load 0% ⟷
Load 50 %





100 mV/div

10 mS/div

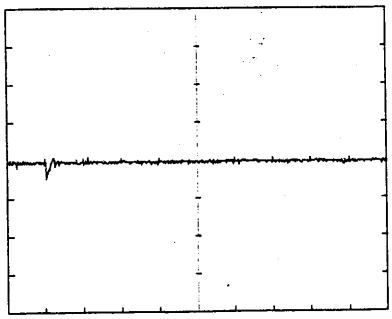
COSEL

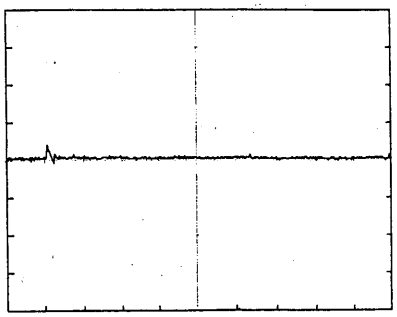
Model	MMC8A-1		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	-12.0V0.10A		

Input Volt. 100 V
Cycle 200 mS

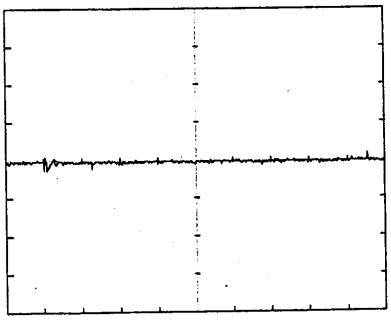
Load Current

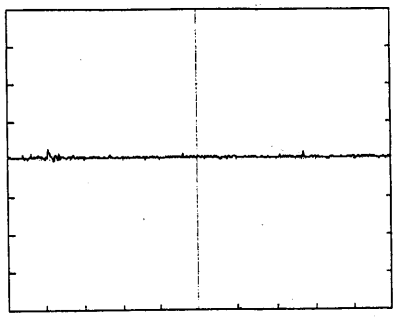
Load 0% ←→
Load 100 %





Load 0% ←→
Load 50 %





100 mV/div

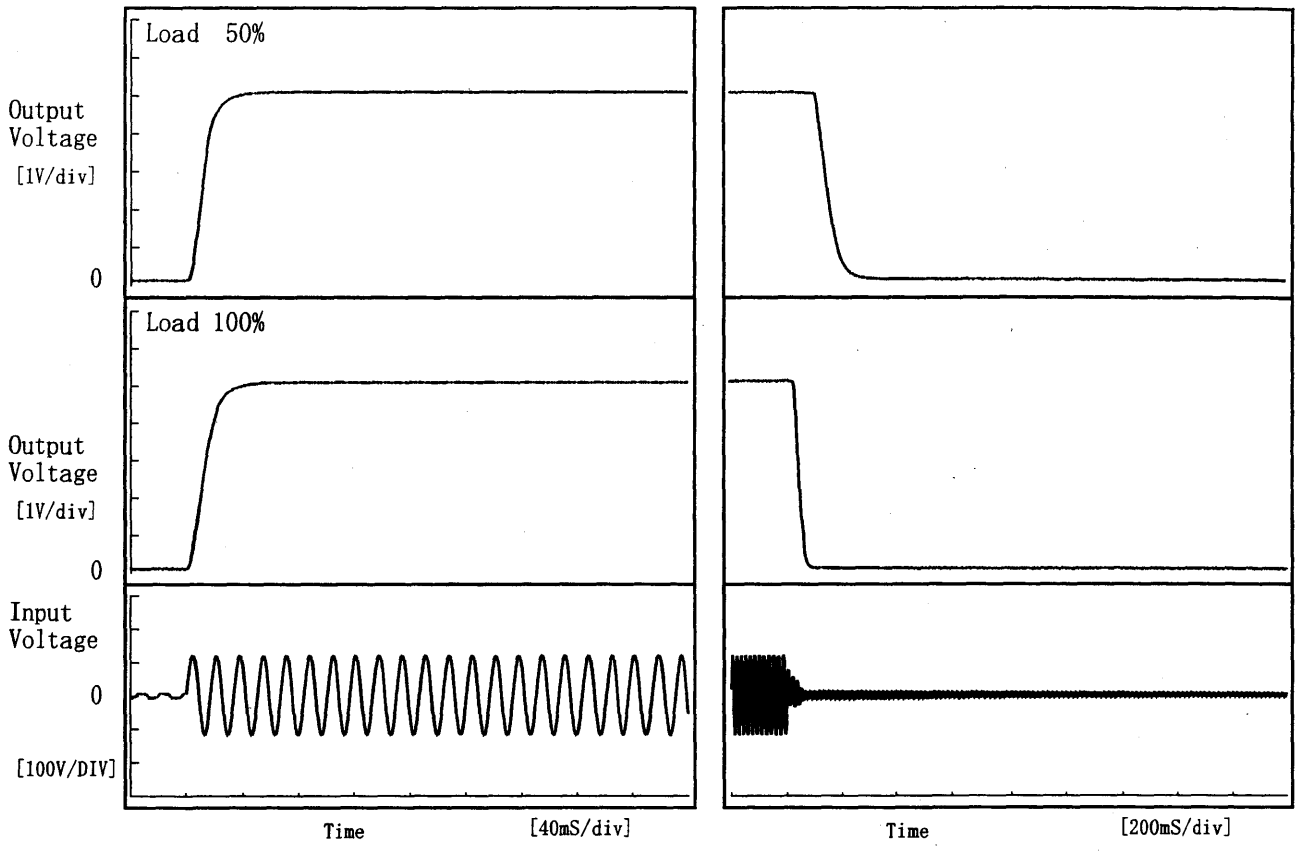
10 mS/div

COSEL

Model	MMC8A-1		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+5.0V1.20A		

1. Graph

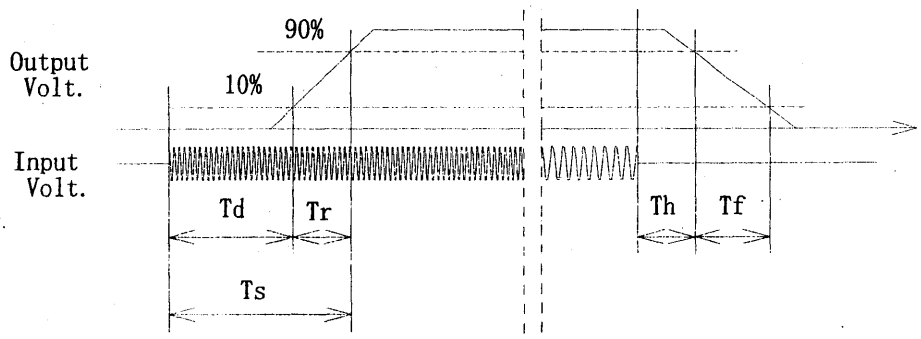
Input Volt. 85 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	3.8	17.2	21.0	59.0	46.5
100 %	3.8	19.6	23.4	35.0	37.0

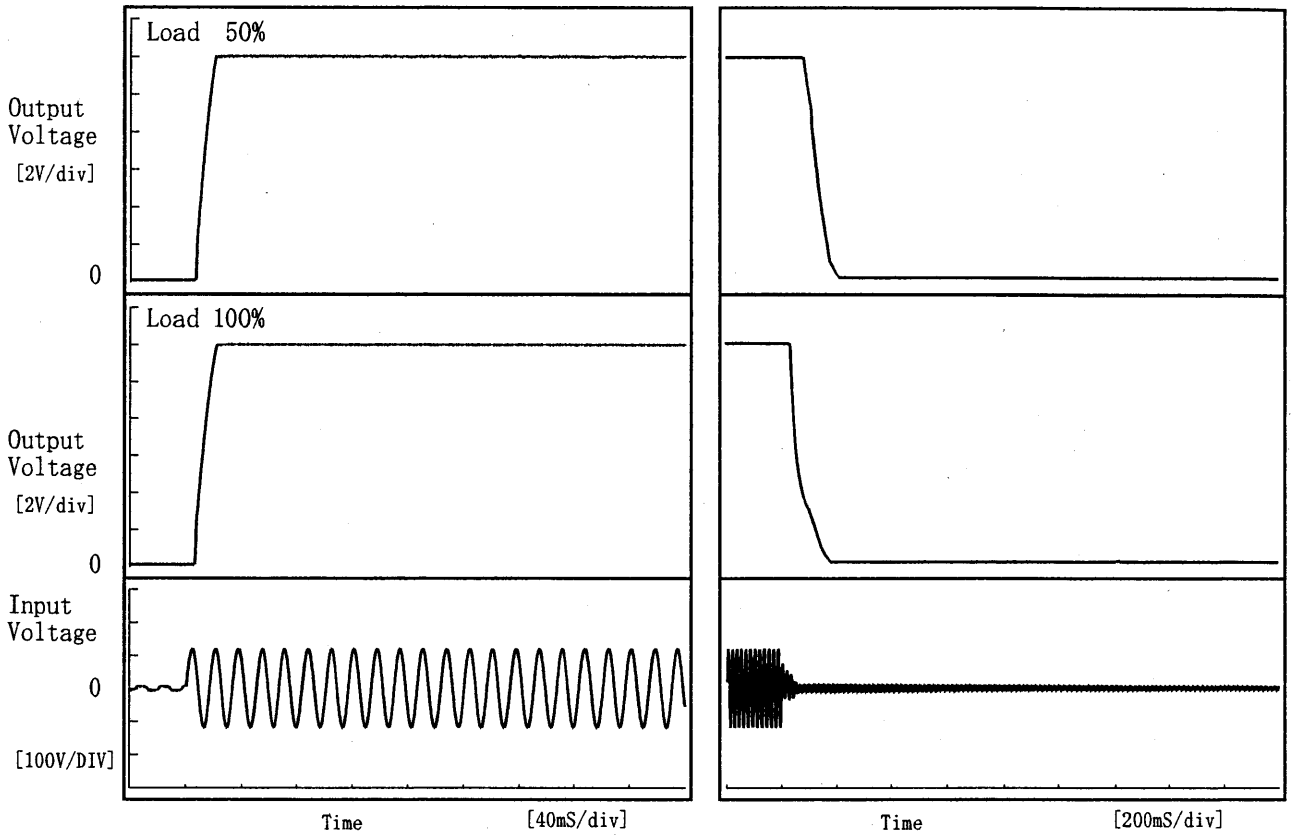


COSEL

Model	MMC8A-1	Temperature	25℃
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12.0V0.10A		

1. Graph

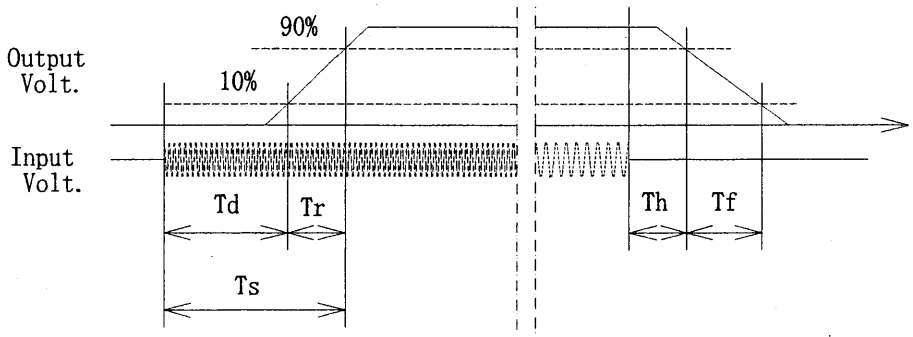
Input Volt. 85 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.2	12.0	18.2	47.5	85.2
100 %	6.0	13.0	19.0	41.0	55.1

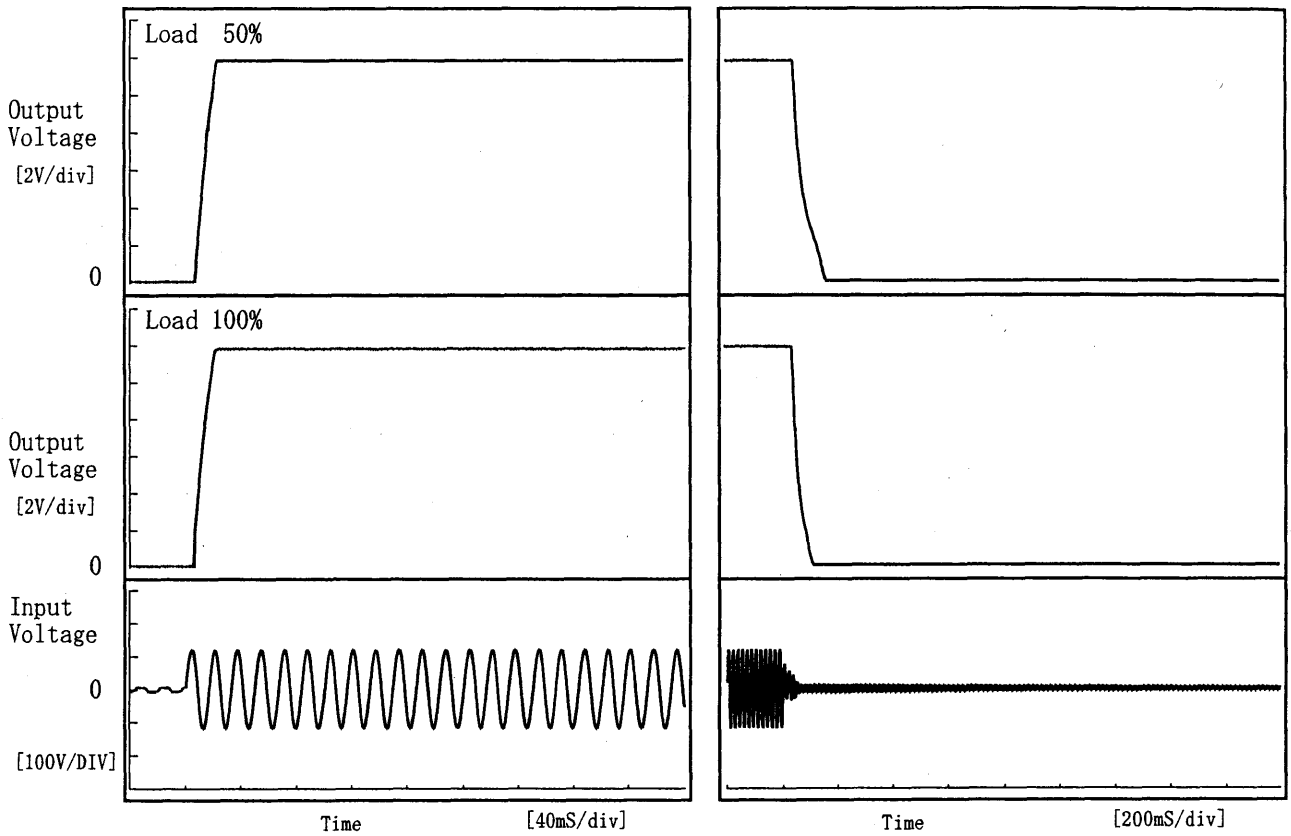


COSEL

Model	MMC8A-1		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	-12.0V0.10A		

1. Graph

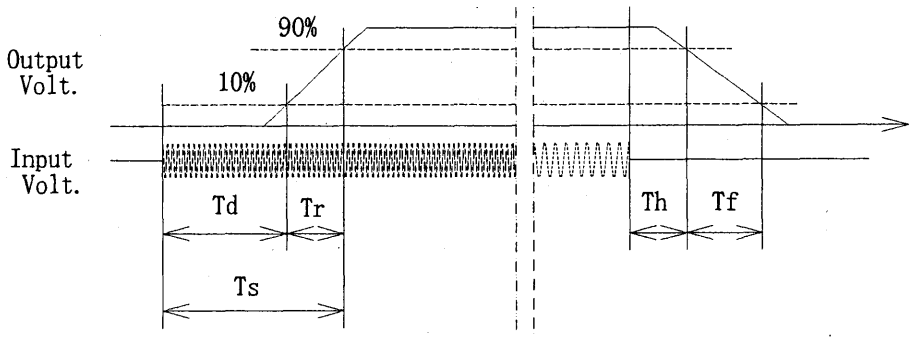
Input Volt. 85 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	6.4	13.4	19.8	45.0	83.0
100 %	6.0	13.0	19.0	41.0	56.0



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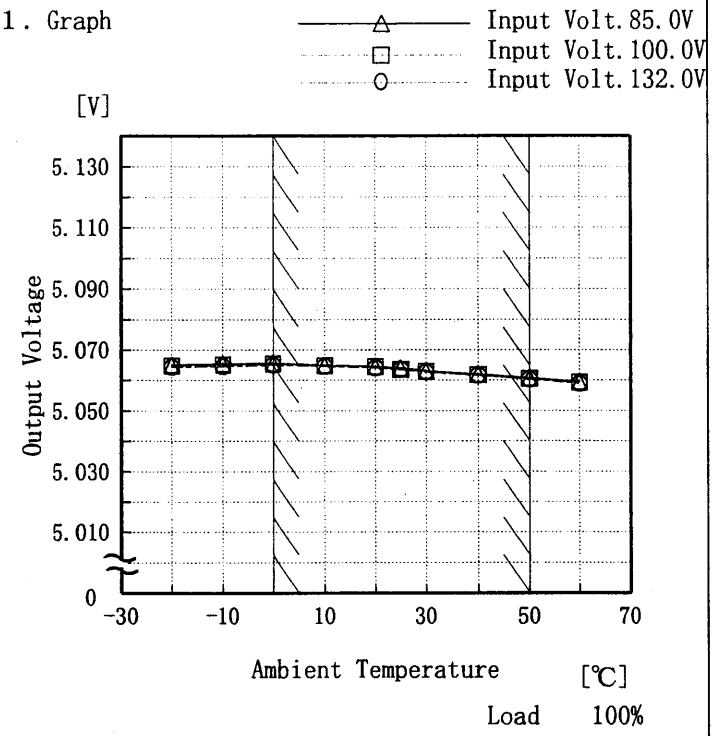
COSEL

Model	MMC8A-1
Item	Ambient Temperature Drift 周囲温度変動

Testing Circuitry Figure A

Object ＋5.0V1.20A

1. Graph

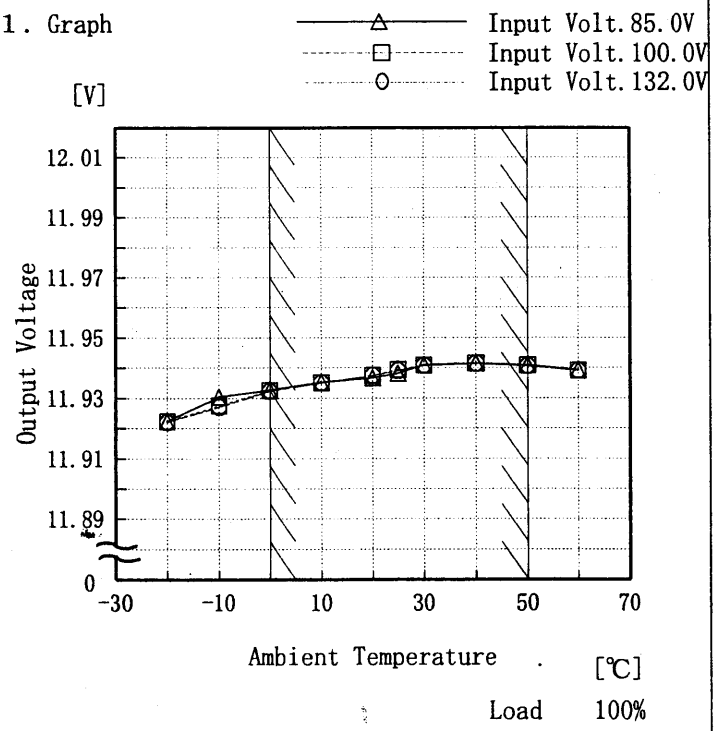


2. Values

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	5.065	5.065	5.065
-10	5.065	5.065	5.065
0	5.066	5.065	5.065
10	5.065	5.065	5.065
20	5.064	5.064	5.064
25	5.064	5.064	5.064
30	5.063	5.063	5.063
40	5.062	5.062	5.062
50	5.061	5.061	5.060
60	5.059	5.059	5.059
—	—	—	—

Object ＋12V0.10A

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

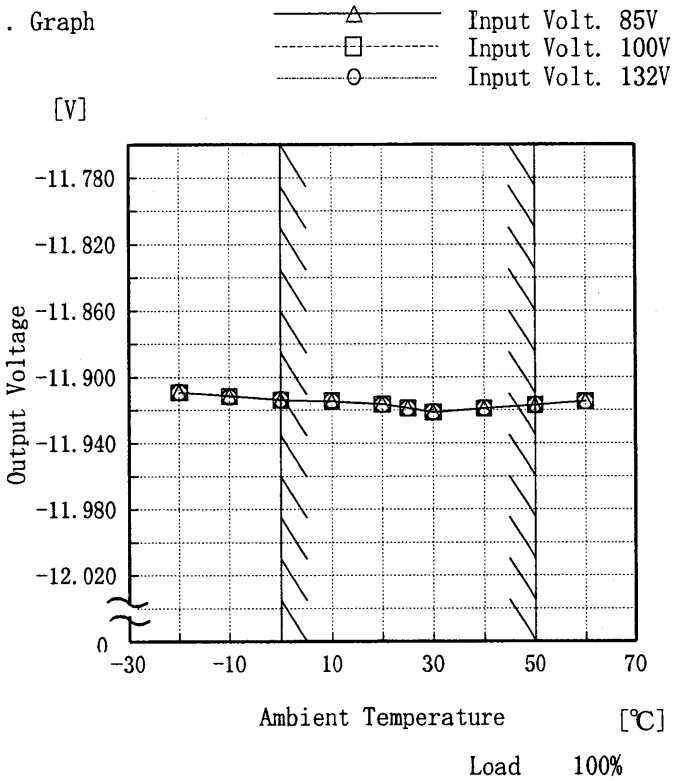
Temperature [℃]	Input Volt. 85.0[V] Output Volt. [V]	Input Volt. 100.0[V] Output Volt. [V]	Input Volt. 132.0[V] Output Volt. [V]
-20	11.922	11.922	11.922
-10	11.931	11.928	11.927
0	11.933	11.933	11.932
10	11.935	11.935	11.935
20	11.937	11.937	11.938
25	11.938	11.939	11.939
30	11.941	11.941	11.941
40	11.942	11.942	11.941
50	11.941	11.941	11.941
60	11.939	11.939	11.939
—	—	—	—

COSEL

Model	MMC8A-1
Item	Ambient Temperature Drift 周囲温度変動
Object	-12.0V0.10A

Testing Circuitry Figure A

1. Graph



Load 100%

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

Temperature [℃]	Input Volt. 85[V] Output Volt. [V]	Input Volt. 100[V] Output Volt. [V]	Input Volt. 132[V] Output Volt. [V]
-20	-11.909	-11.909	-11.909
-10	-11.911	-11.912	-11.912
0	-11.914	-11.914	-11.914
10	-11.915	-11.914	-11.914
20	-11.917	-11.916	-11.917
25	-11.919	-11.919	-11.919
30	-11.921	-11.921	-11.921
40	-11.919	-11.919	-11.919
50	-11.917	-11.917	-11.917
60	-11.915	-11.915	-11.915
—	—	—	—

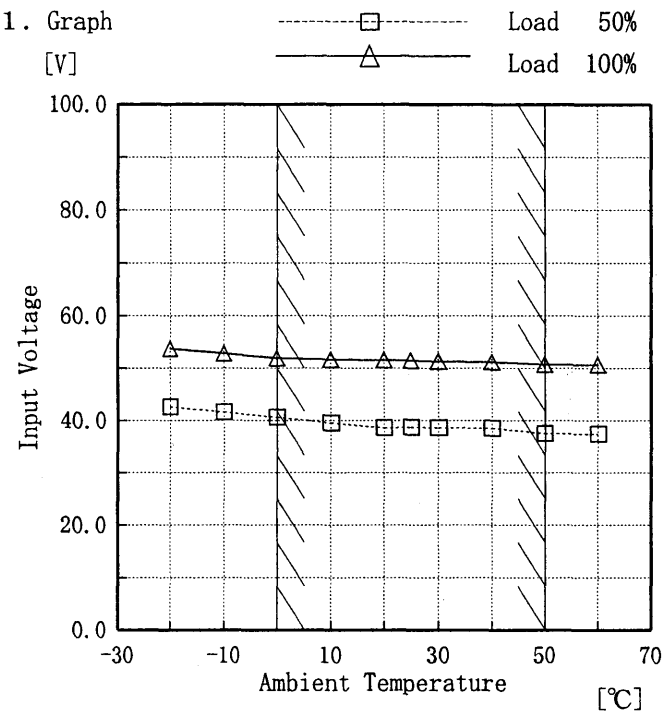
COSEL

Model	MMC8A-1
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 +5.0V1.20A

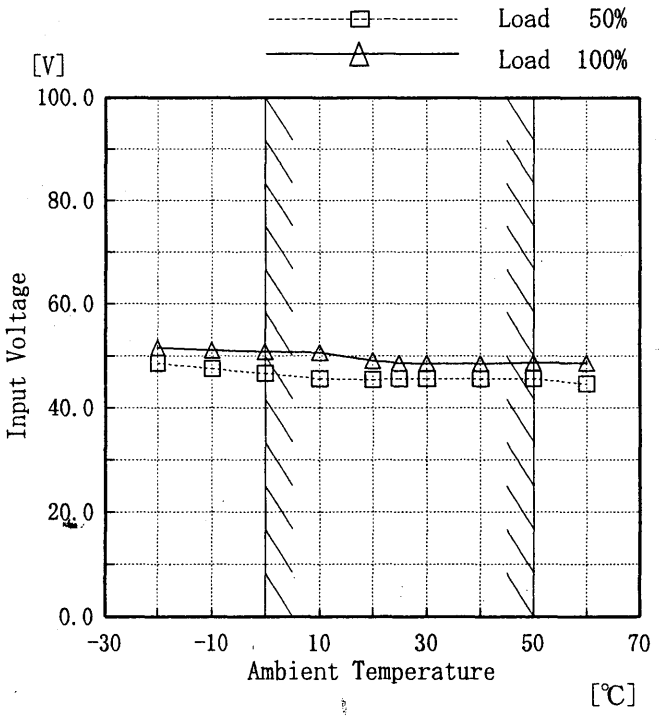
1. Graph



2. Values

Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-20	42.6	53.7
-10	41.6	52.8
0	40.6	51.9
10	39.6	51.6
20	38.6	51.5
25	38.7	51.4
30	38.6	51.3
40	38.5	51.2
50	37.6	50.7
60	37.5	50.6
—	—	—

Object +12V0.10A



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

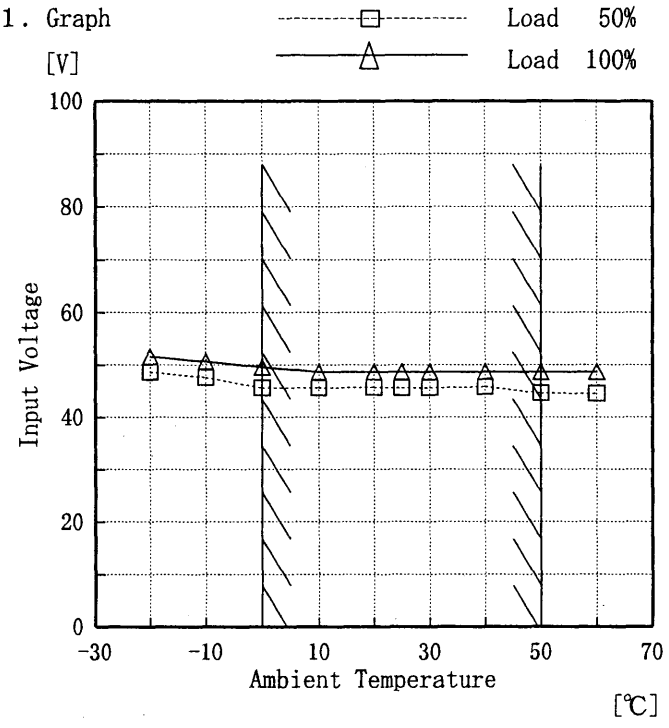
Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-20	48.6	51.5
-10	47.6	51.1
0	46.6	50.8
10	45.6	50.6
20	45.4	49.0
25	45.6	48.6
30	45.6	48.5
40	45.6	48.5
50	45.6	48.7
60	44.6	48.6
—	—	—

COSEL

Model	MMC8A-1
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	−12.0V0.10A

Testing Circuitry Figure A

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. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-20	48.6	51.5
-10	47.6	50.6
0	45.6	49.5
10	45.6	48.6
20	45.7	48.6
25	45.6	48.6
30	45.6	48.6
40	45.8	48.6
50	44.6	48.6
60	44.5	48.6
—	—	—

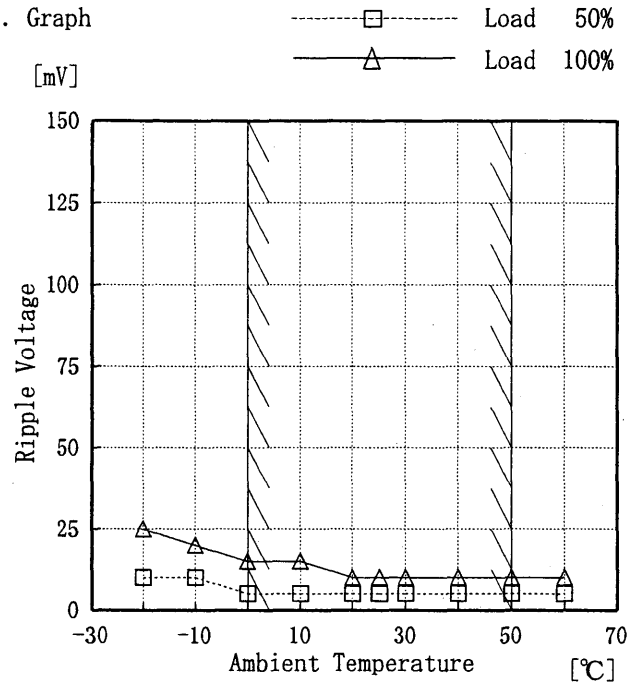
COSEL

Model	MMC8A-1
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）

Testing Circuitry Figure A

Object +5.0V1.20A

1. Graph



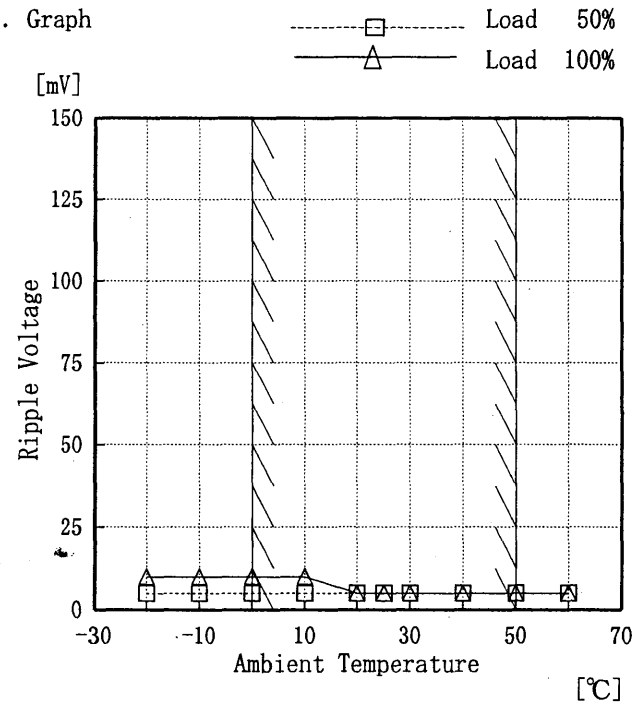
Input Volt. 85 V

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 +12.0V0.10A

1. Graph



Input Volt. 85 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

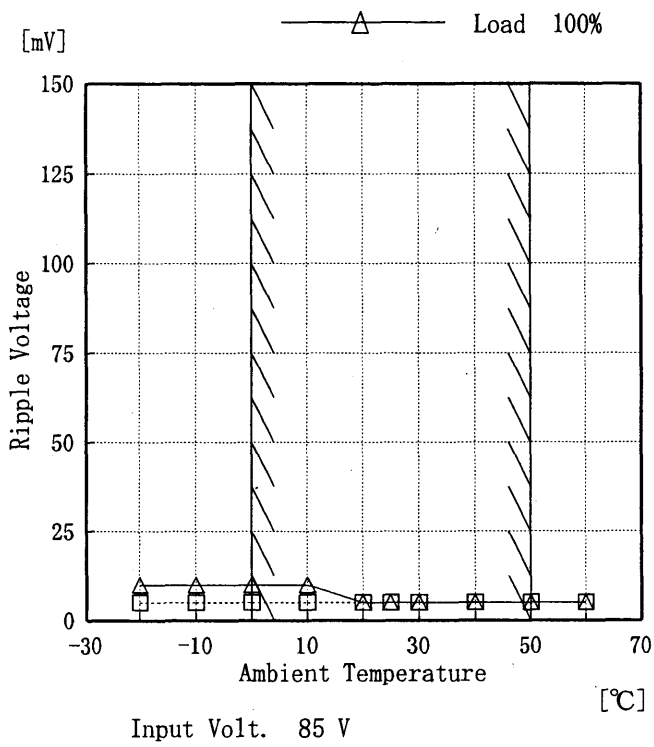
Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-20	5	10
-10	5	10
0	5	10
10	5	10
20	5	5
25	5	5
30	5	5
40	5	5
50	5	5
60	5	5
—	—	—

COSEL

Model	MMC8A-1
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	-12.0V0.10A

Testing Circuitry　Figure A

1. Graph



Input Volt.　85 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	5	10
-10	5	10
0	5	10
10	5	10
20	5	5
25	5	5
30	5	5
40	5	5
50	5	5
60	5	5
—	—	—

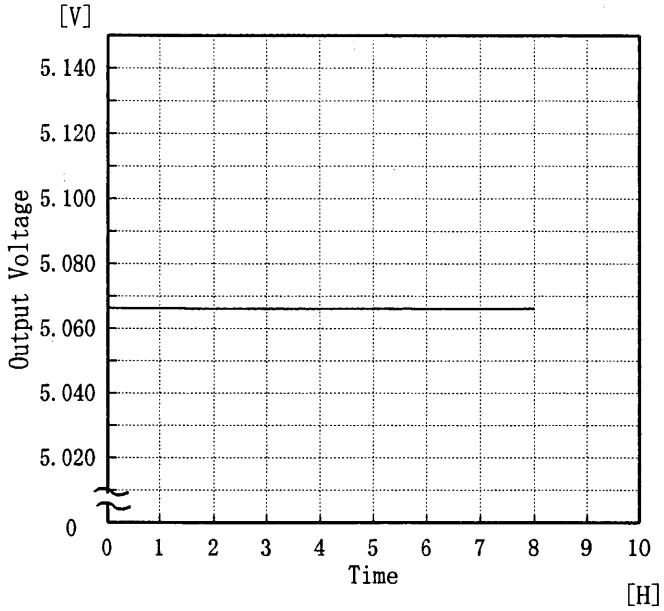
COSEL

Model	MMC8A-1
Item	Time Lapse Drift 経時ドリフト

Temperature 25 ℃
Testing Circuitry Figure A

Object +5.0V1.20A

1. Graph



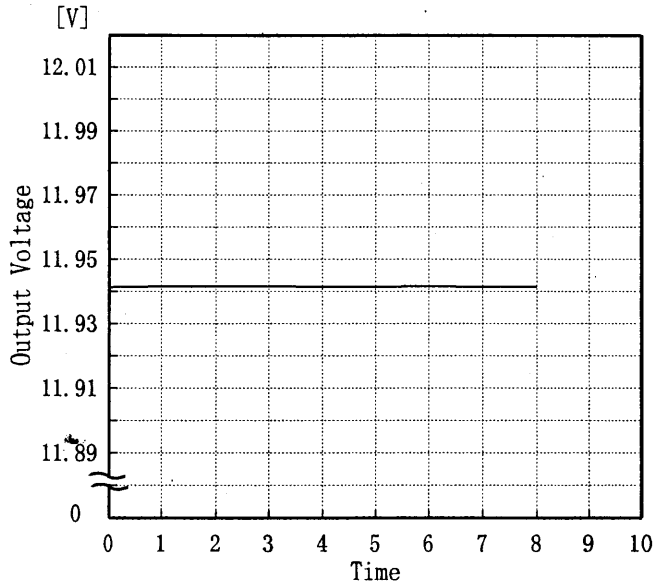
Input Volt. 100.0V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	5.067
0.5	5.066
1.0	5.066
2.0	5.066
3.0	5.066
4.0	5.066
5.0	5.066
6.0	5.066
7.0	5.066
8.0	5.066

Object +12V0.10A

1. Graph



Input Volt. 100.0V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	11.937
0.5	11.942
1.0	11.942
2.0	11.942
3.0	11.942
4.0	11.942
5.0	11.942
6.0	11.942
7.0	11.942
8.0	11.942

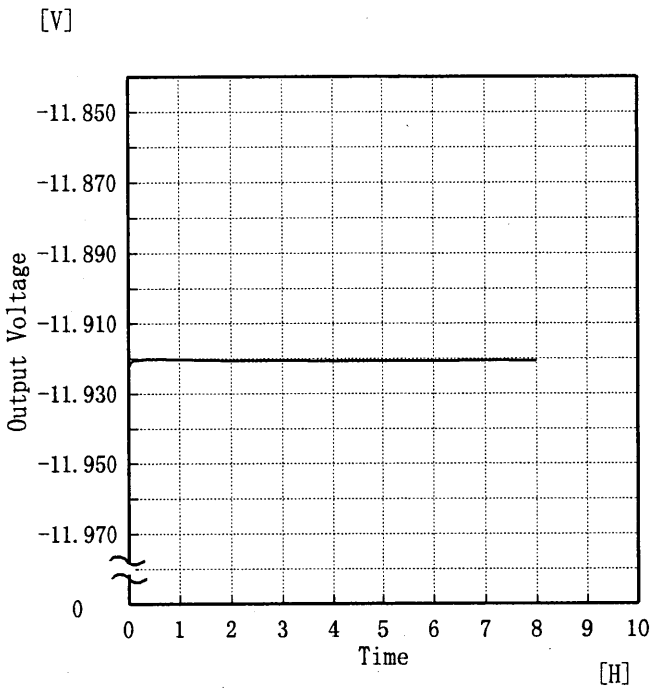
BC−3219

COSEL

Model	MMC8A-1
Item	Time Lapse Drift 経時ドリフト
Object	-12.0V0.10A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 100V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	-11.921
0.5	-11.920
1.0	-11.920
2.0	-11.921
3.0	-11.921
4.0	-11.921
5.0	-11.921
6.0	-11.921
7.0	-11.921
8.0	-11.921

BC—3219

COSEL

Model	MMC8A-1	
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 : 0～50 ℃

Input Voltage : 85.0～132.0 V

Load Current (AVR 1) : 0.00～1.20 A (AVR 2) : 0.00～0.10 A (AVR 3) : 0.00～0.10 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 0～50 ℃

入力電圧 85.0～132.0 V

負荷電流 (AVR 1) 0.00～1.20 A (AVR 2) : 0.00～0.10 A (AVR 3) : 0.00～0.10 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	+5.0V1.20A					
Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	0	132.0	0.000	5.072	±6	±0.2
Minimum Voltage	50	132.0	1.200	5.061		

Object	+12V0.10A					
Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	50	85.0	0.10	11.941	±11	±0.1
Minimum Voltage	0	85.0	0.00	11.920		

Object	−12V0.10A					
Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	50	85.0	0.10	-11.919	±10	±0.1
Minimum Voltage	0	132.0	0.00	-11.900		

COSEL

Model	MMC8A-1
Item	Condensation 結露特性
Object	+5.0V1.2A

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]	5.063	Input Volt.: 100V, Load Current:1.2A
Line Regulation [mV]	1	Input Volt.: 85～132V, Load Current:1.2A
Load Regulation [mV]	6	Input Volt.: 100V, Load Current:0.0～1.2A

COSEL

Model	MMC8A-1
Item	Condensation 結露特性
Object	+12.0V0.1A

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]	11.936	Input Volt.: 100V, Load Current:0.1A
Line Regulation [mV]	1	Input Volt.: 85～132V, Load Current:0.1A
Load Regulation [mV]	4	Input Volt.: 100V, Load Current:0.0～0.1A

COSEL

Model	MMC8A-1	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	-12.0V0.1A	

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]	-11.915	Input Volt.: 100V, Load Current:0.1A
Line Regulation [mV]	1	Input Volt.: 85～132V, Load Current:0.1A
Load Regulation [mV]	3	Input Volt.: 100V, Load Current:0.0～0.1A

COSEL

Model	MMC8A-1
Item	Leakage Current 漏洩電流
Object	――――――

Testing Circuitry Figure A

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.11	0.12	0.14
(B) UL	0.12	0.12	0.15
(C) CSA	0.11	0.13	0.15

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 220 [V]	Input Volt. 264 [V]
(D) VDE	—	—	—

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	MMC8A-1
Item	Conducted Emission 雑音端子電圧
Object	――――――――

Testing Circuitry　Figure D

1. Graph

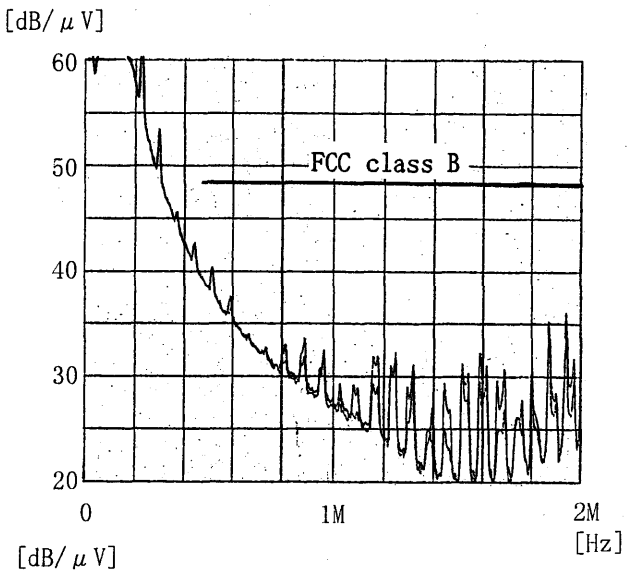
Remarks

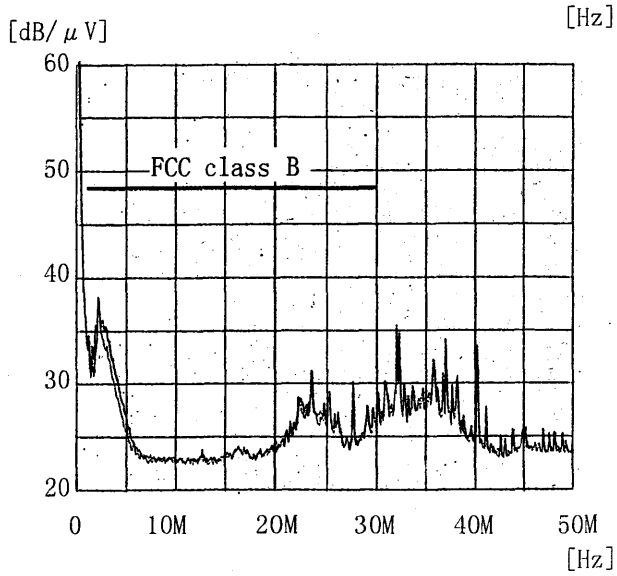
Input Volt.　120 V

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





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COSEL

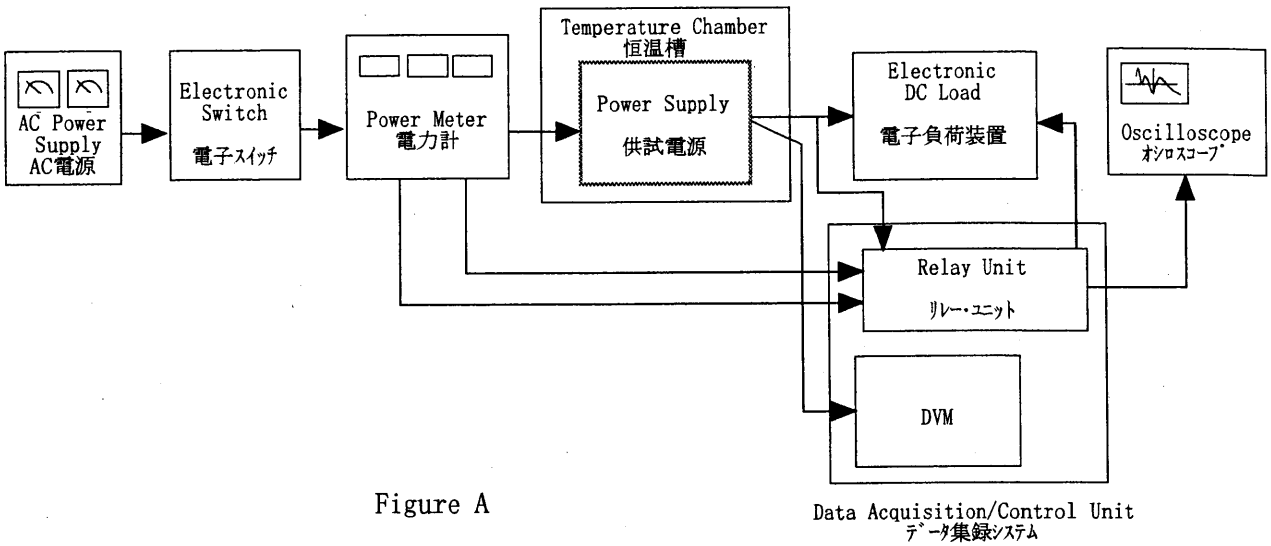

Figure A

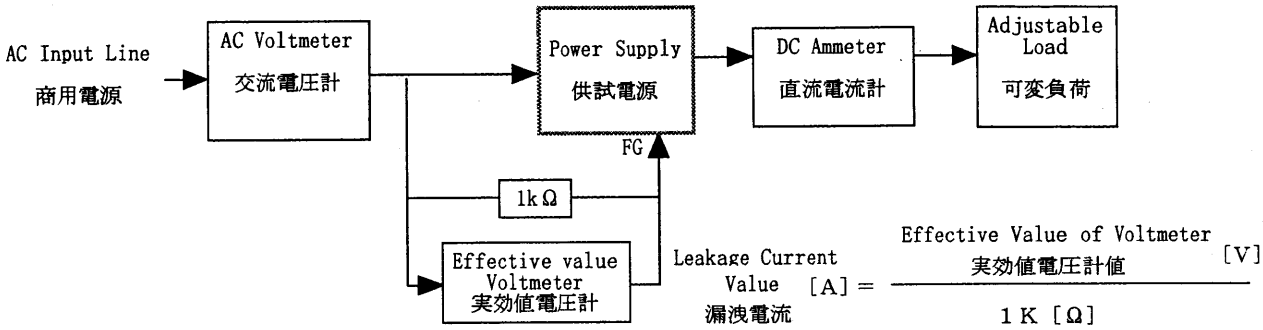

Figure B(DENTORI)

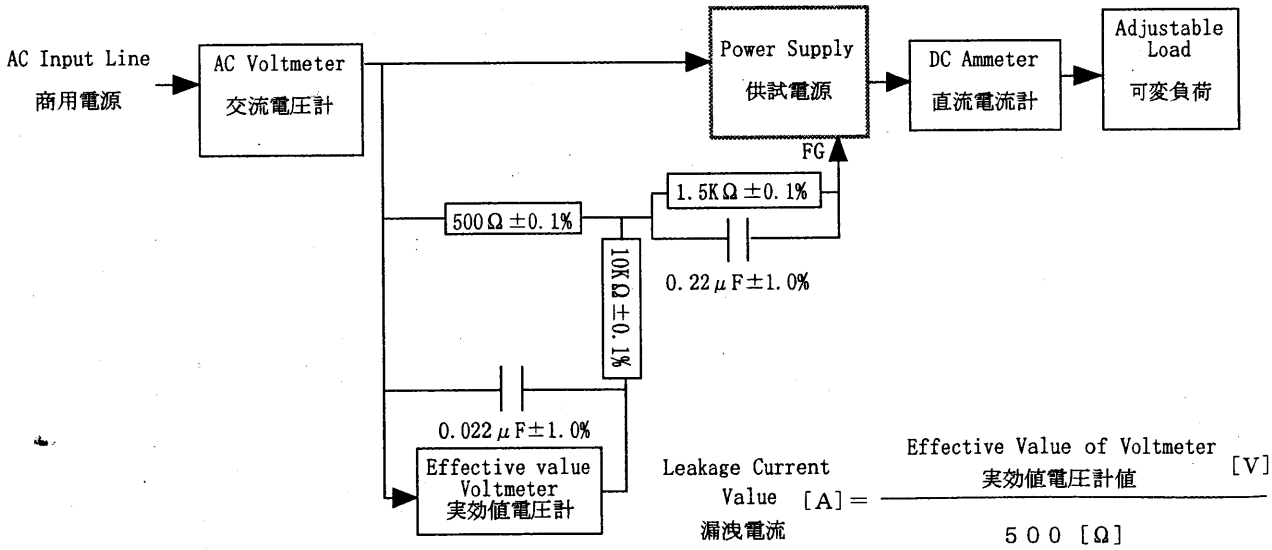

Figure B (UL, CSA, VDE)

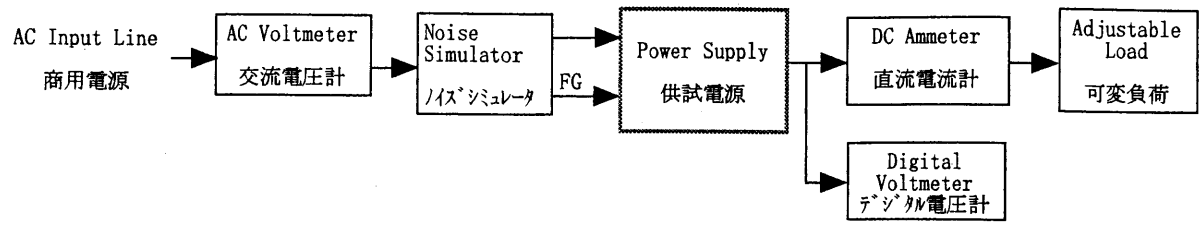

Figure C

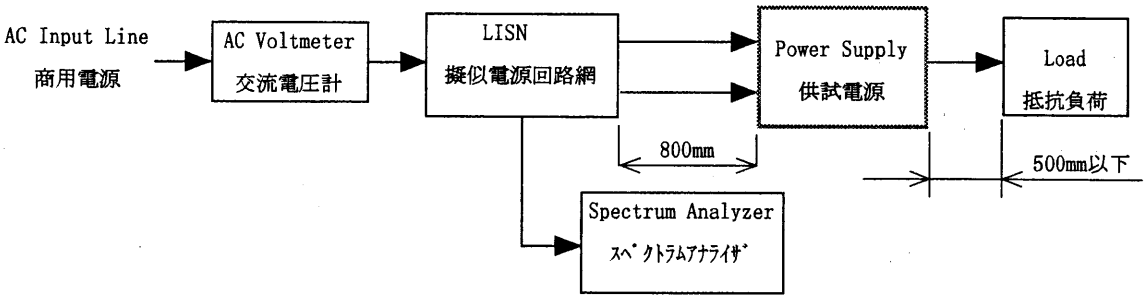

Figure D

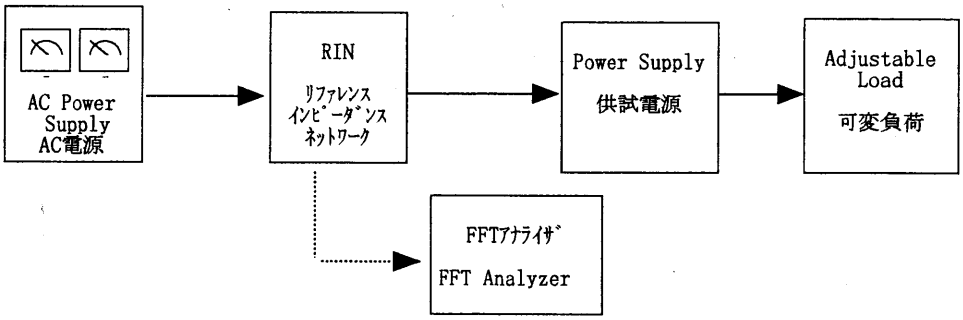

Figure E