参考資料

COSEL

TEST DATA OF LCC30A-3
(100V INPUT)

Regulated DC Power Supply
Apr.30, 2002

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COSEL CO.,LTD.

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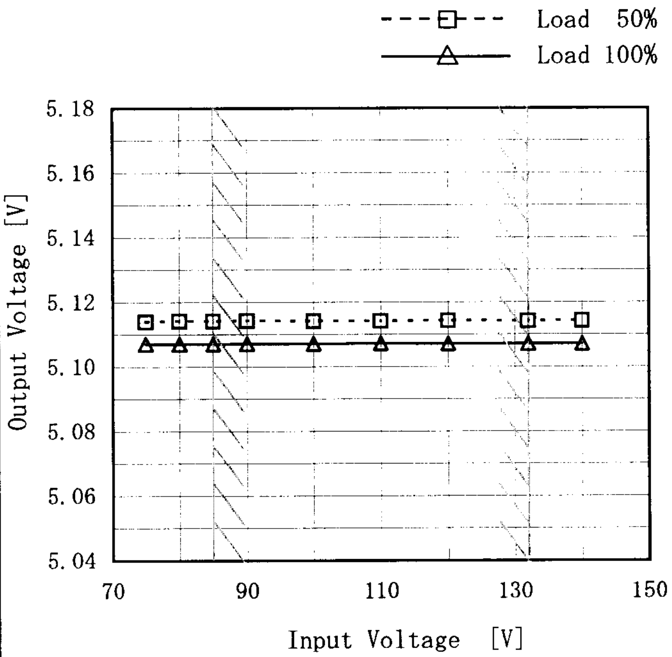
1．Graph

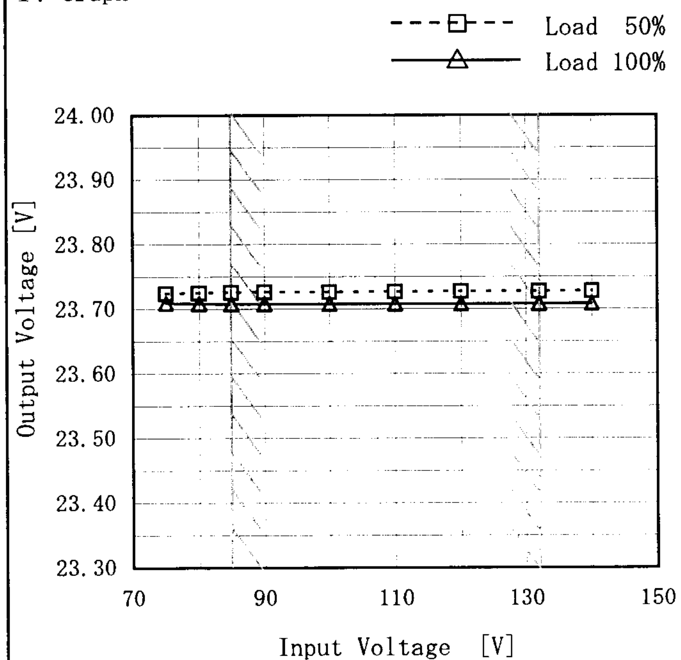


2．Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	5.114	5.107
80	5.114	5.107
85	5.114	5.107
90	5.114	5.107
100	5.114	5.107
110	5.114	5.107
120	5.114	5.107
132	5.114	5.107
140	5.114	5.107

Object	+24V0.5A

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]	Output Voltage [V]	
	Load 50%	Load 100%
75	23.724	23.709
80	23.725	23.708
85	23.725	23.708
90	23.726	23.708
100	23.726	23.708
110	23.727	23.708
120	23.727	23.708
132	23.727	23.708
140	23.728	23.708

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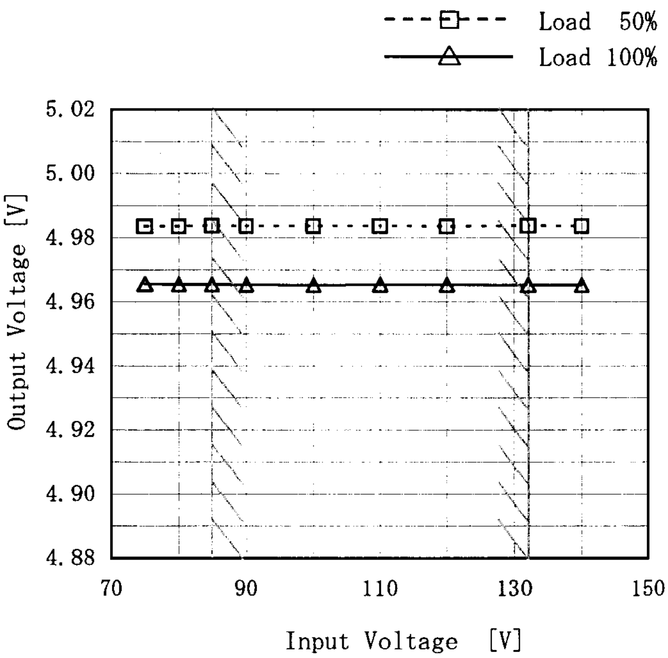
Model	LCC30A-3
Item	Line Regulation 静的入力変動
Object	+5V0.5A

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

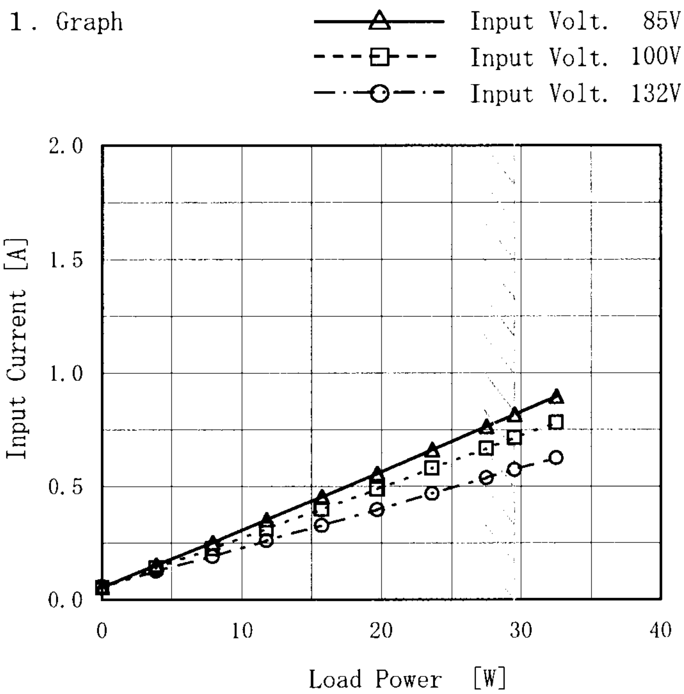
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	4.984	4.966
80	4.984	4.966
85	4.984	4.966
90	4.984	4.965
100	4.984	4.965
110	4.984	4.965
120	4.984	4.965
132	4.984	4.965
140	4.984	4.965

COSEL

Model	LCC30A-3
Item	Input Current (by Load Power) 入力電流 (負荷特性)
Object	————————

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注) 斜線は定格負荷電力範囲を示す。

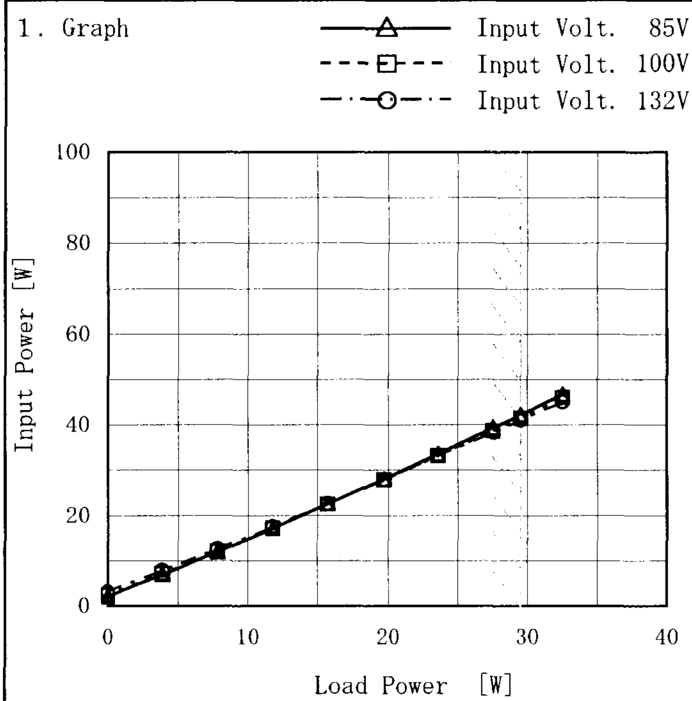
2. Values

Load Power [W]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	0.056	0.055	0.058
3.9	0.154	0.141	0.125
7.9	0.251	0.225	0.191
11.8	0.352	0.312	0.260
15.7	0.453	0.399	0.328
19.7	0.556	0.488	0.397
23.6	0.661	0.579	0.468
27.5	0.765	0.668	0.538
29.5	0.818	0.714	0.574
32.5	0.898	0.782	0.627
—	—	—	—

COSEL

Model	LCC30A-3		
Item	Input Power (by Load Power) 入力電力（負荷特性）	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		

1．Graph



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

（注）斜線は定格負荷電力範囲を示す。

2．Values

Load Power [W]	Input Power [W]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	2.10	2.39	3.16
3.9	6.90	7.13	7.83
7.9	11.94	12.06	12.60
11.8	17.16	17.22	17.58
15.7	22.60	22.50	22.61
19.7	28.00	27.80	27.80
23.6	33.60	33.20	33.10
27.5	39.40	38.70	38.30
29.5	42.20	41.50	41.10
32.5	46.70	46.00	45.10
—	—	—	—

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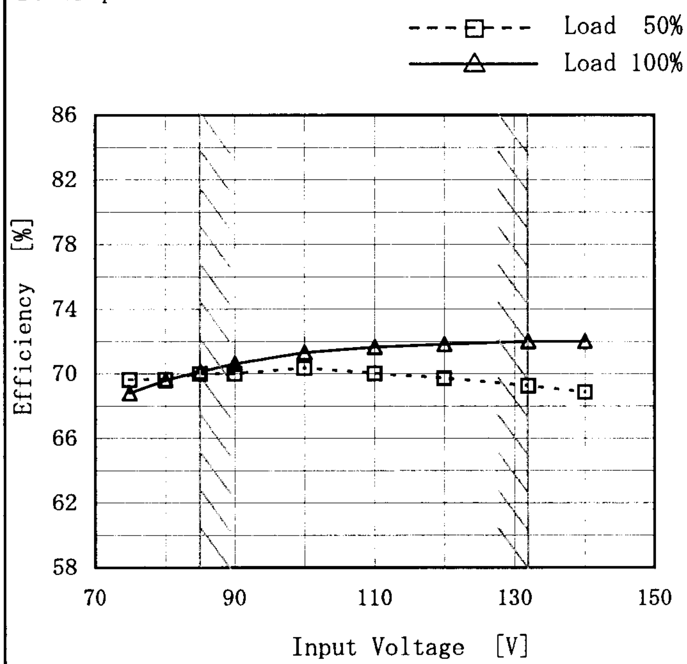
Model	LCC30A-3
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
Object	

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。

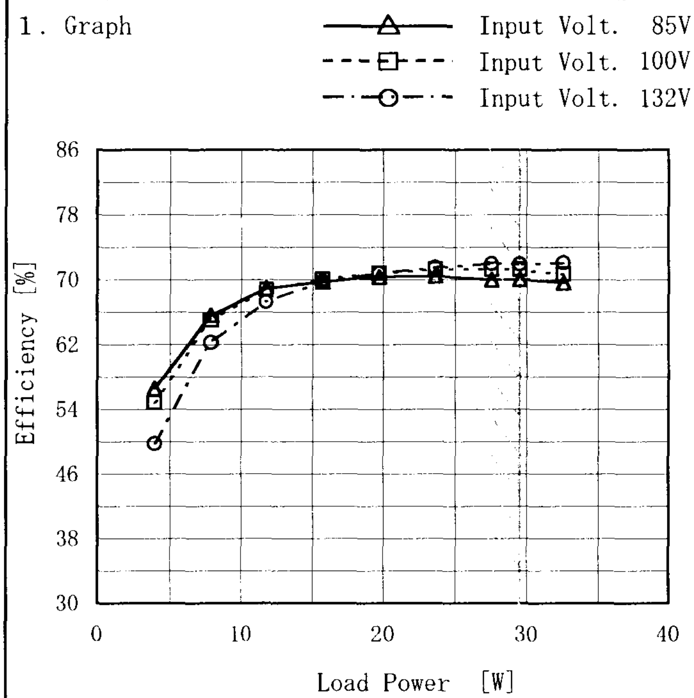
2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	69.6	68.8
80	69.6	69.6
85	70.0	70.1
90	70.0	70.6
100	70.4	71.3
110	70.0	71.7
120	69.7	71.8
132	69.2	72.0
140	68.9	72.0

COSEL

Model	LCC30A-3		
Item	Efficiency (by Load Power) 効率（負荷特性）	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		

1．Graph



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

（注）斜線は定格負荷電力範囲を示す。

2．Values

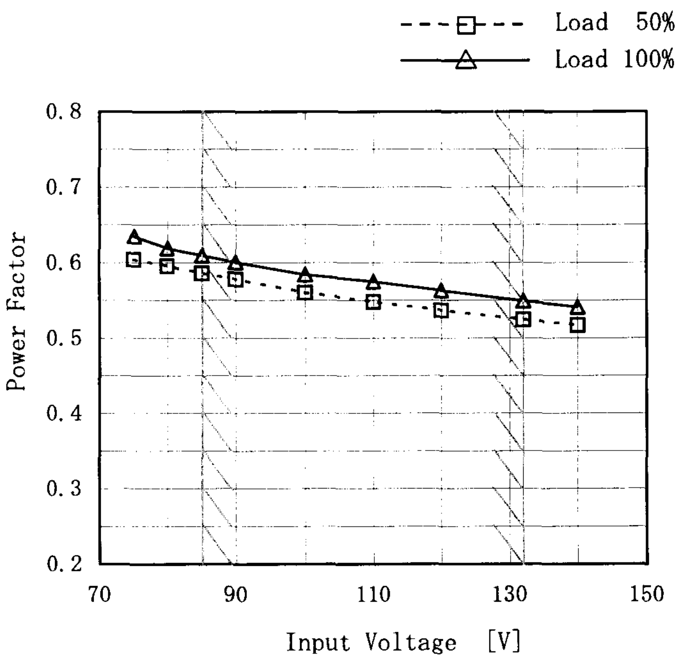
Load Power [W]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	—	—	—
3.9	56.6	54.8	49.8
7.9	65.7	65.1	62.3
11.8	68.9	68.7	67.3
15.7	69.8	70.1	69.8
19.7	70.4	70.8	70.8
23.6	70.5	71.3	71.5
27.5	70.0	71.3	72.0
29.5	70.1	71.3	72.0
32.5	69.6	70.7	72.1
—	—	—	—

COSEL

Model	LCC30A-3
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。

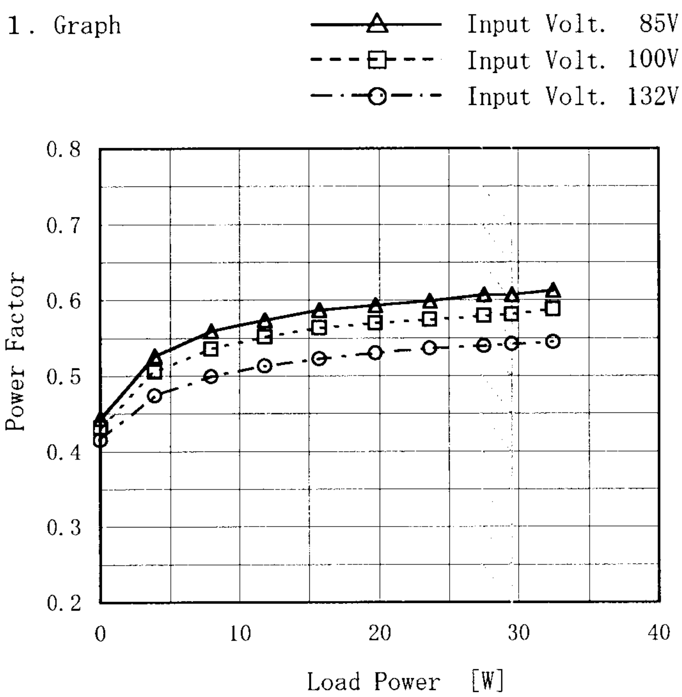
2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.604	0.635
80	0.596	0.619
85	0.586	0.610
90	0.578	0.601
100	0.560	0.584
110	0.548	0.575
120	0.537	0.563
132	0.524	0.549
140	0.517	0.541

COSEL

Model	LCC30A-3		
Item	Power Factor (by Load Power) 力率 (負荷特性)	Temperature Testing Circuitry	25℃ Figure A
Object	――――――		

1. Graph



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

(注) 斜線は定格負荷電力範囲を示す。

2. Values

Load Power [W]	Power Factor		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	0.444	0.432	0.416
3.9	0.527	0.506	0.474
7.9	0.559	0.536	0.499
11.8	0.574	0.552	0.513
15.7	0.587	0.564	0.523
19.7	0.593	0.570	0.531
23.6	0.599	0.574	0.536
27.5	0.607	0.579	0.539
29.5	0.607	0.581	0.542
32.5	0.613	0.588	0.545
—	—	—	—

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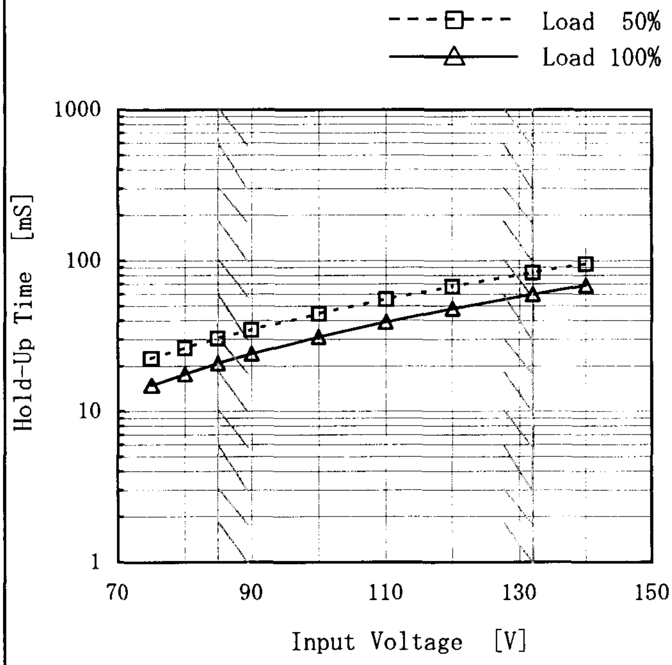
Model	LCC30A-3		
Item	Hold-Up Time 出力保持時間	Temperature Testing Circuitry	25℃ Figure A
Object	+5V3A		

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]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	22	15
80	26	18
85	31	21
90	35	24
100	45	31
110	55	39
120	67	48
132	83	60
140	95	69

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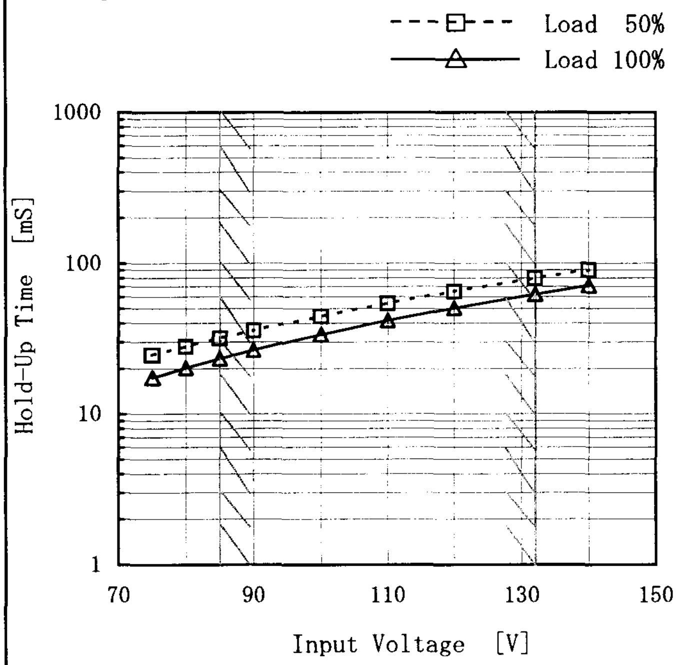
Model	LCC30A-3
Item	Hold-Up Time 出力保持時間
Object	+24V0.5A

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]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	25	17
80	28	20
85	32	23
90	36	27
100	45	34
110	54	42
120	65	51
132	79	62
140	90	71

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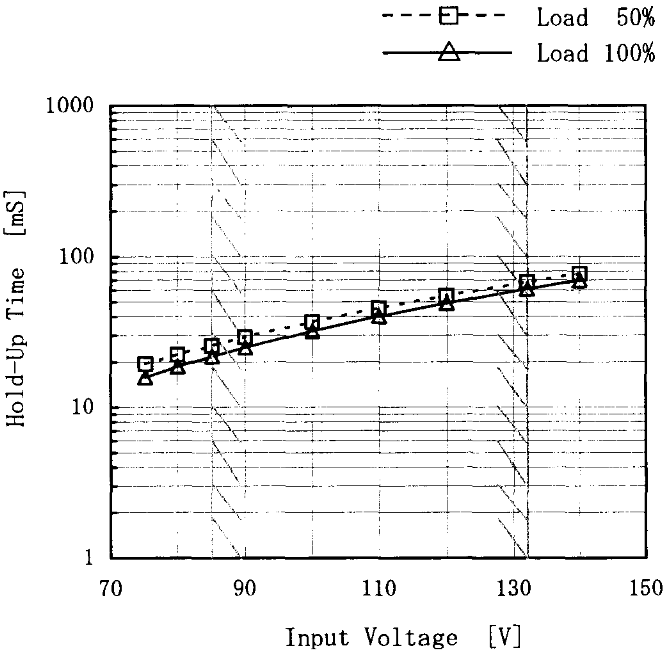
Model	LCC30A-3
Item	Hold-Up Time 出力保持時間
Object	+5V0.5A

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]	Hold-Up Time [mS]	
	Load 50%	Load 100%
75	19	16
80	22	19
85	26	22
90	29	25
100	37	32
110	45	40
120	55	49
132	68	61
140	77	70

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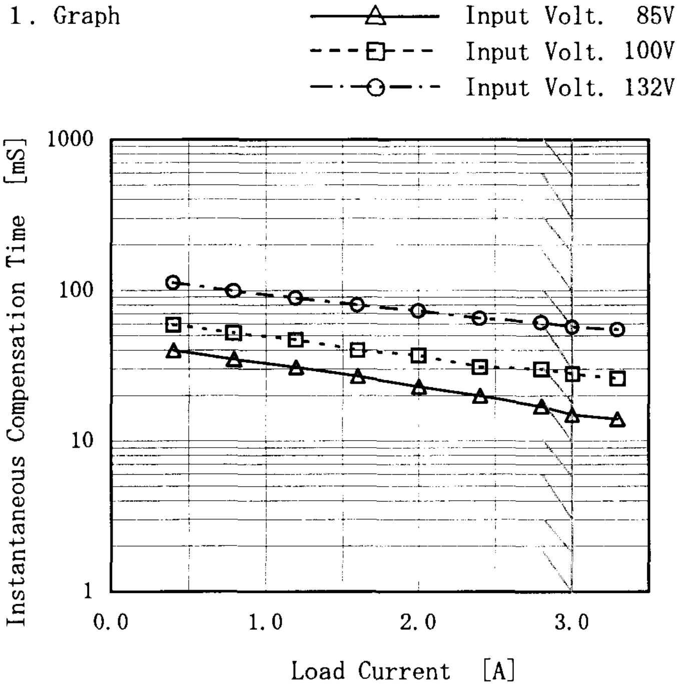
Model	LCC30A-3
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+5V3A

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

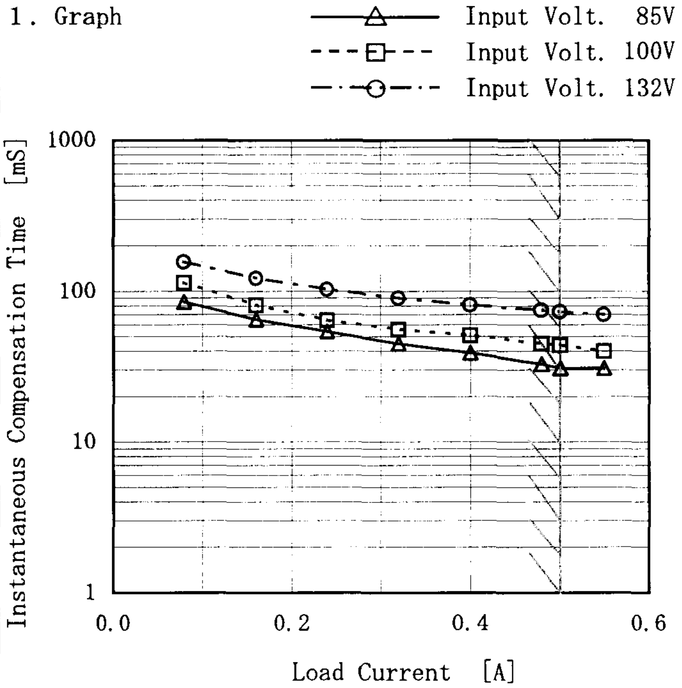
Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
0.40	40	59	112
0.80	35	52	99
1.20	31	47	89
1.60	27	40	80
2.00	23	37	73
2.40	20	31	65
2.80	17	30	61
3.00	15	28	57
3.30	14	26	55
—	—	—	—

COSEL

Model	LCC30A-3
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+24V0.5A

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

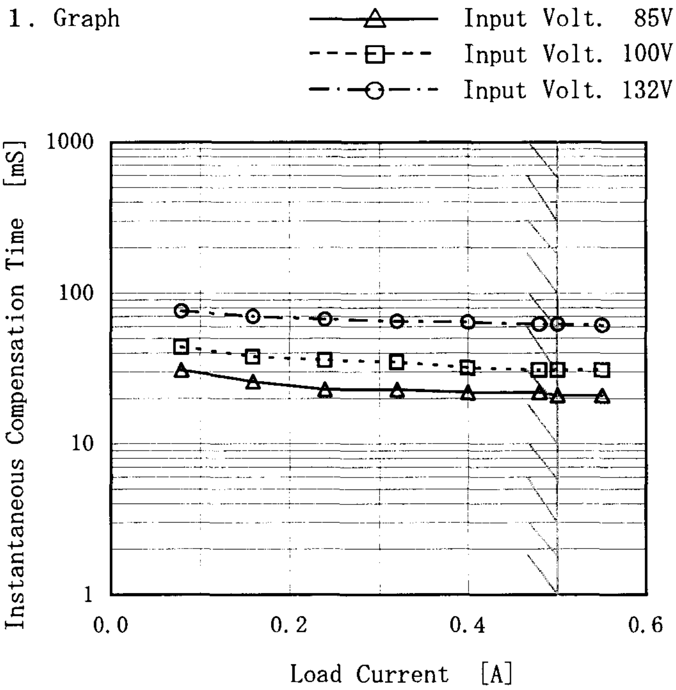
Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
0.08	85	114	156
0.16	65	81	122
0.24	54	64	103
0.32	45	56	90
0.40	39	51	81
0.48	33	45	75
0.50	31	44	73
0.55	31	40	70
—	—	—	—
—	—	—	—

COSEL

Model	LCC30A-3
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+5V0.5A

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

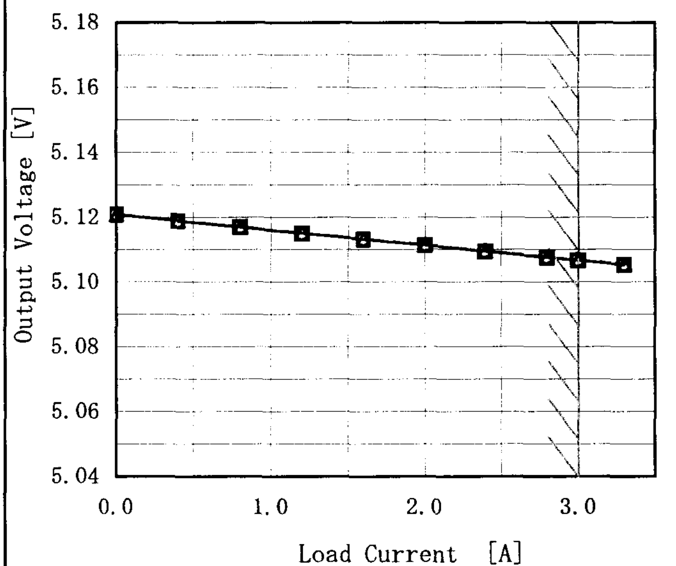
Load Current [A]	Time [mS]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	—	—	—
0.08	31	44	76
0.16	26	38	70
0.24	23	36	67
0.32	23	35	65
0.40	22	32	64
0.48	22	31	62
0.50	21	31	62
0.55	21	31	61
—	—	—	—
—	—	—	—

COSEL

Model	LCC30A-3		
Item	Load Regulation 静的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5V3A		

1．Graph

—△— Input Volt. 85V
---□--- Input Volt. 100V
—·○·— Input Volt. 132V



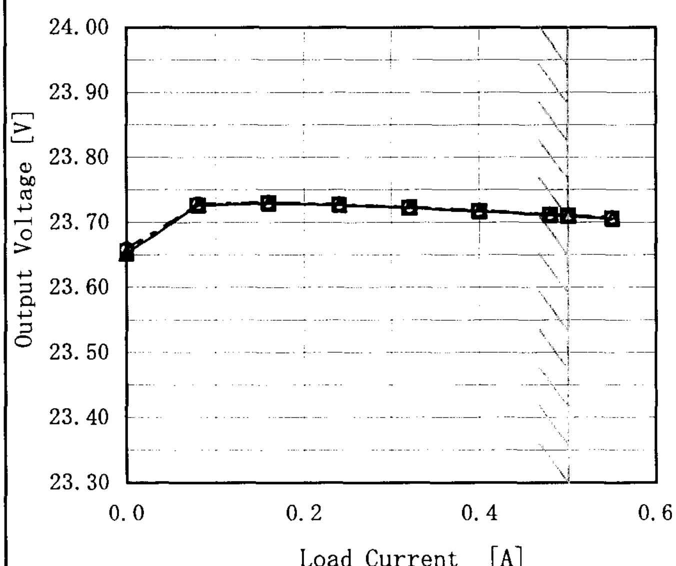
2．Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	5.121	5.121	5.121
0.40	5.119	5.119	5.119
0.80	5.117	5.117	5.117
1.20	5.115	5.115	5.115
1.60	5.113	5.113	5.113
2.00	5.111	5.111	5.111
2.40	5.110	5.110	5.110
2.80	5.108	5.108	5.108
3.00	5.107	5.107	5.107
3.30	5.105	5.105	5.105
—	—	—	—

Object	+24V0.5A

1．Graph

—△— Input Volt. 85V
---□--- Input Volt. 100V
—·○·— Input Volt. 132V



2．Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	23.652	23.656	23.658
0.08	23.726	23.726	23.728
0.16	23.729	23.730	23.731
0.24	23.727	23.727	23.728
0.32	23.723	23.723	23.723
0.40	23.717	23.717	23.718
0.48	23.711	23.712	23.712
0.50	23.710	23.710	23.711
0.55	23.705	23.706	23.707
—	—	—	—
—	—	—	—

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。

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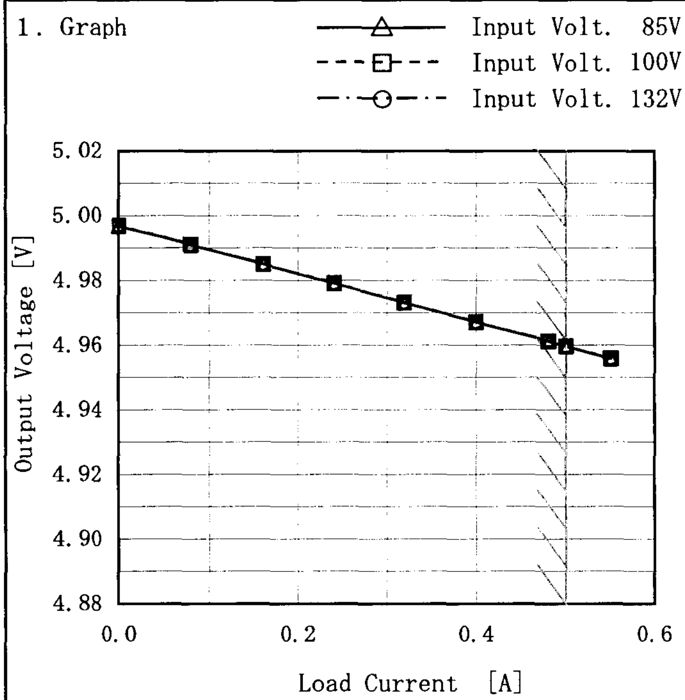
COSEL

Model	LCC30A-3		
Item	Load Regulation 静的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.5A		

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

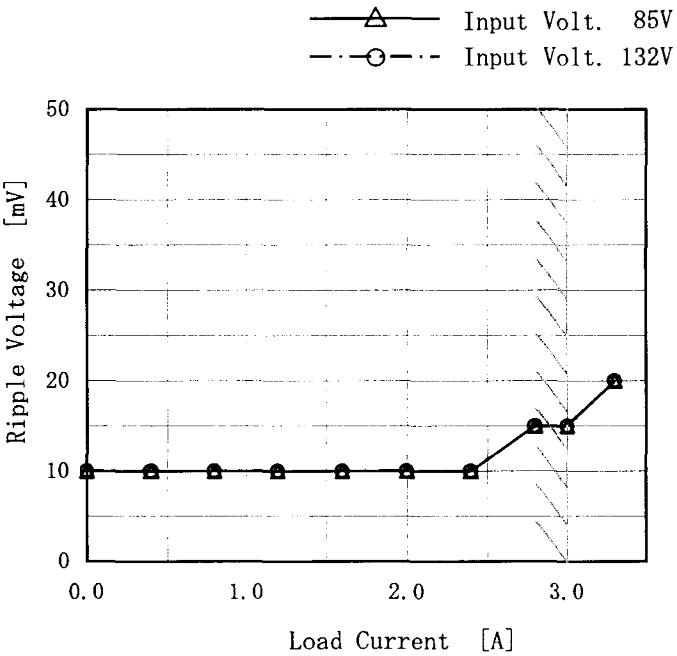
Load Current [A]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	4.997	4.997	4.997
0.08	4.991	4.991	4.991
0.16	4.985	4.985	4.985
0.24	4.979	4.979	4.979
0.32	4.973	4.973	4.973
0.40	4.967	4.967	4.967
0.48	4.961	4.961	4.961
0.50	4.960	4.960	4.960
0.55	4.956	4.956	4.956
—	—	—	—

COSEL

Model	LCC30A-3
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）
Object	+5V3A

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

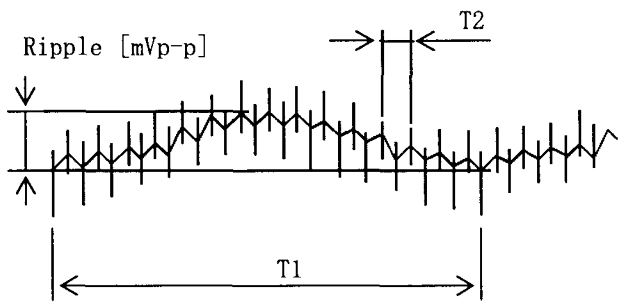


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

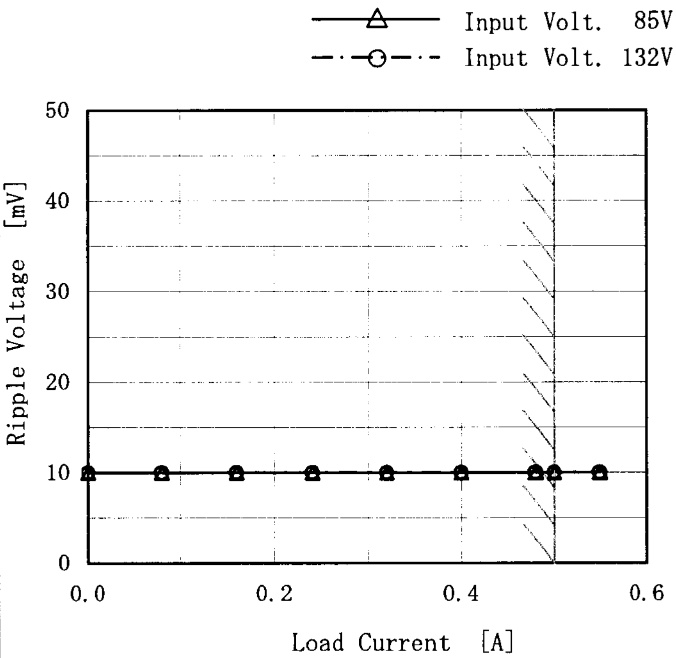
2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.00	10	10
0.40	10	10
0.80	10	10
1.20	10	10
1.60	10	10
2.00	10	10
2.40	10	10
2.80	15	15
3.00	15	15
3.30	20	20
—	—	—

COSEL

Model	LCC30A-3		
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）	Temperature Testing Circuitry	25℃ Figure A
Object	+24V0.5A		

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

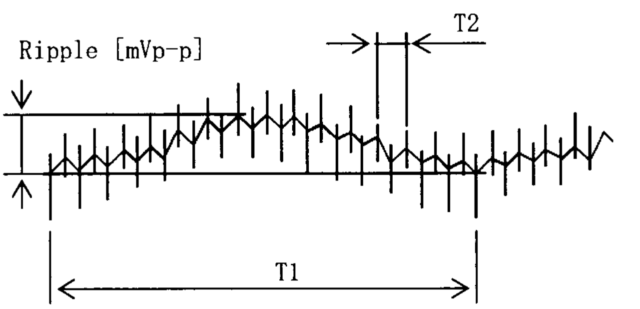


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

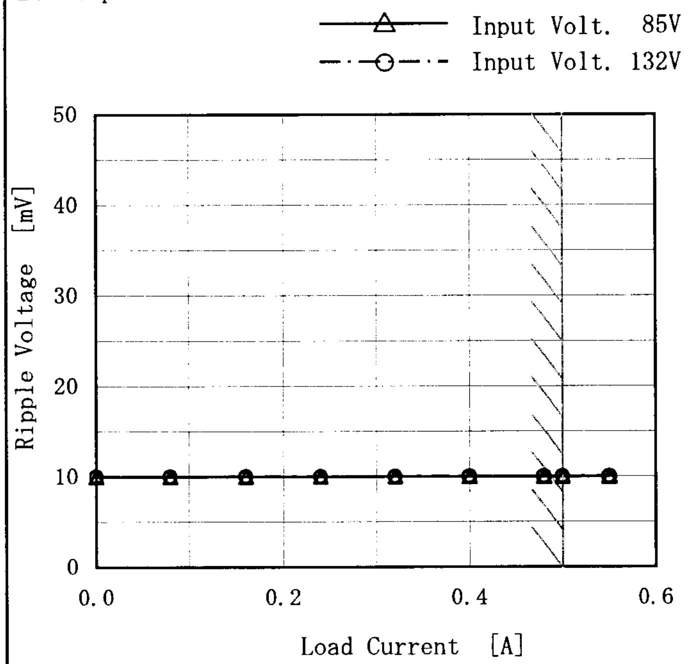
2．Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.00	10	10
0.08	10	10
0.16	10	10
0.24	10	10
0.32	10	10
0.40	10	10
0.48	10	10
0.50	10	10
0.55	10	10
—	—	—
—	—	—

COSEL

Model	LCC30A-3		
Item	Ripple Voltage (by Load Current) リップル電圧（負荷特性）	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.5A		

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

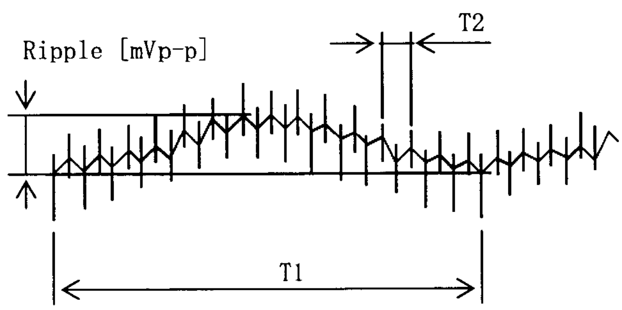


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

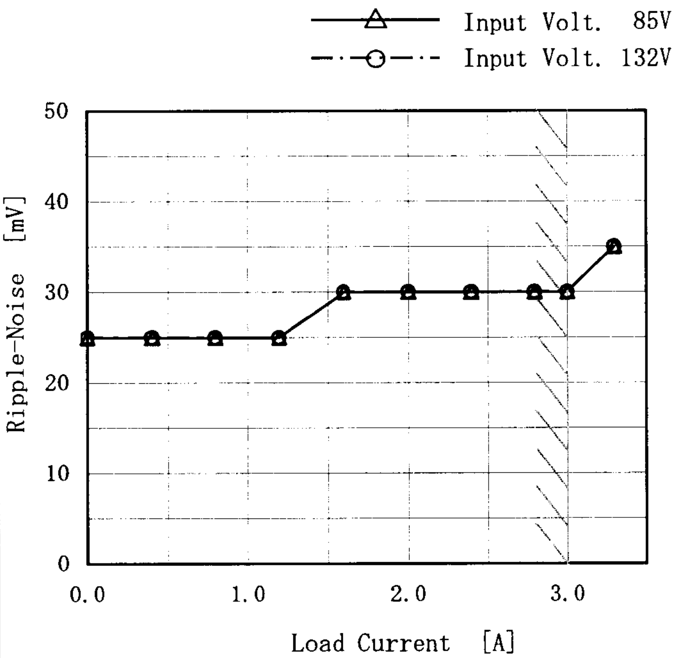
2．Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 85 [V]	Ripple Voltage [mV] Input Volt. 132 [V]
0.00	10	10
0.08	10	10
0.16	10	10
0.24	10	10
0.32	10	10
0.40	10	10
0.48	10	10
0.50	10	10
0.55	10	10
—	—	—
—	—	—

COSEL

Model	LCC30A-3		
Item	Ripple-Noise リップルノイズ	Temperature Testing Circuitry	25℃ Figure A
Object	+5V3A		

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

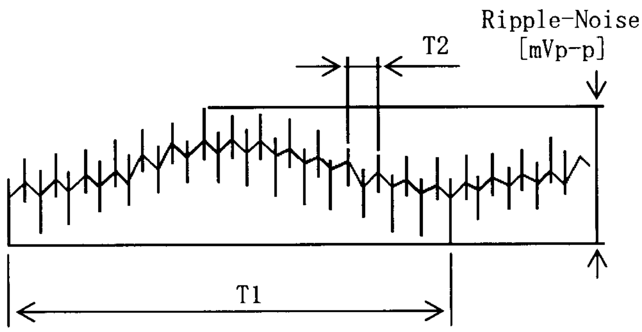


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

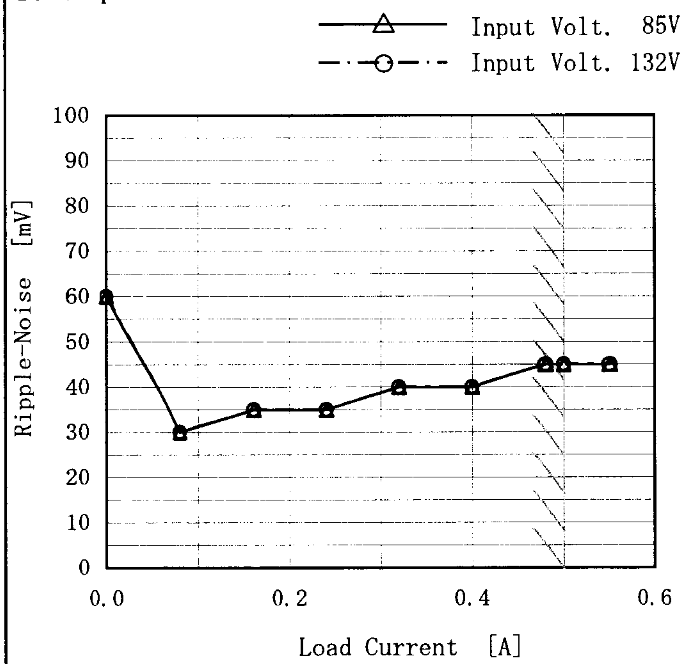
2. Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0.00	25	25
0.40	25	25
0.80	25	25
1.20	25	25
1.60	30	30
2.00	30	30
2.40	30	30
2.80	30	30
3.00	30	30
3.30	35	35
—	—	—

COSEL

Model	LCC30A-3		
Item	Ripple-Noise リップルノイズ	Temperature Testing Circuitry	25℃ Figure A
Object	+24V0.5A		

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

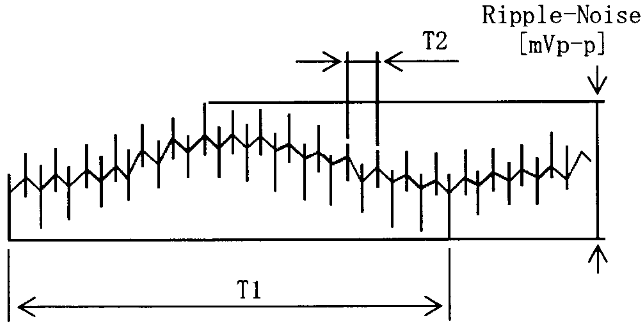


Fig. Complex Ripple Wave Form
図　リップル波形詳細図

2．Values

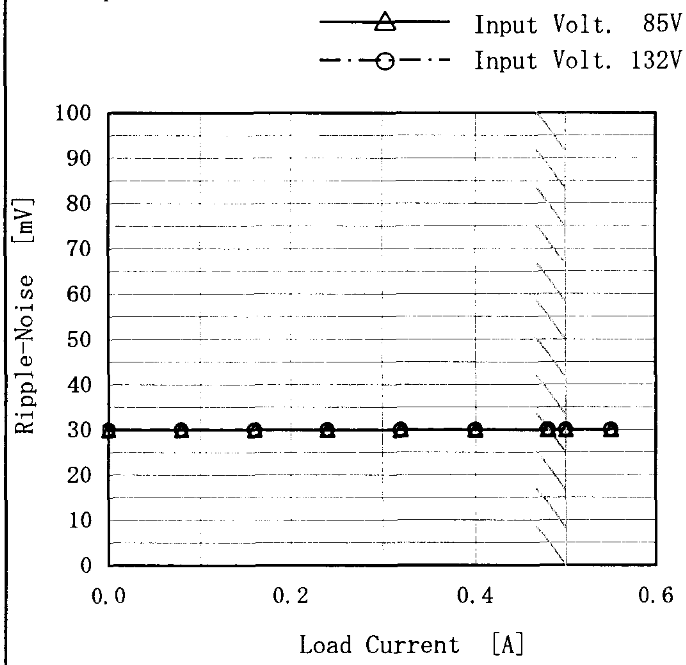
Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0.00	60	60
0.08	30	30
0.16	35	35
0.24	35	35
0.32	40	40
0.40	40	40
0.48	45	45
0.50	45	45
0.55	45	45
—	—	—
—	—	—

COSEL

Model	LCC30A-3
Item	Ripple-Noise リップルノイズ
Object	+5V0.5A

Temperature 25℃
Testing Circuitry Figure A

1．Graph



2．Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 85 [V]	Ripple-Noise [mV] Input Volt. 132 [V]
0.00	30	30
0.08	30	30
0.16	30	30
0.24	30	30
0.32	30	30
0.40	30	30
0.48	30	30
0.50	30	30
0.55	30	30
—	—	—
—	—	—

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

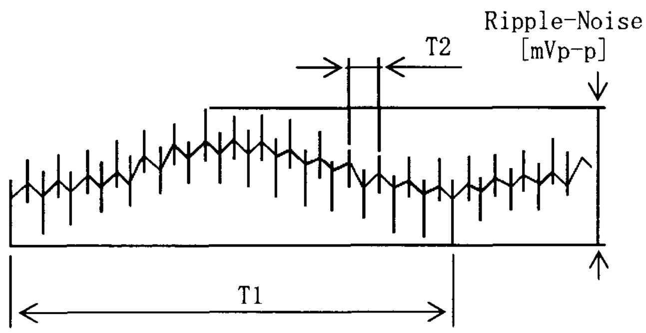


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

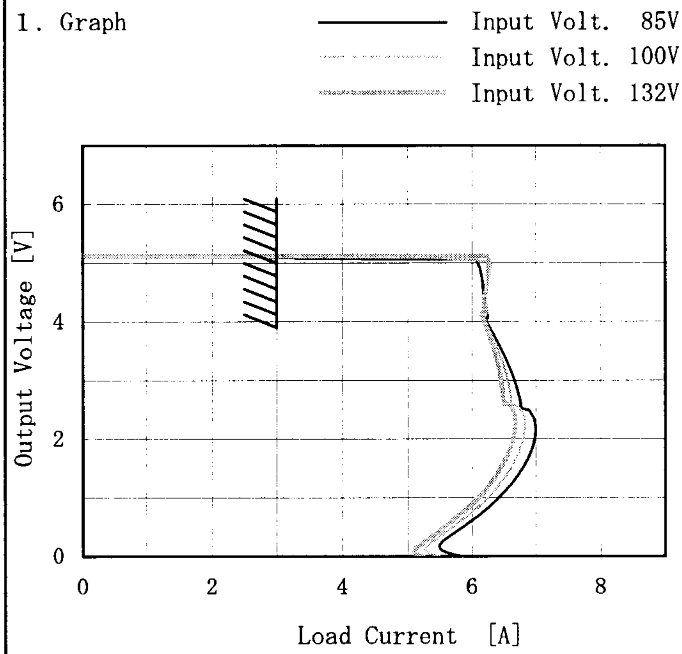
COSEL

Model	LCC30A-3
Item	Overcurrent Protection 過電流保護

Temperature 25℃
Testing Circuitry Figure A

Object	+5V3A

1. Graph

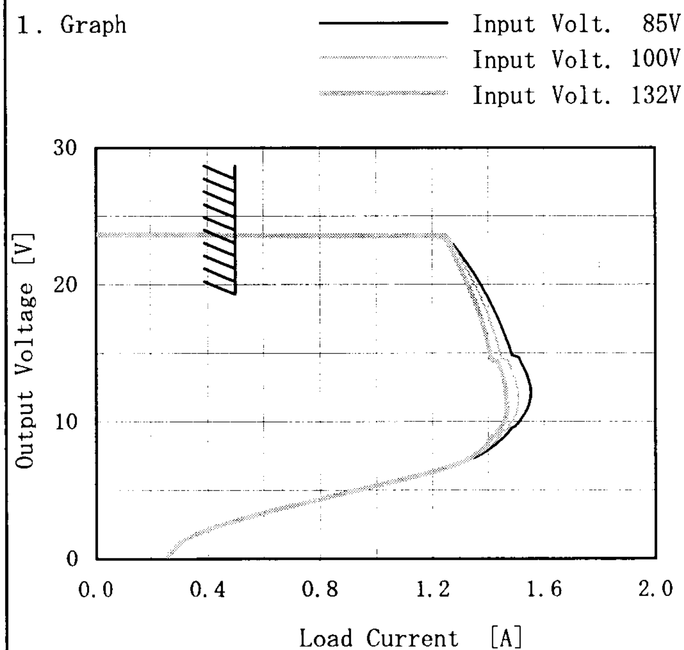


2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
5.00	6.08	6.24	6.27
4.75	6.16	6.24	6.25
4.50	6.18	6.22	6.21
4.00	6.23	6.23	6.19
3.50	6.48	6.43	6.36
3.00	6.68	6.57	6.47
2.50	6.90	6.76	6.64
2.00	6.98	6.81	6.66
1.50	6.80	6.61	6.46
1.00	6.44	6.23	6.09
0.50	5.87	5.72	5.57
0.00	5.99	5.58	5.25

Object	+24V0.5A

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。

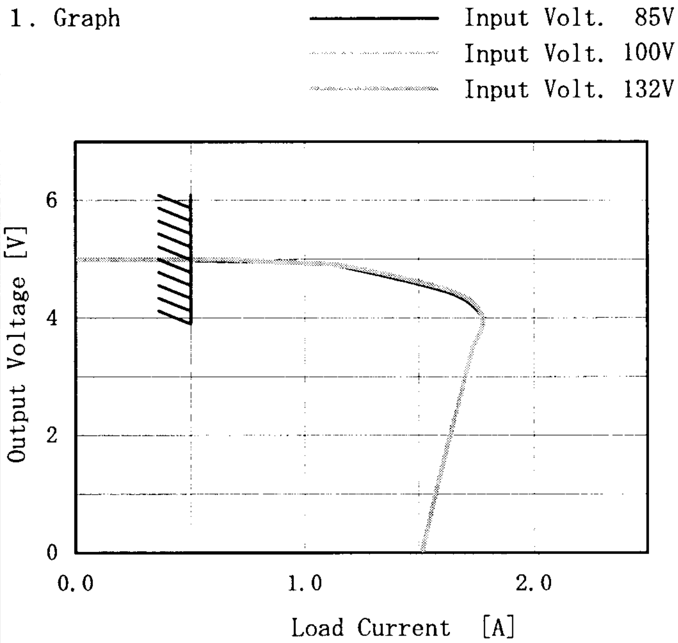
2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
24.00	1.25	1.25	1.24
22.80	1.28	1.28	1.26
21.60	1.33	1.31	1.29
19.20	1.40	1.37	1.34
16.80	1.45	1.42	1.38
14.40	1.52	1.47	1.44
12.00	1.56	1.51	1.47
9.60	1.50	1.48	1.45
7.20	1.33	1.34	1.32
4.80	0.89	0.89	0.90
2.40	0.43	0.44	0.43
0.00	0.26	0.26	0.26

COSEL

Model	LCC30A-3	
Item	Overcurrent Protection 過電流保護	Temperature 25℃ Testing Circuitry Figure A
Object	+5V0.5A	

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

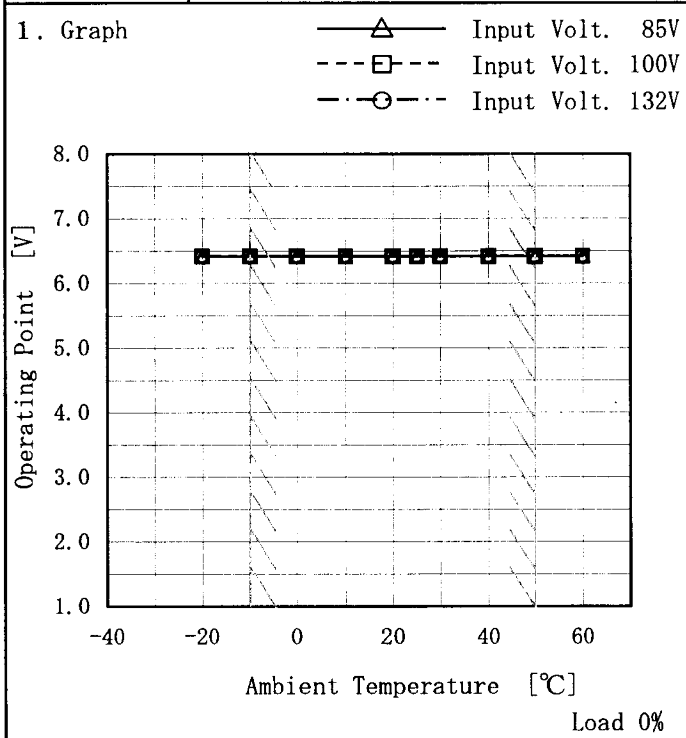
Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
5.00	0.66	0.64	0.64
4.75	1.32	1.33	1.36
4.50	1.55	1.57	1.60
4.00	1.77	1.77	1.78
3.50	1.74	1.74	1.74
3.00	1.70	1.70	1.70
2.50	1.67	1.67	1.67
2.00	1.64	1.64	1.64
1.50	1.61	1.60	1.60
1.00	1.58	1.57	1.57
0.50	1.55	1.54	1.54
0.00	1.52	1.52	1.52

COSEL

Model	LCC30A-3
Item	Overvoltage Protection 過電圧保護
Object	+5V3A

Testing Circuitry　　Figure A

1．Graph



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

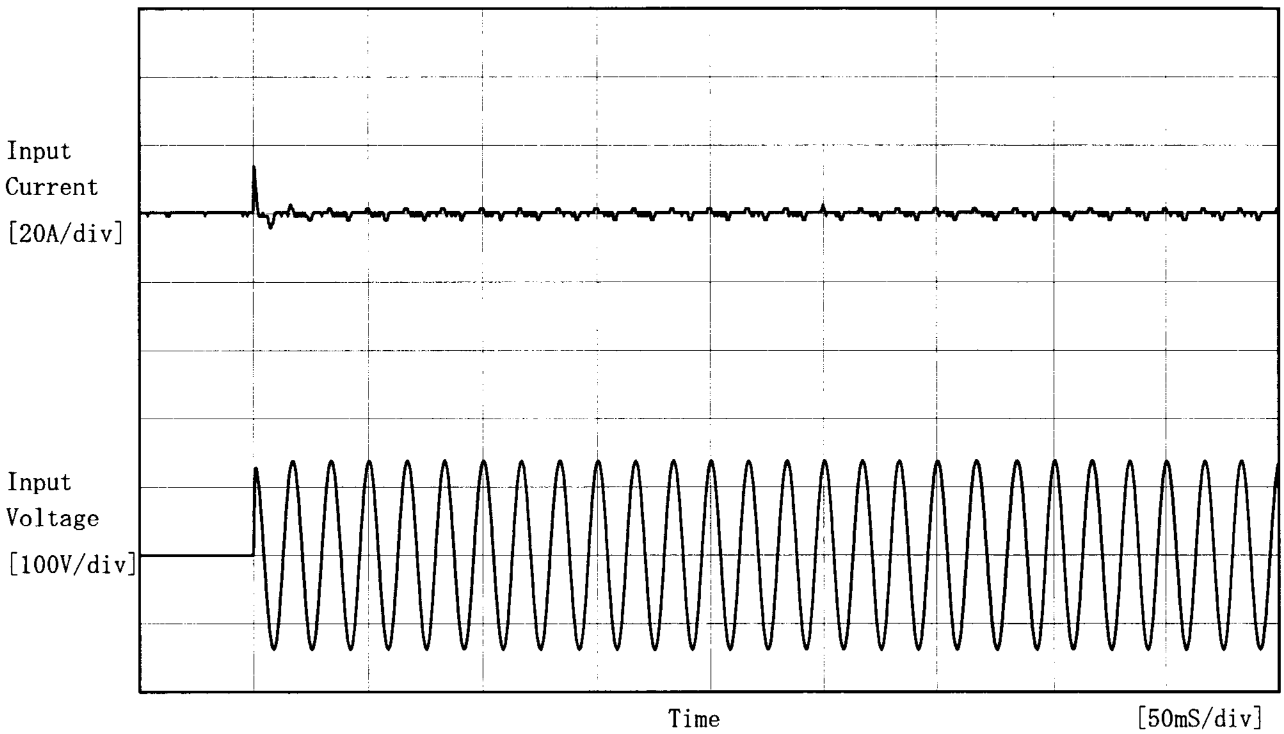
(注) 斜線は定格周囲温度範囲を示す。

2．Values

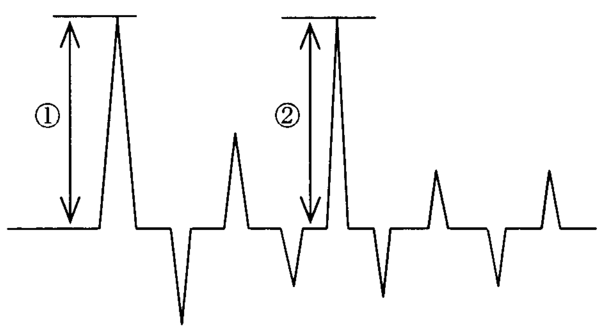
Ambient Temperature [℃]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	6.42	6.42	6.42
-10	6.42	6.42	6.42
0	6.42	6.42	6.42
10	6.42	6.42	6.42
20	6.42	6.42	6.42
25	6.42	6.42	6.42
30	6.42	6.42	6.42
40	6.42	6.42	6.42
50	6.42	6.42	6.42
60	6.42	6.42	6.42
--	—	—	—

COSEL

Model	LCC30A-3		
Item	Inrush Current 突入電流	Temperature Testing Circuitry	25℃ Figure A
Object	————————		



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



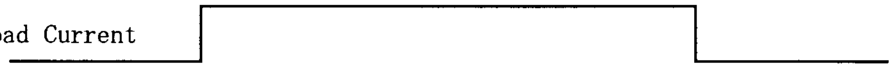
COSEL

Model	LCC30A-3
Item	Dynamic Load Response 動的負荷変動
Object	+5V3A

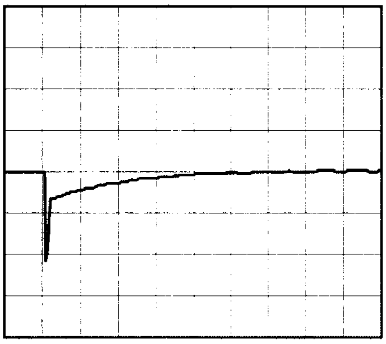
Temperature 25℃
Testing Circuitry Figure A

Input Volt. AC100 V
Cycle 200 ms

Load Current

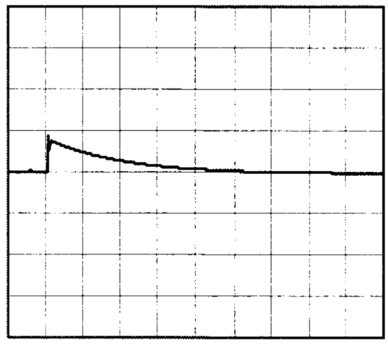


Min. Load (0A) ←→
Load 100% (3A)



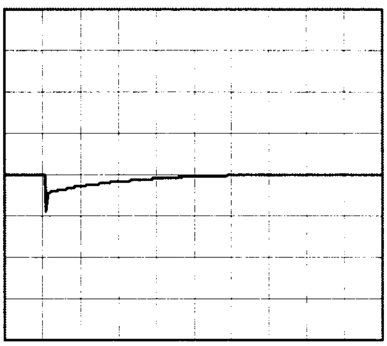
100 mV/div

10 ms/div



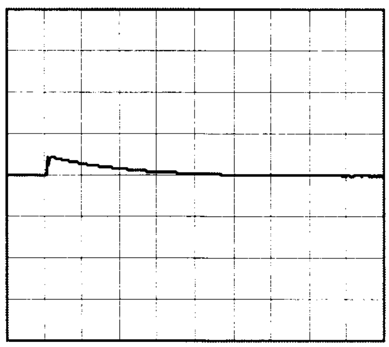
10 ms/div

Min. Load (0A) ←→
Load 50% (1.5A)



100 mV/div

10 ms/div



10 ms/div

Model	LCC30A-3
Item	Dynamic Load Response 動的負荷変動
Object	+24V0.5A

Temperature 25℃

Testing Circuitry Figure A

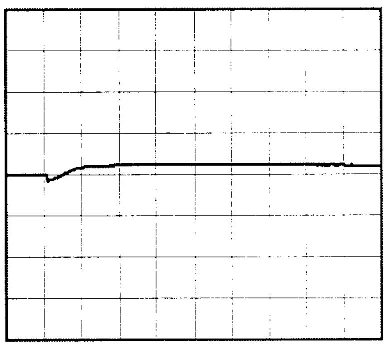
Input Volt. AC100 V

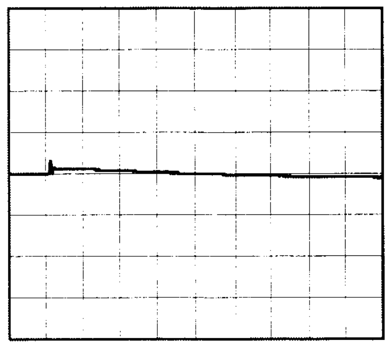
Cycle 200 ms

Load Current

Min. Load (0A) ←→

Load 100% (0.5A)





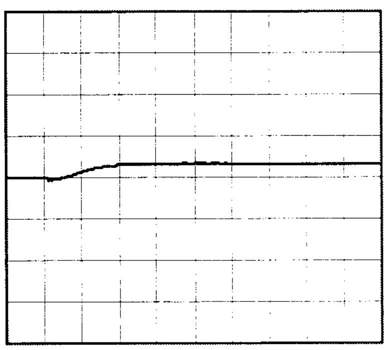
100 mV/div

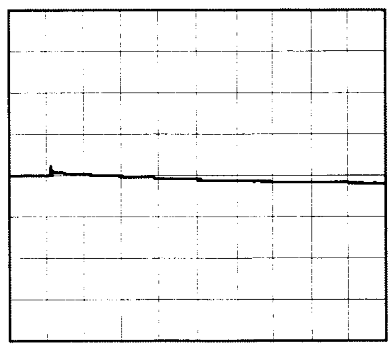
10 ms/div

10 ms/div

Min. Load (0A) ←→

Load 50% (0.25A)





100 mV/div

10 ms/div

10 ms/div

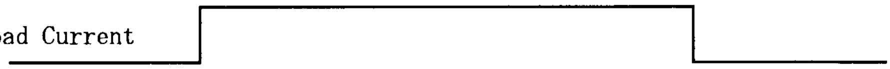
COSEL

Model	LCC30A-3		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.5A		

Input Volt. AC100 V

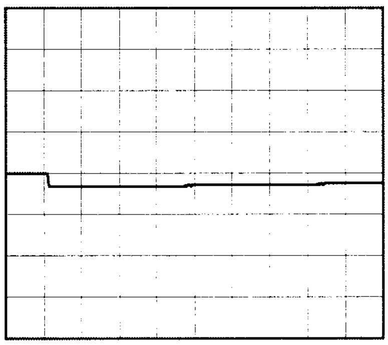
Cycle 200 ms

Load Current

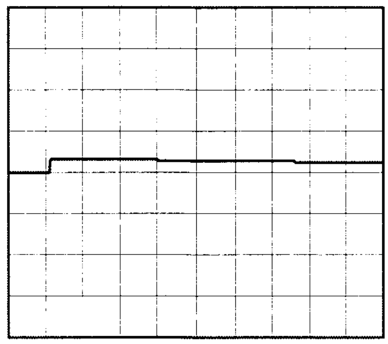


Min. Load (0A) ←→
Load 100% (0.5A)

100 mV/div



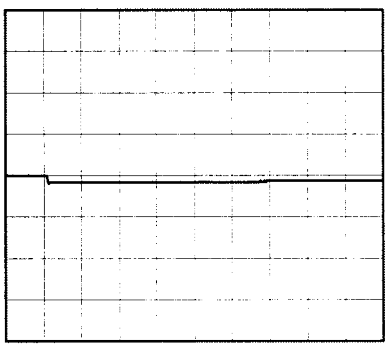
10 ms/div



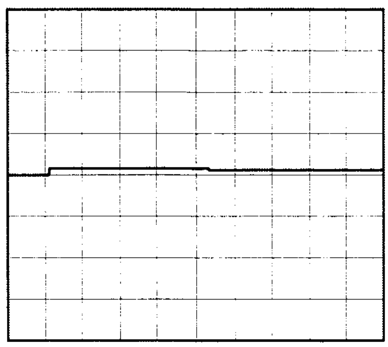
10 ms/div

Min. Load (0A) ←→
Load 50% (0.25A)

100 mV/div



10 ms/div



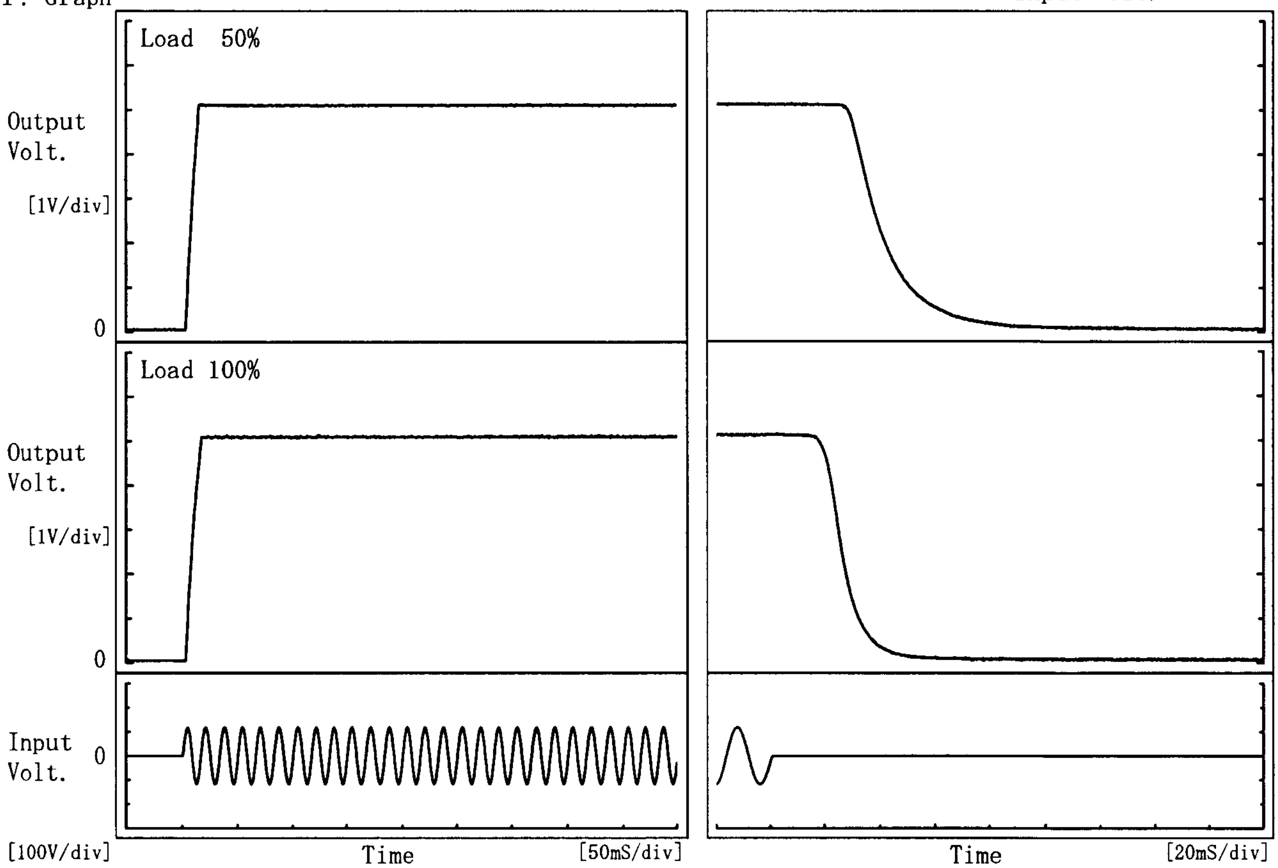
10 ms/div

COSEL

Model	LCC30A-3		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+5V3A		

1. Graph

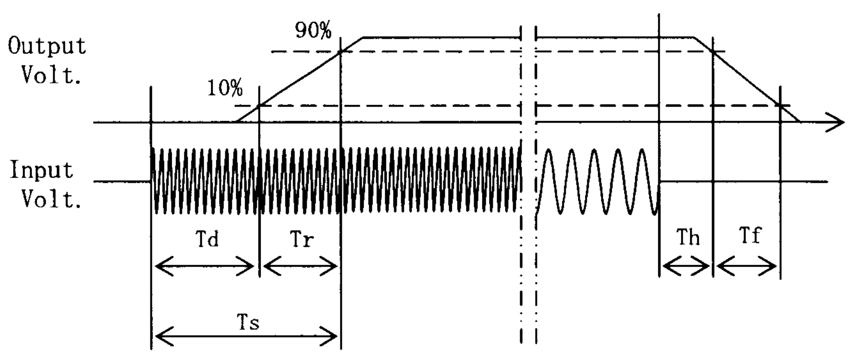
Input Volt. 85 V



2. Values

[mS]

Time / Load	T d	T r	T s	T h	T f
50 %	4. 0	10. 3	14. 3	30. 5	29. 9
100 %	4. 0	12. 0	16. 0	20. 8	16. 0

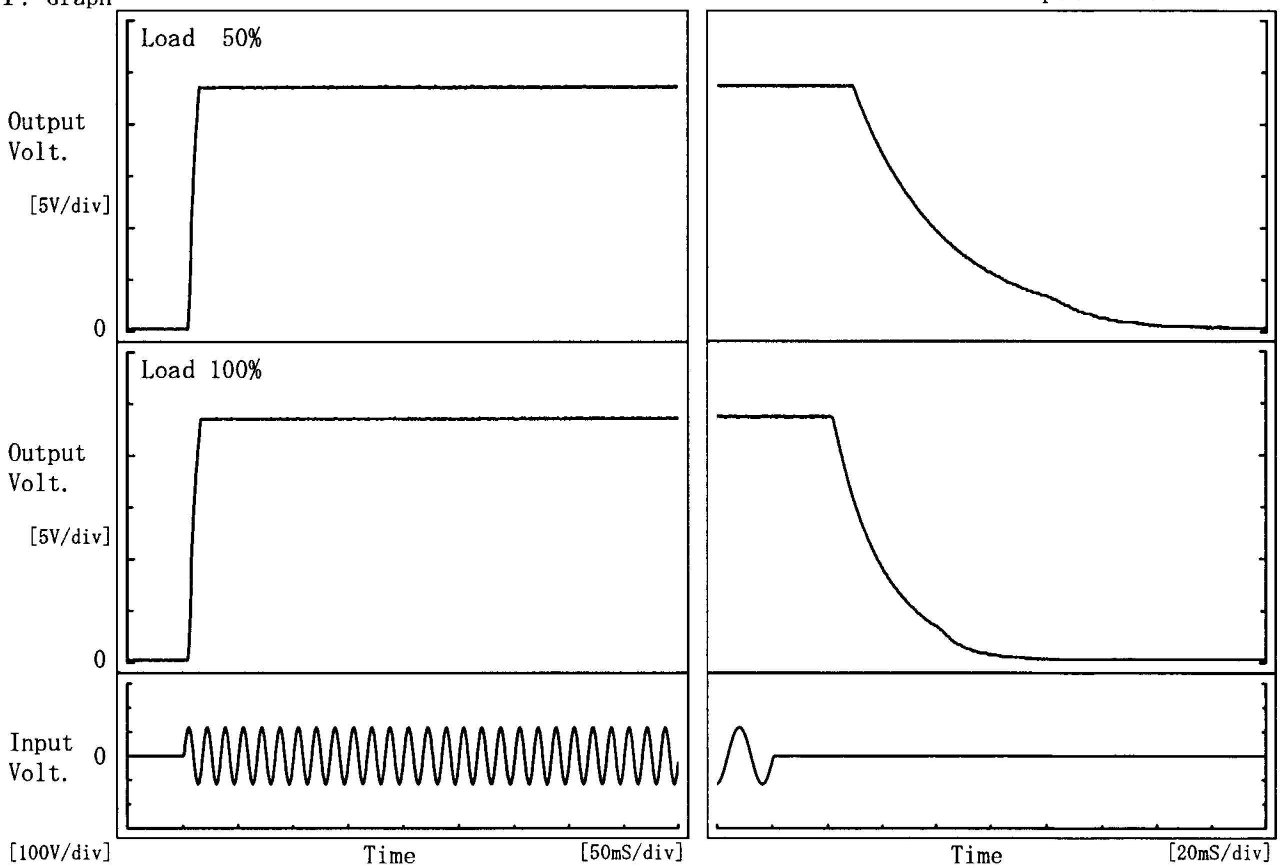


COSEL

Model	LCC30A-3	Temperature	25℃
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+24V0.5A		

1．Graph

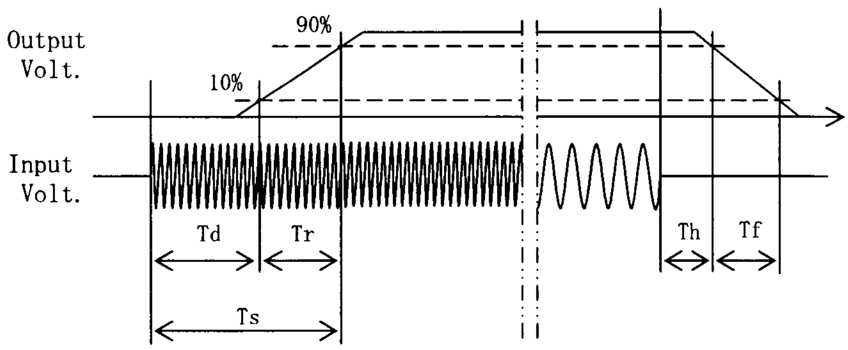
Input Volt.　85 V



2．Values

[mS]

Time / Load	Td	Tr	Ts	Th	Tf
50 %	5.5	7.8	13.3	31.7	74.1
100 %	5.3	9.0	14.3	23.4	40.5

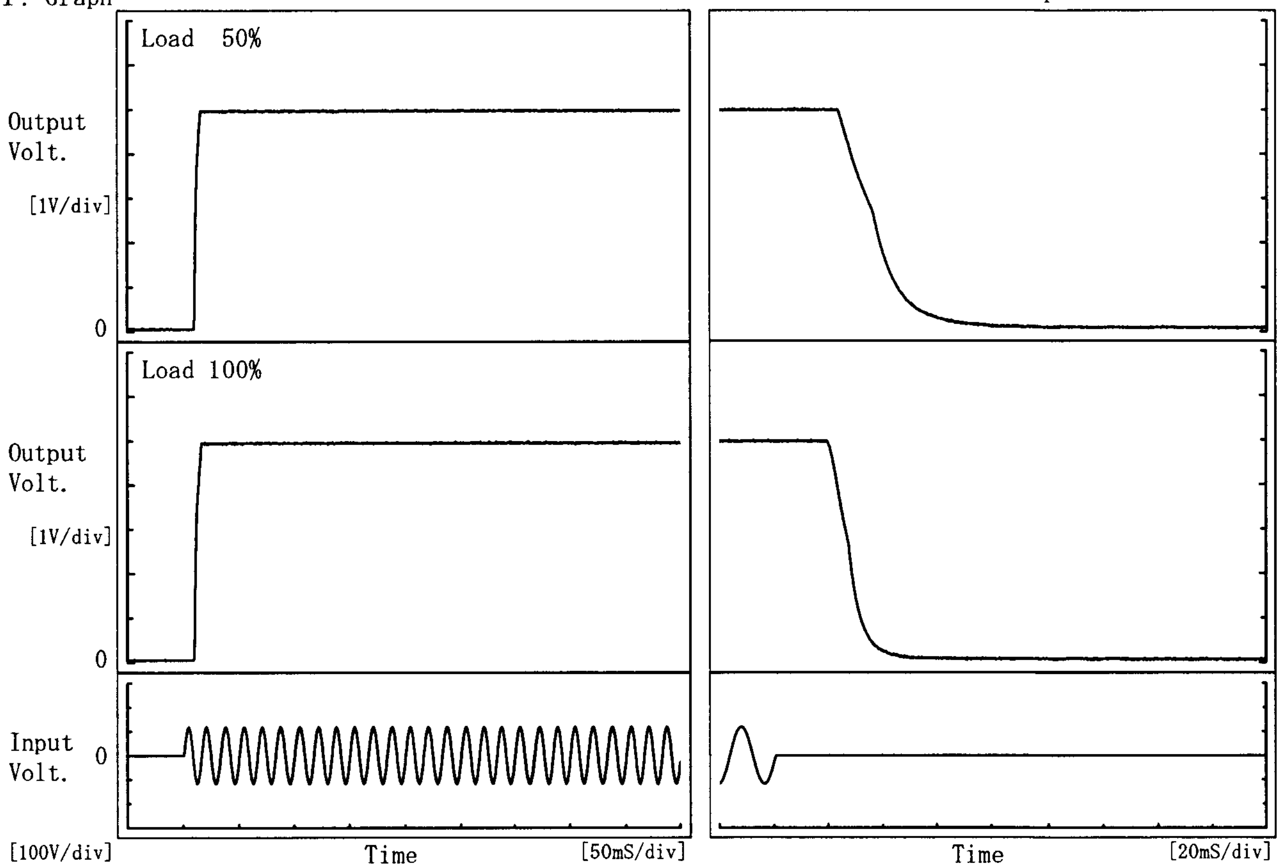


COSEL

Model	LCC30A-3	
Item	Rise and Fall Time 立上り、立下り時間	Temperature 25℃ Testing Circuitry Figure A
Object	+5V0.5A	

1. Graph

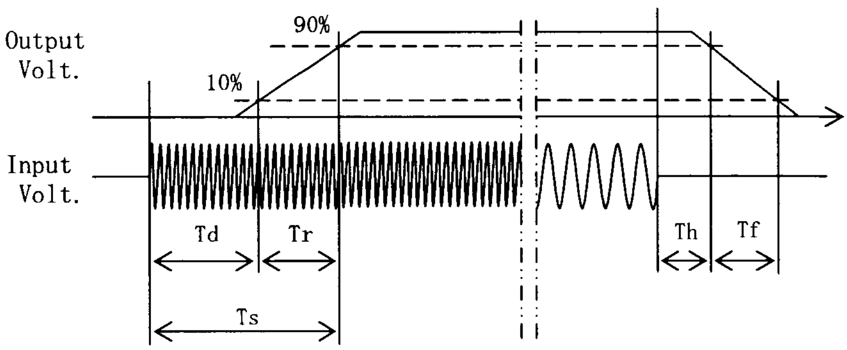
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	10.5	4.8	15.3	25.5	26.6
100 %	10.5	5.8	16.3	21.7	13.1

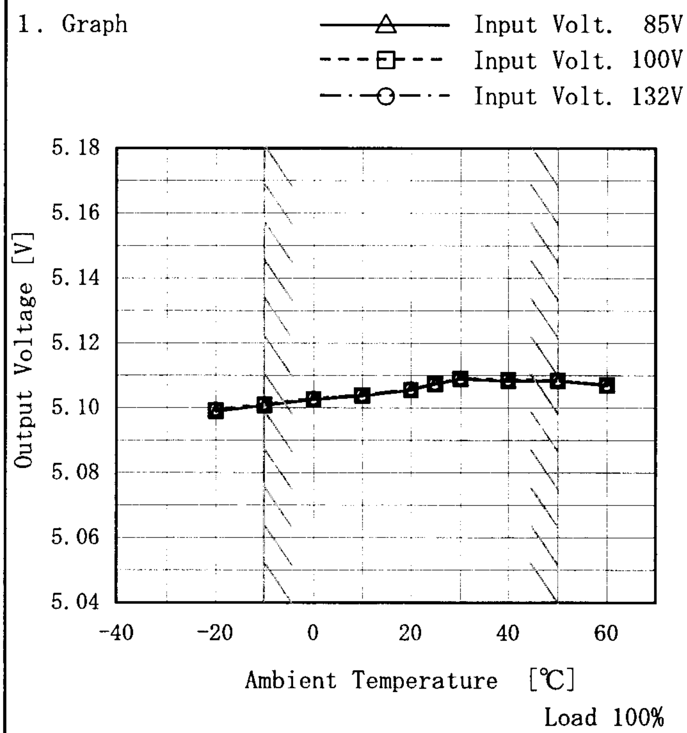


COSEL

Model	LCC30A-3
Item	Ambient Temperature Drift 周囲温度変動
Object	+5V3A

Testing Circuitry　Figure A

1. Graph

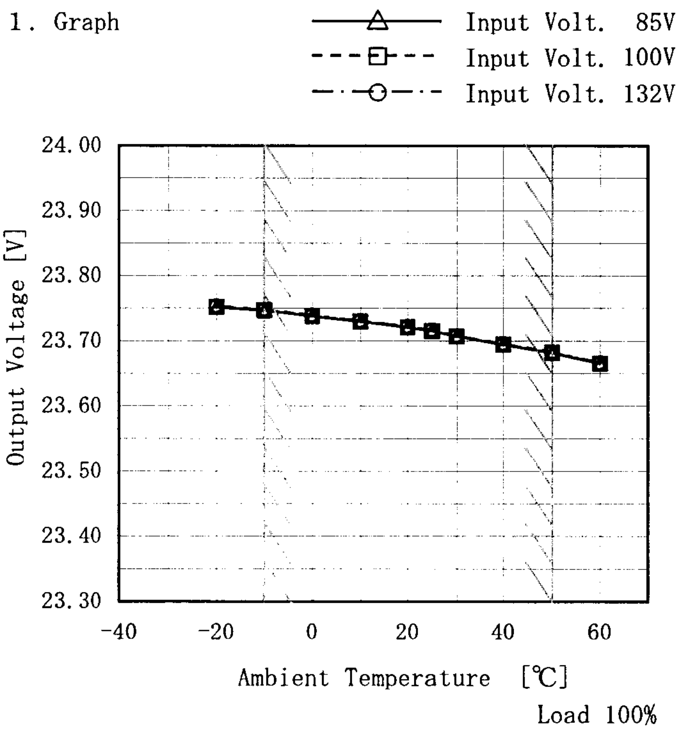


2. Values

Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	5.099	5.099	5.100
-10	5.101	5.101	5.101
0	5.103	5.103	5.103
10	5.104	5.104	5.104
20	5.106	5.106	5.106
25	5.107	5.108	5.108
30	5.109	5.109	5.109
40	5.108	5.109	5.109
50	5.108	5.109	5.109
60	5.107	5.107	5.107
--	—	—	—

Object	+24V0.5A

1. Graph



2. Values

Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	23.752	23.752	23.753
-10	23.747	23.747	23.748
0	23.738	23.738	23.739
10	23.730	23.730	23.731
20	23.721	23.721	23.722
25	23.716	23.716	23.716
30	23.707	23.707	23.708
40	23.695	23.695	23.695
50	23.682	23.682	23.683
60	23.665	23.666	23.666
--	—	—	—

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

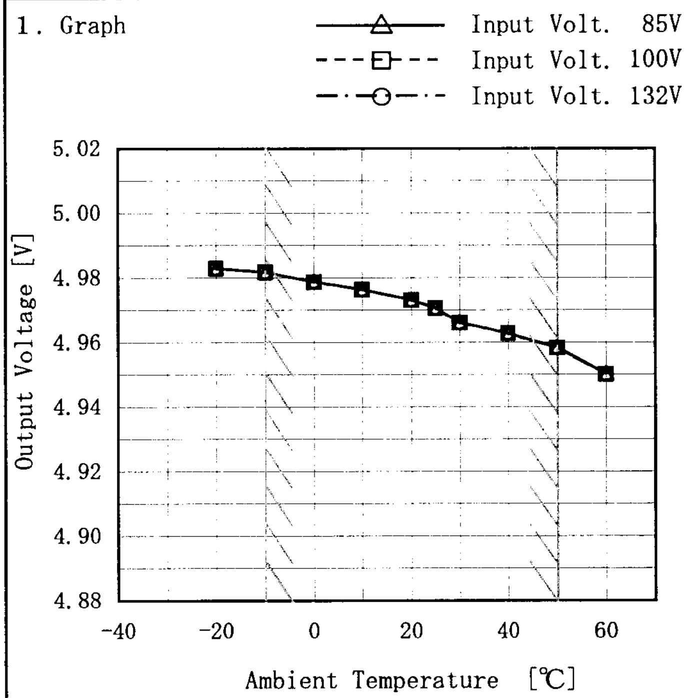
(注) 斜線は定格周囲温度範囲を示す。

COSEL

Model	LCC30A-3
Item	Ambient Temperature Drift 周囲温度変動
Object	+5V0.5A

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

Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	4.983	4.983	4.983
-10	4.982	4.982	4.982
0	4.979	4.979	4.979
10	4.977	4.976	4.976
20	4.973	4.973	4.973
25	4.971	4.971	4.971
30	4.966	4.966	4.966
40	4.963	4.963	4.963
50	4.959	4.958	4.958
60	4.950	4.950	4.950
—	—	—	—

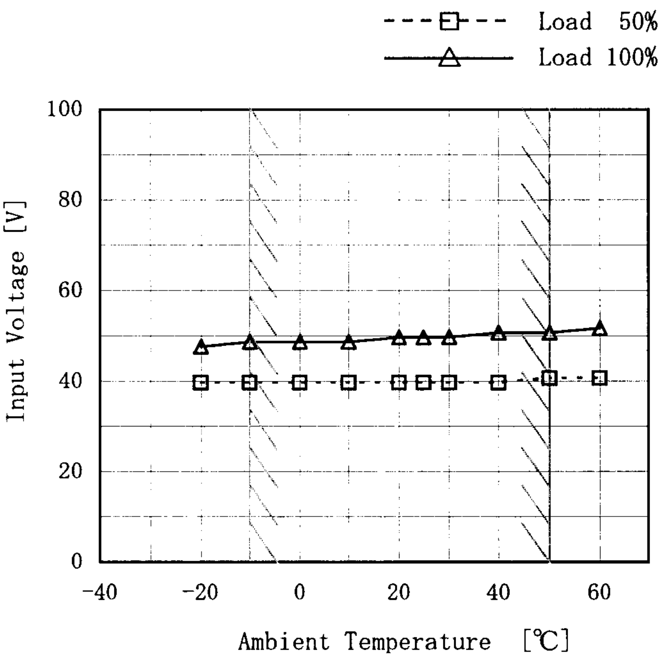
COSEL

Model	LCC30A-3
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	+5V3A

1．Graph

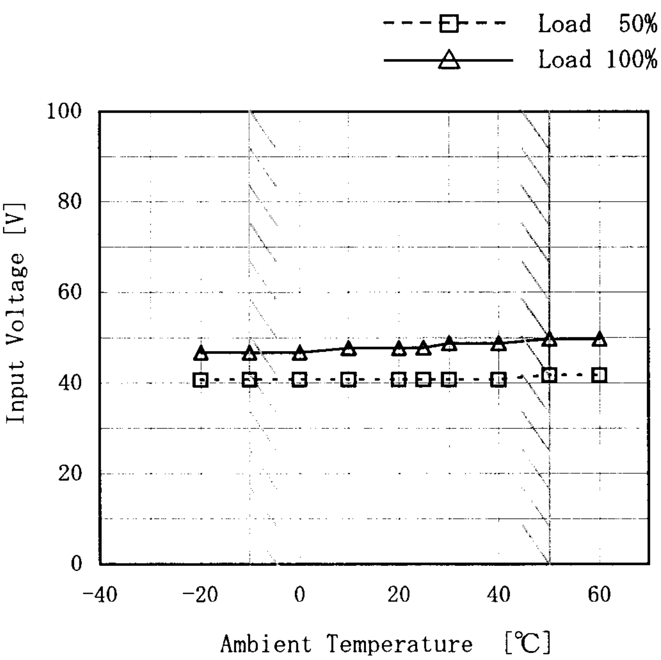


2．Values

Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	40	48
-10	40	49
0	40	49
10	40	49
20	40	50
25	40	50
30	40	50
40	40	51
50	41	51
60	41	52
—	—	—

Object	+24V0.5A

1．Graph



2．Values

Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	41	47
-10	41	47
0	41	47
10	41	48
20	41	48
25	41	48
30	41	49
40	41	49
50	42	50
60	42	50
—	—	—

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

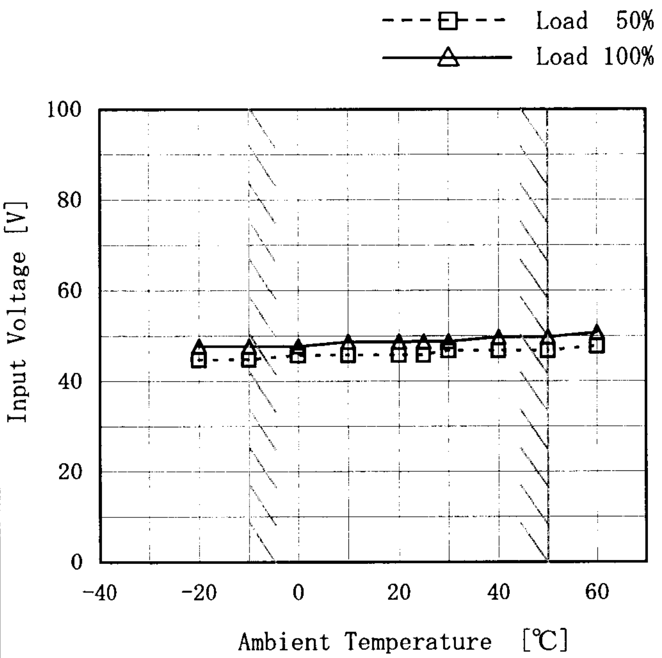
（注）斜線は定格周囲温度範囲を示す。

COSEL

Model	LCC30A-3
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5V0.5A

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 Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	45	48
-10	45	48
0	46	48
10	46	49
20	46	49
25	46	49
30	47	49
40	47	50
50	47	50
60	48	51
—	—	—

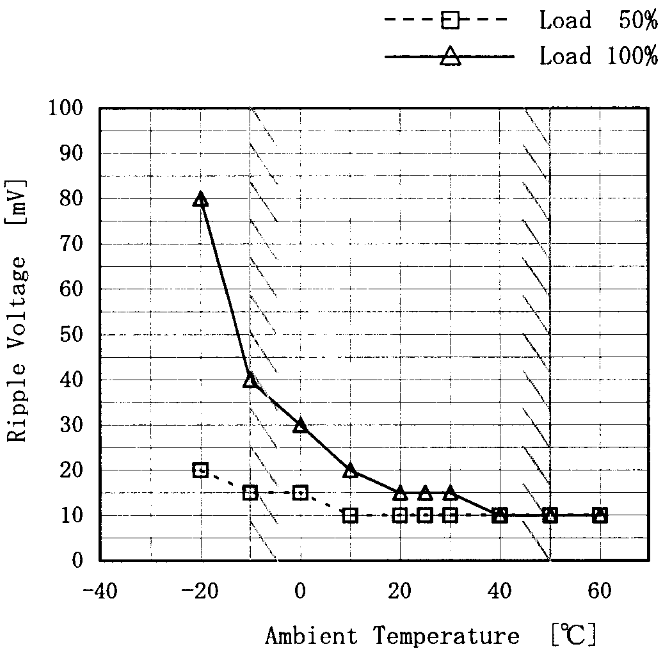
COSEL

Model	LCC30A-3
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）

Testing Circuitry　Figure A

Object	+5V3A

1. Graph



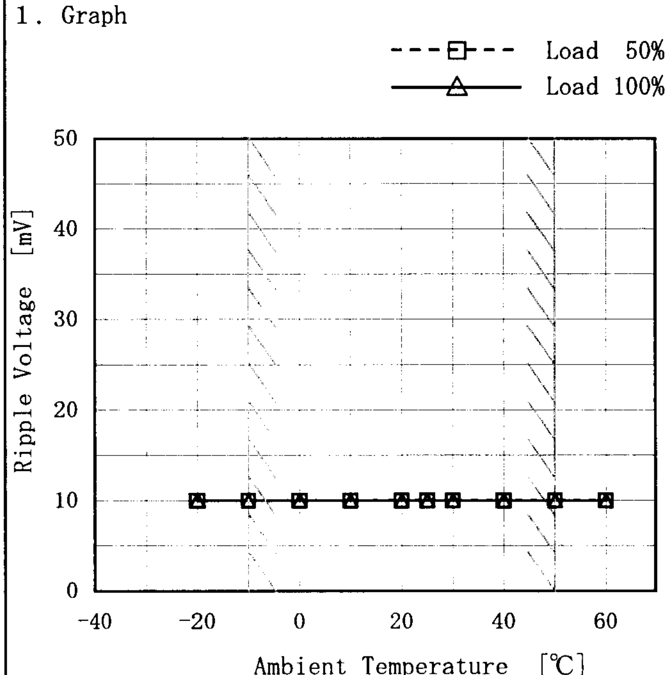
Input Volt.　100V

2. Values

Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	20	80
-10	15	40
0	15	30
10	10	20
20	10	15
25	10	15
30	10	15
40	10	10
50	10	10
60	10	10
—	—	—

Object	+24V0.5A

1. Graph



Input Volt.　100V

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

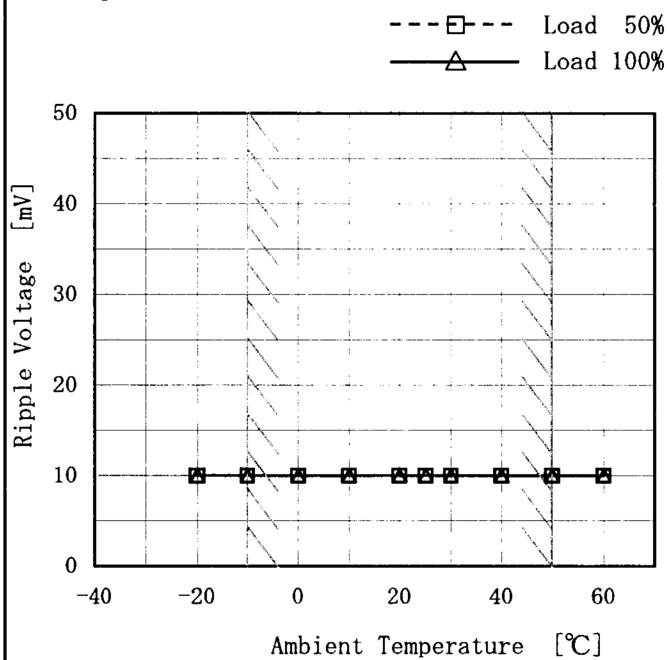
Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	10	10
-10	10	10
0	10	10
10	10	10
20	10	10
25	10	10
30	10	10
40	10	10
50	10	10
60	10	10
—	—	—

COSEL

Model	LCC30A-3
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+5V0.5A

Testing Circuitry　Figure A

1．Graph



Input Volt.　100V

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。

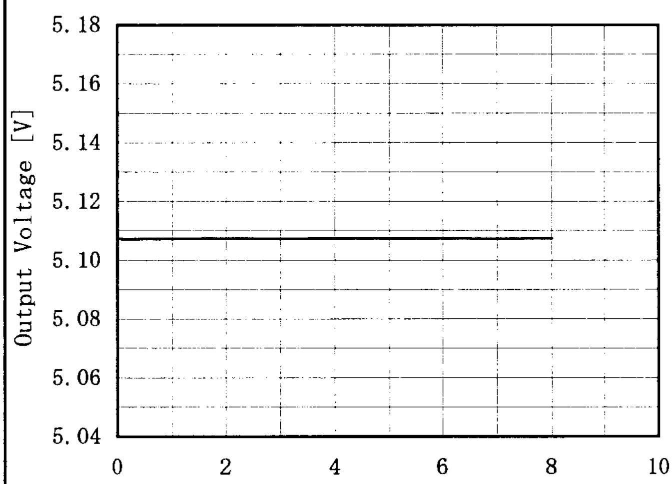
2．Values

Ambient Temperature [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	10	10
-10	10	10
0	10	10
10	10	10
20	10	10
25	10	10
30	10	10
40	10	10
50	10	10
60	10	10
—	—	—

COSEL

Model	LCC30A-3		
Item	Time Lapse Drift 経時ドリフト	Temperature Testing Circuitry	25℃ Figure A
Object	+5V3A		

1．Graph



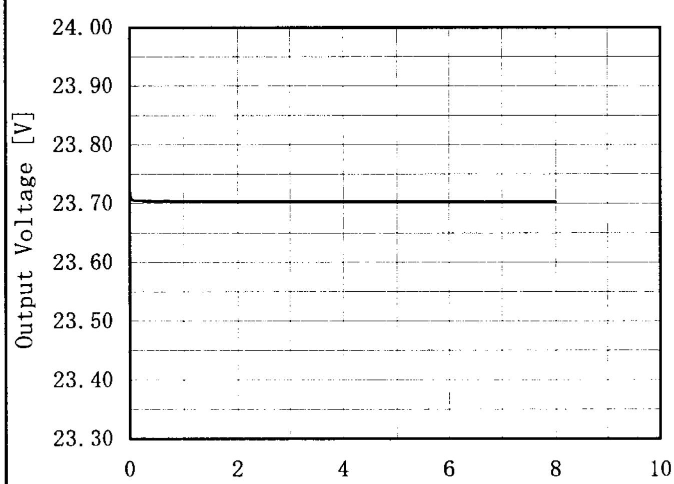
Input Volt.　100V
Load　100%

2．Values

Time since start [H]	Output Voltage [V]
0.0	5.107
0.5	5.107
1.0	5.107
2.0	5.107
3.0	5.107
4.0	5.107
5.0	5.107
6.0	5.107
7.0	5.107
8.0	5.107

Object	+24V0.5A

1．Graph



Input Volt.　100V
Load　100%

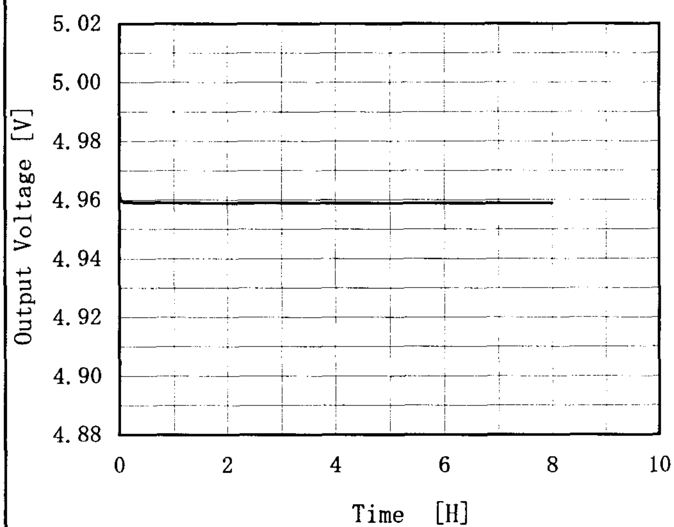
2．Values

Time since start [H]	Output Voltage [V]
0.0	23.721
0.5	23.704
1.0	23.704
2.0	23.704
3.0	23.704
4.0	23.703
5.0	23.703
6.0	23.703
7.0	23.703
8.0	23.703

COSEL

Model	LCC30A-3		
Item	Time Lapse Drift 経時ドリフト	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.5A		

1. Graph



Input Volt. 100V

Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	4.963
0.5	4.959
1.0	4.959
2.0	4.959
3.0	4.959
4.0	4.959
5.0	4.959
6.0	4.959
7.0	4.959
8.0	4.959

COSEL

Model	LCC30A-3	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry　Figure A

1．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 ～ 132V

Load Current (AVR 1) : 0 ～ 3A　(AVR 2) : 0～0.5A　(AVR 3) : 0～0.5A

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

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

1．定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、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 ～ 132V

負荷電流 (AVR 1) : 0 ～ 3A　(AVR 2) : 0～0.5A　(AVR 3) : 0～0.5A

* 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

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

2．Values

Object	+5V3A					
Item	Temperature [℃]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	85	0	5.124	±11	±0.2
Minimum Voltage	-10	100	3	5.102		

Object	+24V0.5A					
Item	Temperature [℃]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0.5	23.745	±60	±0.3
Minimum Voltage	50	85	0	23.626		

Object	+5V0.5A					
Item	Temperature [℃]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	132	0	5.014	±30	±0.6
Minimum Voltage	50	132	0.5	4.955		

COSEL

Model	LCC30A-3	
Item	Condense 結露特性	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、恒温槽でー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

Object	+5V3A

Item	Data	Testing Conditions
Output Voltage [V]	5.114	Input Volt.:100V, Load Current.:3A
Line Regulation [mV]	1	Input Volt.:85～132V, Load Current.:3A
Load Regulation [mV]	14	Input Volt.:100V, Load Current.:0～3A

Object	+24V0.5A

Item	Data	Testing Conditions
Output Voltage [V]	23.726	Input Volt.:100V, Load Current.:0.5A
Line Regulation [mV]	2	Input Volt.:85～132V, Load Current.:0.5A
Load Regulation [mV]	58	Input Volt.:100V, Load Current.:0～0.5A

Object	+5V0.5A

Item	Data	Testing Conditions
Output Voltage [V]	4.984	Input Volt.:100V, Load Current.:0.5A
Line Regulation [mV]	1	Input Volt.:85～132V, Load Current.:0.5A
Load Regulation [mV]	37	Input Volt.:100V, Load Current.:0～0.5A

COSEL

Model	LCC30A-3
Item	Leakage Current 漏洩電流
Object	――――――――――

Temperature 25℃
Testing Circuitry Figure B

1．Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DEN-AN	0.06	0.07	0.09
(B) IEC60950	0.06	0.07	0.09

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	LCC30A-3
Item	Line Noise Tolerance 入力雑音耐量
Object	+5V3A

Temperature 25℃
Testing Circuitry Figure C

1. Conditions

- Input Voltage : 100 V
- Pulse Voltage : 2000 V
- Pulse Cycle : 10 mS
- Pulse Input Duration : 1 min. or more
- Load : 100 %

2. Results

Pulse Width [nS]	MODE	POLARITY	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation
1000	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation

Object	+24V0.5A

1. Conditions

- Input Voltage : 100 V
- Pulse Voltage : 2000 V
- Pulse Cycle : 10 mS
- Pulse Input Duration : 1 min. or more
- Load : 100 %

2. Results

Pulse Width [nS]	MODE	POLARITY	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation
1000	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation

COSEL

Model	LCC30A-3
Item	Line Noise Tolerance 入力雑音耐量
Object	+5V0.5A

Temperature 25℃
Testing Circuitry Figure C

1. Conditions

- Input Voltage : 100 V
- Pulse Voltage : 2000 V
- Pulse Cycle : 10 mS
- Pulse Input Duration : 1 min. or more
- Load : 100 %

2. Results

Pulse Width [nS]	MODE	POLARITY	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation
1000	COMMON	+	OK	no fluctuation
		−	OK	no fluctuation
	NORMAL	+	OK	no fluctuation
		−	OK	no fluctuation

COSEL

Model	LCC30A-3		
Item	Conducted Emission 雑音端子電圧	Temperature Testing Circuitry	25℃ Figure D
Object	――――――――		

1. Graph

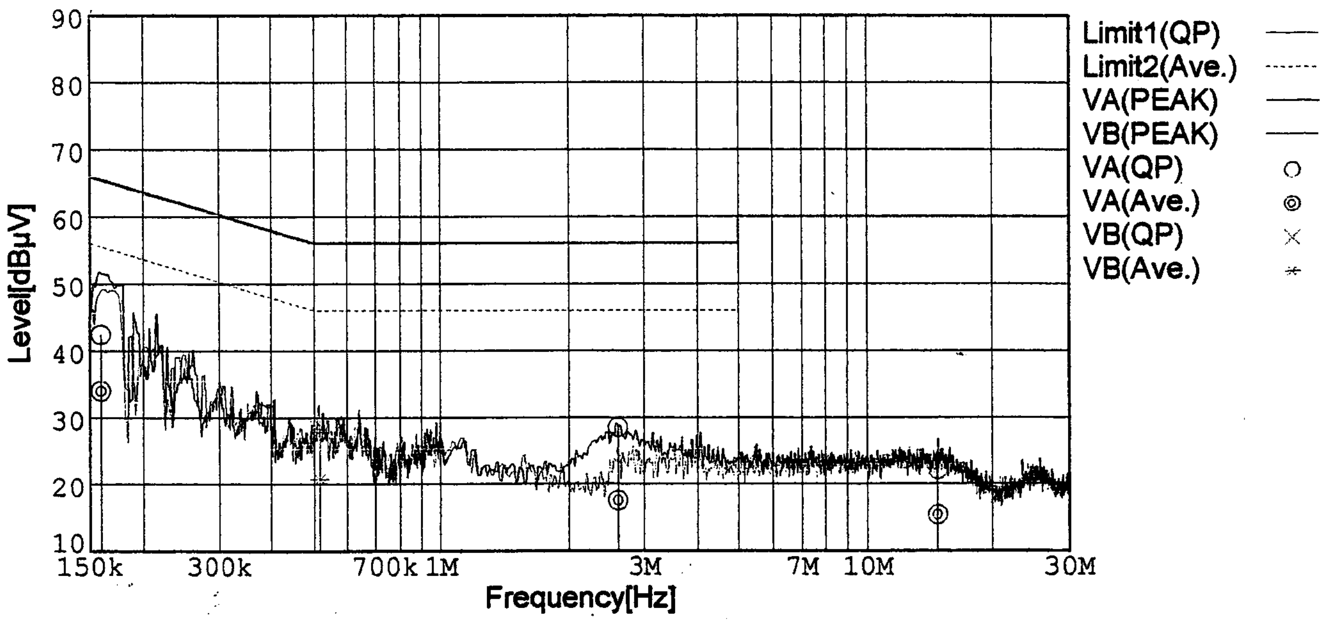
Remarks

Input Volt. 100V (VCCI Class B)

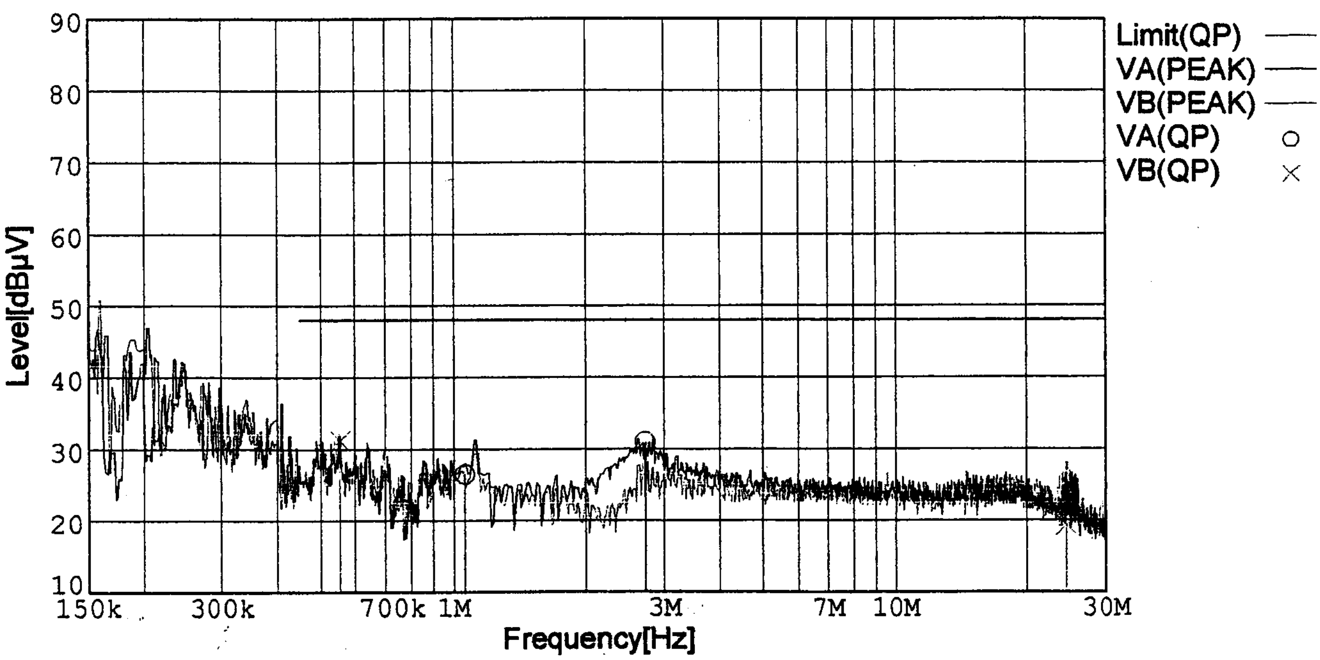
120V (FCC Class B)

Load 100%

Limit1: [VCCI] Class B(QP)
Limit2: [VCCI] Class B(Ave.)



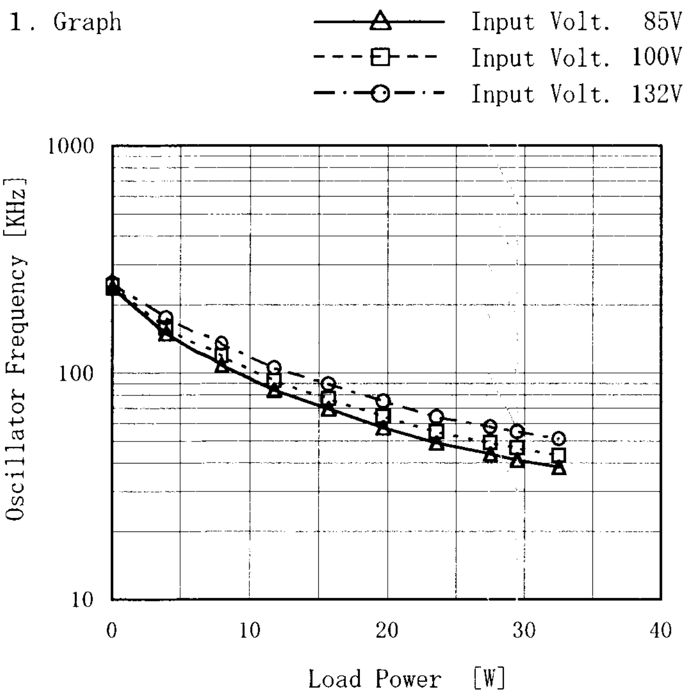
Limit: [FCC Part15] Class B



COSEL

Model	LCC30A-3		
Item	Oscillator Frequency 発振周波数	Temperature Testing Circuitry	25℃ Figure A
Object	――――――――		

1. Graph



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

(注) 斜線は定格負電力荷範囲を示す。

2. Values

Load Power [W]	Oscillator Frequency [KHz] Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.0	238	244	250
3.9	149	159	175
7.9	109	119	135
11.8	84	93	105
15.7	69	77	89
19.7	57	65	75
23.6	49	55	64
27.5	44	49	58
29.5	41	47	55
32.5	38	43	51
—	—	—	—

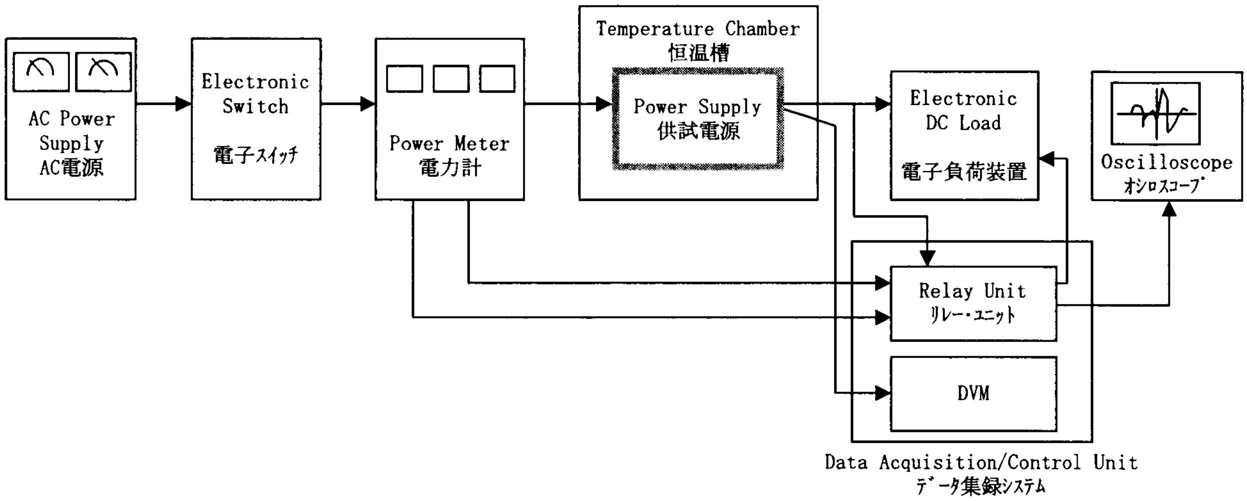
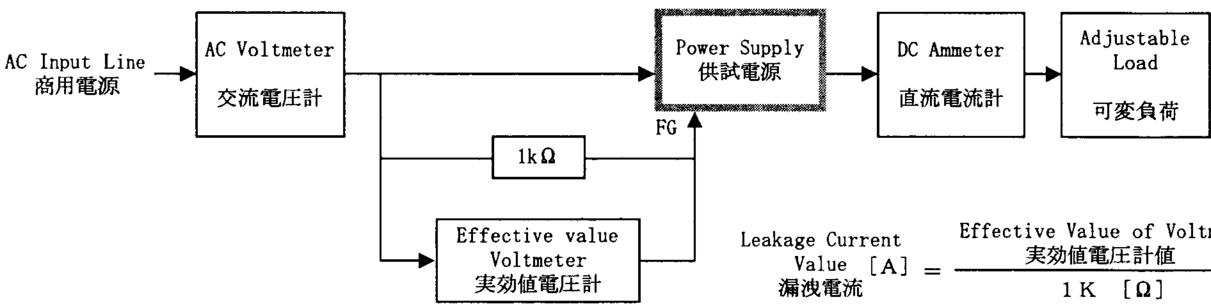
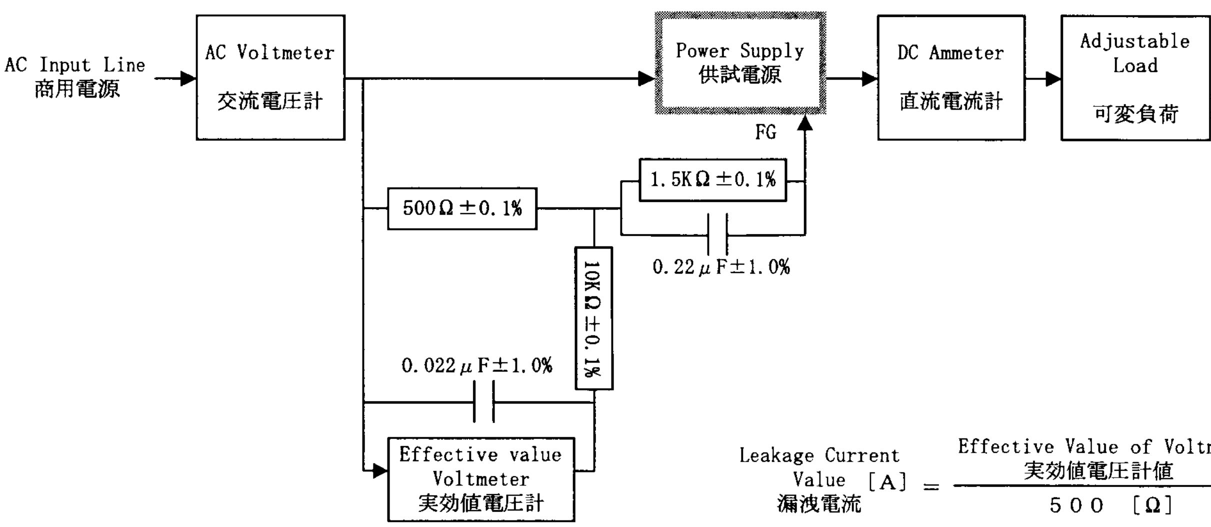


Figure A



$$\text{Leakage Current Value [A] 漏洩電流} = \frac{\text{Effective Value of Voltmeter 実効値電圧計値 [V]}}{1\text{K} \ [\Omega]}$$

Figure B (DEN-AN)



$$\text{Leakage Current Value [A] 漏洩電流} = \frac{\text{Effective Value of Voltmeter 実効値電圧計値 [V]}}{500 \ [\Omega]}$$

Figure B (IEC60950)

COSEL

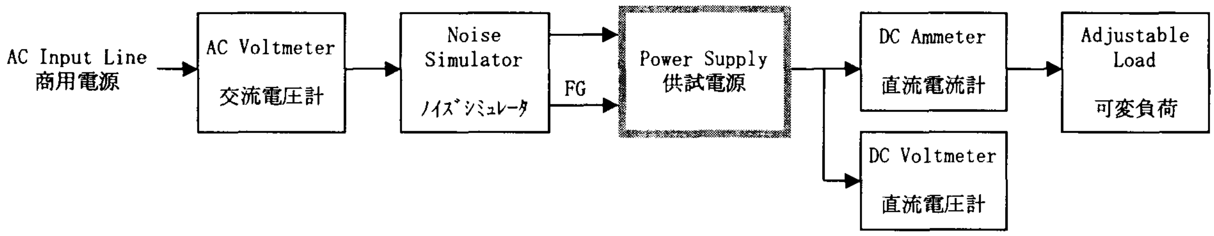


Figure C

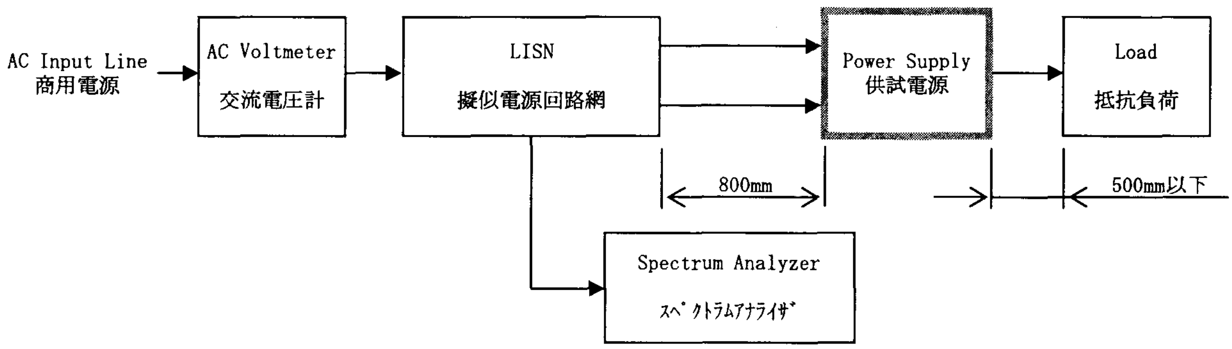


Figure D