参考資料

COSEL

TEST DATA OF ZUS1R54815

(48.0V INPUT)

Regulated DC Power Supply

Date : June 14. 1996

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コーセル株式会社

COSEL CO.,LTD.

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CONTENTS

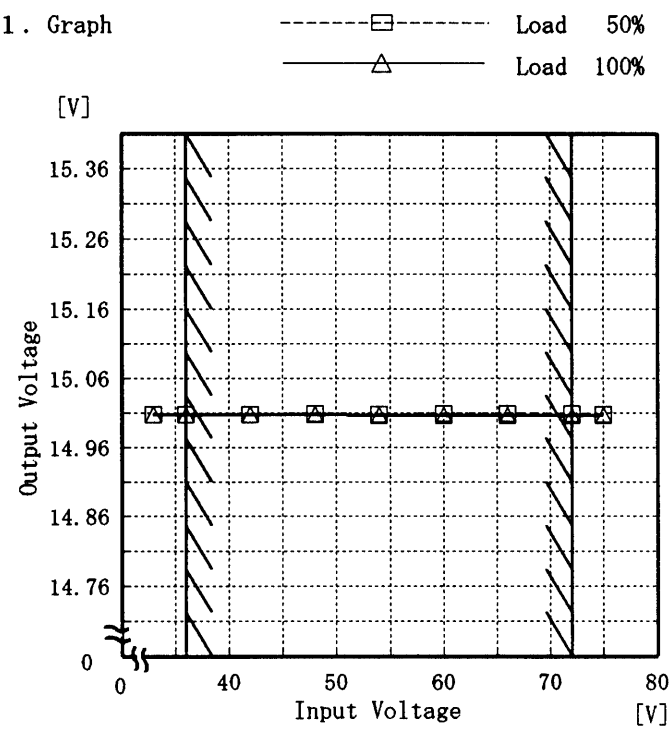
(Final Page 15)

COSEL

Model	ZUS1R54815
Item	Line Regulation 静的入力変動
Object	+15V0.1A

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

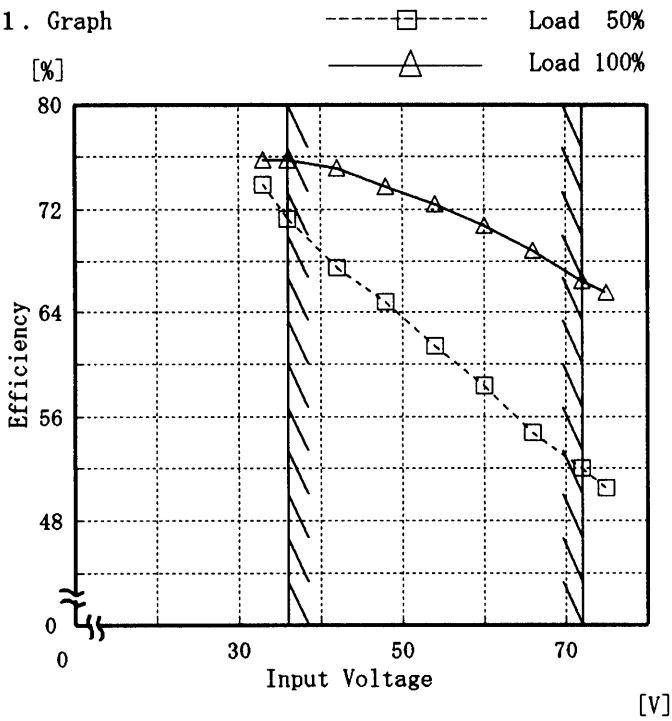
Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]
33.0	15.008	15.007
36.0	15.008	15.007
42.0	15.008	15.007
48.0	15.008	15.007
54.0	15.008	15.006
60.0	15.008	15.006
66.0	15.008	15.006
72.0	15.008	15.006
75.0	15.008	15.006
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS1R54815
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

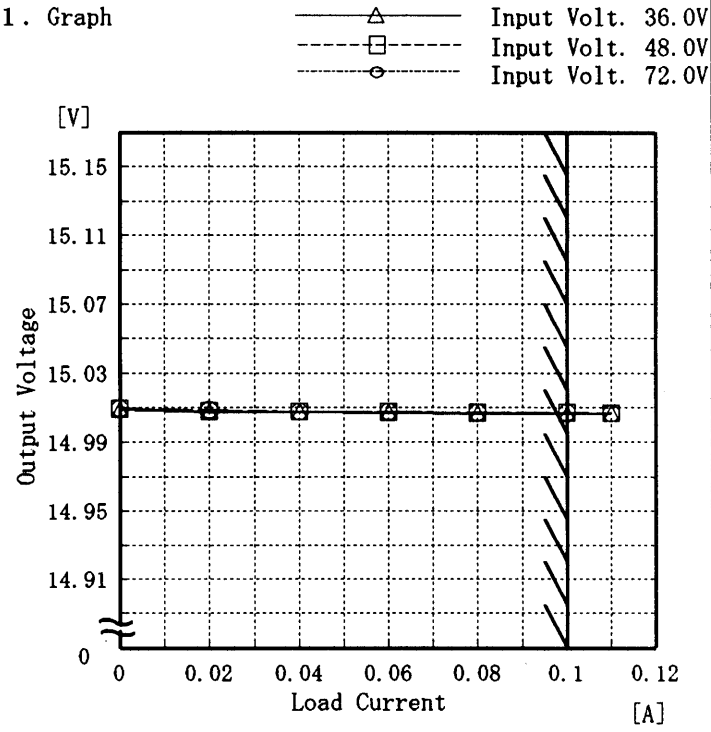
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
33.0	73.9	75.8
36.0	71.3	75.8
42.0	67.5	75.1
48.0	64.8	73.8
54.0	61.4	72.4
60.0	58.3	70.8
66.0	54.8	68.8
72.0	52.0	66.5
75.0	50.5	65.5
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS1R54815
Item	Load Regulation 静的負荷変動
Object	+15V0.1A

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

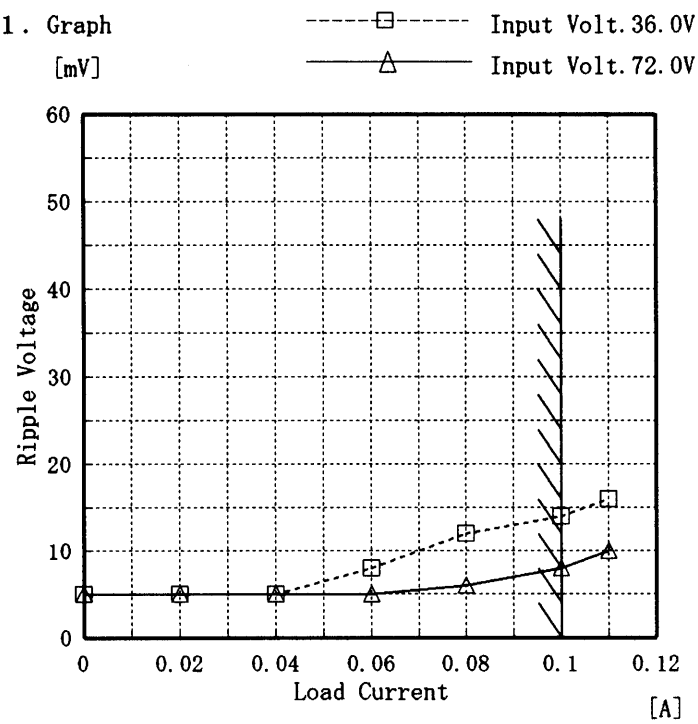
Load Current [A]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
0.00	15.009	15.010	15.010
0.02	15.008	15.008	15.009
0.04	15.008	15.008	15.008
0.06	15.007	15.008	15.008
0.08	15.007	15.007	15.007
0.10	15.007	15.007	15.007
0.11	15.007	15.007	15.007
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	ZUS1R54815
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+15V 0.1A

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

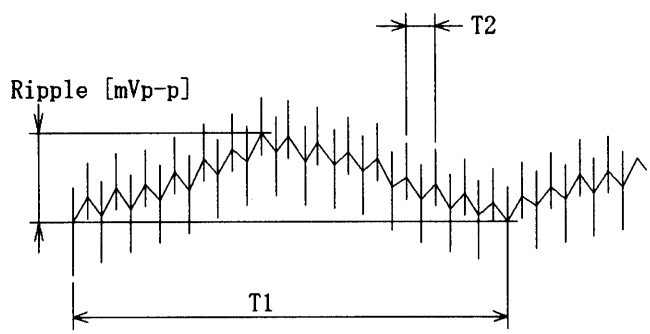


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

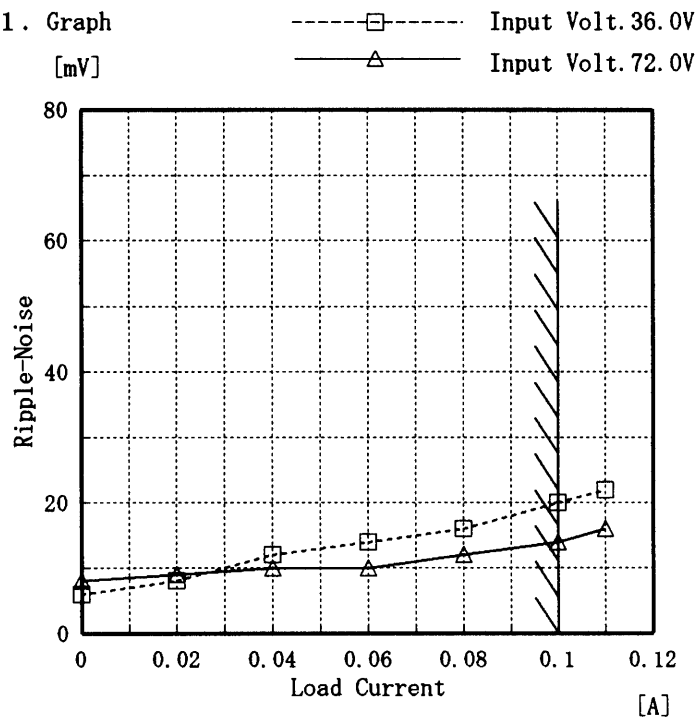
Load Current [A]	Input Volt. 36.0 [V] Ripple Output Volt. [mV]	Input Volt. 72.0 [V] Ripple Output Volt. [mV]
0.00	5	5
0.02	5	5
0.04	5	5
0.06	8	5
0.08	12	6
0.10	14	8
0.11	16	10
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS1R54815
Item	Ripple-Noise リップルノイズ
Object	+15V0.1A

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

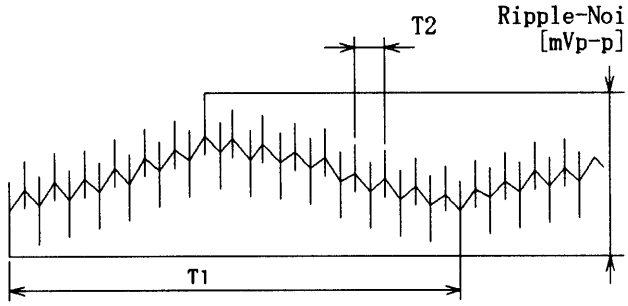


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

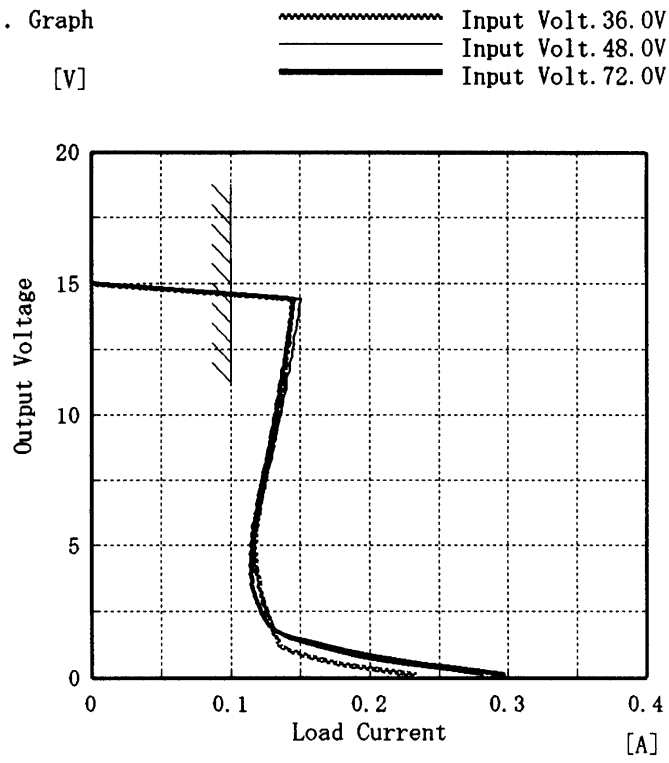
Load current [A]	Input Volt. 36.0 [V] Ripple-Noise [mV]	Input Volt. 72.0 [V] Ripple-Noise [mV]
0.00	6	8
0.02	8	9
0.04	12	10
0.06	14	10
0.08	16	12
0.10	20	14
0.11	22	16
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS1R54815
Item	Overcurrent Protection 過電流保護
Object	+15V0.1A

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. 36.0[V] Load Current [A]	Input Volt. 48.0[V] Load Current [A]	Input Volt. 72.0[V] Load Current [A]
15.00	0.14	0.15	0.15
14.25	0.14	0.15	0.14
13.50	0.14	0.15	0.14
12.00	0.14	0.14	0.14
10.50	0.14	0.14	0.13
9.00	0.13	0.13	0.13
7.50	0.12	0.13	0.12
6.00	0.12	0.12	0.12
4.50	0.12	0.12	0.11
3.00	0.12	0.12	0.12
1.50	0.13	0.14	0.14
0.00	0.23	0.28	0.30

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Model	ZUS1R54815		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+15V0.1A		

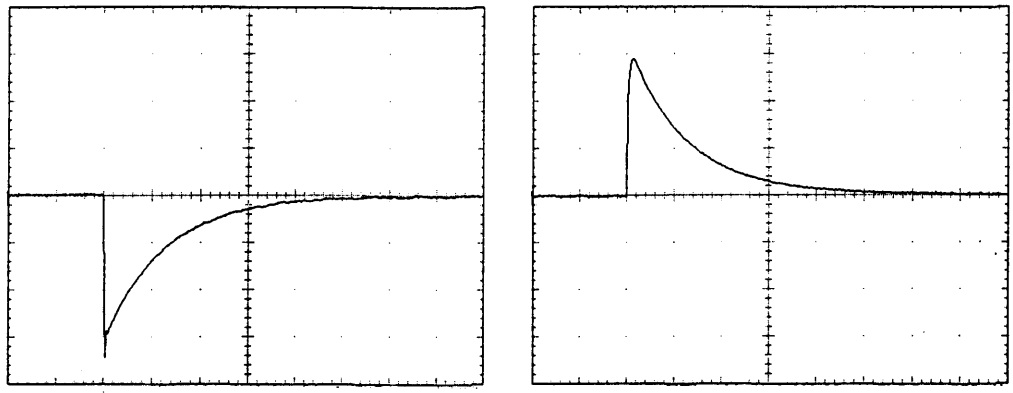
Input Volt. 48.0 V

Cycle 100 mS

Load Current

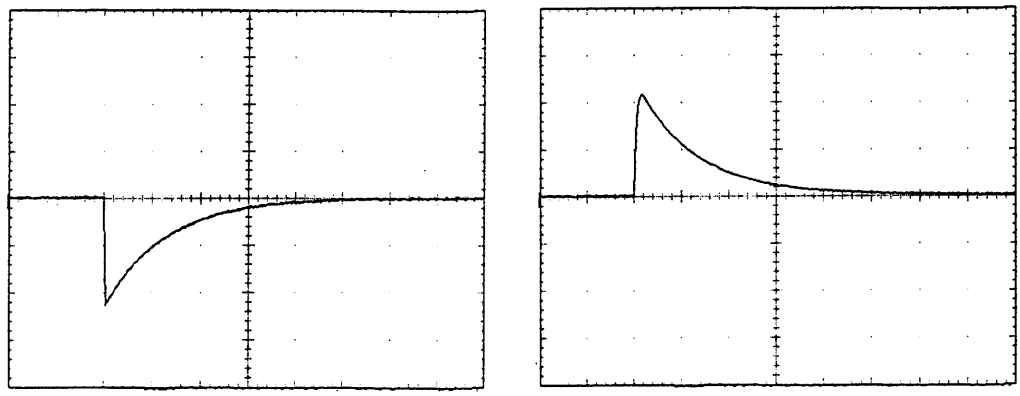
Min. Load ⟷
Load 100 %

100 mV/div



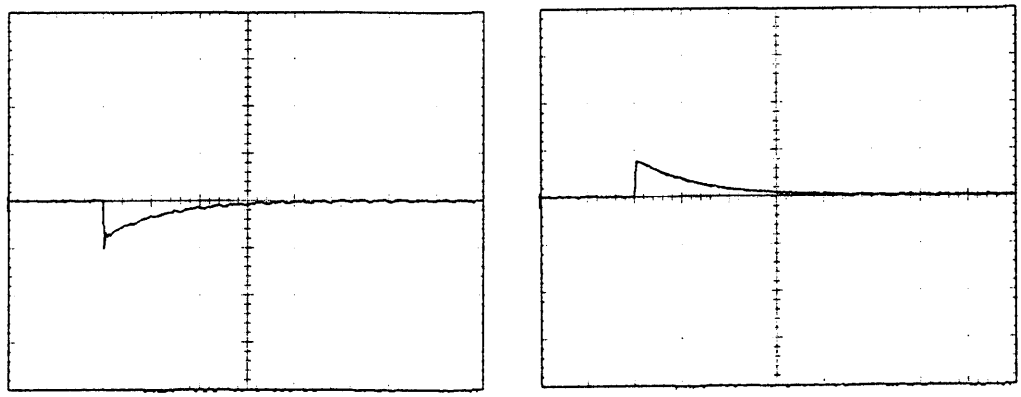
Min. Load ⟷
Load 50 %

100 mV/div



Load 50%⟷
Load 100 %

100 mV/div



1 mS/div

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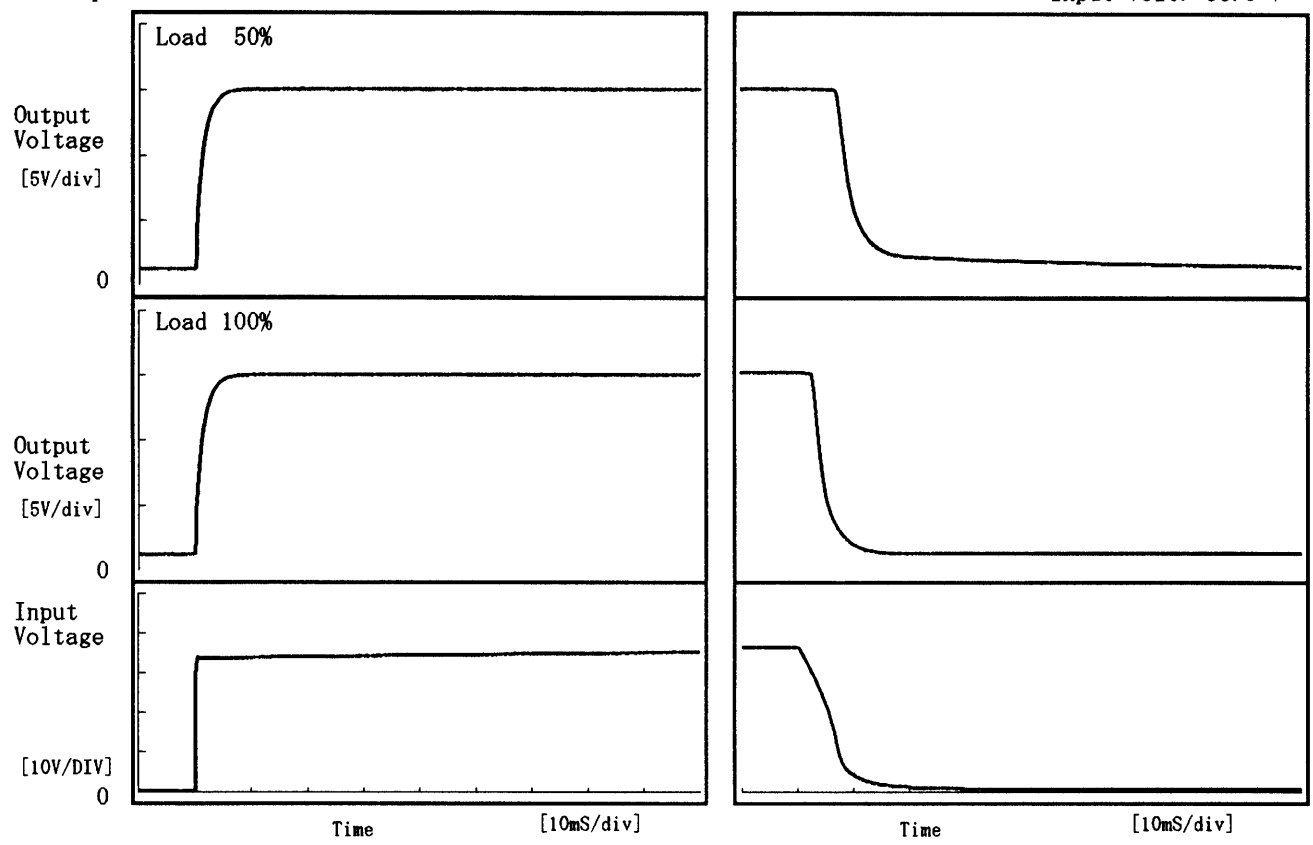
Model	ZUS1R54815		
Item	Rise and Fall Time 立上り、立下り時間	Temperature	25℃
		Testing Circuitry	Figure A
Object	+15V0.1A		

1. Graph

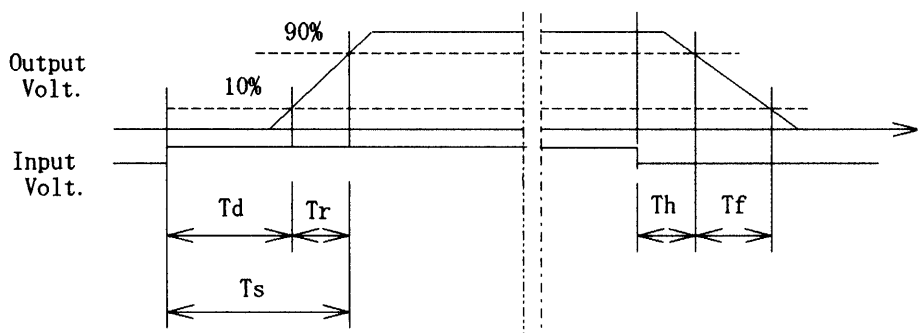
Input Volt. 36.0 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	0.05	3.25	3.30	7.35	44.60
100 %	0.05	3.20	3.25	3.05	8.25



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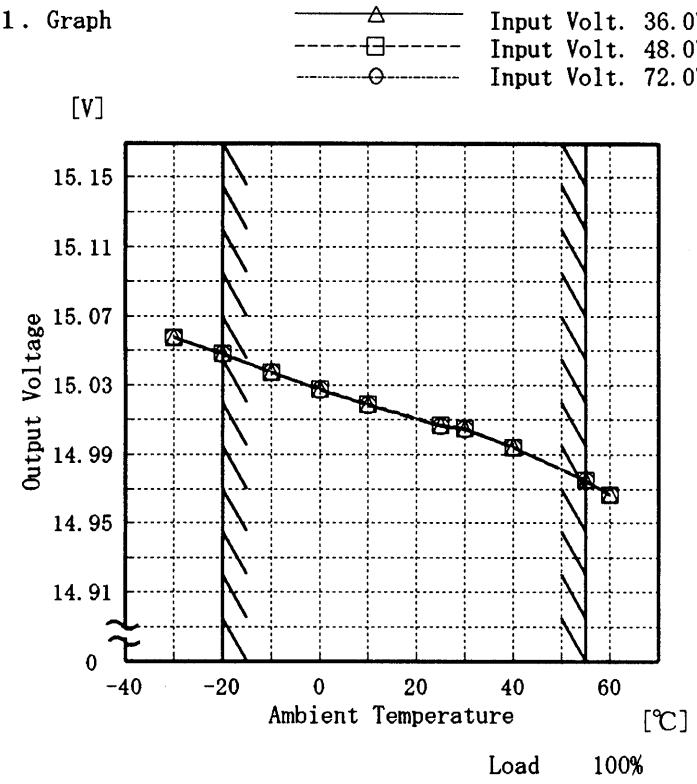
Model	ZUS1R54815
Item	Ambient Temperature Drift 周囲温度変動
Object	+15V0.1A

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

Temperature [℃]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
-30	15.058	15.058	15.057
-20	15.049	15.048	15.048
-10	15.038	15.037	15.037
0	15.028	15.027	15.027
10	15.019	15.019	15.019
25	15.007	15.007	15.007
30	15.005	15.005	15.004
40	14.995	14.994	14.994
55	14.975	14.975	14.975
60	14.967	14.967	14.966
—	—	—	—

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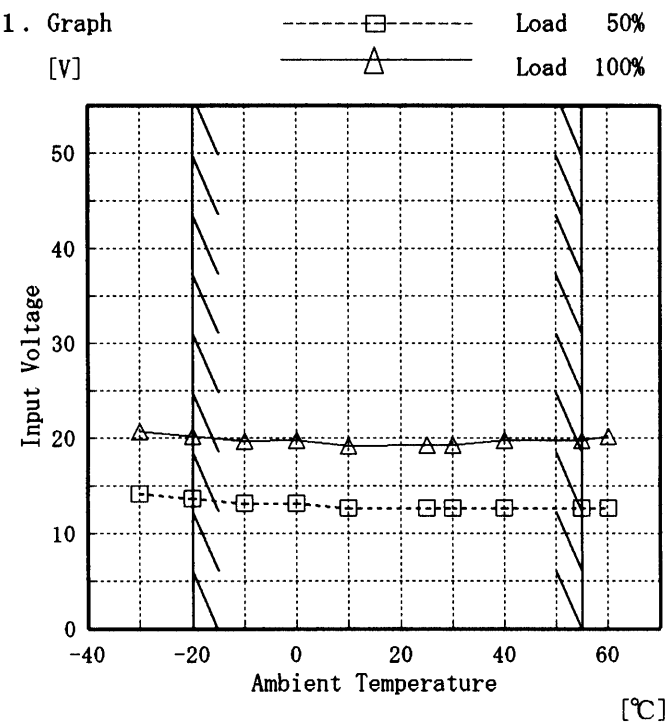
Model	ZUS1R54815
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+15V0.1A

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

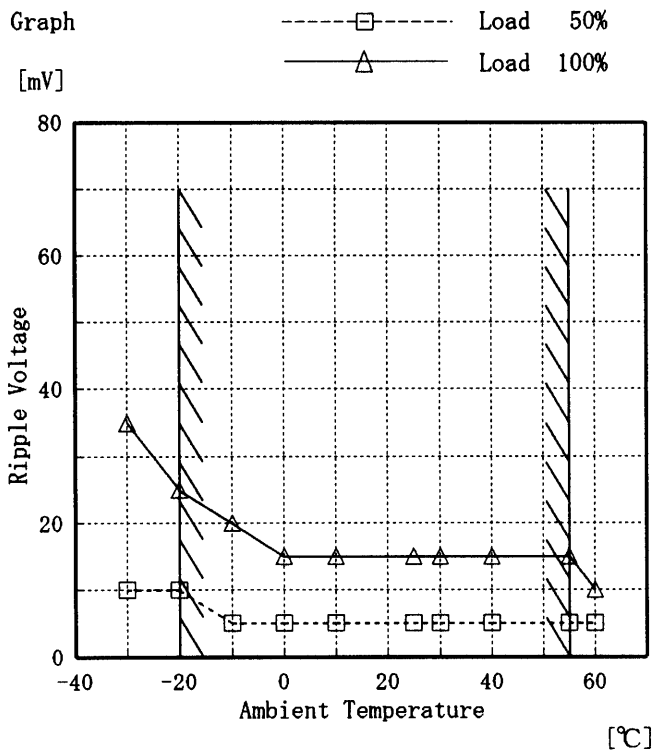
Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-30	14.2	20.7
-20	13.7	20.2
-10	13.2	19.7
0	13.2	19.7
10	12.7	19.2
25	12.7	19.2
30	12.7	19.2
40	12.7	19.8
55	12.7	19.8
60	12.7	20.2
—	—	—

COSEL

Model	ZUS1R54815
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+15V0.1A

Testing Circuitry Figure A

1. Graph



Input Volt. 36.0 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

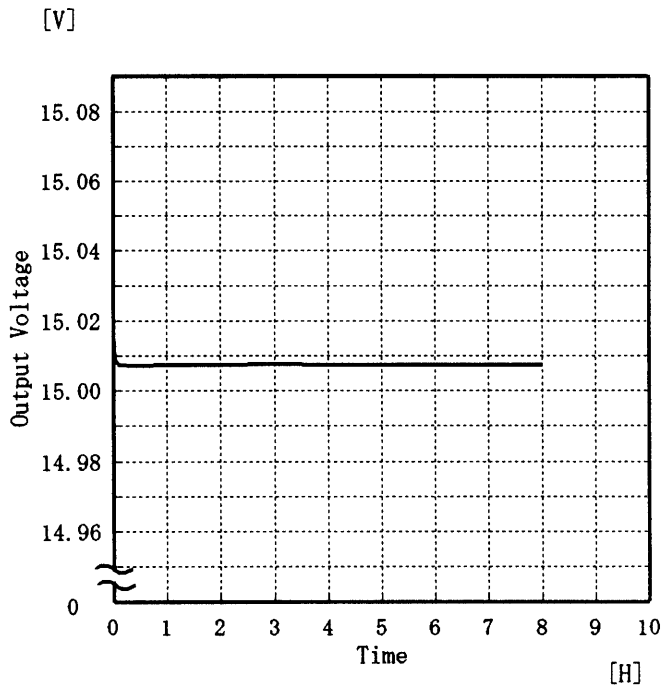
Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-30	10	35
-20	10	25
-10	5	20
0	5	15
10	5	15
25	5	15
30	5	15
40	5	15
55	5	15
60	5	10
—	—	—

COSEL

Model	ZUS1R54815
Item	Time Lapse Drift 経時ドリフト
Object	+15V0.1A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 48V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	15.017
0.5	15.007
1.0	15.008
2.0	15.008
3.0	15.008
4.0	15.008
5.0	15.008
6.0	15.008
7.0	15.007
8.0	15.007

COSEL

Model	ZUS1R54815	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+15V0.1A	

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 : -20～55 ℃
Input Voltage : 36.0～72.0 V
Load Current : 0.0～0.1 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 -20～55 ℃
入力電圧 36.0～72.0 V
負荷電流 0.0～0.1 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

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

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-20	48.0	0.0	15.052	±40	±0.3
Minimum Voltage	55	72.0	0.1	14.972		

COSEL

Model	ZUS1R54815
Item	Condensation 結露特性
Object	+15V 0.1A

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 24℃ and the humidity is 40%RH.

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

④ Repeating ①, ② and ③ three times.

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２４℃、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３度行い、異常のないことを確認する。

2．Values

	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load 50 %	1	15.191	10	15
	2	15.198	10	15
	3	15.191	10	15
Load 100 %	1	15.189	20	25
	2	15.193	20	25
	3	15.190	20	25

Input Volt. 48.0 V

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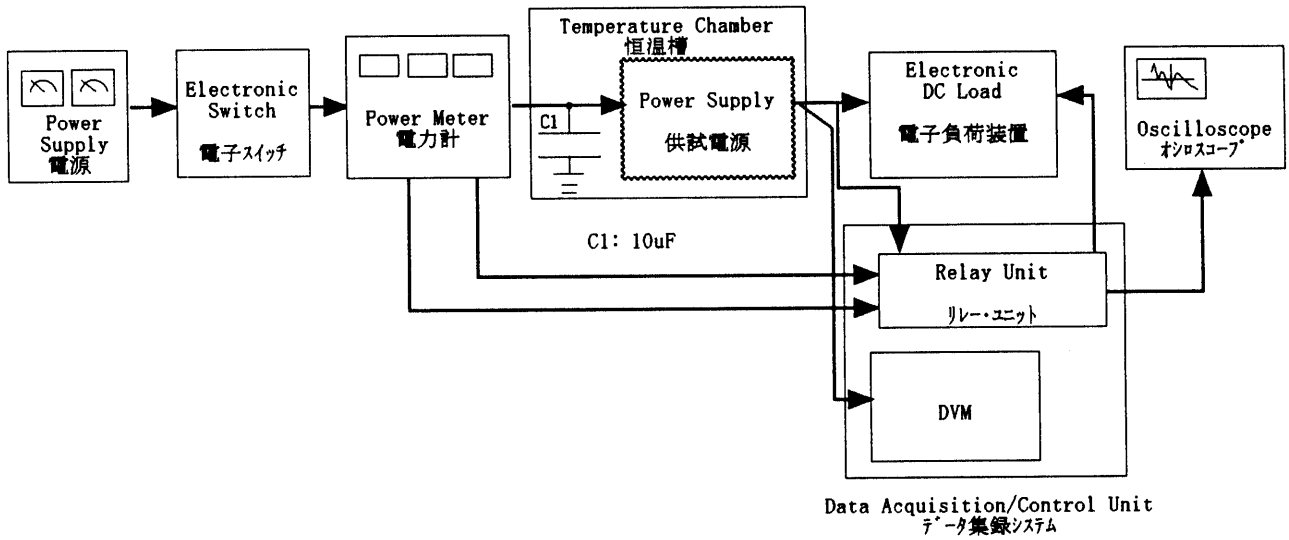

Figure A