参考資料

COSEL

TEST DATA OF ZUS64815

(48.0V INPUT)

Regulated DC Power Supply

Date : Sep.23. 1996

Approved by : T. Sugimori
Design Manager

Prepared by : H. Ise.
Design Engineer

コーセル株式会社

COSEL CO.,LTD.

COSEL

CONTENTS

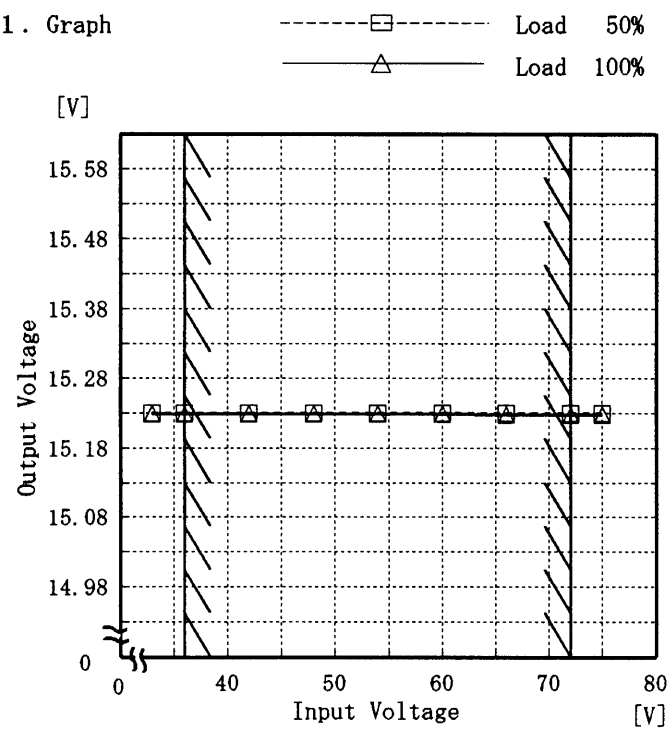
(Final Page 15)

COSEL

Model	ZUS64815
Item	Line Regulation 静的入力変動
Object	+15V0.4A

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

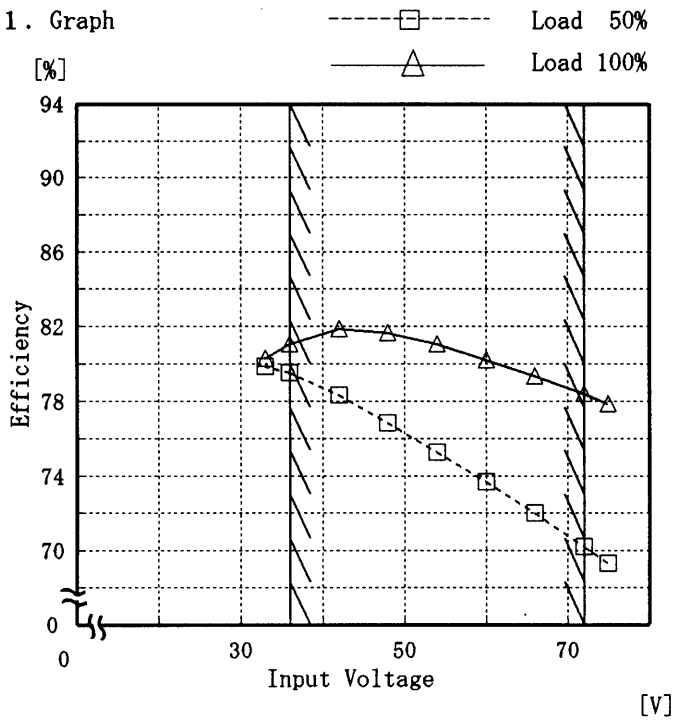
Input Voltage [V]	Load 50% Output Volt. [V]	Load 100% Output Volt. [V]
33.0	15.229	15.228
36.0	15.229	15.228
42.0	15.229	15.228
48.0	15.229	15.228
54.0	15.230	15.228
60.0	15.230	15.228
66.0	15.230	15.228
72.0	15.230	15.228
75.0	15.230	15.227
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS64815
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

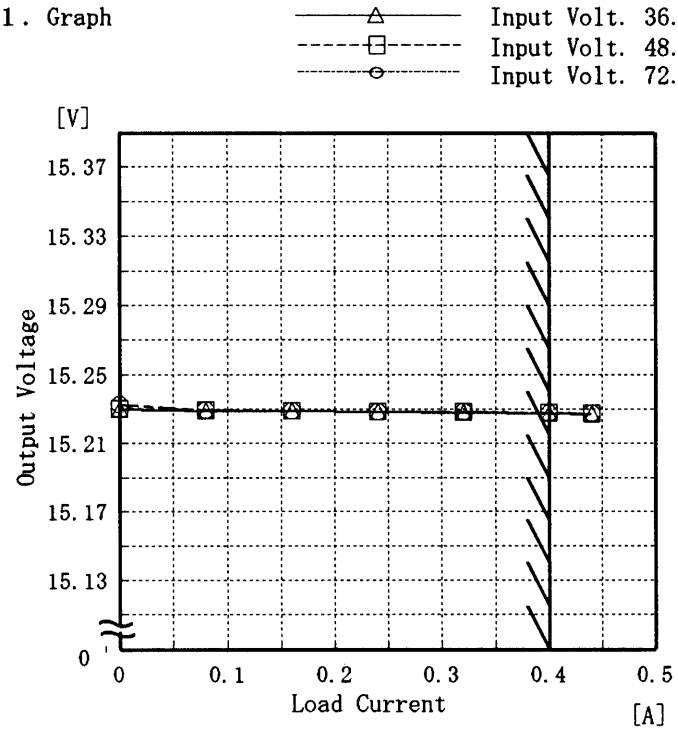
Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
33.0	79.9	80.3
36.0	79.5	81.1
42.0	78.3	81.9
48.0	76.8	81.6
54.0	75.3	81.0
60.0	73.7	80.2
66.0	72.0	79.4
72.0	70.2	78.4
75.0	69.3	77.9
―	―	―
―	―	―
―	―	―

COSEL

Model	ZUS64815
Item	Load Regulation 静的負荷変動
Object	+15V0.4A

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

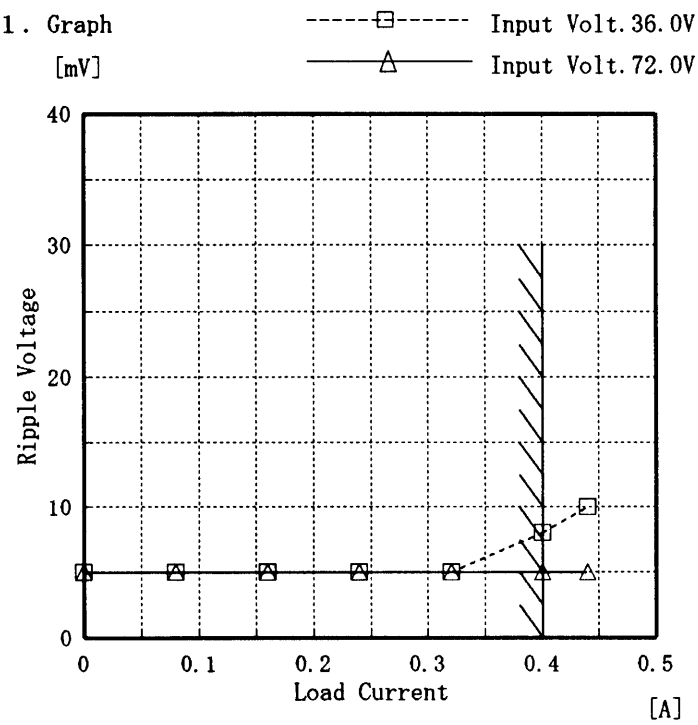
Load Current [A]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
0.00	15.230	15.230	15.233
0.08	15.229	15.230	15.230
0.16	15.229	15.229	15.229
0.24	15.229	15.229	15.229
0.32	15.228	15.228	15.228
0.40	15.228	15.228	15.228
0.44	15.227	15.228	15.228
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	ZUS64815
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+15V 0.4A

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。

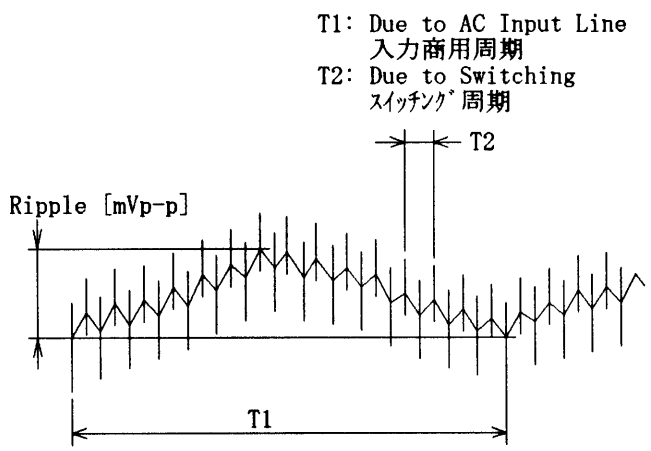


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

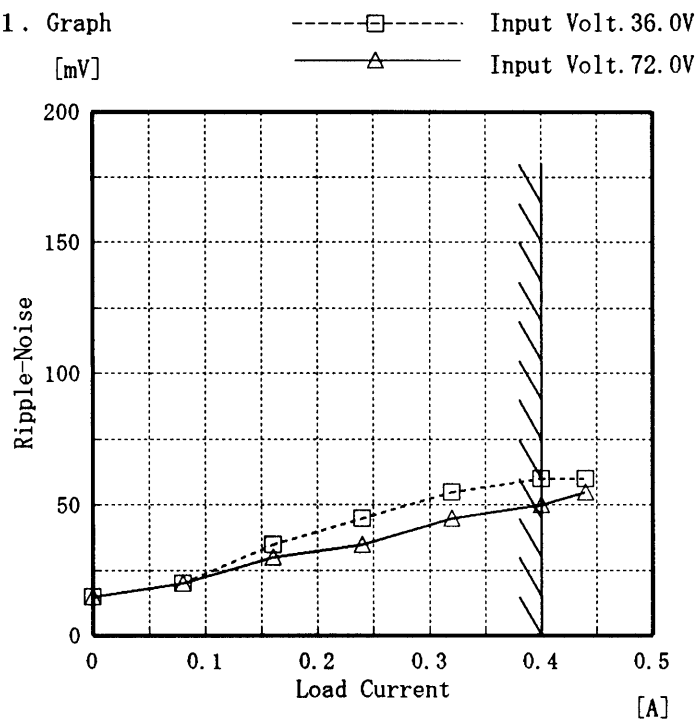
Load Current [A]	Input Volt. 36.0 [V] Ripple Output Volt. [mV]	Input Volt. 72.0 [V] Ripple Output Volt. [mV]
0.00	5	5
0.08	5	5
0.16	5	5
0.24	5	5
0.32	5	5
0.40	8	5
0.44	10	5
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS64815
Item	Ripple-Noise リップルノイズ
Object	+15V0.4A

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

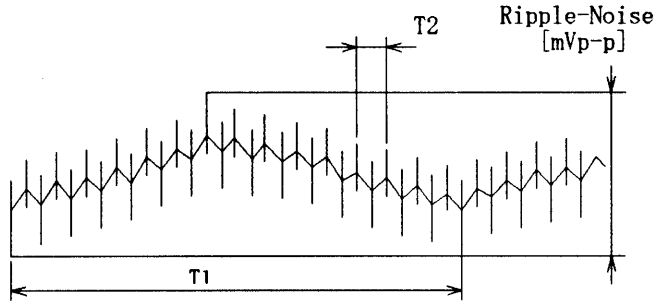


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

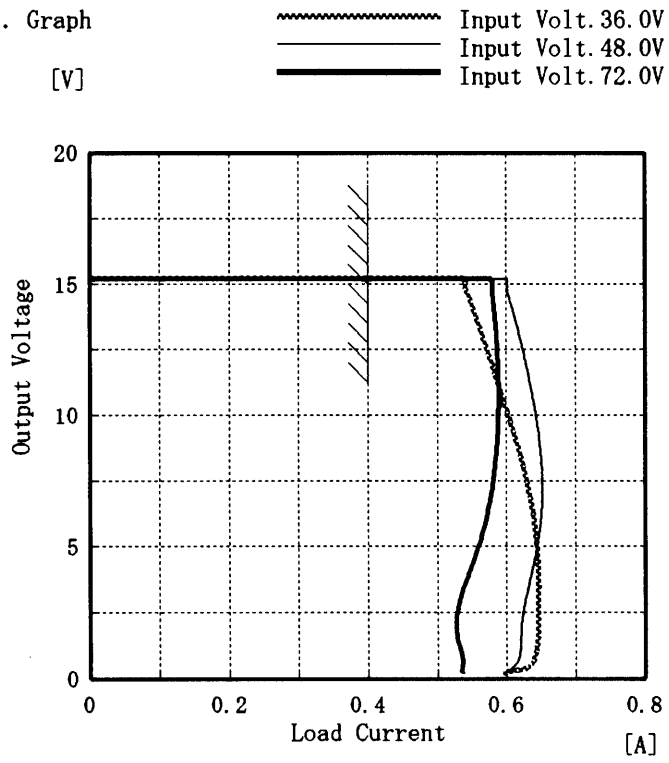
Load current [A]	Input Volt. 36.0 [V] Ripple-Noise [mV]	Input Volt. 72.0 [V] Ripple-Noise [mV]
0.00	15	15
0.08	20	20
0.16	35	30
0.24	45	35
0.32	55	45
0.40	60	50
0.44	60	55
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	ZUS64815
Item	Overcurrent Protection 過電流保護
Object	+15V0.4A

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	0.54	0.60	0.58
14.25	0.55	0.61	0.58
13.50	0.56	0.61	0.58
12.00	0.58	0.63	0.59
10.50	0.60	0.64	0.59
9.00	0.61	0.65	0.59
7.50	0.63	0.65	0.58
6.00	0.64	0.65	0.57
4.50	0.64	0.64	0.55
3.00	0.65	0.63	0.53
1.50	0.64	0.62	0.53
0.00	0.60	0.62	0.55

COSEL

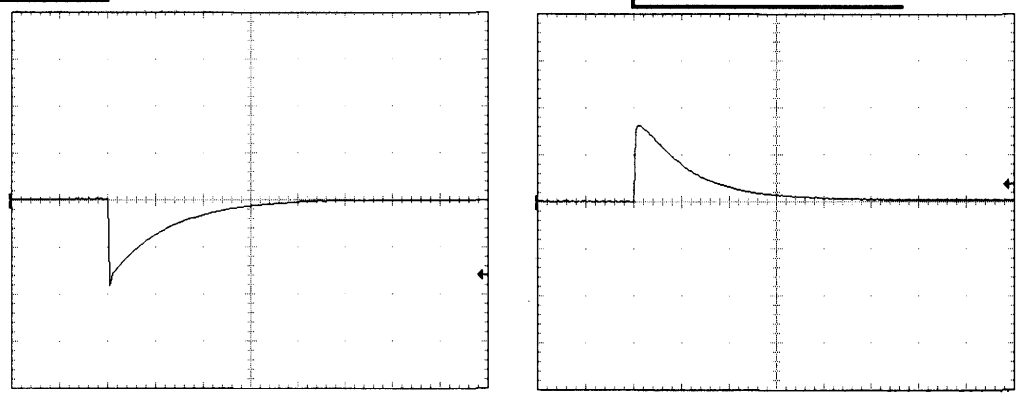
Model	ZUS64815		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+15V0.4A		

Input Volt. 48.0 V

Cycle 100 mS

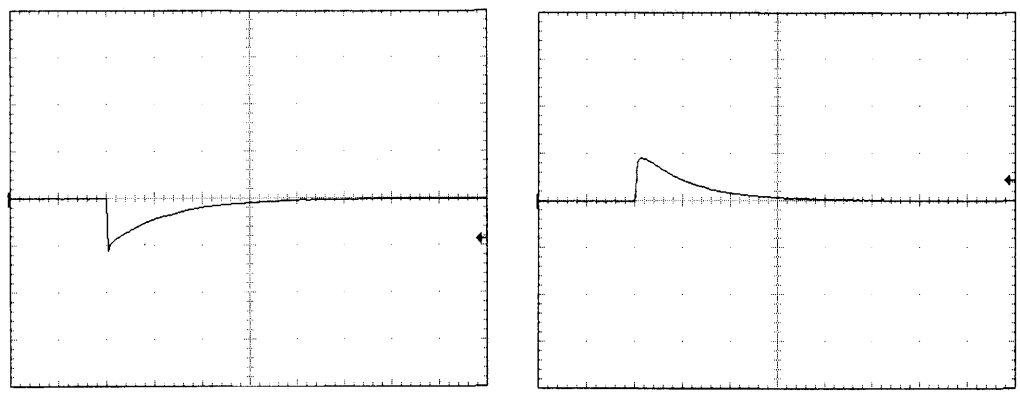
Load Current

Min. Load ⟷
Load 100 %



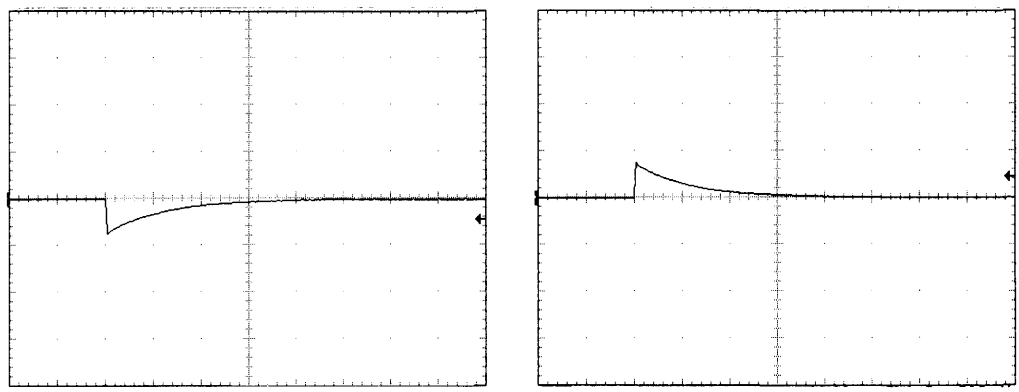
200 mV/div

Min. Load ⟷
Load 50 %



200 mV/div

Load 50%⟷
Load 100 %



200 mV/div

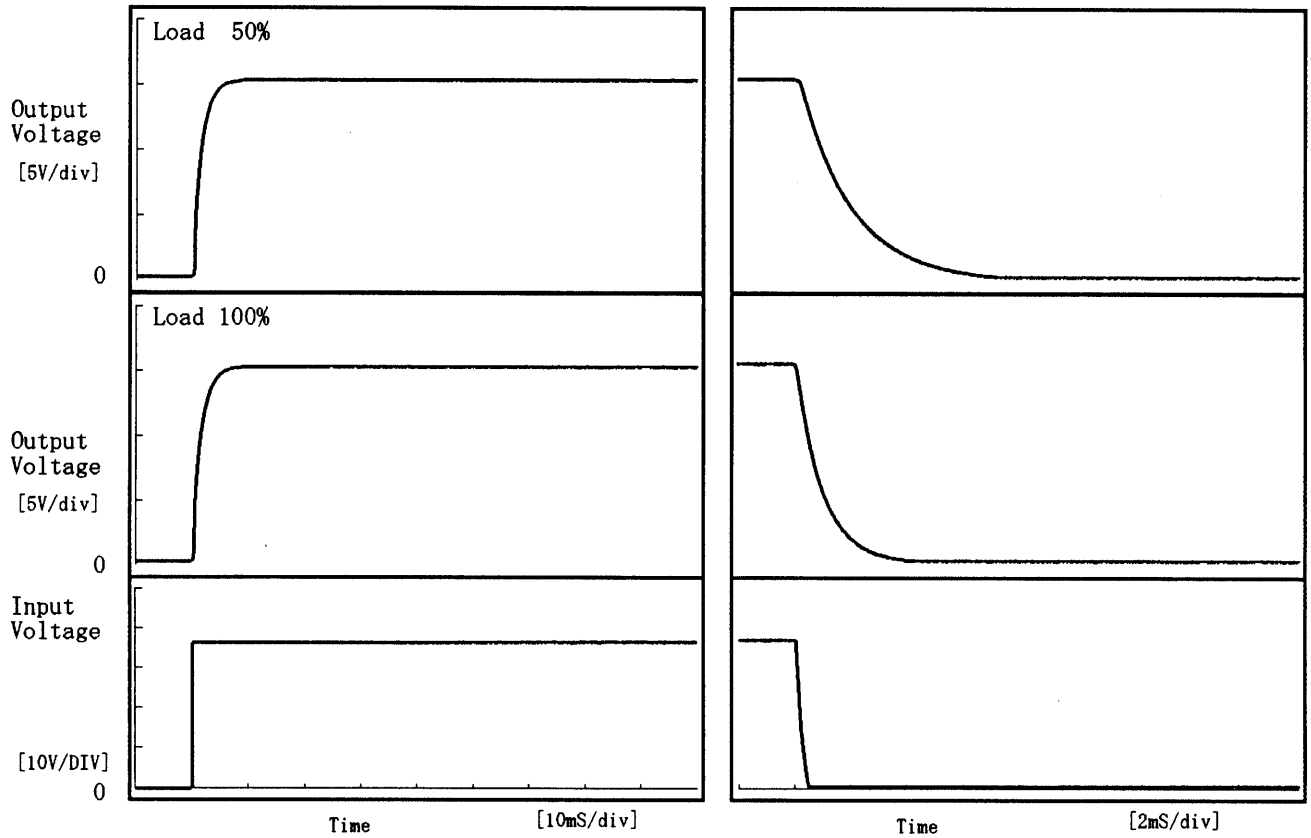
1 mS/div

COSEL

Model	ZUS64815		
Item	Rise and Fall Time 立上り、立下り時間	Temperature	25℃
Object	+15V0.4A	Testing Circuitry	Figure A

1. Graph

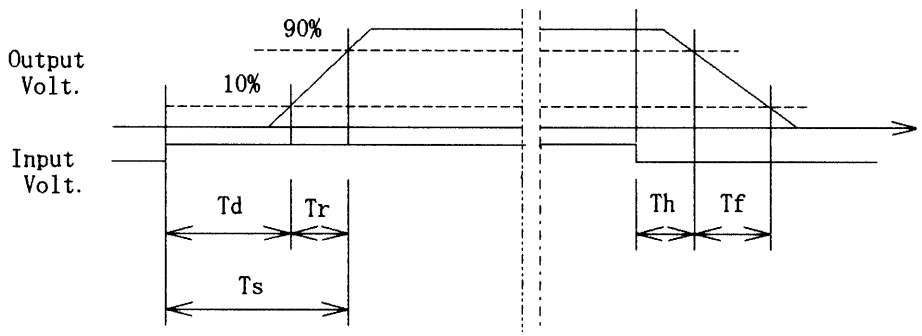
Input Volt. 36.0 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	0.25	3.15	3.40	0.40	3.88
100 %	0.25	3.20	3.45	0.20	2.05

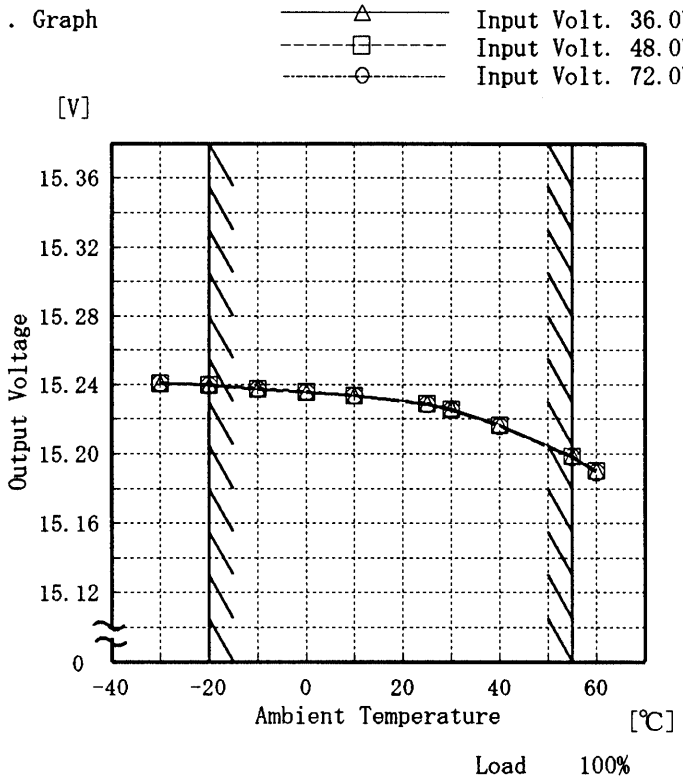


COSEL

Model	ZUS64815
Item	Ambient Temperature Drift 周囲温度変動
Object	+15V0.4A

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

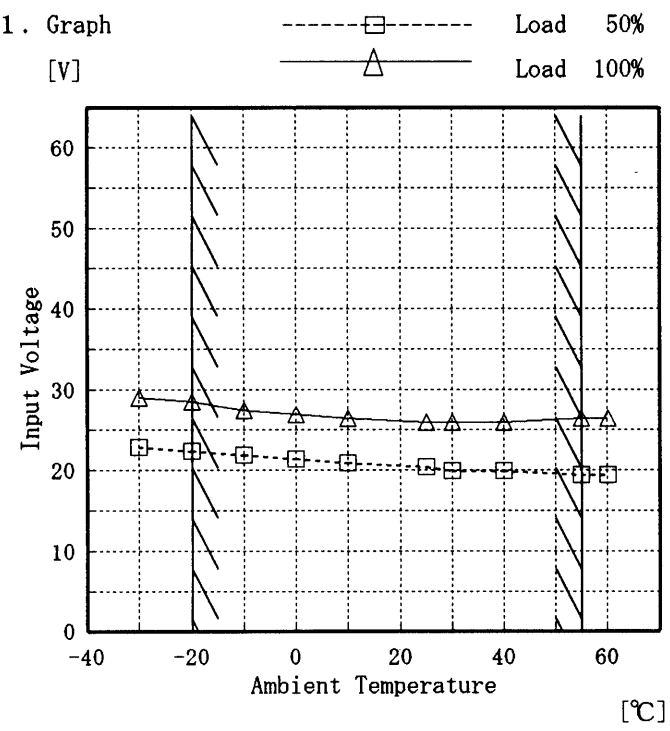
Temperature [℃]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
-30	15.241	15.241	15.241
-20	15.240	15.240	15.240
-10	15.237	15.237	15.237
0	15.235	15.236	15.235
10	15.234	15.234	15.233
25	15.229	15.229	15.229
30	15.226	15.226	15.225
40	15.217	15.217	15.216
55	15.199	15.199	15.198
60	15.190	15.190	15.190
—	—	—	—

COSEL

Model	ZUS64815
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+15V0.4A

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

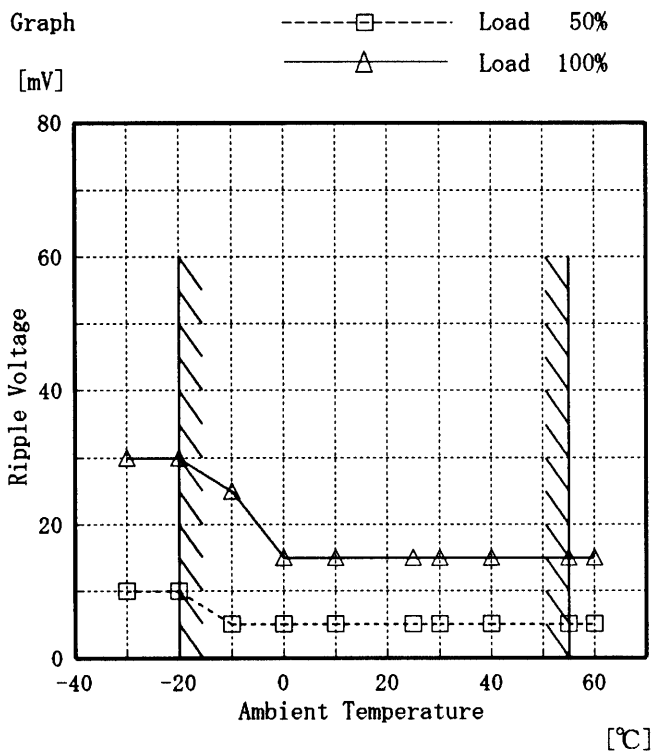
Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-30	22.9	28.9
-20	22.4	28.4
-10	21.9	27.4
0	21.4	26.9
10	20.9	26.4
25	20.4	25.9
30	19.9	25.9
40	19.9	25.9
55	19.4	26.4
60	19.4	26.4
—	—	—

COSEL

Model	ZUS64815
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+15V0.4A

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

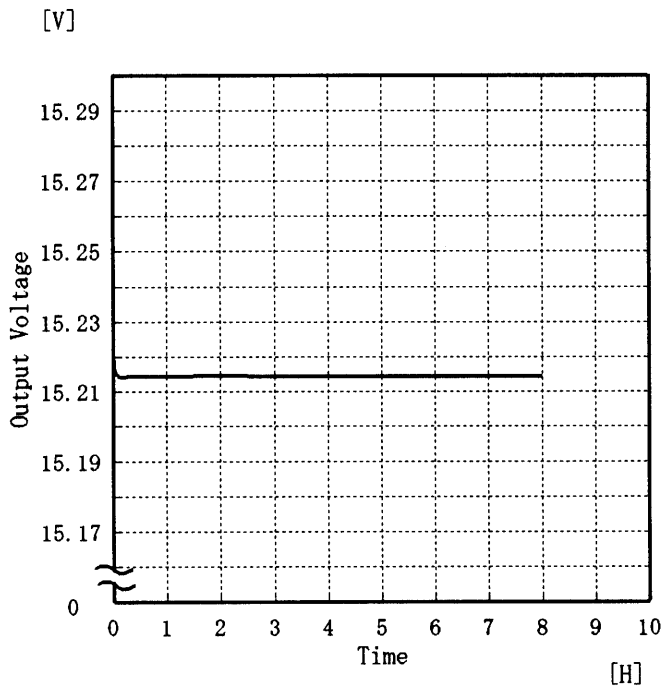
Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-30	10	30
-20	10	30
-10	5	25
0	5	15
10	5	15
25	5	15
30	5	15
40	5	15
55	5	15
60	5	15
—	—	—

COSEL

Model	ZUS64815
Item	Time Lapse Drift 経時ドリフト
Object	+15V0.4A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 48V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	15.221
0.5	15.215
1.0	15.215
2.0	15.215
3.0	15.215
4.0	15.215
5.0	15.215
6.0	15.215
7.0	15.215
8.0	15.215

COSEL

Model	ZUS64815	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+15V0.4A	

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 : 0.0～0.4 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 0.0～0.4 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	72.0	0.0	15.247	±27	±0.2
Minimum Voltage	55	72.0	0.4	15.193		

COSEL

Model	ZUS64815
Item	Condensation 結露特性
Object	+15V 0.4A

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 26℃ 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２６℃、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	15.097	5	45
	2	15.094	5	45
	3	15.100	5	35
Load 100 %	1	15.093	15	65
	2	15.097	10	65
	3	15.100	10	55

Input Volt. 48.0 V

COSEL

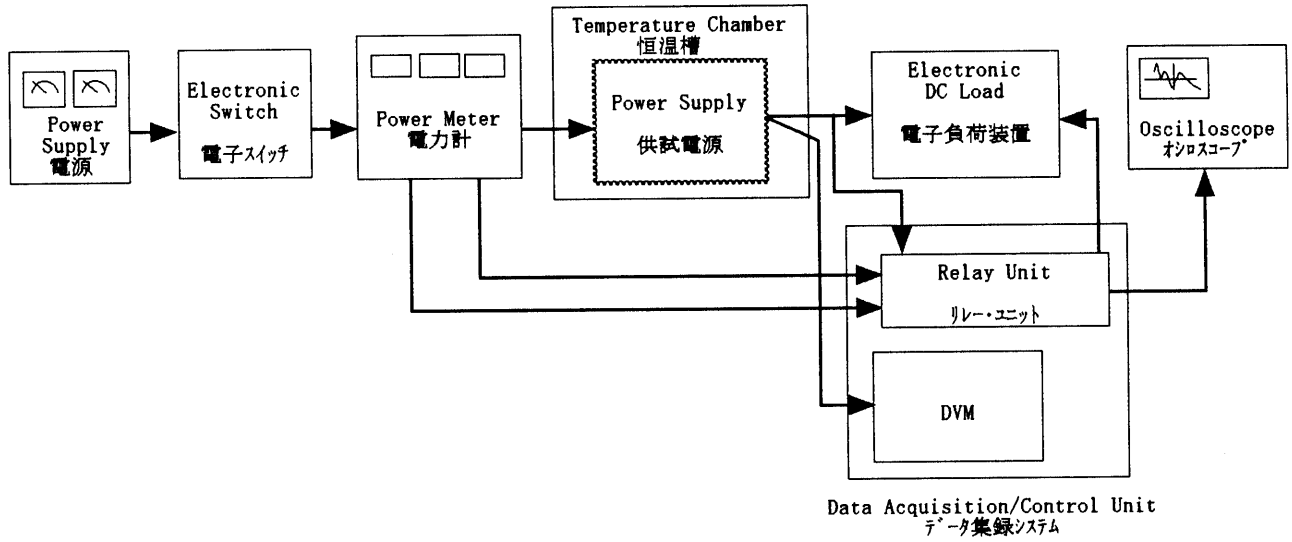


Figure A