参考資料

COSEL

# TEST DATA OF ZTS1R54805
(48.0V INPUT)

Regulated DC Power Supply

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コーセル株式会社

COSEL CO.,LTD.

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# CONTENTS


1. Line Regulation ・・・・・・・・・・・・・・・・・・・・・・・ 1
静的入力変動
2. Efficiency ・・・・・・・・・・・・・・・・・・・・・・・・・・ 2
効率
3. Load Regulation ・・・・・・・・・・・・・・・・・・・・・・・ 3
静的負荷変動
4. Ripple Voltage (by Load Current) ・・・・・・・・・・・・・・ 4
リップル電圧(負荷電流特性)
5. Ripple-Noise ・・・・・・・・・・・・・・・・・・・・・・・・・ 5
リップルノイズ
6. Overcurrent Protection ・・・・・・・・・・・・・・・・・・・ 6
過電流保護
7. Dynamic Load Responce ・・・・・・・・・・・・・・・・・・・ 7
動的負荷変動
8. Rise and Fall Time ・・・・・・・・・・・・・・・・・・・・・ 8
立上り、立下がり時間
9. Ambient Temperature Drift ・・・・・・・・・・・・・・・・・ 9
周囲温度変動
10. Minimum Input Voltage for Regulated Output Voltage ・・・ 10
最低レギュレーション電圧
11. Ripple Voltage (by Ambient Temperature) ・・・・・・・・・ 11
リップル電圧 (周囲温度特性)
12. Time Lapse Drift ・・・・・・・・・・・・・・・・・・・・・・ 12
経時ドリフト
13. Output Voltage Accuracy ・・・・・・・・・・・・・・・・・・ 13
定電圧精度
14. Condensation ・・・・・・・・・・・・・・・・・・・・・・・・ 14
結露特性
15. Figure of Testing Circuitry ・・・・・・・・・・・・・・・・ 15
測定回路図


(Final Page 15 )

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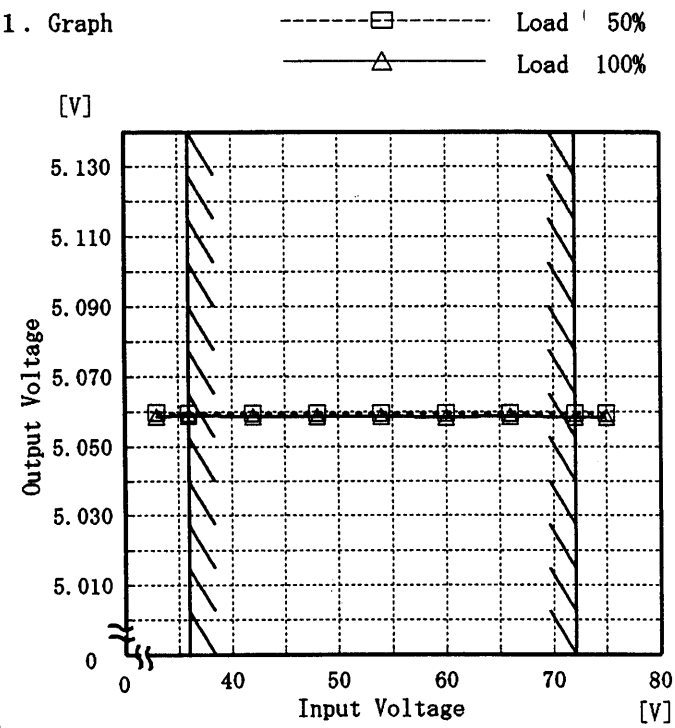
| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Line Regulation 静的入力変動 |
| Object | +5V0.3A |

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

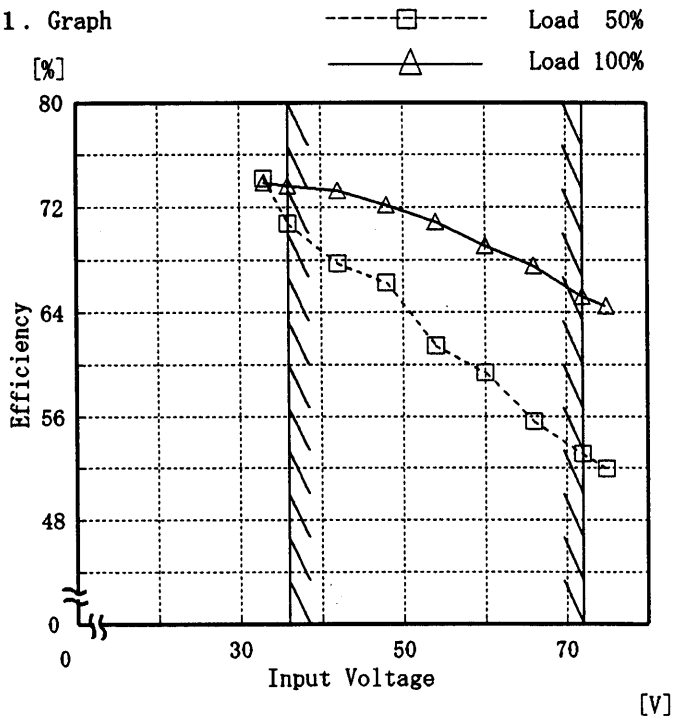
| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] |
|---|---|---|
| 33.0 | 5.060 | 5.059 |
| 36.0 | 5.060 | 5.059 |
| 42.0 | 5.059 | 5.059 |
| 48.0 | 5.060 | 5.058 |
| 54.0 | 5.059 | 5.058 |
| 60.0 | 5.060 | 5.058 |
| 66.0 | 5.059 | 5.058 |
| 72.0 | 5.059 | 5.058 |
| 75.0 | 5.059 | 5.058 |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| 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

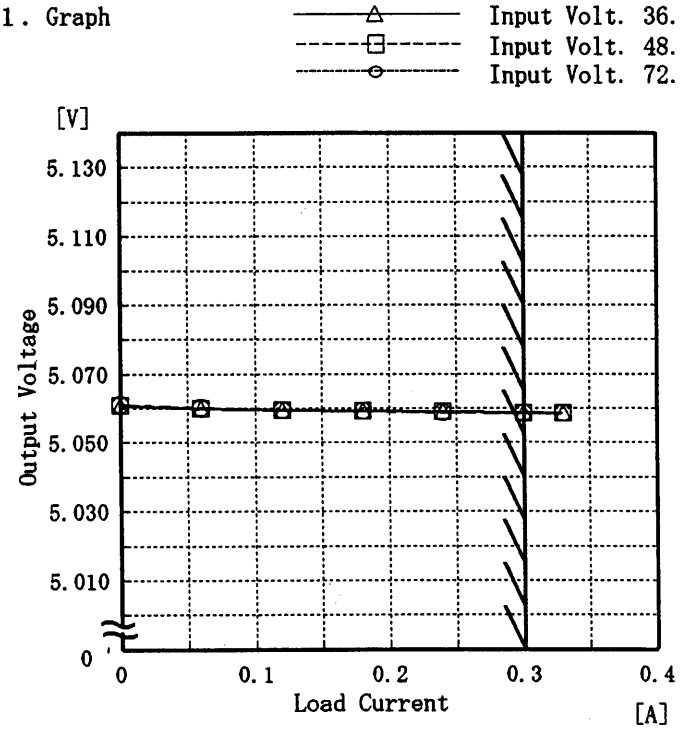
| Input Voltage [V] | Load 50% Efficiency [%] | Load 100% Efficiency [%] |
|---|---|---|
| 33.0 | 74.2 | 73.9 |
| 36.0 | 70.8 | 73.7 |
| 42.0 | 67.7 | 73.2 |
| 48.0 | 66.3 | 72.2 |
| 54.0 | 61.5 | 70.9 |
| 60.0 | 59.4 | 69.1 |
| 66.0 | 55.6 | 67.5 |
| 72.0 | 53.1 | 65.2 |
| 75.0 | 51.9 | 64.5 |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Load Regulation 静的負荷変動 |
| Object | +5V0.3A |

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

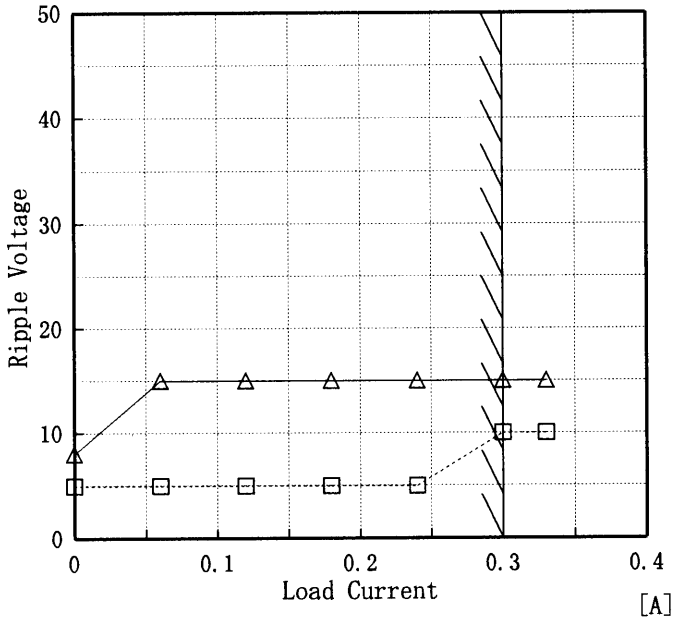
| Load Current [A] | Input Volt. 36.0[V] Output Volt. [V] | Input Volt. 48.0[V] Output Volt. [V] | Input Volt. 72.0[V] Output Volt. [V] |
|---|---|---|---|
| 0.00 | 5.061 | 5.061 | 5.061 |
| 0.06 | 5.060 | 5.060 | 5.060 |
| 0.12 | 5.060 | 5.060 | 5.060 |
| 0.18 | 5.059 | 5.059 | 5.059 |
| 0.24 | 5.059 | 5.059 | 5.059 |
| 0.30 | 5.059 | 5.059 | 5.059 |
| 0.33 | 5.059 | 5.059 | 5.059 |
| — | — | — | — |
| — | — | — | — |
| — | — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Ripple Voltage(by Load Current)<br>リップル電圧(負荷電流特性) |
| Object | +5V0.3A |

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

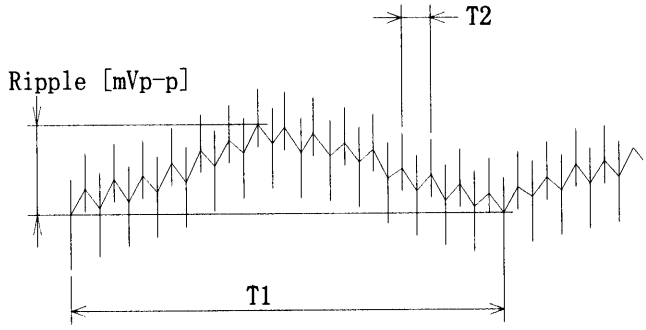



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

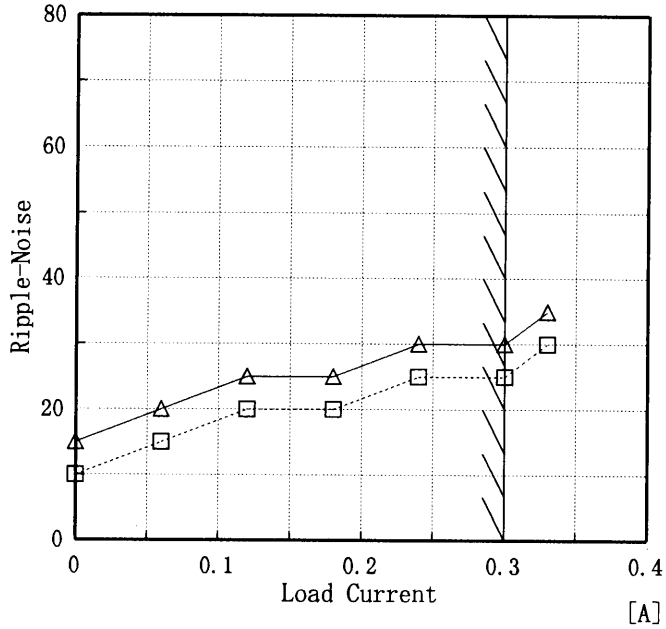
| Load Current [A] | Input Volt. 36.0 [V] Ripple Output Volt. [mV] | Input Volt. 72.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 5 | 8 |
| 0.06 | 5 | 15 |
| 0.12 | 5 | 15 |
| 0.18 | 5 | 15 |
| 0.24 | 5 | 15 |
| 0.30 | 10 | 15 |
| 0.33 | 10 | 15 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Ripple-Noise リップルノイズ |
| Object | +5V0.3A |

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

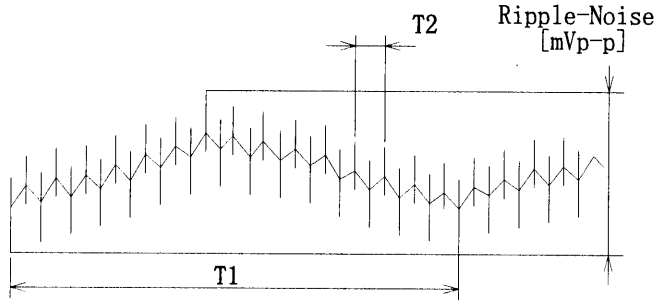



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

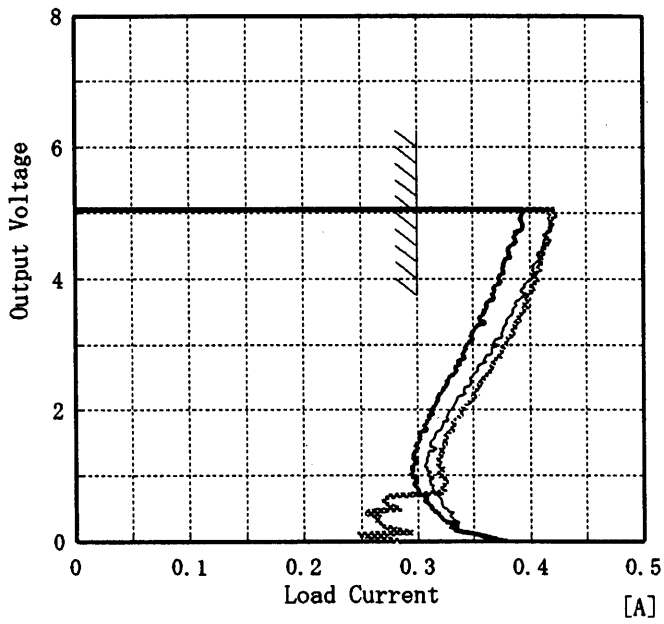
| Load current [A] | Input Volt. 36.0 [V] Ripple-Noise [mV] | Input Volt. 72.0 [V] Ripple-Noise [mV] |
|---|---|---|
| 0.00 | 10 | 15 |
| 0.06 | 15 | 20 |
| 0.12 | 20 | 25 |
| 0.18 | 20 | 25 |
| 0.24 | 25 | 30 |
| 0.30 | 25 | 30 |
| 0.33 | 30 | 35 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Overcurrent Protection<br>過電流保護 |
| Object | +5V0.3A |

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] |
|---|---|---|---|
| 5.00 | 0.42 | 0.42 | 0.39 |
| 4.75 | 0.42 | 0.42 | 0.39 |
| 4.50 | 0.42 | 0.41 | 0.38 |
| 4.00 | 0.40 | 0.40 | 0.37 |
| 3.50 | 0.39 | 0.38 | 0.36 |
| 3.00 | 0.38 | 0.37 | 0.34 |
| 2.50 | 0.36 | 0.35 | 0.33 |
| 2.00 | 0.34 | 0.33 | 0.31 |
| 1.50 | 0.32 | 0.31 | 0.30 |
| 1.00 | 0.32 | 0.31 | 0.29 |
| 0.50 | 0.28 | 0.32 | 0.31 |
| 0.00 | 0.31 | 0.39 | 0.42 |

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| | | | |
|---|---|---|---|
| Model | ZTS1R54805 | | |
| Item | Dynamic Load Responce<br>動的負荷変動 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | +5V0.3A | | |

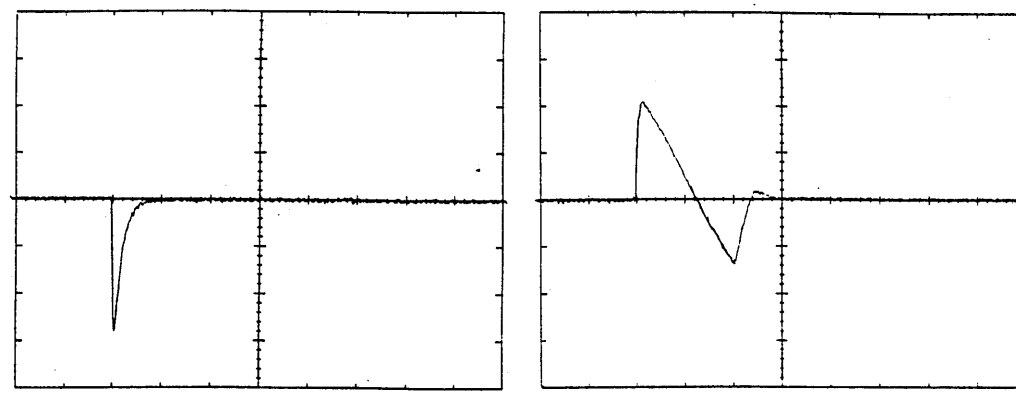
Input Volt. 48.0 V

Cycle 100 mS

Load Current

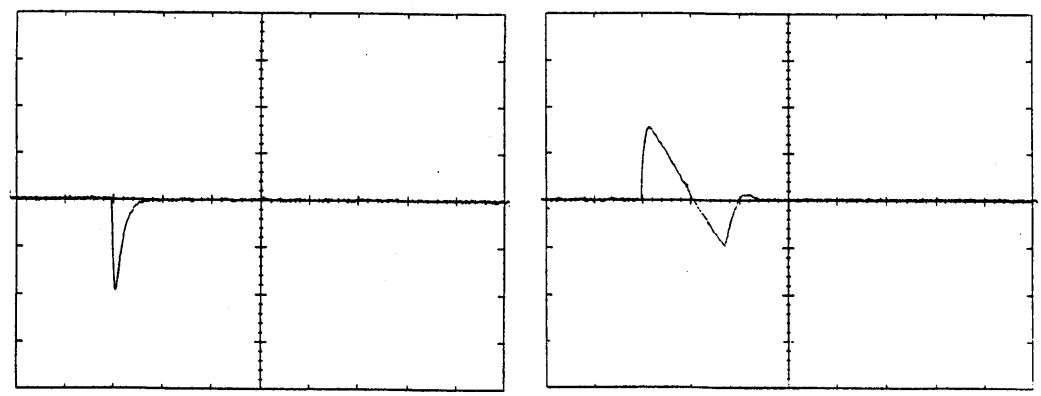
Min. Load ⟷
Load 100 %

100 mV/div



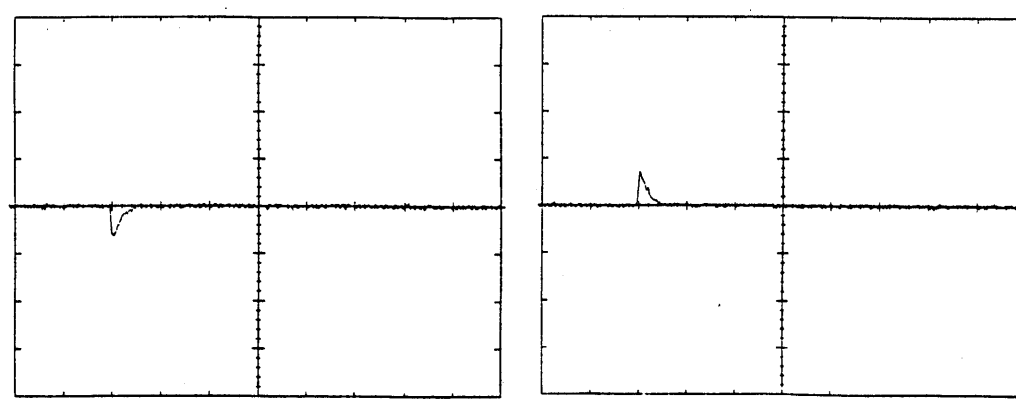
Min. Load ⟷
Load 50 %

100 mV/div



Load 50%⟷
Load 100 %

100 mV/div



1 mS/div



BC−3115

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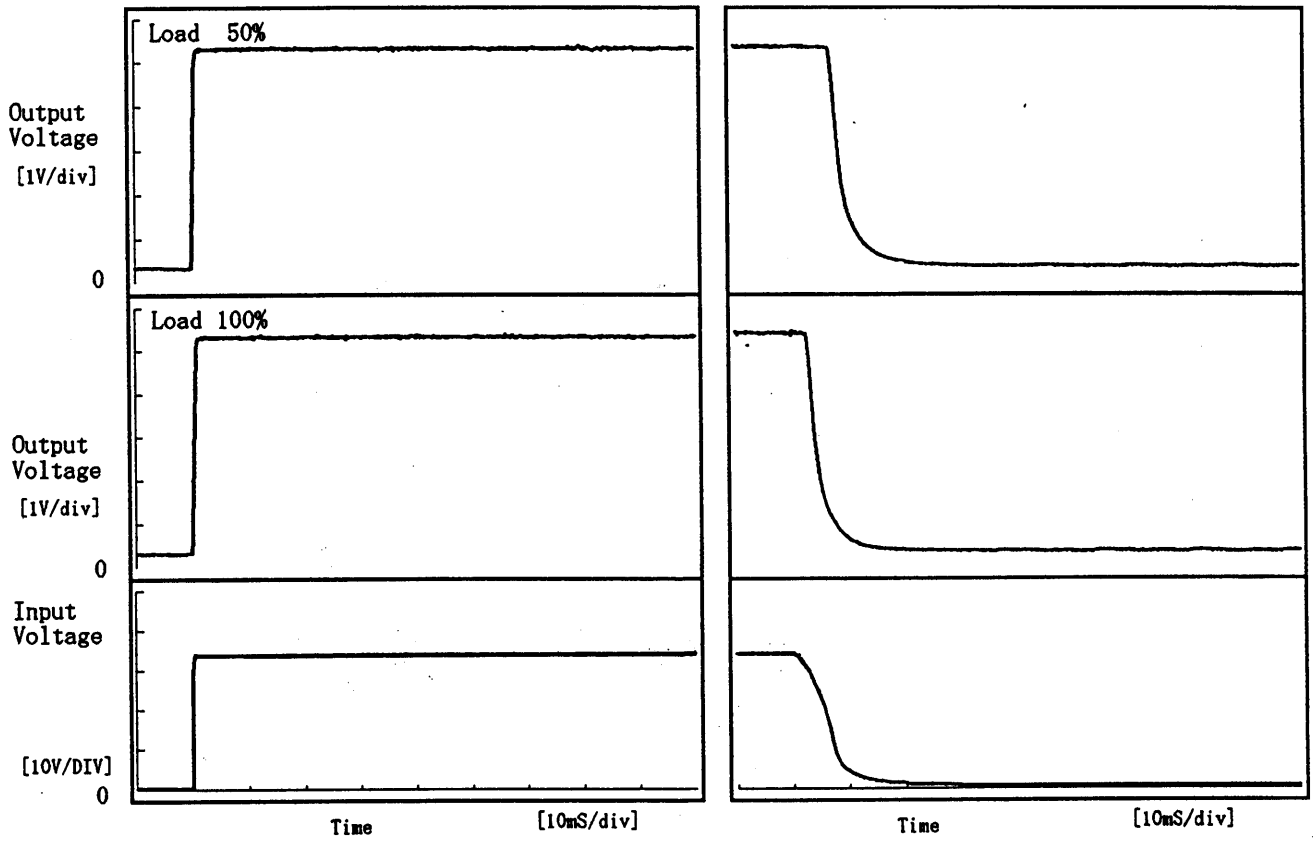
| | | | |
|---|---|---|---|
| Model | ZTS1R54805 | | |
| Item | Rise and Fall Time 立上り、立下り時間 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | +5V0.3A | | |

1. Graph

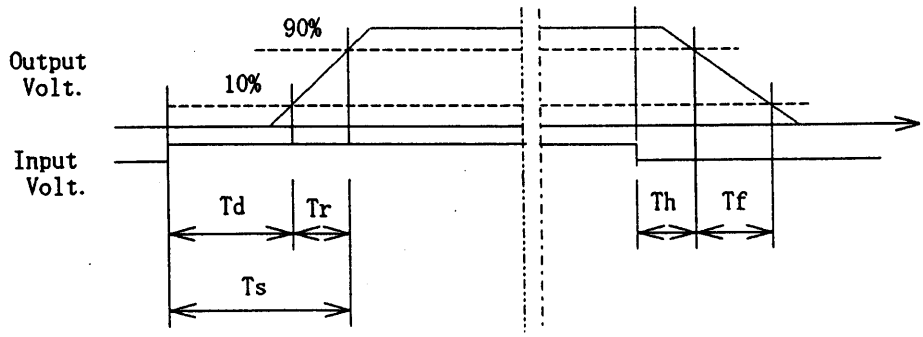
Input Volt. 36.0 V




2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|---|---|---|---|---|---|
| 50 % | 0.10 | 0.55 | 0.65 | 7.35 | 6.65 |
| 100 % | 0.10 | 0.75 | 0.85 | 3.10 | 5.85 |





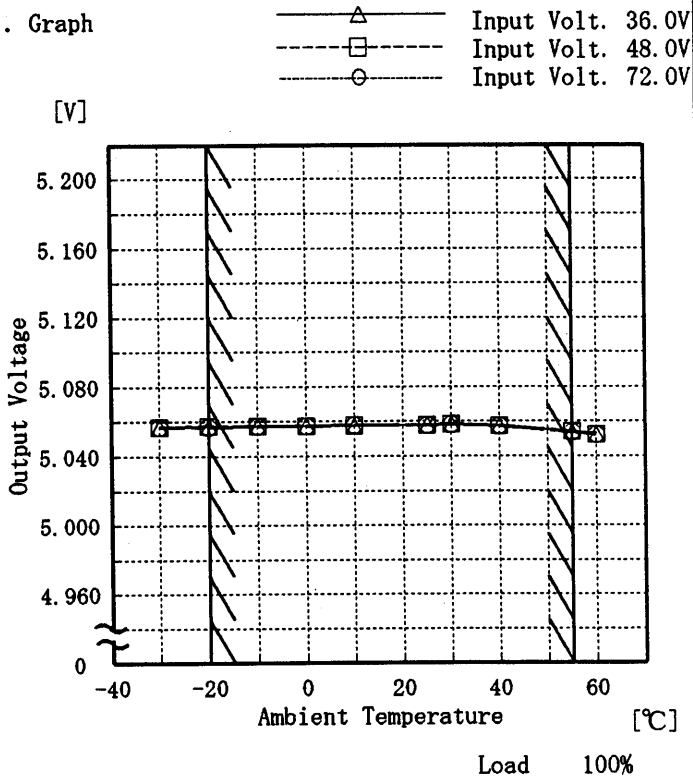

BC−3115

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Ambient Temperature Drift<br>周囲温度変動 |
| Object | +5V0.3A |

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 | 5.057 | 5.057 | 5.057 |
| -20 | 5.057 | 5.057 | 5.057 |
| -10 | 5.058 | 5.058 | 5.057 |
| 0 | 5.057 | 5.058 | 5.057 |
| 10 | 5.057 | 5.058 | 5.058 |
| 25 | 5.058 | 5.058 | 5.058 |
| 30 | 5.058 | 5.058 | 5.058 |
| 40 | 5.057 | 5.057 | 5.057 |
| 55 | 5.054 | 5.054 | 5.054 |
| 60 | 5.052 | 5.052 | 5.052 |
| — | — | — | — |

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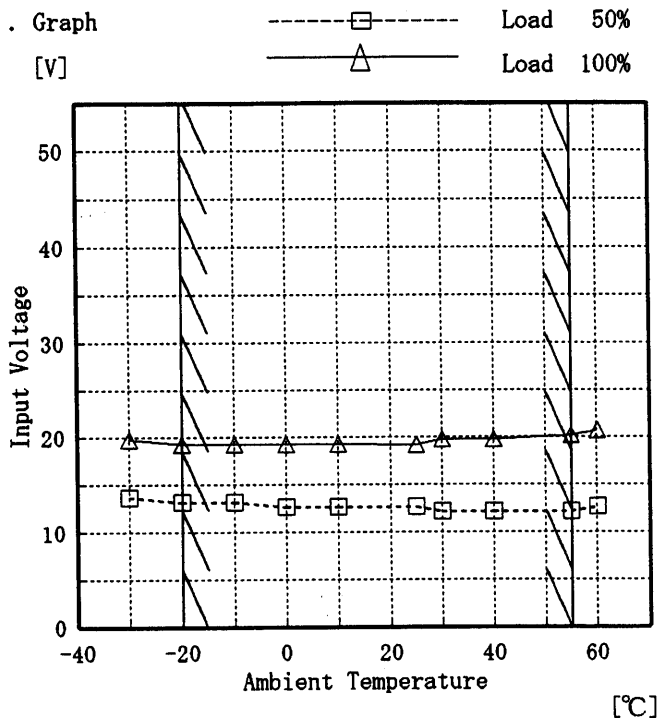
| Model | ZTS1R54805 |
|---|---|
| Item | Minimum Input Voltage for Regulated Output Voltage<br>最低レギュレーション電圧 |
| Object | +5V0.3A |

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

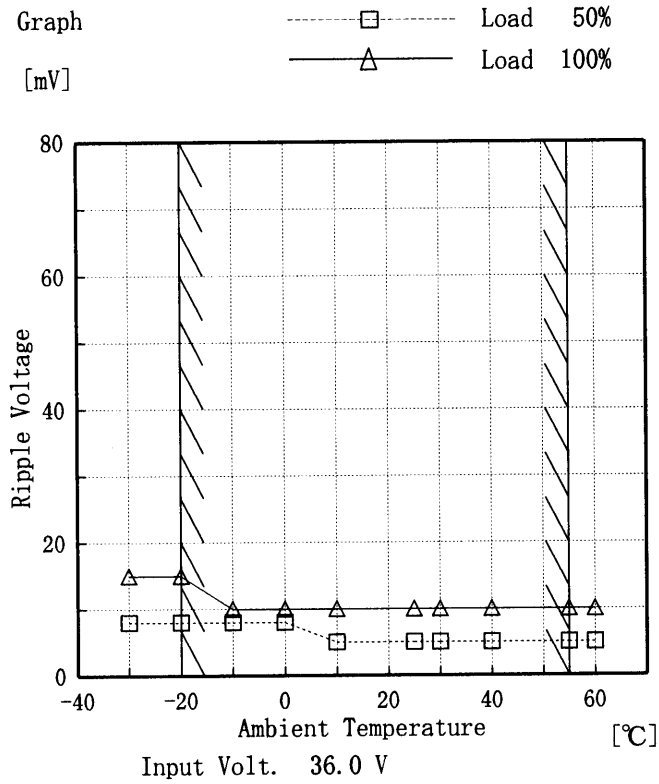
| Ambient Temp. [℃] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] |
|---|---|---|
| -30 | 13.7 | 19.7 |
| -20 | 13.2 | 19.2 |
| -10 | 13.2 | 19.2 |
| 0 | 12.7 | 19.2 |
| 10 | 12.7 | 19.2 |
| 25 | 12.7 | 19.2 |
| 30 | 12.2 | 19.7 |
| 40 | 12.2 | 19.7 |
| 55 | 12.2 | 20.2 |
| 60 | 12.7 | 20.7 |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Ripple Voltage (by Ambient Temp.)<br>リップル電圧（周囲温度特性） |
| Object | +5V0.3A |

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

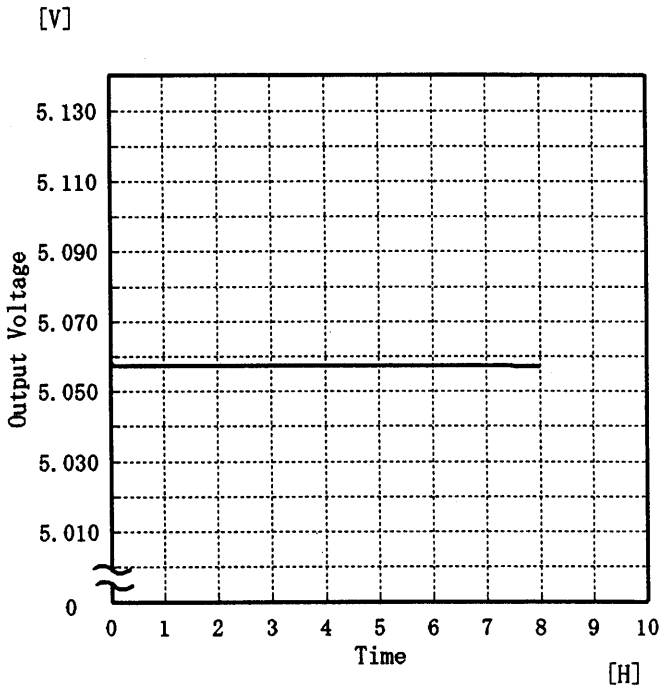
| Ambient Temp. [℃] | Load 50% Ripple Output Volt. [mV] | Load 100% Ripple Output Volt. [mV] |
|---|---|---|
| -30 | 8 | 15 |
| -20 | 8 | 15 |
| -10 | 8 | 10 |
| 0 | 8 | 10 |
| 10 | 5 | 10 |
| 25 | 5 | 10 |
| 30 | 5 | 10 |
| 40 | 5 | 10 |
| 55 | 5 | 10 |
| 60 | 5 | 10 |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Time Lapse Drift 経時ドリフト |
| Object | +5V0.3A |

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph




Input Volt. 48V
Load 100%

2. Values

| Time since start [H] | Output Voltage [V] |
|---|---|
| 0.0 | 5.059 |
| 0.5 | 5.057 |
| 1.0 | 5.058 |
| 2.0 | 5.057 |
| 3.0 | 5.057 |
| 4.0 | 5.057 |
| 5.0 | 5.058 |
| 6.0 | 5.057 |
| 7.0 | 5.057 |
| 8.0 | 5.057 |

COSEL

| | | |
|---|---|---|
| Model | ZTS1R54805 | |
| Item | Output Voltage Accuracy 定電圧精度 | Testing Circuitry Figure A |
| Object | +5V0.3A | |

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 : 0.0～0.3 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 0.0～0.3 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 | 25 | 72.0 | 0.0 | 5.061 | ±4 | ±0.1 |
| Minimum Voltage | 55 | 72.0 | 0.3 | 5.053 | | |

COSEL

| | |
|---|---|
| Model | ZTS1R54805 |
| Item | Condensation 結露特性 |
| Object | +5V0.3A |

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] | 5.080 | Input Volt.: 48V, Load Current:0.3A |
| Line Regulation [mV] | 1 | Input Volt.: 36～72V, Load Current:0.3A |
| Load Regulation [mV] | 5 | Input Volt.: 48V, Load Current:0～0.3A |

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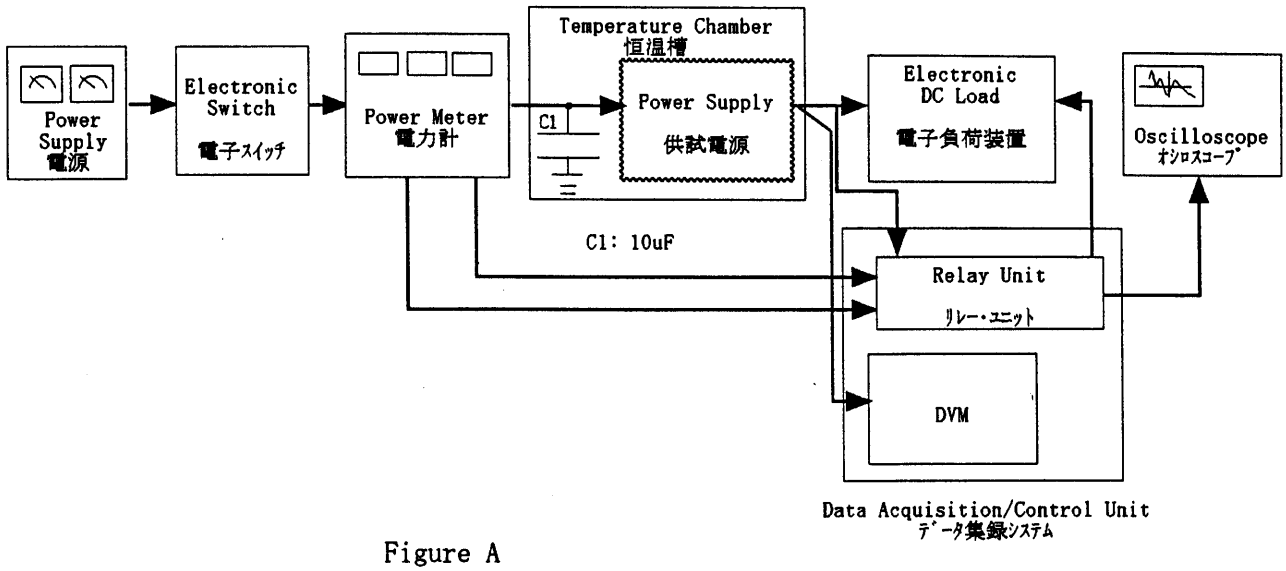


Figure A