参考資料

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# TEST DATA OF ZUW31215

(12.0V INPUT)

Regulated DC Power Supply

Date : Nov.5. 1996

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Design Manager

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Design Engineer

コーセル株式会社

COSEL CO.,LTD.

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(Final Page 20 )

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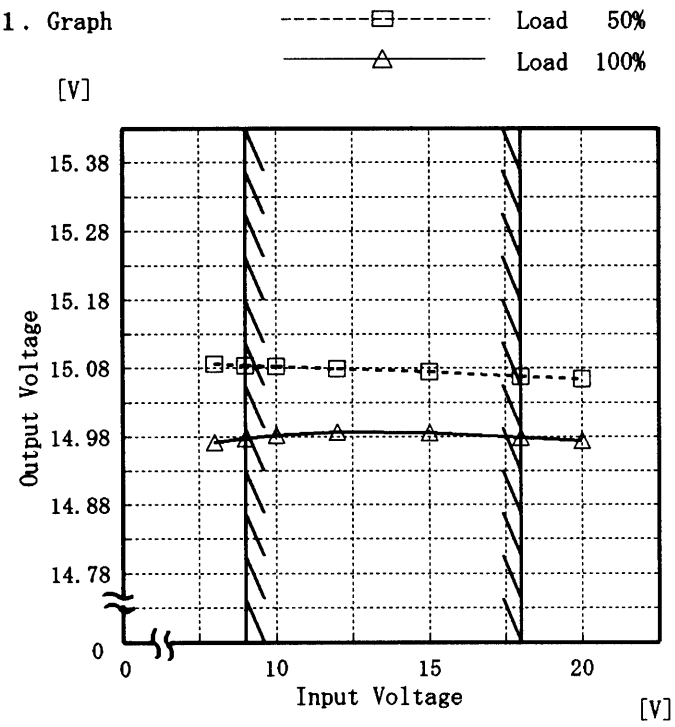
| Model | ZUW31215 |
|---|---|
| Item | Line Regulation 静的入力変動 |

Temperature 25℃
Testing Circuitry Figure A

Object +15V0.1A

1. Graph

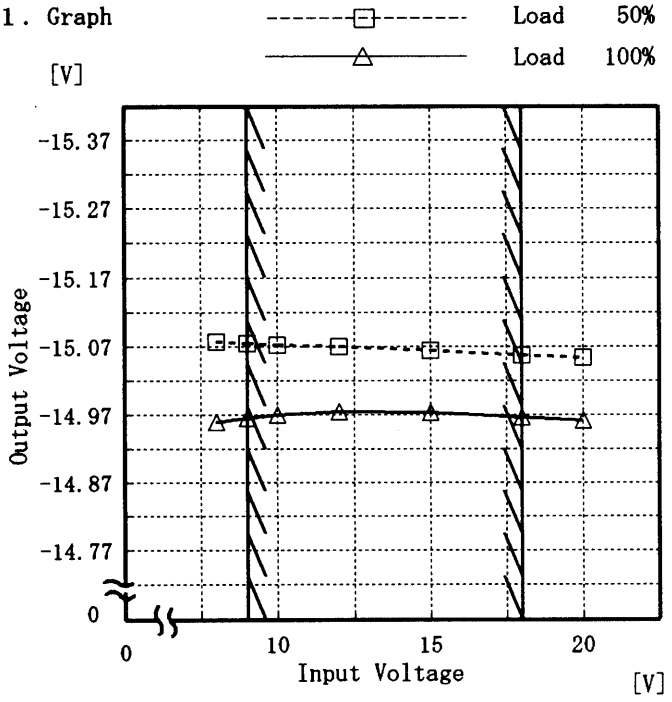



2. Values

| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] |
|---|---|---|
| 8.0 | 15.086 | 14.971 |
| 9.0 | 15.084 | 14.978 |
| 10.0 | 15.082 | 14.982 |
| 12.0 | 15.080 | 14.986 |
| 15.0 | 15.074 | 14.985 |
| 18.0 | 15.068 | 14.979 |
| 20.0 | 15.064 | 14.974 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

Object −15V0.1A

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] |
|---|---|---|
| 8.0 | -15.077 | -14.959 |
| 9.0 | -15.074 | -14.965 |
| 10.0 | -15.072 | -14.970 |
| 12.0 | -15.069 | -14.974 |
| 15.0 | -15.064 | -14.973 |
| 18.0 | -15.057 | -14.967 |
| 20.0 | -15.054 | -14.962 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |



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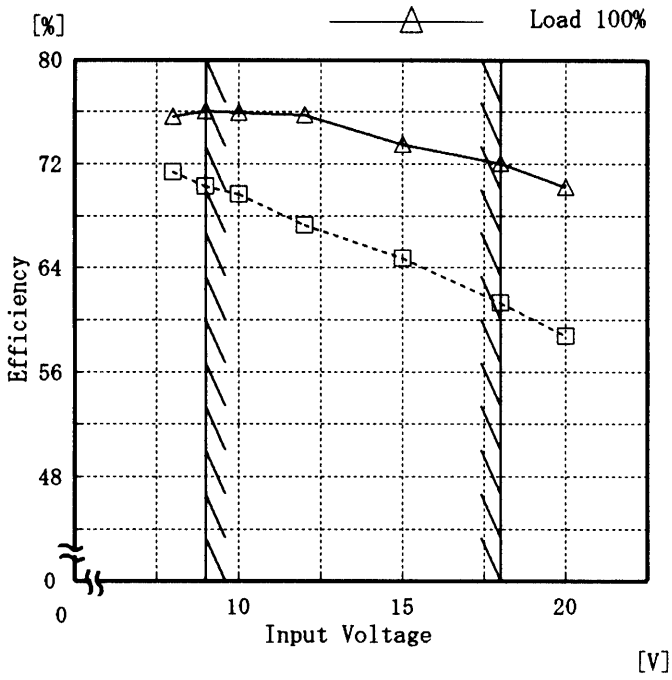
| Model | ZUW31215 |
|---|---|
| Item | Efficiency 効率 |
| Object | ―――――――― |

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 [%] |
|---|---|---|
| 8.0 | 71.4 | 75.6 |
| 9.0 | 70.3 | 76.1 |
| 10.0 | 69.7 | 76.0 |
| 12.0 | 67.3 | 75.8 |
| 15.0 | 64.7 | 73.5 |
| 18.0 | 61.3 | 72.1 |
| 20.0 | 58.8 | 70.2 |
| ― | ― | ― |
| ― | ― | ― |
| ― | ― | ― |
| ― | ― | ― |
| ― | ― | ― |

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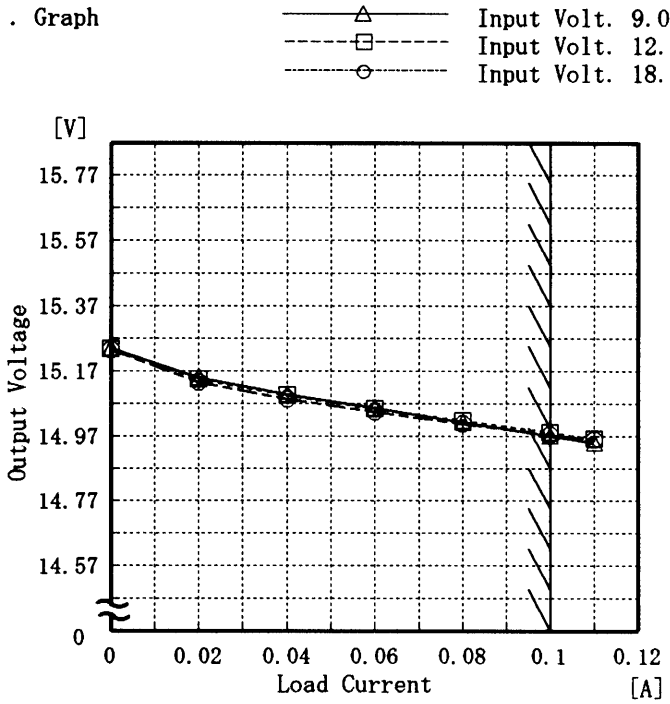
| Model | ZUW31215 |
|---|---|
| Item | Load Regulation 静的負荷変動 |

Temperature 25℃
Testing Circuitry Figure A

Object +15V0.1A

1. Graph

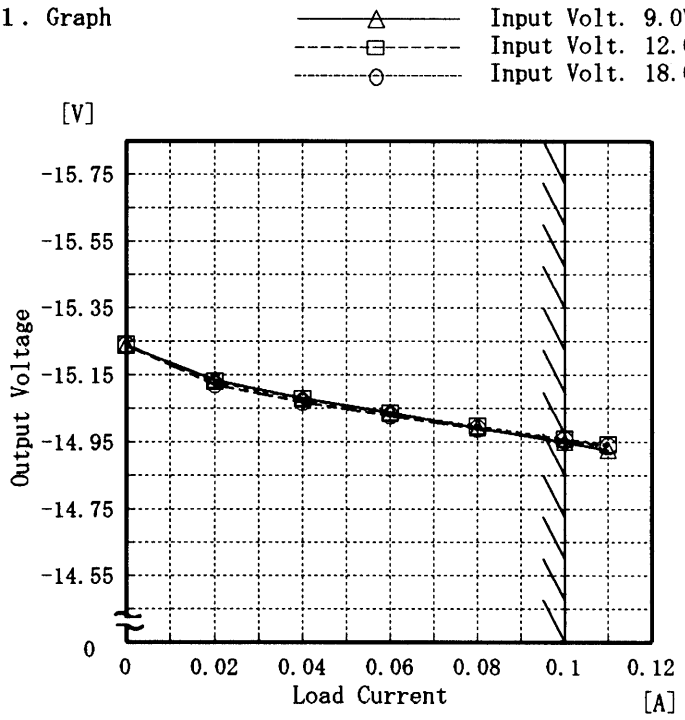



2. Values

| Load Current [A] | Input Volt. 9.0[V] Output Volt. [V] | Input Volt. 12.0[V] Output Volt. [V] | Input Volt. 18.0[V] Output Volt. [V] |
|---|---|---|---|
| 0.000 | 15.241 | 15.239 | 15.236 |
| 0.020 | 15.151 | 15.146 | 15.136 |
| 0.040 | 15.100 | 15.096 | 15.085 |
| 0.060 | 15.056 | 15.056 | 15.045 |
| 0.080 | 15.015 | 15.018 | 15.010 |
| 0.100 | 14.972 | 14.982 | 14.976 |
| 0.110 | 14.950 | 14.963 | 14.959 |
| — | — | — | — |
| — | — | — | — |
| — | — | — | — |

Object −15V0.1A

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. 9.0[V] Output Volt. [V] | Input Volt. 12.0[V] Output Volt. [V] | Input Volt. 18.0[V] Output Volt. [V] |
|---|---|---|---|
| 0.000 | -15.240 | -15.240 | -15.240 |
| 0.020 | -15.136 | -15.132 | -15.123 |
| 0.040 | -15.083 | -15.079 | -15.070 |
| 0.060 | -15.039 | -15.038 | -15.029 |
| 0.080 | -14.995 | -14.999 | -14.992 |
| 0.100 | -14.952 | -14.962 | -14.957 |
| 0.110 | -14.928 | -14.943 | -14.940 |
| — | — | — | — |
| — | — | — | — |
| — | — | — | — |

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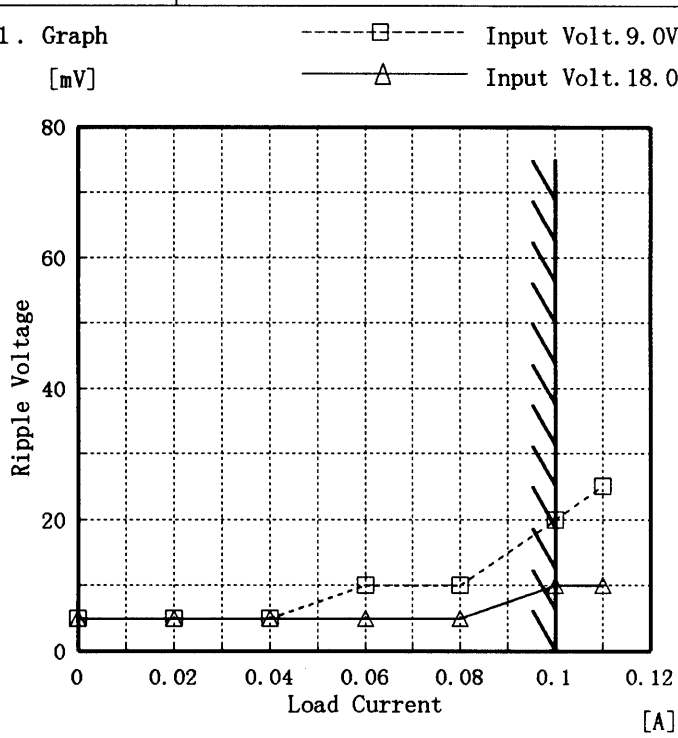
| | |
|---|---|
| Model | ZUW31215 |
| Item | Ripple Voltage(by Load Current)<br>リップル電圧(負荷電流特性) |
| Object | +15V0.1A |

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

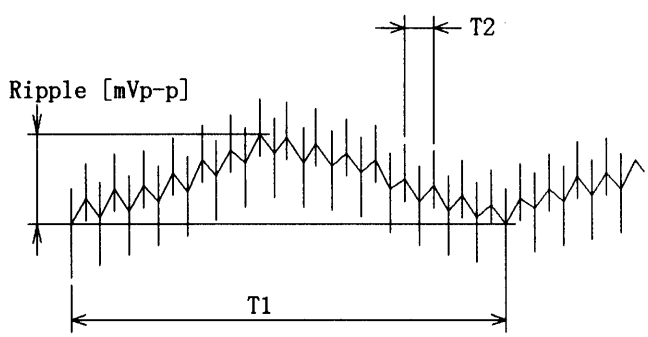



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

| Load Current [A] | Input Volt. 9.0 [V] Ripple Output Volt. [mV] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 5 | 5 |
| 0.02 | 5 | 5 |
| 0.04 | 5 | 5 |
| 0.06 | 10 | 5 |
| 0.08 | 10 | 5 |
| 0.10 | 20 | 10 |
| 0.11 | 25 | 10 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

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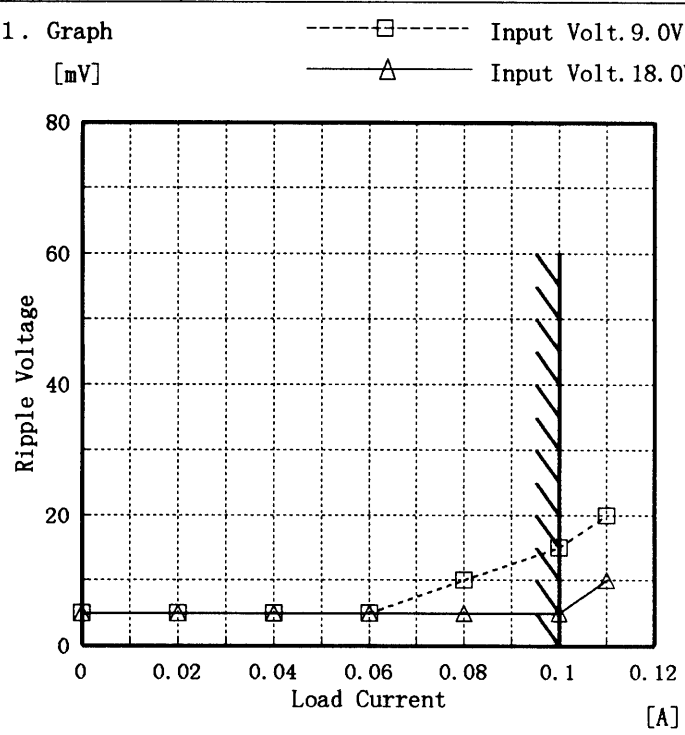
| | |
|---|---|
| Model | ZUW31215 |
| Item | Ripple Voltage(by Load Current)<br>リップル電圧(負荷電流特性) |
| Object | −15V0.1A |

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

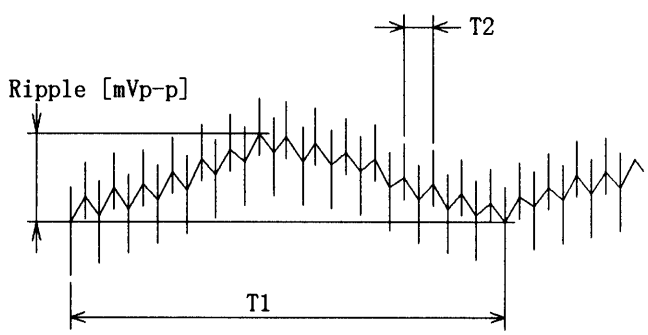



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

| Load Current [A] | Input Volt. 9.0 [V] Ripple Output Volt. [mV] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 5 | 5 |
| 0.02 | 5 | 5 |
| 0.04 | 5 | 5 |
| 0.06 | 5 | 5 |
| 0.08 | 10 | 5 |
| 0.10 | 15 | 5 |
| 0.11 | 20 | 10 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

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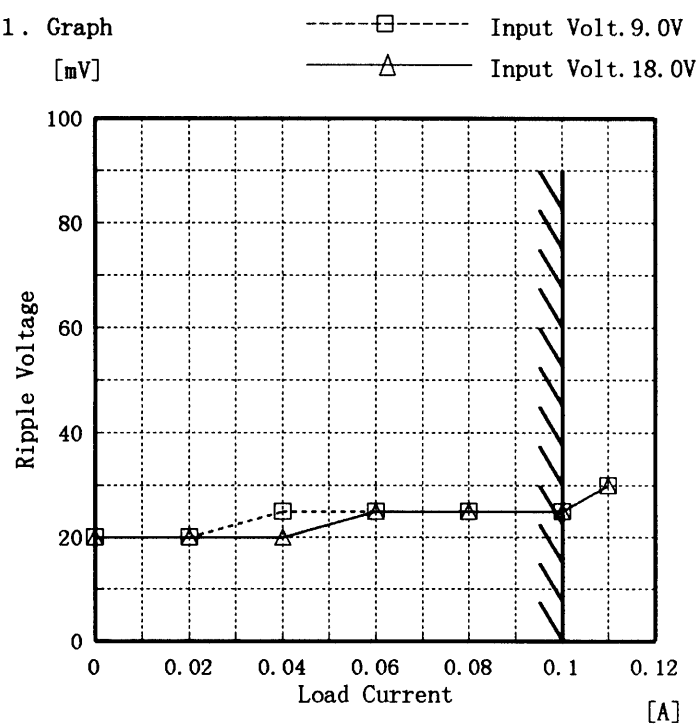
| | |
|---|---|
| Model | ZUW31215 |
| Item | Ripple-Noise リップルノイズ |
| Object | +15V0.1A |

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。

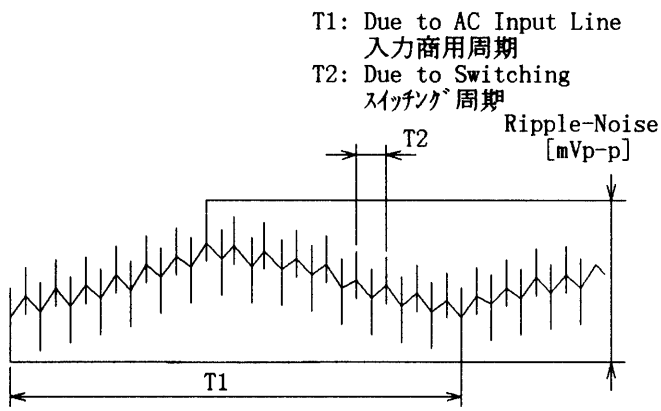



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

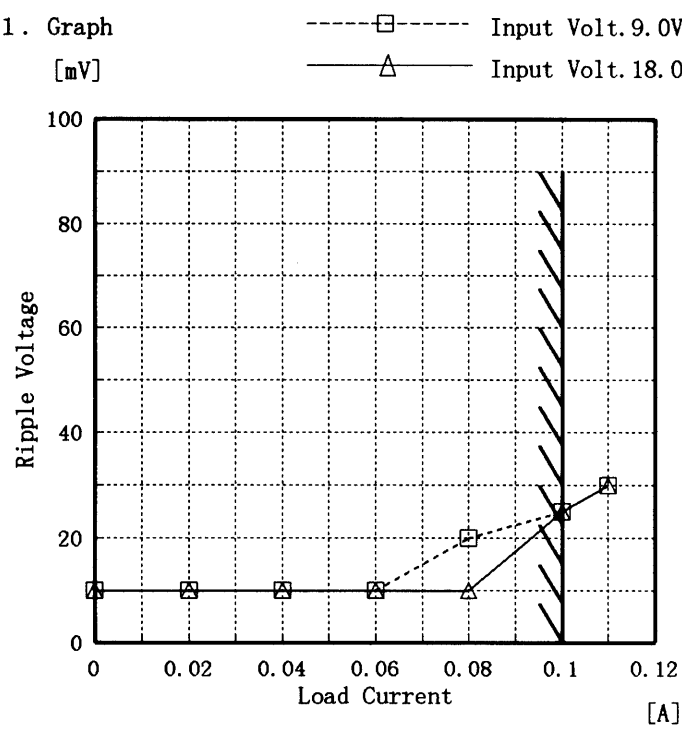
| Load Current [A] | Input Volt. 9.0 [V] Ripple Output Volt. [mV] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 20 | 20 |
| 0.02 | 20 | 20 |
| 0.04 | 25 | 20 |
| 0.06 | 25 | 25 |
| 0.08 | 25 | 25 |
| 0.10 | 25 | 25 |
| 0.11 | 30 | 30 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZUW31215 |
| 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。

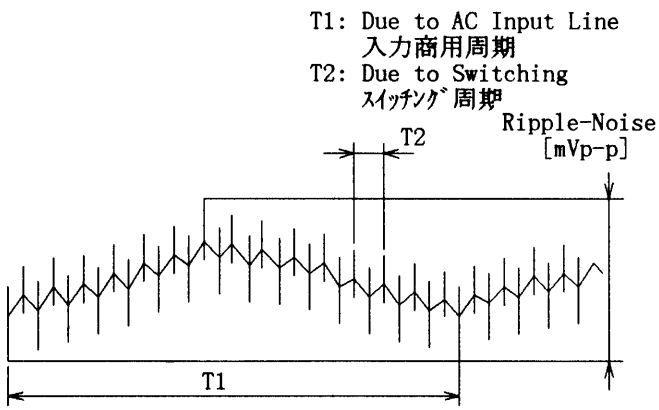



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

| Load Current [A] | Input Volt. 9.0 [V] Ripple Output Volt. [mV] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 10 | 10 |
| 0.02 | 10 | 10 |
| 0.04 | 10 | 10 |
| 0.06 | 10 | 10 |
| 0.08 | 20 | 10 |
| 0.10 | 25 | 25 |
| 0.11 | 30 | 30 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

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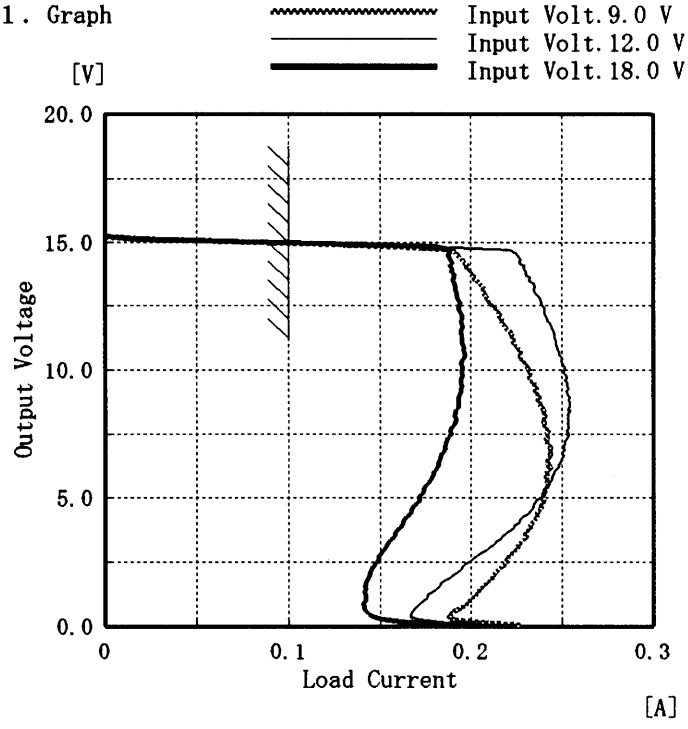
| Model | ZUW31215 |
|---|---|
| Item | Overcurrent Protection<br>過電流保護 |

Temperature 25℃
Testing Circuitry Figure A

Object +15V0.1A

1. Graph

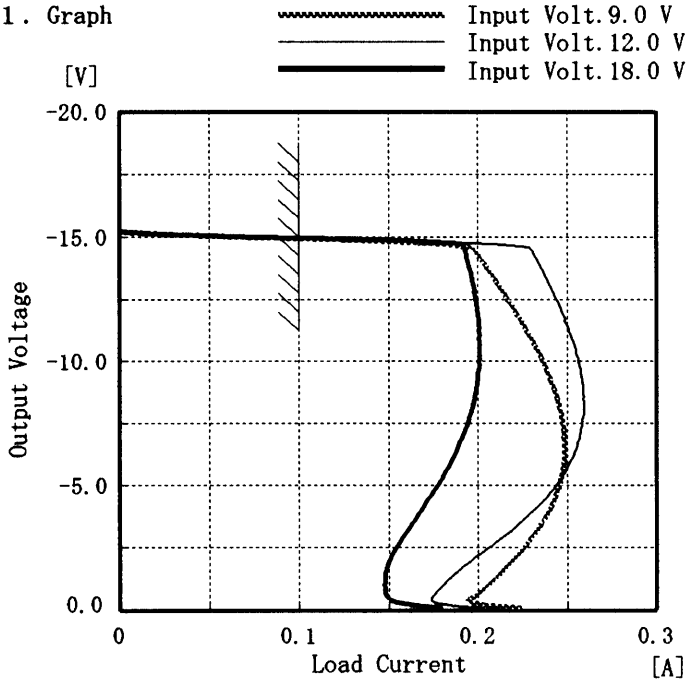



2. Values

| Output Voltage [V] | Input Volt. 9.0[V] Load Current [A] | Input Volt. 12.0[V] Load Current [A] | Input Volt. 18.0[V] Load Current [A] |
|---|---|---|---|
| 15.00 | 0.067 | 0.067 | 0.061 |
| 14.25 | 0.196 | 0.226 | 0.189 |
| 13.50 | 0.201 | 0.232 | 0.190 |
| 12.00 | 0.215 | 0.241 | 0.195 |
| 10.50 | 0.226 | 0.248 | 0.196 |
| 9.00 | 0.236 | 0.253 | 0.194 |
| 7.50 | 0.242 | 0.254 | 0.189 |
| 6.00 | 0.241 | 0.245 | 0.180 |
| 4.50 | 0.238 | 0.233 | 0.167 |
| 3.00 | 0.225 | 0.210 | 0.153 |
| 1.50 | 0.206 | 0.182 | 0.142 |
| 0.00 | 0.227 | 0.207 | 0.184 |

Object −15V0.1A

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

| Output Voltage [V] | Input Volt. 9.0[V] Load Current [A] | Input Volt. 12.0[V] Load Current [A] | Input Volt. 18.0[V] Load Current [A] |
|---|---|---|---|
| -15.00 | 0.078 | 0.080 | 0.075 |
| -14.25 | 0.200 | 0.231 | 0.194 |
| -13.50 | 0.207 | 0.236 | 0.196 |
| -12.00 | 0.220 | 0.246 | 0.200 |
| -10.50 | 0.232 | 0.254 | 0.201 |
| -9.00 | 0.242 | 0.259 | 0.199 |
| -7.50 | 0.247 | 0.258 | 0.194 |
| -6.00 | 0.248 | 0.252 | 0.185 |
| -4.50 | 0.244 | 0.239 | 0.174 |
| -3.00 | 0.231 | 0.215 | 0.159 |
| -1.50 | 0.213 | 0.188 | 0.148 |
| 0.00 | 0.224 | 0.202 | 0.180 |



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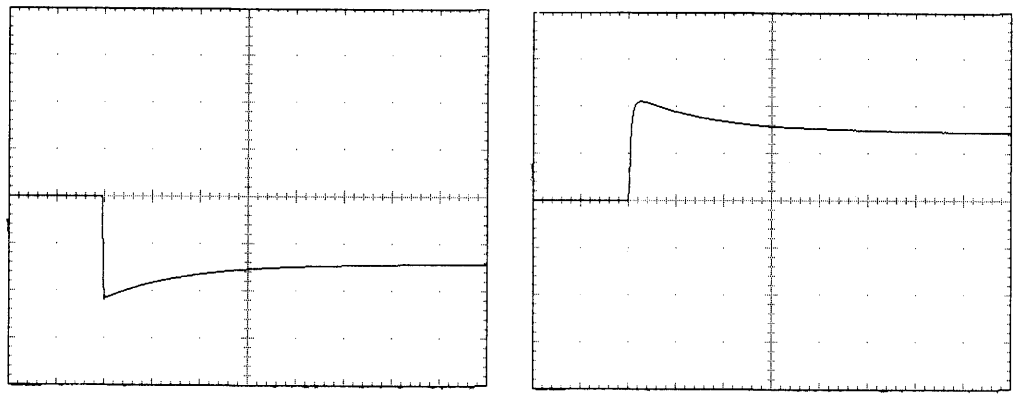
| | | | |
|---|---|---|---|
| Model | ZUW31215 | | |
| Item | Dynamic Load Responce<br>動的負荷変動 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | +15V0.1A | | |

Input Volt. 12.0 V

Cycle 100 mS

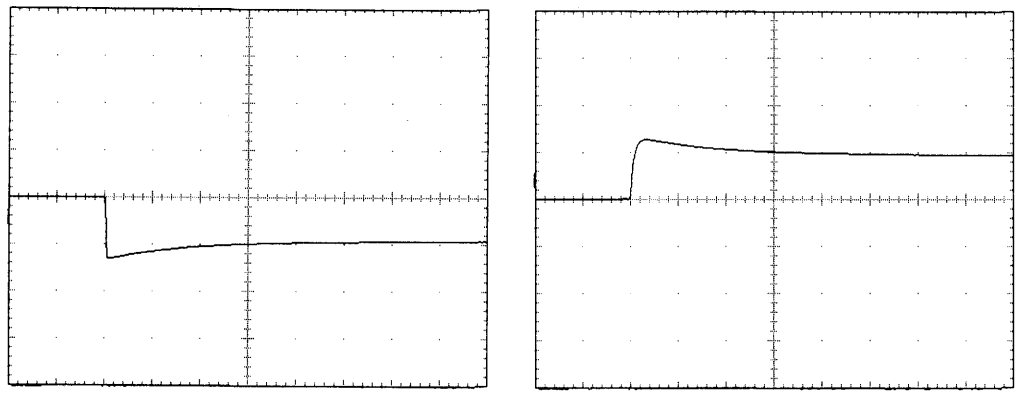
Load Current

Min. Load ⟷
Load 100 %



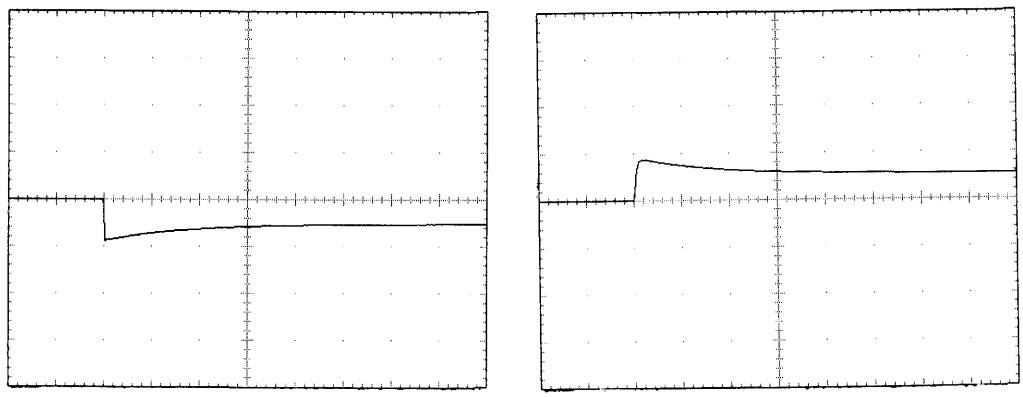
200 mV/div

Min. Load ⟷
Load 50 %



200 mV/div

Load 50%⟷
Load 100 %



200 mV/div

1 mS/div

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| | | | |
|---|---|---|---|
| Model | ZUW31215 | | |
| Item | Dynamic Load Responce<br>動的負荷変動 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | −15V0.1A | | |

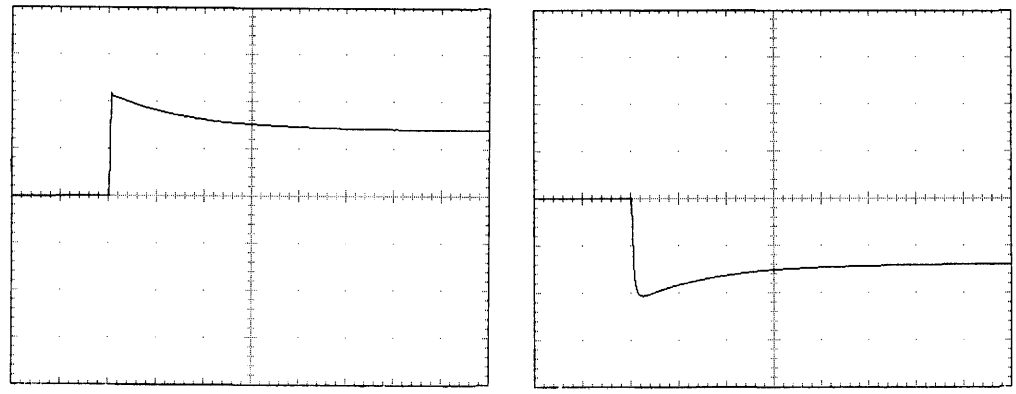
Input Volt. 12.0 V

Cycle 100 mS

Load Current

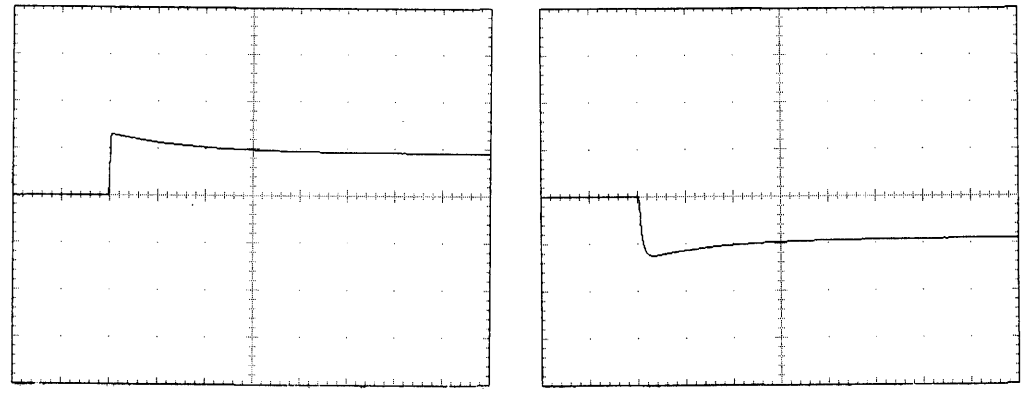
Min. Load ⟷
Load 100 %

200 mV/div



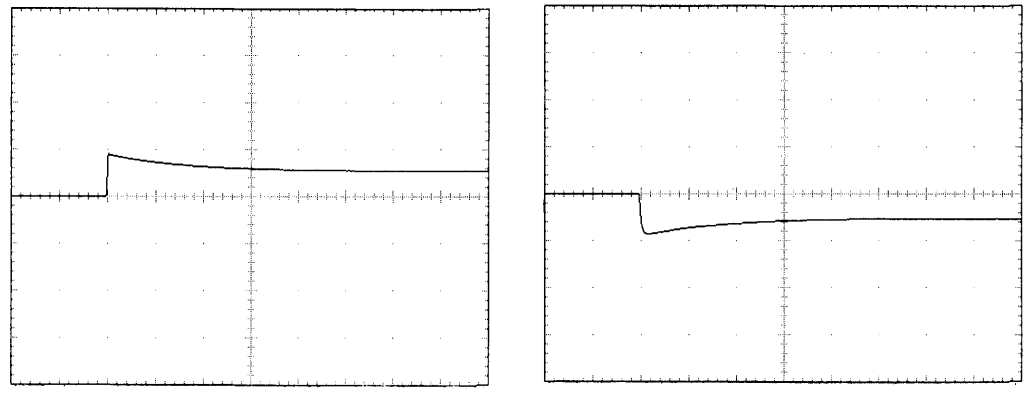
Min. Load ⟷
Load 50 %

200 mV/div



Load 50%⟷
Load 100 %

200 mV/div

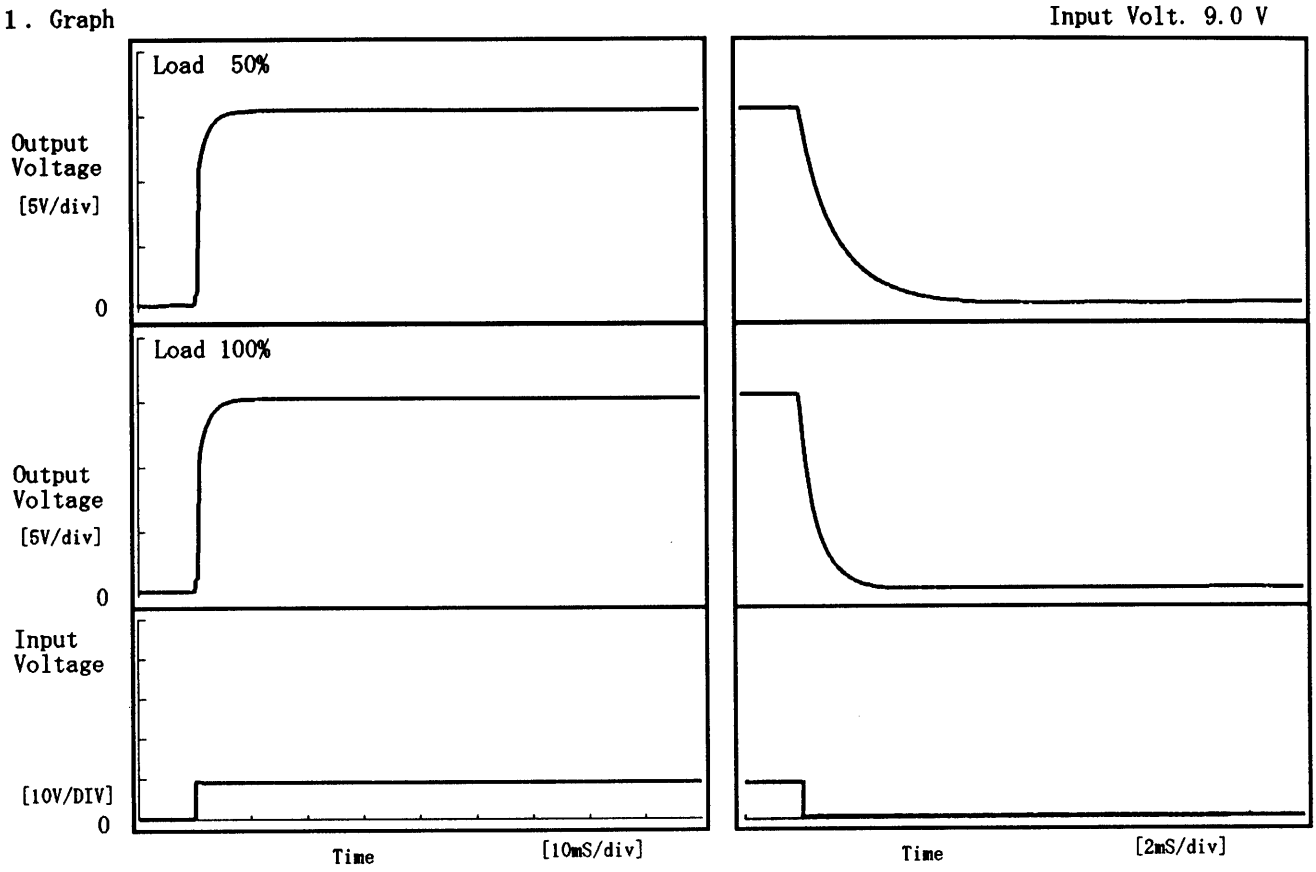


1 mS/div

COSEL

| | | | |
|---|---|---|---|
| Model | ZUW31215 | | |
| Item | Rise and Fall Time 立上り、立下り時間 | Temperature | 25℃ |
| | | Testing Circuitry | Figure A |
| Object | +15V0.1A | | |

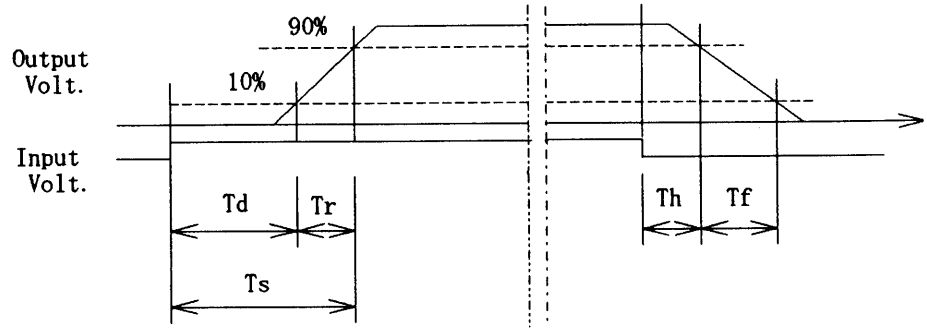
1. Graph




2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|---|---|---|---|---|---|
| 50 % | 0.55 | 2.10 | 2.65 | 0.22 | 3.23 |
| 100 % | 0.55 | 2.30 | 2.85 | 0.13 | 1.46 |

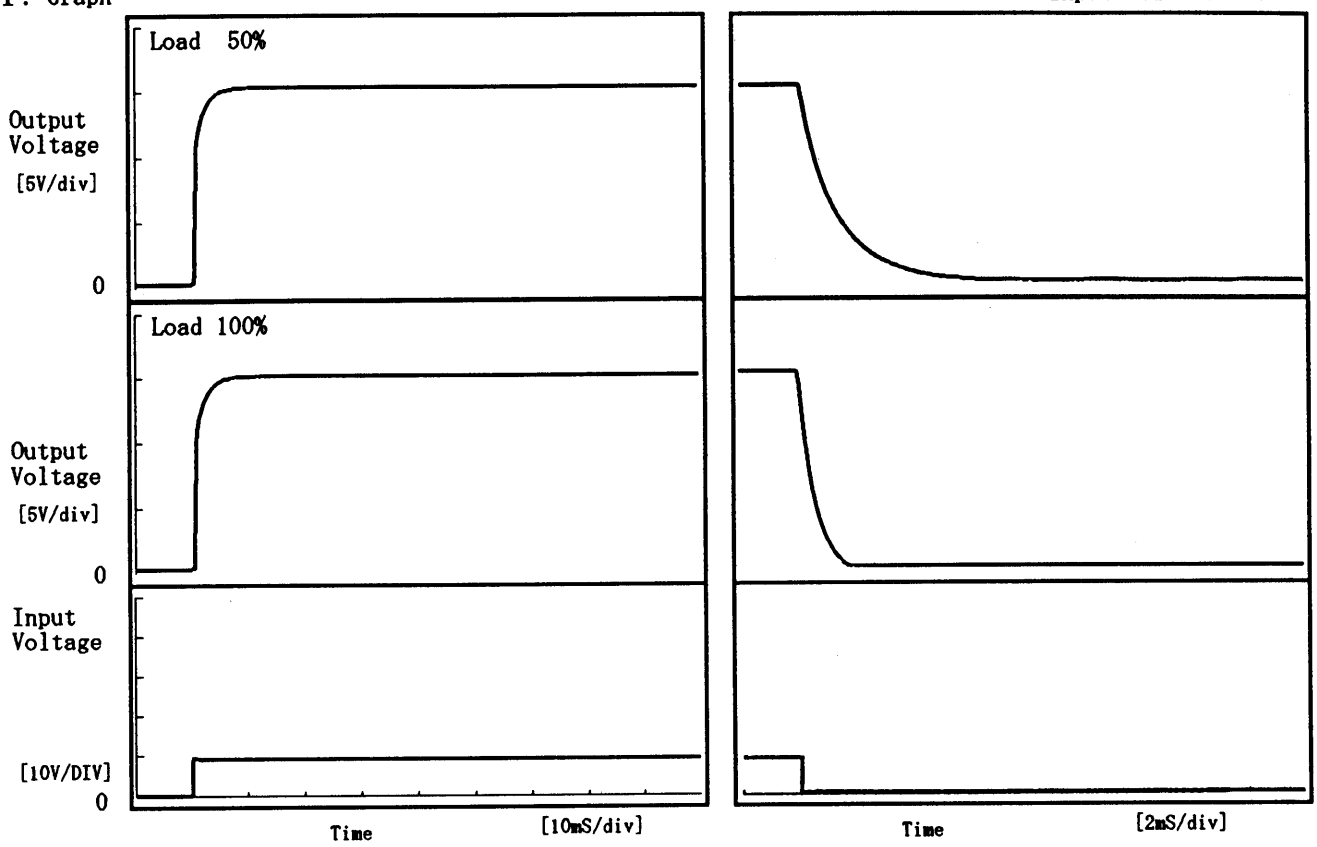


COSEL

| | | | |
|---|---|---|---|
| Model | ZUW31215 | | |
| Item | Rise and Fall Time 立上り、立下り時間 | Temperature | 25℃ |
| | | Testing Circuitry | Figure A |
| Object | -15V0.1A | | |

1. Graph

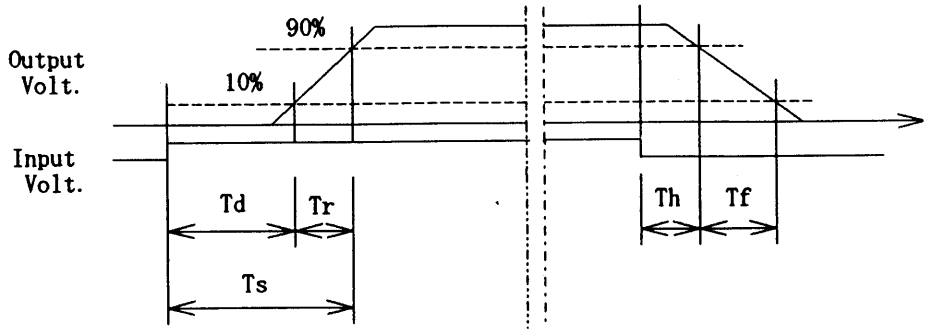
Input Volt. 9.0 V




2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|---|---|---|---|---|---|
| 50 % | 0.55 | 2.15 | 2.70 | 0.22 | 2.91 |
| 100 % | 0.55 | 2.35 | 2.90 | 0.13 | 1.14 |



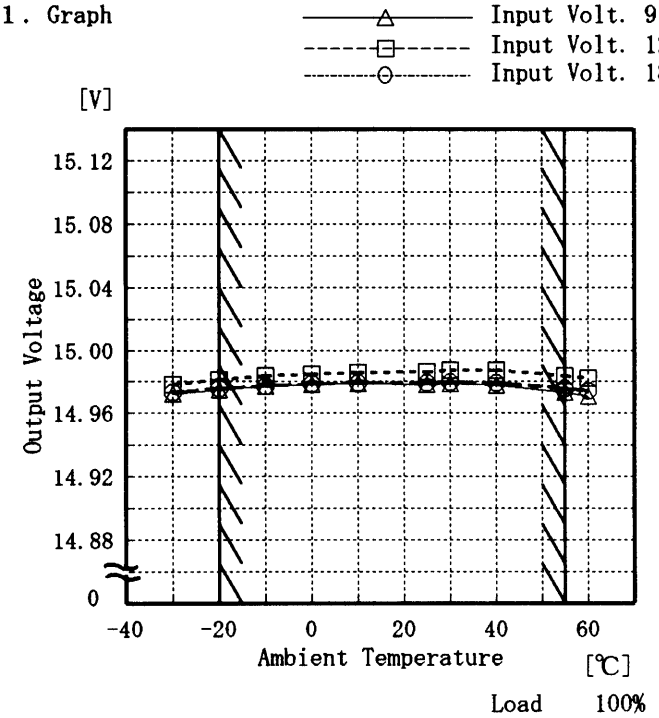
COSEL

| Model | ZUW31215 |
|---|---|
| Item | Ambient Temperature Drift<br>周囲温度変動 |

Testing Circuitry Figure A

Object +15V0.1A

1. Graph

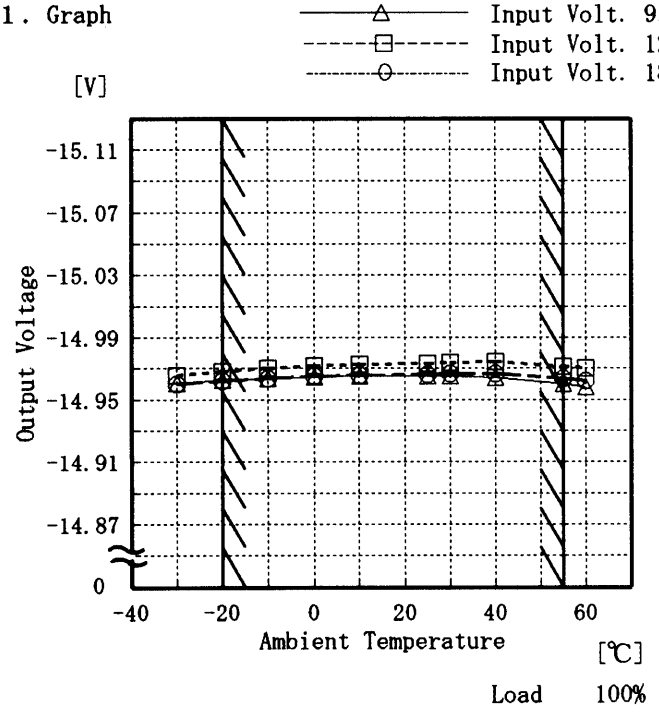



2. Values

| Temperature [℃] | Input Volt. 9.0[V] Output Volt. [V] | Input Volt. 12.0[V] Output Volt. [V] | Input Volt. 18.0[V] Output Volt. [V] |
|---|---|---|---|
| -30 | 14.972 | 14.978 | 14.973 |
| -20 | 14.975 | 14.981 | 14.976 |
| -10 | 14.977 | 14.983 | 14.977 |
| 0 | 14.978 | 14.985 | 14.978 |
| 10 | 14.979 | 14.986 | 14.979 |
| 25 | 14.978 | 14.986 | 14.979 |
| 30 | 14.978 | 14.987 | 14.980 |
| 40 | 14.977 | 14.987 | 14.979 |
| 55 | 14.973 | 14.984 | 14.975 |
| 60 | 14.970 | 14.982 | 14.974 |
| — | — | — | — |

Object −15V0.1A

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. 9.0[V] Output Volt. [V] | Input Volt. 12.0[V] Output Volt. [V] | Input Volt. 18.0[V] Output Volt. [V] |
|---|---|---|---|
| -30 | -14.960 | -14.966 | -14.960 |
| -20 | -14.962 | -14.968 | -14.962 |
| -10 | -14.964 | -14.970 | -14.964 |
| 0 | -14.965 | -14.972 | -14.965 |
| 10 | -14.965 | -14.973 | -14.966 |
| 25 | -14.965 | -14.973 | -14.966 |
| 30 | -14.965 | -14.974 | -14.967 |
| 40 | -14.964 | -14.974 | -14.967 |
| 55 | -14.960 | -14.971 | -14.963 |
| 60 | -14.958 | -14.970 | -14.962 |
| — | — | — | — |

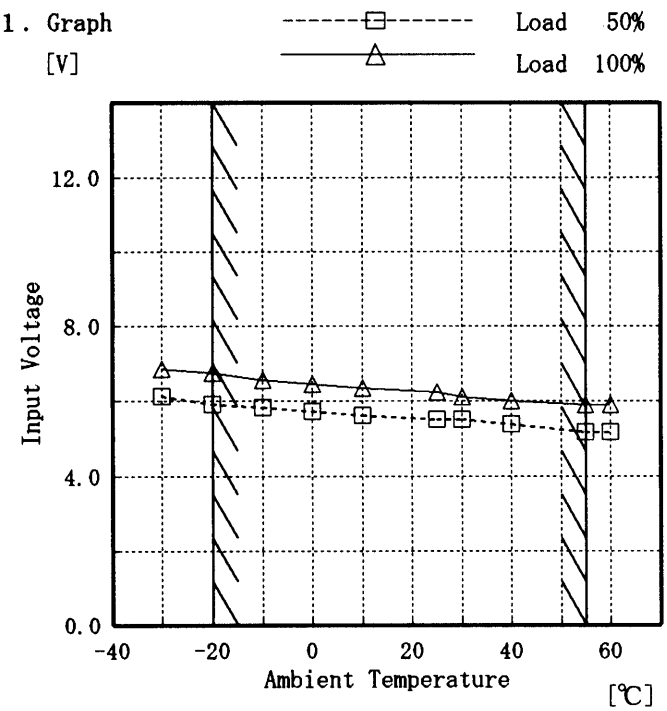
COSEL

| Model | ZUW31215 |
|---|---|
| Item | Minimum Input Voltage for Regulated Output Voltage<br>最低レギュレーション電圧 |

Testing Circuitry Figure A

Object +15V0.1A

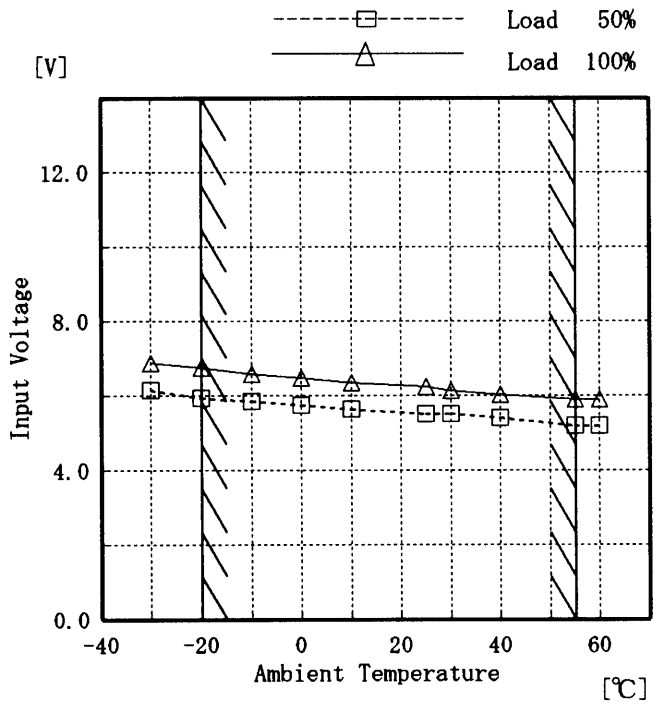
1. Graph




2. Values

| Ambient Temp. [℃] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] |
|---|---|---|
| -30 | 6.1 | 6.9 |
| -20 | 5.9 | 6.8 |
| -10 | 5.8 | 6.6 |
| 0 | 5.7 | 6.5 |
| 10 | 5.6 | 6.3 |
| 25 | 5.5 | 6.2 |
| 30 | 5.5 | 6.1 |
| 40 | 5.4 | 6.0 |
| 55 | 5.2 | 5.9 |
| 60 | 5.2 | 5.9 |
| — | — | — |

Object −15V0.1A




2. Values

| Ambient Temp. [℃] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] |
|---|---|---|
| -30 | 6.1 | 6.9 |
| -20 | 5.9 | 6.8 |
| -10 | 5.8 | 6.6 |
| 0 | 5.7 | 6.5 |
| 10 | 5.6 | 6.3 |
| 25 | 5.5 | 6.2 |
| 30 | 5.5 | 6.1 |
| 40 | 5.4 | 6.0 |
| 55 | 5.2 | 5.9 |
| 60 | 5.2 | 5.9 |
| — | — | — |

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。

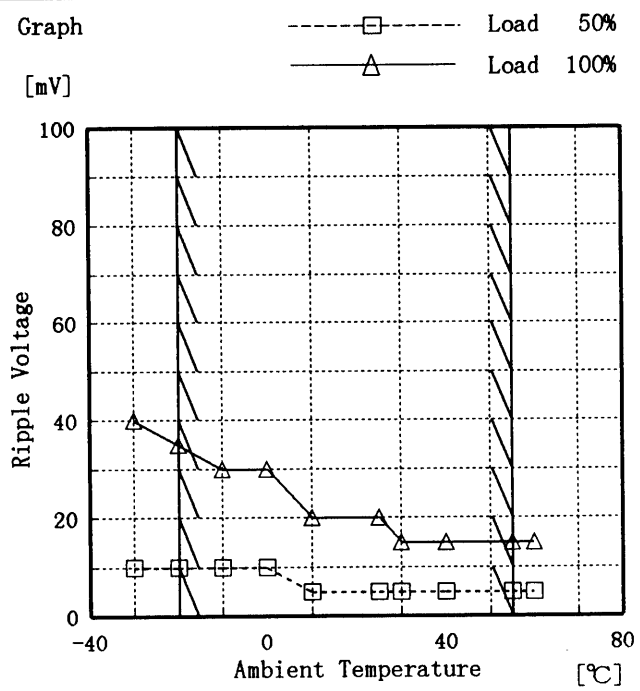
COSEL

| Model | ZUW31215 |
|---|---|
| Item | Ripple Voltage (by Ambient Temp.)<br>リップル電圧 (周囲温度特性) |

Testing Circuitry Figure A

Object +15V0.1A

1. Graph



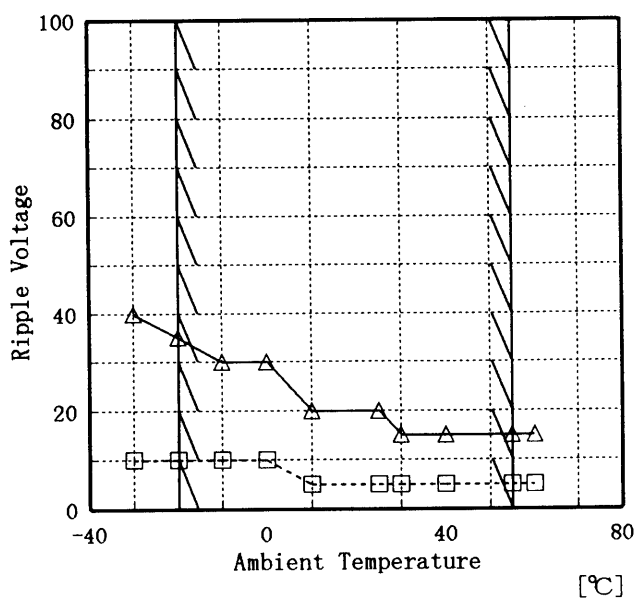

Input Volt. 9.0 V

2. Values

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

Object −15V0.1A

1. Graph




Input Volt. 9.0 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 | 45 |
| -20 | 10 | 40 |
| -10 | 5 | 30 |
| 0 | 5 | 25 |
| 10 | 5 | 20 |
| 25 | 5 | 15 |
| 30 | 5 | 15 |
| 40 | 5 | 20 |
| 55 | 5 | 20 |
| 60 | 5 | 25 |
| — | — | — |

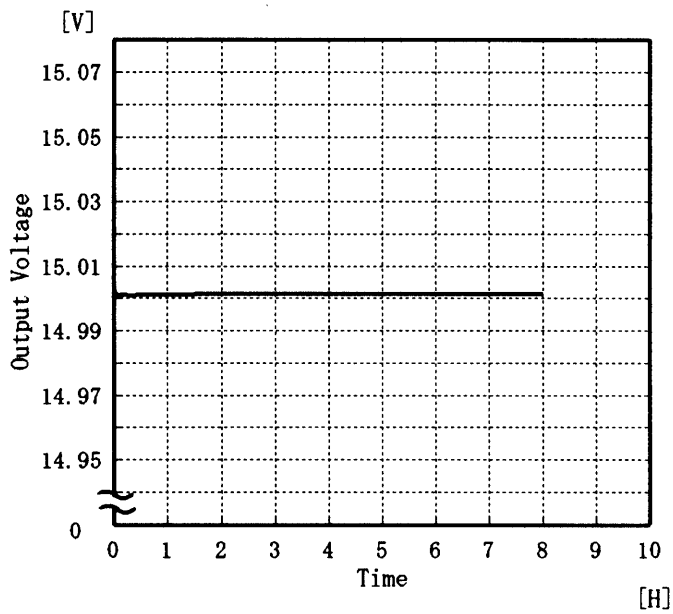
COSEL

| Model | ZUW31215 |
|---|---|
| Item | Time Lapse Drift 経時ドリフト |

Temperature 25 ℃
Testing Circuitry Figure A

Object +15V0.1A

1. Graph



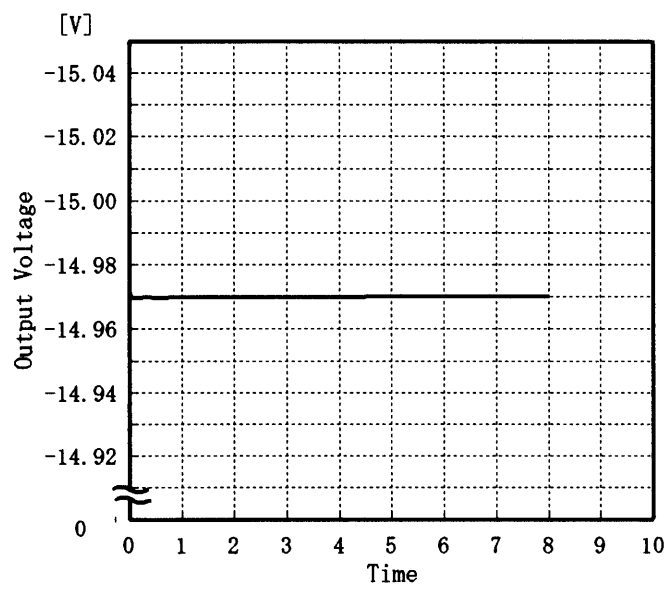

Input Volt. 12.0V
Load 100%

2. Values

| Time since start [H] | Output Voltage [V] |
|---|---|
| 0.0 | 15.003 |
| 0.5 | 15.001 |
| 1.0 | 15.001 |
| 2.0 | 15.001 |
| 3.0 | 15.001 |
| 4.0 | 15.001 |
| 5.0 | 15.002 |
| 6.0 | 15.001 |
| 7.0 | 15.002 |
| 8.0 | 15.002 |

Object −15V0.1A

1. Graph




Input Volt. 12.0V
Load 100%

2. Values

| Time since start [H] | Output Voltage [V] |
|---|---|
| 0.0 | -14.972 |
| 0.5 | -14.970 |
| 1.0 | -14.970 |
| 2.0 | -14.970 |
| 3.0 | -14.970 |
| 4.0 | -14.970 |
| 5.0 | -14.970 |
| 6.0 | -14.970 |
| 7.0 | -14.970 |
| 8.0 | -14.970 |

COSEL

| Model | ZUW31215 | |
|---|---|---|
| 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 : -20～55 ℃

Input Voltage : 9.0～18.0 V

Load Current ( AVR 1 ) : 0.0～0.1 A

( AVR 2 ) : 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 9.0～18.0 V

負荷電流 (AVR 1) 0.0～0.1 A

(AVR 2) 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

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

Object +15V0.1A

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration)[%] |
|---|---|---|---|---|---|---|
| Maximum Voltage | 25 | 12.0 | 0.1 | 14.986 | ±121 | ±0.9 |
| Minimum Voltage | -20 | 9.0 | 0.0 | 14.745 | | |

Object −15V0.1A

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration)[%] |
|---|---|---|---|---|---|---|
| Maximum Voltage | 25 | 12.0 | 0.1 | -14.974 | ±114 | ±0.8 |
| Minimum Voltage | 55 | 9.0 | 0.0 | -14.746 | | |

COSEL

| | |
|---|---|
| Model | ZUW31215 |
| Item | Condensation 結露特性 |
| Object | +15V0.1A |

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.

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 | 14.912 | 5 | 10 |
| | 2 | 14.905 | 5 | 10 |
| | 3 | 14.902 | 5 | 10 |
| Load 100 % | 1 | 14.819 | 10 | 20 |
| | 2 | 14.811 | 10 | 20 |
| | 3 | 14.811 | 10 | 20 |

Input Volt. 12.0 V

COSEL

| | |
|---|---|
| Model | ZUW31215 |
| Item | Condensation 結露特性 |
| Object | −15V0.1A |

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.

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 | -14.884 | 5 | 25 |
| | 2 | -14.890 | 5 | 25 |
| | 3 | -14.888 | 5 | 25 |
| Load 100 % | 1 | -14.784 | 15 | 25 |
| | 2 | -14.794 | 15 | 25 |
| | 3 | -14.799 | 15 | 25 |

Input Volt. 12.0 V

COSEL

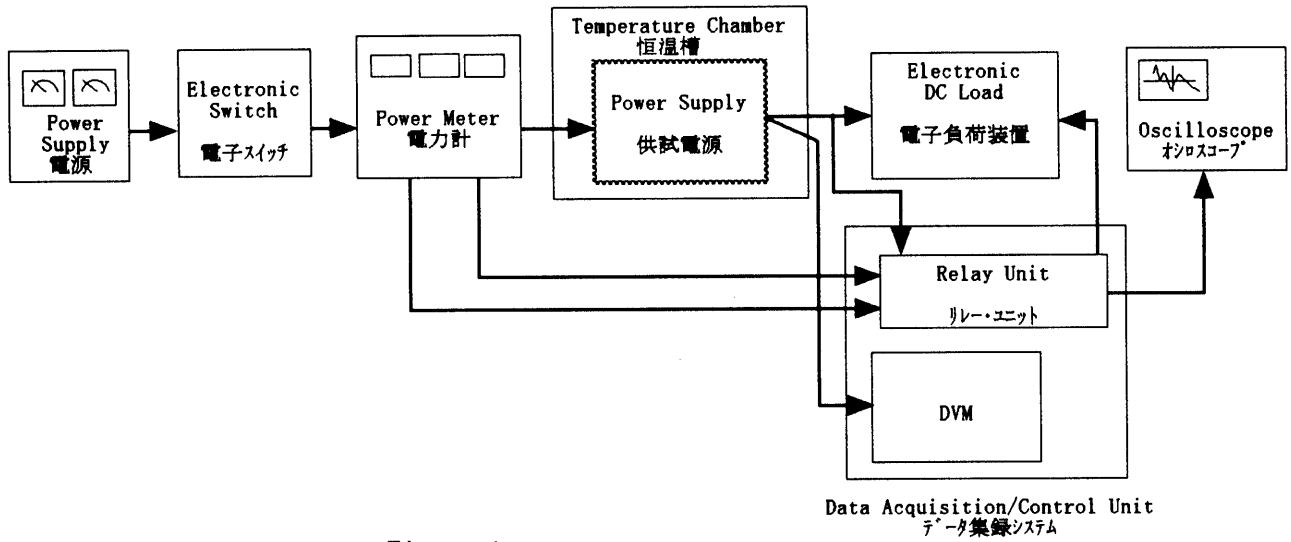



Figure A