



TEST DATA OF ZUW101215

(12.0V INPUT)

Regulated DC Power Supply

Date : Sep 21. 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 | | ZUW101215 | |
| Item | Line Regulation 静的入力変動 | | |
| Object | +15V0.350A | | |
| 1. Graph | | | |
| | -----□----- | Load | 50% |
| | -----△----- | Load | 100% |
| [V] | | | |
| 2. Values | | | |
| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | |
| 8.0 | 15.095 | 14.945 | |
| 9.0 | 15.087 | 14.945 | |
| 10.0 | 15.082 | 14.944 | |
| 12.0 | 15.074 | 14.944 | |
| 15.0 | 15.069 | 14.943 | |
| 18.0 | 15.068 | 14.942 | |
| 20.0 | 15.068 | 14.942 | |
| — | — | — | |
| — | — | — | |
| — | — | — | |
| — | — | — | |
| — | — | — | |

| | | | |
|-------------------|---------------------------|----------------------------|------|
| Object | | -15V0.350A | |
| 1. Graph | | | |
| | -----□----- | Load | 50% |
| | -----△----- | Load | 100% |
| [V] | | | |
| 2. Values | | | |
| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] | |
| 8.0 | -15.118 | -14.962 | |
| 9.0 | -15.110 | -14.963 | |
| 10.0 | -15.105 | -14.963 | |
| 12.0 | -15.098 | -14.964 | |
| 15.0 | -15.094 | -14.965 | |
| 18.0 | -15.093 | -14.965 | |
| 20.0 | -15.093 | -14.965 | |
| — | — | — | |
| — | — | — | |
| — | — | — | |
| — | — | — | |
| — | — | — | |

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。

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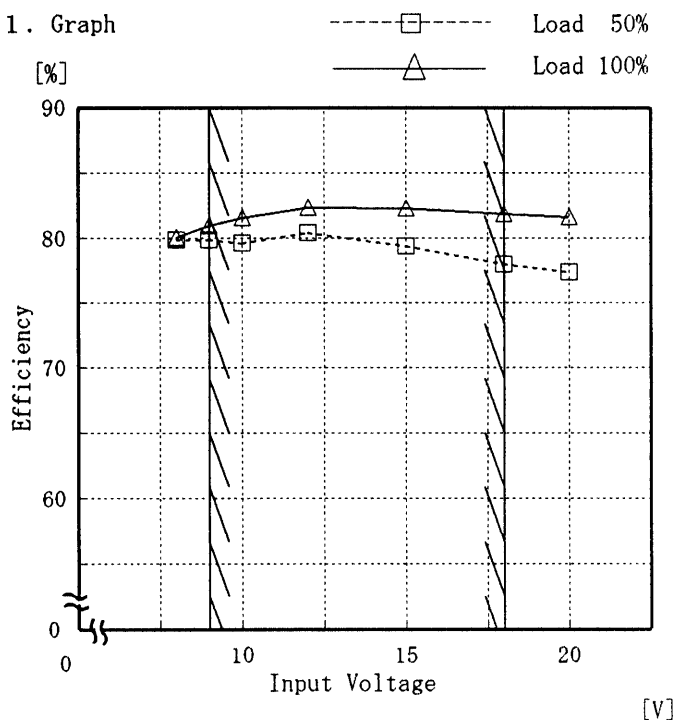
Model ZUW101215

Item Efficiency 効率

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

| Input Voltage [V] | Load 50% | Load 100% |
|-------------------|----------------|----------------|
| | Efficiency [%] | Efficiency [%] |
| 8.0 | 79.9 | 80.1 |
| 9.0 | 79.9 | 81.0 |
| 10.0 | 79.6 | 81.6 |
| 12.0 | 80.4 | 82.4 |
| 15.0 | 79.4 | 82.3 |
| 18.0 | 78.0 | 81.9 |
| 20.0 | 77.3 | 81.6 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

LOREL

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|--------|------------------------|
| Model | ZUW101215 |
| Item | Load Regulation 静的負荷変動 |
| Object | +15V0.350A |

| | |
|-------------------|----------|
| Temperature | 25℃ |
| Testing Circuitry | Figure A |

1. Graph

—△— Input Volt. 9.0V
 - -□- - Input Volt. 12.0V
 - -○- - Input Volt. 18.0V

2. Values

| Load Current [A] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] |
|---------------------|-----------------------|------------------------|------------------------|
| | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] |
| 0.000 | 15.364 | 15.366 | 15.368 |
| 0.060 | 15.209 | 15.207 | 15.208 |
| 0.120 | 15.137 | 15.128 | 15.126 |
| 0.180 | 15.084 | 15.072 | 15.066 |
| 0.240 | 15.035 | 15.026 | 15.018 |
| 0.300 | 14.986 | 14.982 | 14.977 |
| 0.350 | 14.946 | 14.946 | 14.944 |
| 0.385 | 14.918 | 14.920 | 14.921 |
| — | — | — | — |
| — | — | — | — |

| | |
|--------|------------|
| Object | -15V0.350A |
|--------|------------|

1. Graph

—△— Input Volt. 9.0V
 - -□- - Input Volt. 12.0V
 - -○- - Input Volt. 18.0V

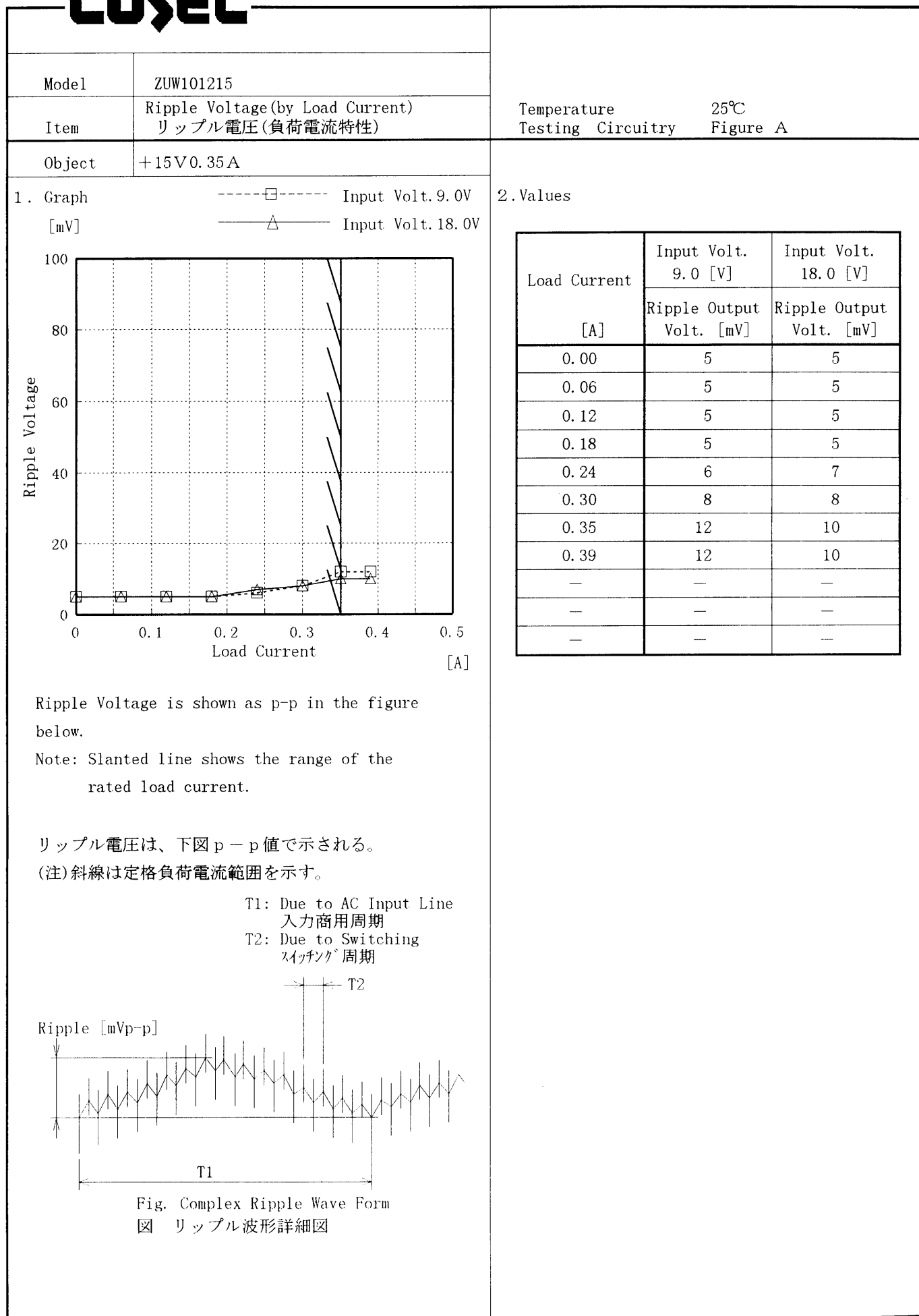
2. Values

| Load Current [A] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] |
|---------------------|-----------------------|------------------------|------------------------|
| | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] |
| 0.000 | -15.393 | -15.397 | -15.400 |
| 0.060 | -15.234 | -15.232 | -15.233 |
| 0.120 | -15.160 | -15.152 | -15.151 |
| 0.180 | -15.105 | -15.095 | -15.090 |
| 0.240 | -15.055 | -15.048 | -15.042 |
| 0.300 | -15.005 | -15.001 | -14.999 |
| 0.350 | -14.963 | -14.964 | -14.965 |
| 0.385 | -14.934 | -14.938 | -14.942 |
| — | — | — | — |
| — | — | — | — |

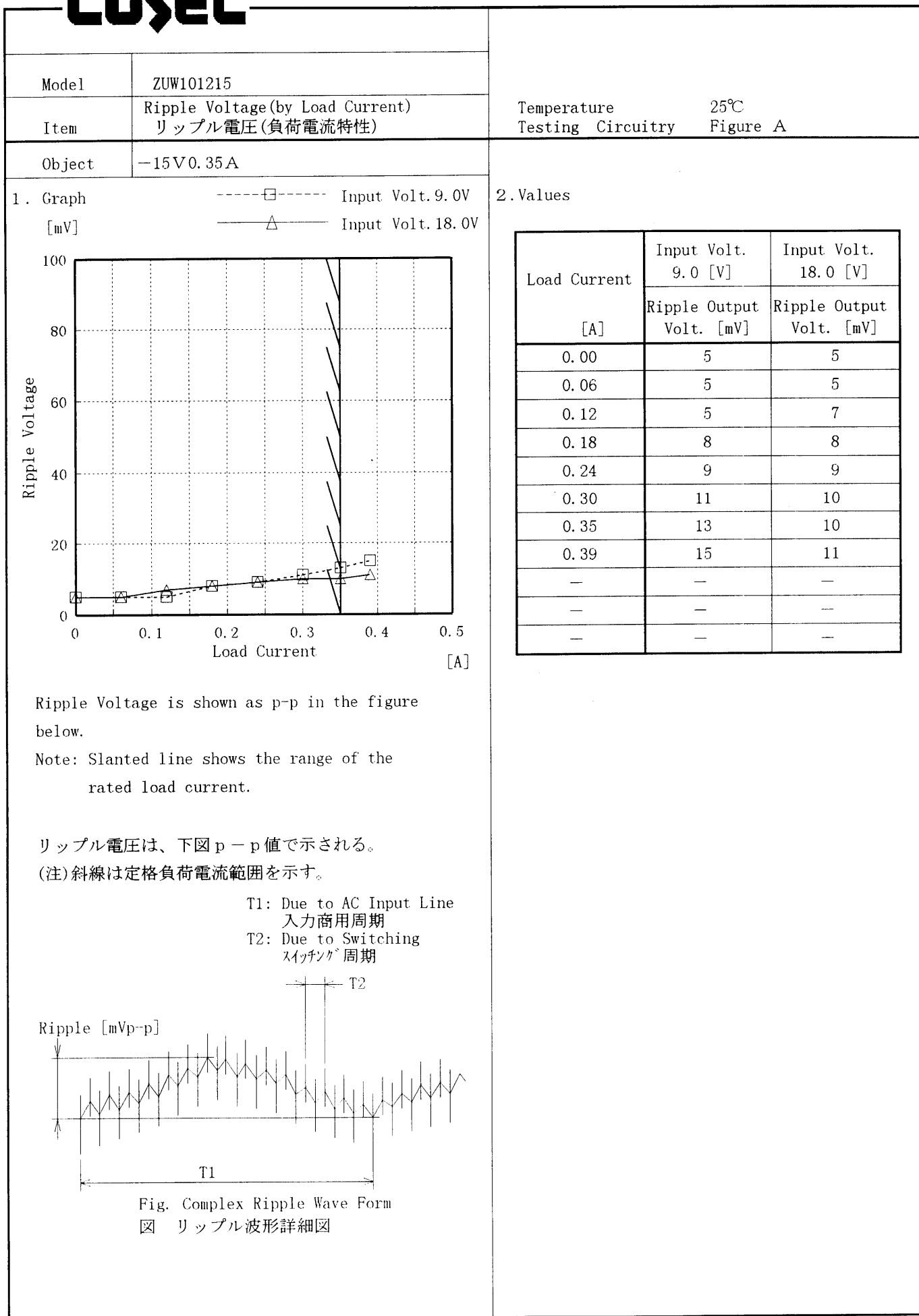
Note: Slanted line shows the range of the rated load current.

(注)斜線は定格負荷電流範囲を示す。

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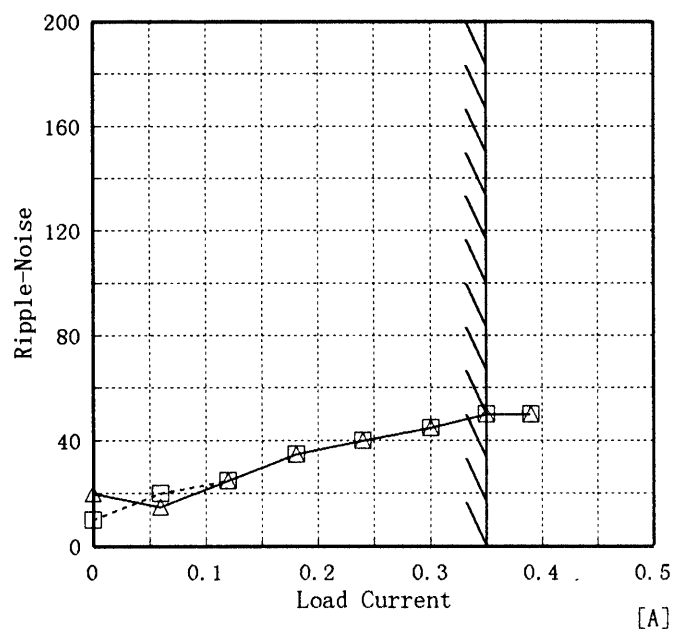


COSEL

| | |
|--------|----------------------|
| Model | ZUW101215 |
| Item | Ripple-Noise リップルノイズ |
| Object | +15V0.350A |

Temperature 25°C
Testing Circuitry Figure A

1. Graph
- Input Volt. 9.0V
-----△----- Input Volt. 18.0V



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
スイッチング周期

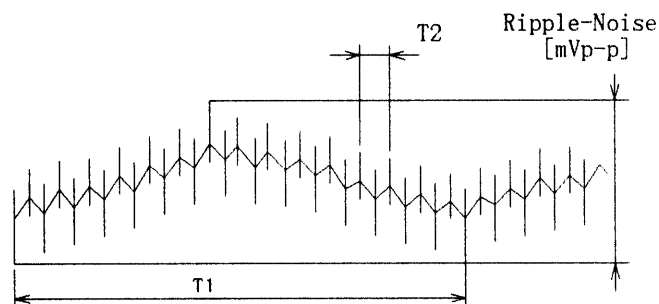


Fig. Complex Ripple Wave Form

図 リップル波形詳細図

2. Values

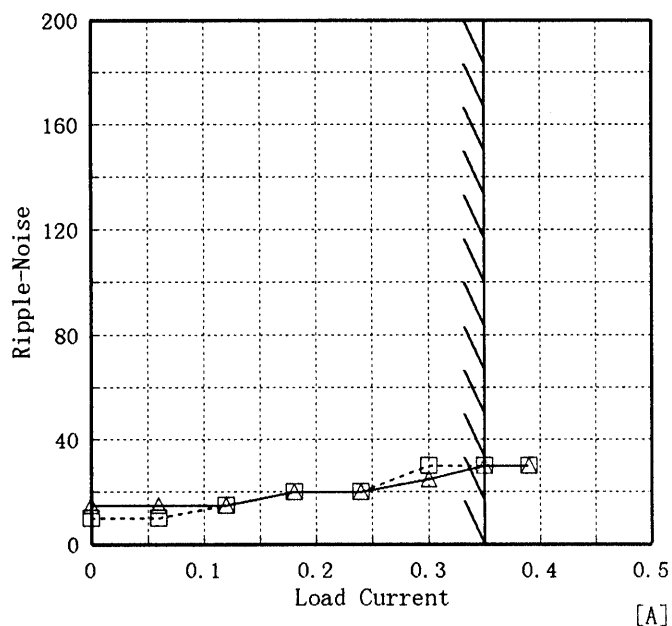
| Load current [A] | Input Volt. 9.0 [V] | Input Volt. 18.0 [V] |
|---------------------|------------------------|-------------------------|
| | Ripple-Noise [mV] | Ripple-Noise [mV] |
| 0.00 | 10 | 20 |
| 0.06 | 20 | 15 |
| 0.12 | 25 | 25 |
| 0.18 | 35 | 35 |
| 0.24 | 40 | 40 |
| 0.30 | 45 | 45 |
| 0.35 | 50 | 50 |
| 0.39 | 50 | 50 |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|--------|----------------------|
| Model | ZUW101215 |
| Item | Ripple-Noise リップルノイズ |
| Object | -15V0.350A |

Temperature 25°C
Testing Circuitry Figure A

1. Graph
[mV] -----□----- Input Volt. 9.0V
 —△— Input Volt. 18.0V



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
スイッチング周期

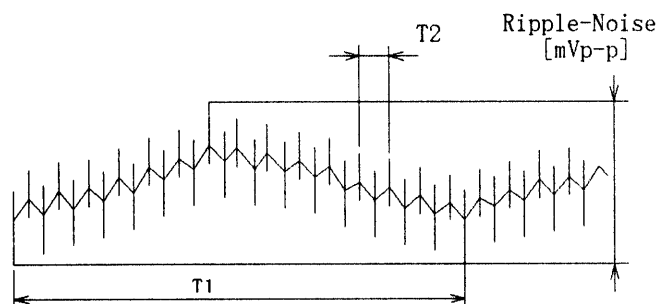


Fig. Complex Ripple Wave Form

図 リップル波形詳細図

2. Values

| Load current [A] | Input Volt. 9.0 [V] | Input Volt. 18.0 [V] |
|---------------------|------------------------|-------------------------|
| | Ripple-Noise [mV] | Ripple-Noise [mV] |
| 0.00 | 10 | 15 |
| 0.06 | 10 | 15 |
| 0.12 | 15 | 15 |
| 0.18 | 20 | 20 |
| 0.24 | 20 | 20 |
| 0.30 | 30 | 25 |
| 0.35 | 30 | 30 |
| 0.39 | 30 | 30 |
| — | — | — |
| — | — | — |
| — | — | — |

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| Model | | ZUW101215 | | Temperature 25℃ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------|---|---------------------|----------------------------|--|--------------------|--------------------|---------------------|---------------------|-------------------|-------------------|-------------------|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| Item | | Overcurrent Protection 過電流保護 | | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | <div><div><div>~~~~~</div><div>———</div><div>———</div></div><div><div>Input Volt. 9.0 V</div><div>Input Volt. 12.0 V</div><div>Input Volt. 18.0 V</div></div></div> <div><div>[V]</div><div>20.0</div><div>15.0</div><div>10.0</div><div>5.0</div><div>0.0</div><div>Output Voltage</div><div>0</div><div>0.2</div><div>0.4</div><div>0.6</div><div>0.8</div><div>1</div><div>[A]</div></div> | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th rowspan="2">Output Voltage [V]</th><th>Input Volt. 9.0[V]</th><th>Input Volt. 12.0[V]</th><th>Input Volt. 18.0[V]</th></tr><tr><th>Load Curr-ent [A]</th><th>Load Curr-ent [A]</th><th>Load Curr-ent [A]</th></tr><tr><td>15.00</td><td>0.226</td><td>0.213</td><td>0.204</td></tr><tr><td>14.25</td><td>0.557</td><td>0.579</td><td>0.549</td></tr><tr><td>13.50</td><td>0.595</td><td>0.613</td><td>0.587</td></tr><tr><td>12.00</td><td>0.686</td><td>0.710</td><td>0.690</td></tr><tr><td>10.50</td><td>0.767</td><td>0.790</td><td>0.769</td></tr><tr><td>9.00</td><td>0.821</td><td>0.828</td><td>0.787</td></tr><tr><td>7.50</td><td>0.843</td><td>0.819</td><td>0.732</td></tr><tr><td>6.00</td><td>0.829</td><td>0.777</td><td>0.668</td></tr><tr><td>4.50</td><td>0.870</td><td>0.819</td><td>0.719</td></tr><tr><td>3.00</td><td>0.827</td><td>0.779</td><td>0.705</td></tr><tr><td>1.50</td><td>0.794</td><td>0.767</td><td>0.734</td></tr><tr><td>0.00</td><td>0.885</td><td>0.888</td><td>0.860</td></tr></table> | | | | Output Voltage [V] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | Load Curr-ent [A] | Load Curr-ent [A] | Load Curr-ent [A] | 15.00 | 0.226 | 0.213 | 0.204 | 14.25 | 0.557 | 0.579 | 0.549 | 13.50 | 0.595 | 0.613 | 0.587 | 12.00 | 0.686 | 0.710 | 0.690 | 10.50 | 0.767 | 0.790 | 0.769 | 9.00 | 0.821 | 0.828 | 0.787 | 7.50 | 0.843 | 0.819 | 0.732 | 6.00 | 0.829 | 0.777 | 0.668 | 4.50 | 0.870 | 0.819 | 0.719 | 3.00 | 0.827 | 0.779 | 0.705 | 1.50 | 0.794 | 0.767 | 0.734 | 0.00 | 0.885 | 0.888 | 0.860 |
| Output Voltage [V] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Load Curr-ent [A] | Load Curr-ent [A] | Load Curr-ent [A] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15.00 | 0.226 | 0.213 | 0.204 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14.25 | 0.557 | 0.579 | 0.549 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13.50 | 0.595 | 0.613 | 0.587 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.00 | 0.686 | 0.710 | 0.690 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10.50 | 0.767 | 0.790 | 0.769 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.00 | 0.821 | 0.828 | 0.787 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7.50 | 0.843 | 0.819 | 0.732 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.00 | 0.829 | 0.777 | 0.668 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.50 | 0.870 | 0.819 | 0.719 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.00 | 0.827 | 0.779 | 0.705 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.50 | 0.794 | 0.767 | 0.734 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.00 | 0.885 | 0.888 | 0.860 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | -15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | <div><div><div>~~~~~</div><div>———</div><div>———</div></div><div><div>Input Volt. 9.0 V</div><div>Input Volt. 12.0 V</div><div>Input Volt. 18.0 V</div></div></div> <div><div>[V]</div><div>-20.0</div><div>-15.0</div><div>-10.0</div><div>-5.0</div><div>0.0</div><div>Output Voltage</div><div>0</div><div>0.2</div><div>0.4</div><div>0.6</div><div>0.8</div><div>1</div><div>[A]</div></div> | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table><tr><th rowspan="2">Output Voltage [V]</th><th>Input Volt. 9.0[V]</th><th>Input Volt. 12.0[V]</th><th>Input Volt. 18.0[V]</th></tr><tr><th>Load Curr-ent [A]</th><th>Load Curr-ent [A]</th><th>Load Curr-ent [A]</th></tr><tr><td>-15.00</td><td>0.379</td><td>0.383</td><td>0.388</td></tr><tr><td>-14.25</td><td>0.564</td><td>0.581</td><td>0.550</td></tr><tr><td>-13.50</td><td>0.602</td><td>0.622</td><td>0.592</td></tr><tr><td>-12.00</td><td>0.688</td><td>0.711</td><td>0.692</td></tr><tr><td>-10.50</td><td>0.768</td><td>0.793</td><td>0.772</td></tr><tr><td>-9.00</td><td>0.824</td><td>0.830</td><td>0.788</td></tr><tr><td>-7.50</td><td>0.844</td><td>0.823</td><td>0.735</td></tr><tr><td>-6.00</td><td>0.830</td><td>0.779</td><td>0.669</td></tr><tr><td>-4.50</td><td>0.869</td><td>0.818</td><td>0.719</td></tr><tr><td>-3.00</td><td>0.824</td><td>0.779</td><td>0.704</td></tr><tr><td>-1.50</td><td>0.794</td><td>0.767</td><td>0.733</td></tr><tr><td>0.00</td><td>0.871</td><td>0.873</td><td>0.838</td></tr></table> | | | | Output Voltage [V] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | Load Curr-ent [A] | Load Curr-ent [A] | Load Curr-ent [A] | -15.00 | 0.379 | 0.383 | 0.388 | -14.25 | 0.564 | 0.581 | 0.550 | -13.50 | 0.602 | 0.622 | 0.592 | -12.00 | 0.688 | 0.711 | 0.692 | -10.50 | 0.768 | 0.793 | 0.772 | -9.00 | 0.824 | 0.830 | 0.788 | -7.50 | 0.844 | 0.823 | 0.735 | -6.00 | 0.830 | 0.779 | 0.669 | -4.50 | 0.869 | 0.818 | 0.719 | -3.00 | 0.824 | 0.779 | 0.704 | -1.50 | 0.794 | 0.767 | 0.733 | 0.00 | 0.871 | 0.873 | 0.838 |
| Output Voltage [V] | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Load Curr-ent [A] | Load Curr-ent [A] | Load Curr-ent [A] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -15.00 | 0.379 | 0.383 | 0.388 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -14.25 | 0.564 | 0.581 | 0.550 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -13.50 | 0.602 | 0.622 | 0.592 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -12.00 | 0.688 | 0.711 | 0.692 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10.50 | 0.768 | 0.793 | 0.772 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -9.00 | 0.824 | 0.830 | 0.788 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -7.50 | 0.844 | 0.823 | 0.735 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -6.00 | 0.830 | 0.779 | 0.669 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -4.50 | 0.869 | 0.818 | 0.719 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -3.00 | 0.824 | 0.779 | 0.704 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -1.50 | 0.794 | 0.767 | 0.733 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.00 | 0.871 | 0.873 | 0.838 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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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| | | | |
|--------|---------------------------------|-------------------|----------|
| Model | ZUW101215 | Temperature | 25°C |
| Item | Dynamic Load Response 動的負荷変動 | Testing Circuitry | Figure A |
| Object | +15V0.350A | | |

Input Volt. 12 V

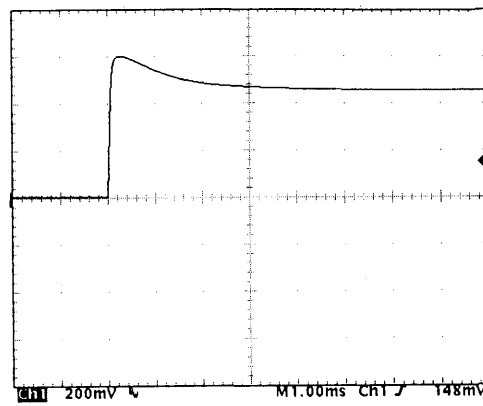
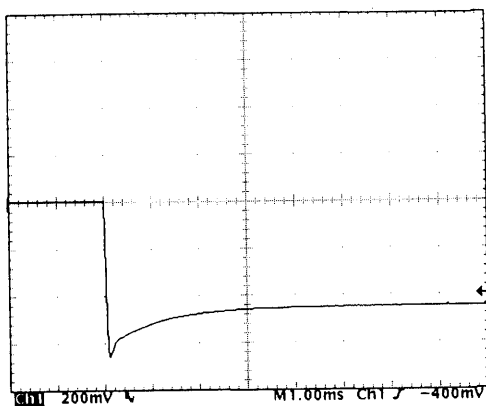
Cycle 100 mS

Load Current

Min. Load ←→

Load 100 %

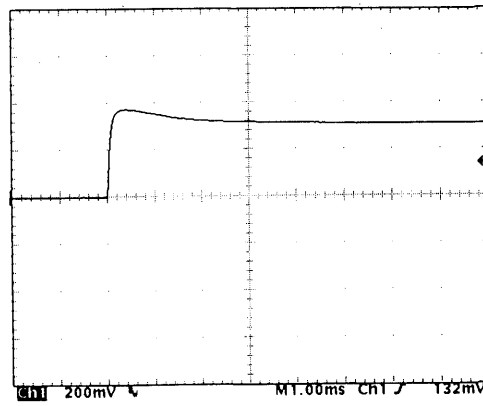
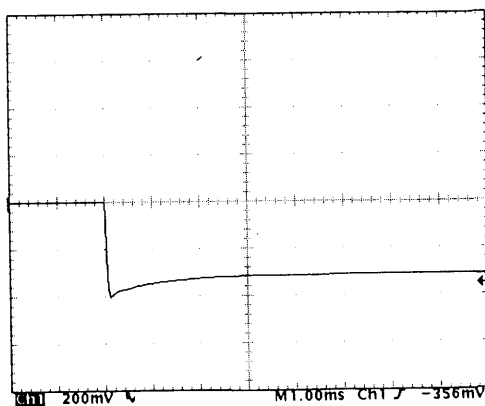
200 mV/div



Min. Load ←→

Load 50 %

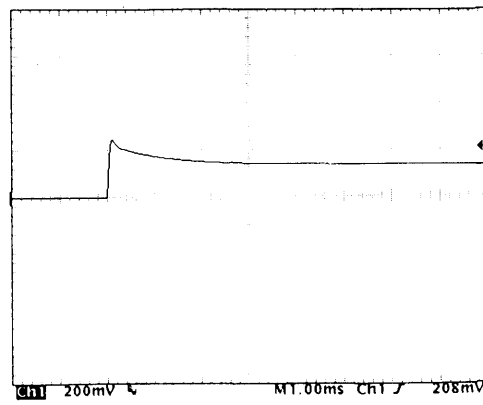
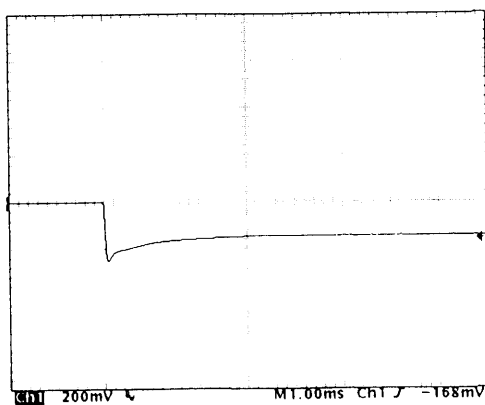
200 mV/div



Load 50% ←→

Load 100 %

200 mV/div



1 mS/div

COSEL

| | | | |
|--------|---------------------------------|-------------------|----------|
| Model | ZUW101215 | Temperature | 25°C |
| Item | Dynamic Load Response 動的負荷変動 | Testing Circuitry | Figure A |
| Object | -15V0.350A | | |

Input Volt. 12 V

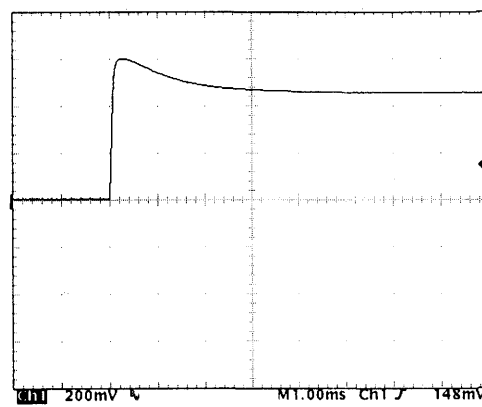
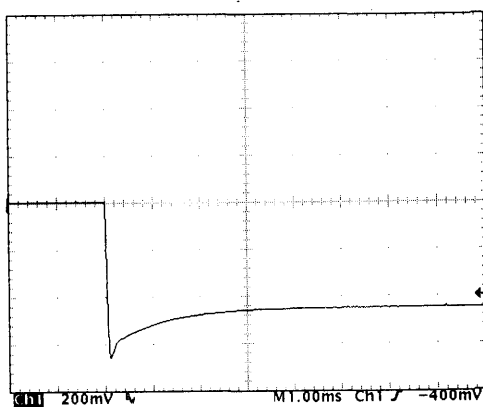
Cycle 100 mS

Load Current

Min. Load ↔

Load 100 %

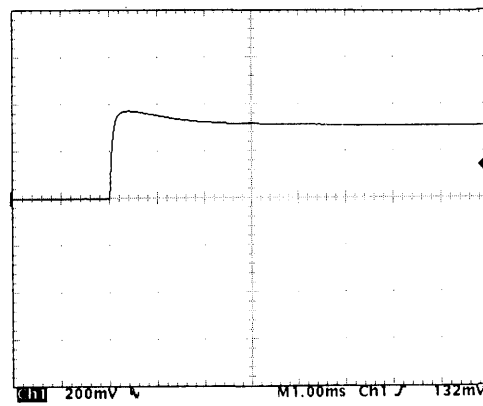
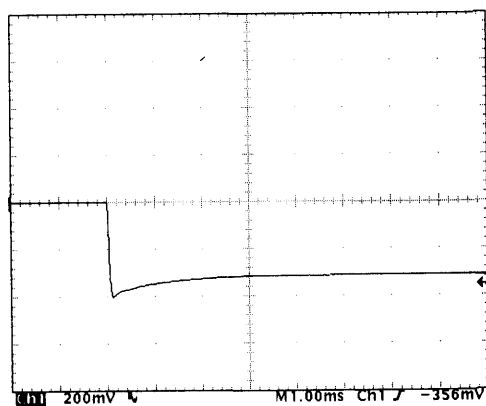
200 mV/div



Min. Load ↔

Load 50 %

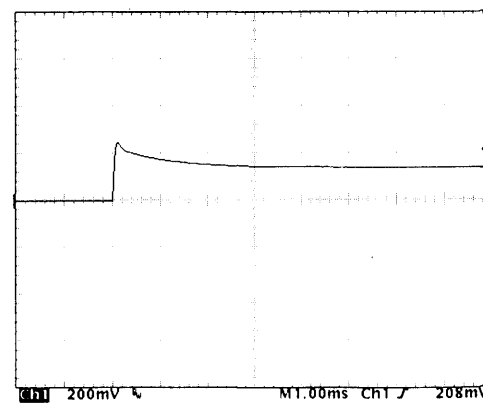
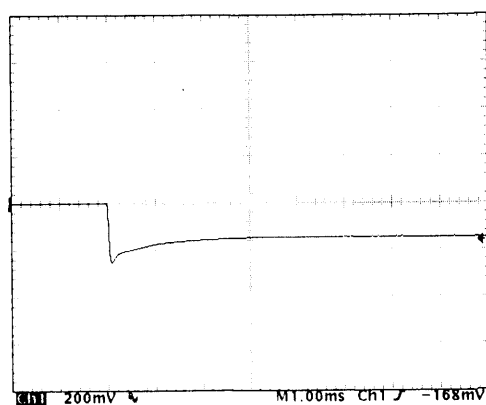
200 mV/div



Load 50% ↔

Load 100 %

200 mV/div



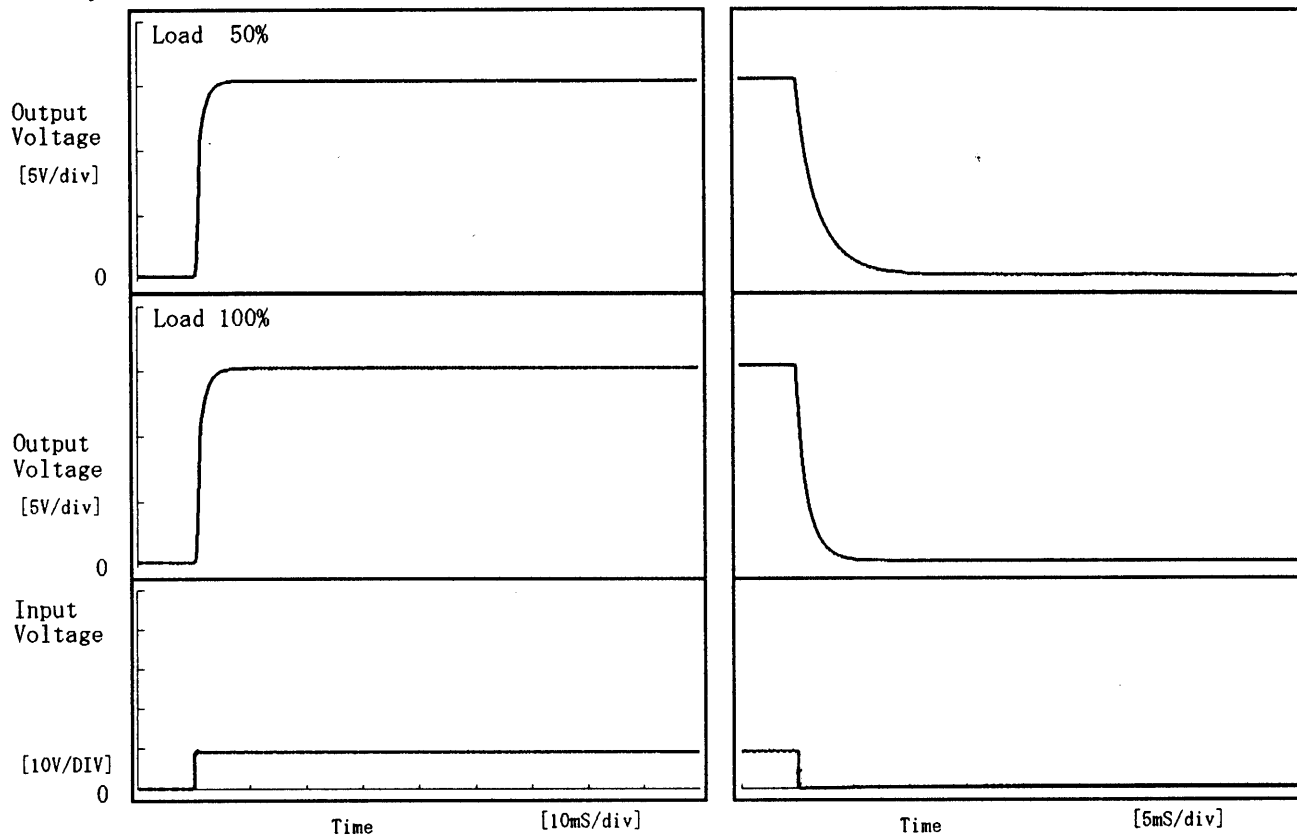
1 mS/div

COSEL

| | | | |
|--------|------------------------------|--|--|
| Model | ZUW101215 | Temperature 25°C Testing Circuitry Figure A | |
| Item | Rise and Fall Time 立上り、立下り時間 | | |
| Object | +15V0.350A | | |

1. Graph

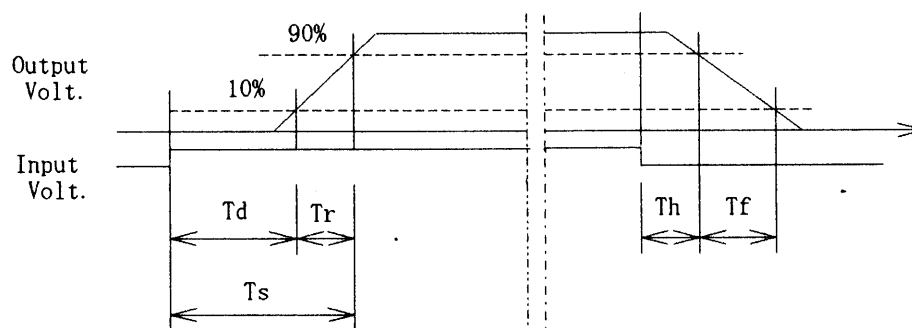
Input Volt. 9.0 V



2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|-------------|------|------|------|------|------|
| 50 % | 0.55 | 2.00 | 2.55 | 0.25 | 4.75 |
| 100 % | 0.55 | 2.15 | 2.70 | 0.15 | 2.33 |

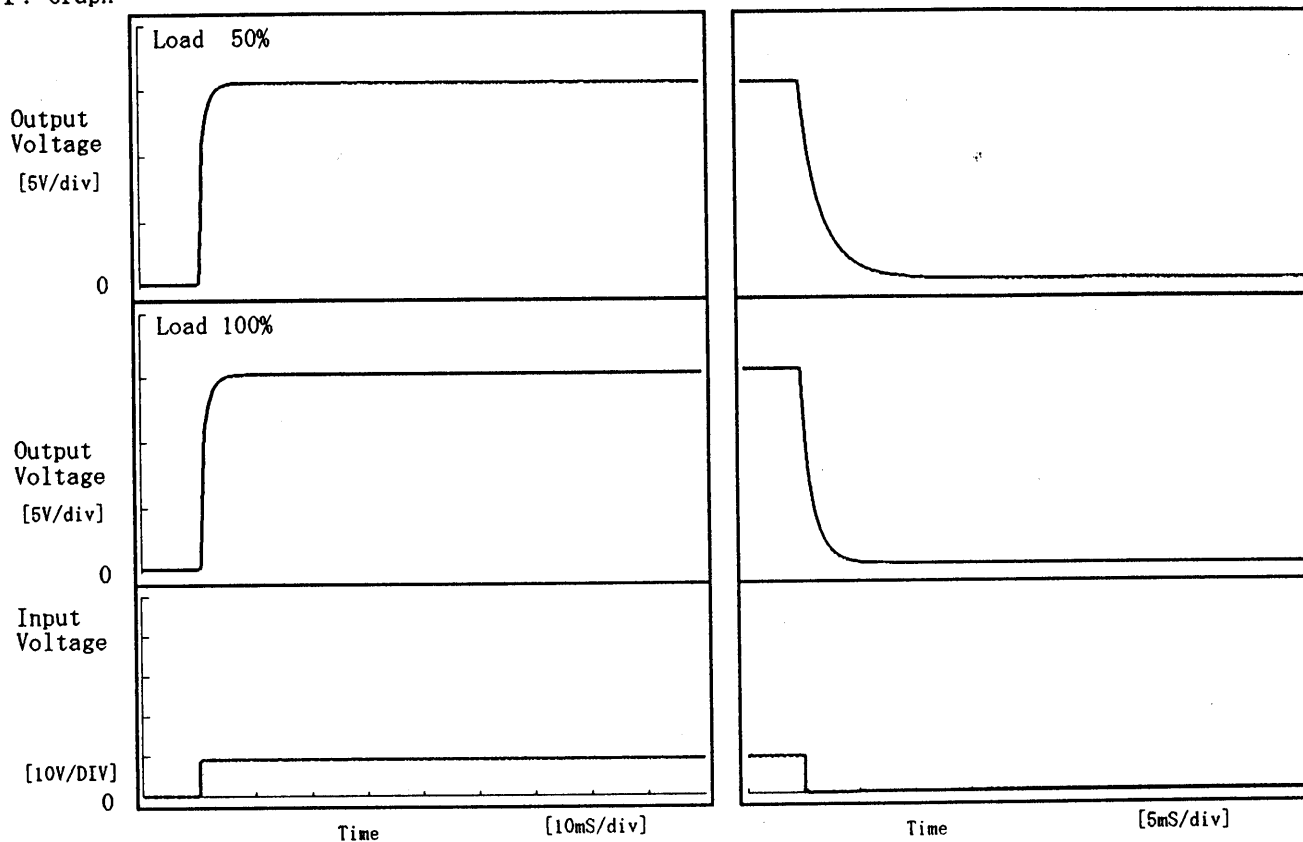


COSEL

| | | | |
|--------|------------------------------|-------------------|----------|
| Model | ZUW101215 | Temperature | 25°C |
| Item | Rise and Fall Time 立上り、立下り時間 | Testing Circuitry | Figure A |
| Object | -15V0.350A | | |

1. Graph

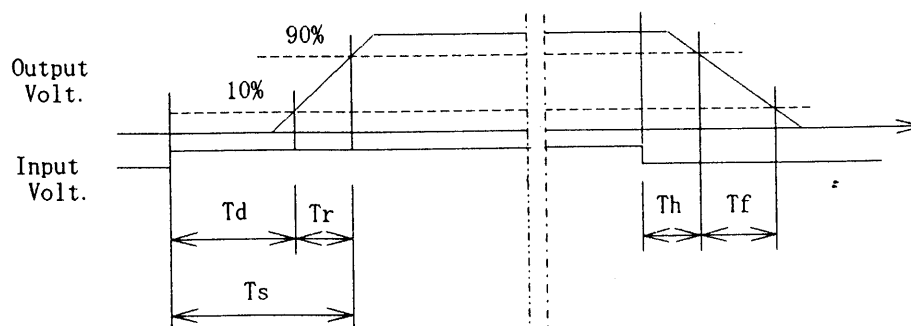
Input Volt. 9.0 V



2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|-------------|------|------|------|------|------|
| 50 % | 0.55 | 1.85 | 2.40 | 0.25 | 4.75 |
| 100 % | 0.55 | 2.15 | 2.70 | 0.15 | 2.33 |



COSEL

| Model | | ZUW101215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------|---|------------------------|-------------|-----------------------|------------------------|------------------------|--|---------------------|---------------------|---------------------|-----|---------|---------|---------|-----|---------|---------|---------|-----|---------|---------|---------|-----|---------|---------|---------|---|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|----|---------|---------|---------|
| Item | | Ambient Temperature Drift 周囲温度変動 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div>—△—</div>Input Volt. 9.0V</div> <div><div>- - -□- - -</div>Input Volt. 12.0V</div> <div><div>- - -○- - -</div>Input Volt. 18.0V</div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> | | <table><tr><th>Temperature</th><th>Input Volt. 9.0[V]</th><th>Input Volt. 12.0[V]</th><th>Input Volt. 18.0[V]</th></tr><tr><td></td><td>Output Volt. [V]</td><td>Output Volt. [V]</td><td>Output Volt. [V]</td></tr><tr><td>-30</td><td>14.890</td><td>14.890</td><td>14.889</td></tr><tr><td>-20</td><td>14.899</td><td>14.899</td><td>14.898</td></tr><tr><td>-20</td><td>14.904</td><td>14.904</td><td>14.903</td></tr><tr><td>-10</td><td>14.912</td><td>14.912</td><td>14.911</td></tr><tr><td>0</td><td>14.918</td><td>14.919</td><td>14.918</td></tr><tr><td>10</td><td>14.927</td><td>14.927</td><td>14.927</td></tr><tr><td>25</td><td>14.941</td><td>14.942</td><td>14.941</td></tr><tr><td>30</td><td>14.946</td><td>14.947</td><td>14.946</td></tr><tr><td>40</td><td>14.953</td><td>14.950</td><td>14.948</td></tr><tr><td>55</td><td>14.953</td><td>14.953</td><td>14.952</td></tr><tr><td>60</td><td>14.954</td><td>14.953</td><td>14.951</td></tr></table> | | Temperature | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | -30 | 14.890 | 14.890 | 14.889 | -20 | 14.899 | 14.899 | 14.898 | -20 | 14.904 | 14.904 | 14.903 | -10 | 14.912 | 14.912 | 14.911 | 0 | 14.918 | 14.919 | 14.918 | 10 | 14.927 | 14.927 | 14.927 | 25 | 14.941 | 14.942 | 14.941 | 30 | 14.946 | 14.947 | 14.946 | 40 | 14.953 | 14.950 | 14.948 | 55 | 14.953 | 14.953 | 14.952 | 60 | 14.954 | 14.953 | 14.951 |
| Temperature | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | 14.890 | 14.890 | 14.889 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 14.899 | 14.899 | 14.898 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 14.904 | 14.904 | 14.903 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 14.912 | 14.912 | 14.911 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 14.918 | 14.919 | 14.918 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 14.927 | 14.927 | 14.927 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 14.941 | 14.942 | 14.941 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 14.946 | 14.947 | 14.946 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 14.953 | 14.950 | 14.948 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 14.953 | 14.953 | 14.952 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 14.954 | 14.953 | 14.951 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | -15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div>—△—</div>Input Volt. 9.0V</div> <div><div>- - -□- - -</div>Input Volt. 12.0V</div> <div><div>- - -○- - -</div>Input Volt. 18.0V</div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> | | <table><tr><th>Temperature</th><th>Input Volt. 9.0[V]</th><th>Input Volt. 12.0[V]</th><th>Input Volt. 18.0[V]</th></tr><tr><td></td><td>Output Volt. [V]</td><td>Output Volt. [V]</td><td>Output Volt. [V]</td></tr><tr><td>-30</td><td>-14.911</td><td>-14.913</td><td>-14.914</td></tr><tr><td>-20</td><td>-14.919</td><td>-14.921</td><td>-14.922</td></tr><tr><td>-20</td><td>-14.925</td><td>-14.926</td><td>-14.928</td></tr><tr><td>-10</td><td>-14.931</td><td>-14.933</td><td>-14.935</td></tr><tr><td>0</td><td>-14.937</td><td>-14.939</td><td>-14.941</td></tr><tr><td>10</td><td>-14.945</td><td>-14.948</td><td>-14.950</td></tr><tr><td>25</td><td>-14.958</td><td>-14.961</td><td>-14.963</td></tr><tr><td>30</td><td>-14.964</td><td>-14.966</td><td>-14.968</td></tr><tr><td>40</td><td>-14.970</td><td>-14.969</td><td>-14.970</td></tr><tr><td>55</td><td>-14.971</td><td>-14.972</td><td>-14.973</td></tr><tr><td>60</td><td>-14.971</td><td>-14.972</td><td>-14.973</td></tr></table> | | Temperature | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | -30 | -14.911 | -14.913 | -14.914 | -20 | -14.919 | -14.921 | -14.922 | -20 | -14.925 | -14.926 | -14.928 | -10 | -14.931 | -14.933 | -14.935 | 0 | -14.937 | -14.939 | -14.941 | 10 | -14.945 | -14.948 | -14.950 | 25 | -14.958 | -14.961 | -14.963 | 30 | -14.964 | -14.966 | -14.968 | 40 | -14.970 | -14.969 | -14.970 | 55 | -14.971 | -14.972 | -14.973 | 60 | -14.971 | -14.972 | -14.973 |
| Temperature | Input Volt. 9.0[V] | Input Volt. 12.0[V] | Input Volt. 18.0[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Output Volt. [V] | Output Volt. [V] | Output Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | -14.911 | -14.913 | -14.914 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | -14.919 | -14.921 | -14.922 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | -14.925 | -14.926 | -14.928 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | -14.931 | -14.933 | -14.935 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | -14.937 | -14.939 | -14.941 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | -14.945 | -14.948 | -14.950 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | -14.958 | -14.961 | -14.963 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | -14.964 | -14.966 | -14.968 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | -14.970 | -14.969 | -14.970 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | -14.971 | -14.972 | -14.973 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | -14.971 | -14.972 | -14.973 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---------------|--|-----------------|---|------|--|--|--|------|--------------------------|--|--|-----|--|--|--|-----|--|--|--|-----|--|--|--|-----|----------------|--|--|-----------|--|--|--|---------------|----------|-----------|--|------|-----------------|-----------------|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|---|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|
| Model | | ZUW101215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Item | Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Graph | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [V] | <div><div>-----□-----</div><div>-----△-----</div></div> | | <div>Load 50%</div> <div>Load 100%</div> <tr><td>16.0</td><td colspan="3"></td></tr> <tr><td>12.0</td><td colspan="3">Ambient Temperature [°C]</td></tr> <tr><td>8.0</td><td colspan="3"></td></tr> <tr><td>4.0</td><td colspan="3"></td></tr> <tr><td>0.0</td><td colspan="3"></td></tr> <tr><td>-40</td><td colspan="3">-20 0 20 40 60</td></tr> <tr><td colspan="4">2. Values</td></tr> <tr><td>Ambient Temp.</td><td>Load 50%</td><td>Load 100%</td><td></td></tr> <tr><td>[°C]</td><td>Input Volt. [V]</td><td>Input Volt. [V]</td><td></td></tr> <tr><td>-30</td><td>6.7</td><td>7.0</td><td></td></tr> <tr><td>-20</td><td>6.7</td><td>7.0</td><td></td></tr> <tr><td>-20</td><td>6.7</td><td>7.0</td><td></td></tr> <tr><td>-10</td><td>6.7</td><td>7.1</td><td></td></tr> <tr><td>0</td><td>6.8</td><td>7.1</td><td></td></tr> <tr><td>10</td><td>6.8</td><td>7.1</td><td></td></tr> <tr><td>25</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>30</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>40</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>55</td><td>6.9</td><td>7.3</td><td></td></tr> <tr><td>60</td><td>7.0</td><td>7.3</td><td></td></tr> | 16.0 | | | | 12.0 | Ambient Temperature [°C] | | | 8.0 | | | | 4.0 | | | | 0.0 | | | | -40 | -20 0 20 40 60 | | | 2. Values | | | | Ambient Temp. | Load 50% | Load 100% | | [°C] | Input Volt. [V] | Input Volt. [V] | | -30 | 6.7 | 7.0 | | -20 | 6.7 | 7.0 | | -20 | 6.7 | 7.0 | | -10 | 6.7 | 7.1 | | 0 | 6.8 | 7.1 | | 10 | 6.8 | 7.1 | | 25 | 6.9 | 7.2 | | 30 | 6.9 | 7.2 | | 40 | 6.9 | 7.2 | | 55 | 6.9 | 7.3 | | 60 | 7.0 | 7.3 | |
| 16.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.0 | Ambient Temperature [°C] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -40 | -20 0 20 40 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temp. | Load 50% | Load 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [°C] | Input Volt. [V] | Input Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | 6.7 | 7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 6.7 | 7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 6.7 | 7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 6.7 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 6.8 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 6.8 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 6.9 | 7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 7.0 | 7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|-----------------|---|------|--|--|--|------|--------------------------|--|--|-----|--|--|--|-----|--|--|--|-----|--|--|--|-----|----------------|--|--|-----------|--|--|--|---------------|----------|-----------|--|------|-----------------|-----------------|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|-----|-----|-----|--|---|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|----|-----|-----|--|
| Object | | -15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [V] | <div><div>-----□-----</div><div>-----△-----</div></div> | | <div>Load 50%</div> <div>Load 100%</div> <tr><td>16.0</td><td colspan="3"></td></tr> <tr><td>12.0</td><td colspan="3">Ambient Temperature [°C]</td></tr> <tr><td>8.0</td><td colspan="3"></td></tr> <tr><td>4.0</td><td colspan="3"></td></tr> <tr><td>0.0</td><td colspan="3"></td></tr> <tr><td>-40</td><td colspan="3">-20 0 20 40 60</td></tr> <tr><td colspan="4">2. Values</td></tr> <tr><td>Ambient Temp.</td><td>Load 50%</td><td>Load 100%</td><td></td></tr> <tr><td>[°C]</td><td>Input Volt. [V]</td><td>Input Volt. [V]</td><td></td></tr> <tr><td>-30</td><td>5.7</td><td>6.0</td><td></td></tr> <tr><td>-20</td><td>5.7</td><td>6.0</td><td></td></tr> <tr><td>-20</td><td>6.7</td><td>7.0</td><td></td></tr> <tr><td>-10</td><td>6.7</td><td>7.1</td><td></td></tr> <tr><td>0</td><td>6.8</td><td>7.1</td><td></td></tr> <tr><td>10</td><td>6.8</td><td>7.1</td><td></td></tr> <tr><td>25</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>30</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>40</td><td>6.9</td><td>7.2</td><td></td></tr> <tr><td>55</td><td>6.9</td><td>7.3</td><td></td></tr> <tr><td>60</td><td>7.0</td><td>7.3</td><td></td></tr> | 16.0 | | | | 12.0 | Ambient Temperature [°C] | | | 8.0 | | | | 4.0 | | | | 0.0 | | | | -40 | -20 0 20 40 60 | | | 2. Values | | | | Ambient Temp. | Load 50% | Load 100% | | [°C] | Input Volt. [V] | Input Volt. [V] | | -30 | 5.7 | 6.0 | | -20 | 5.7 | 6.0 | | -20 | 6.7 | 7.0 | | -10 | 6.7 | 7.1 | | 0 | 6.8 | 7.1 | | 10 | 6.8 | 7.1 | | 25 | 6.9 | 7.2 | | 30 | 6.9 | 7.2 | | 40 | 6.9 | 7.2 | | 55 | 6.9 | 7.3 | | 60 | 7.0 | 7.3 | |
| 16.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12.0 | Ambient Temperature [°C] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -40 | -20 0 20 40 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temp. | Load 50% | Load 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| [°C] | Input Volt. [V] | Input Volt. [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | 5.7 | 6.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 5.7 | 6.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 6.7 | 7.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 6.7 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 6.8 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 6.8 | 7.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 6.9 | 7.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 6.9 | 7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 7.0 | 7.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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。

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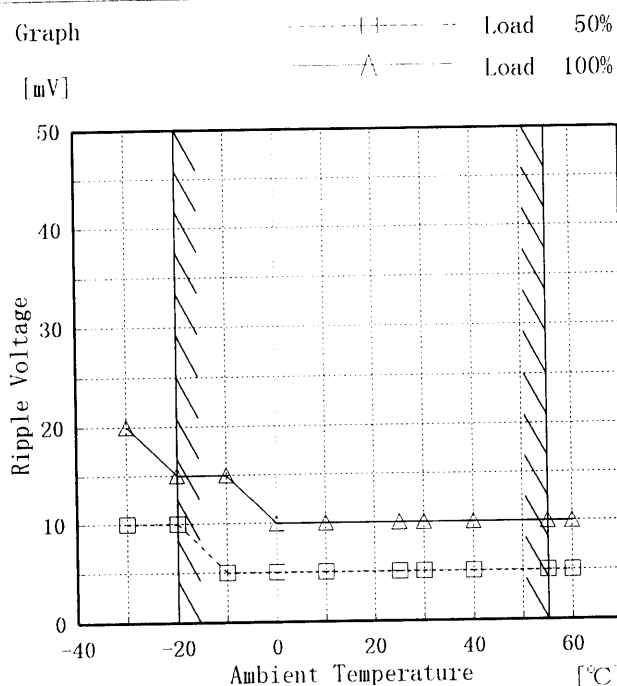
Model ZUW101215

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

Object +15 V 0.350 A

Testing Circuitry Figure A

1. Graph

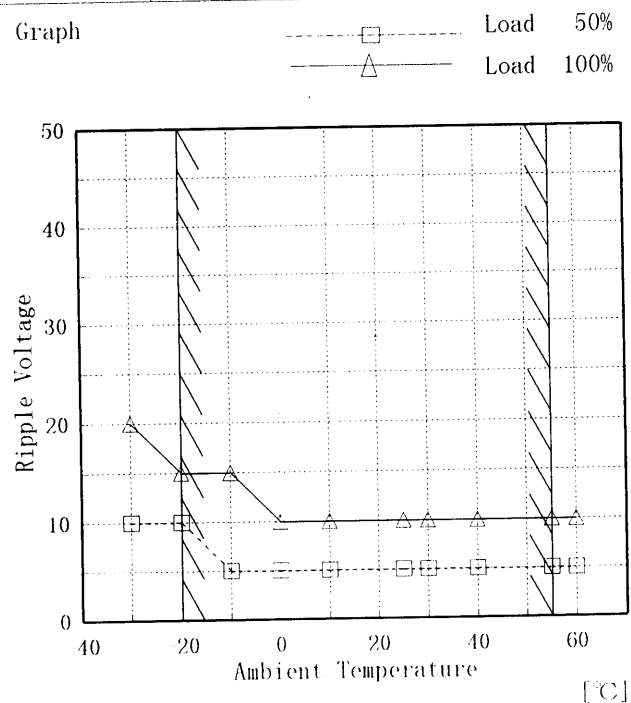


2. Values

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

Object -15 V 0.350 A

1. Graph



2. Values

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

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。

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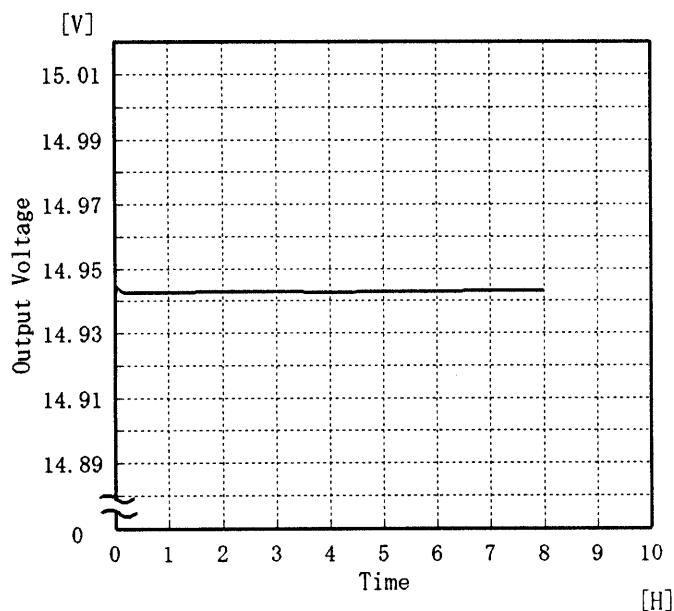
Model ZUW101215

Item Time Lapse Drift 経時ドリフト

Object +15V0.350A

Temperature 25 °C
Testing Circuitry Figure A

1. Graph

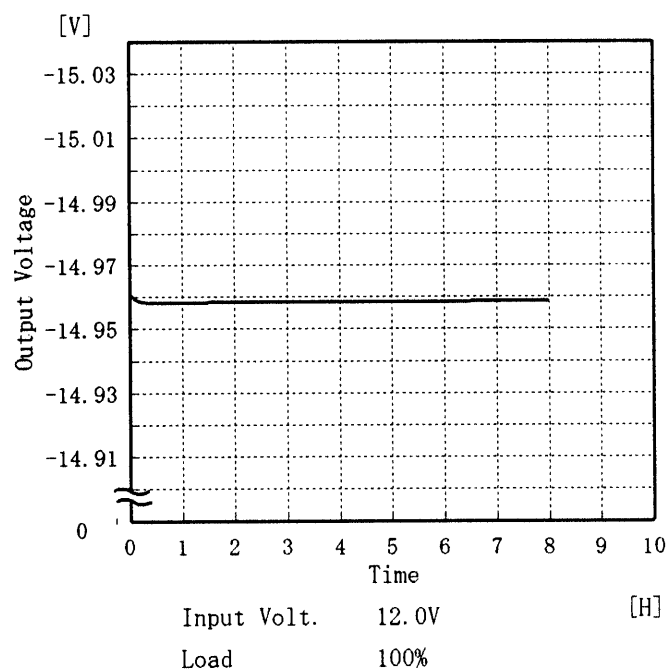


2. Values

| Time since start [H] | Output Voltage [V] |
|----------------------|--------------------|
| 0.0 | 14.942 |
| 0.5 | 14.943 |
| 1.0 | 14.943 |
| 2.0 | 14.943 |
| 3.0 | 14.943 |
| 4.0 | 14.943 |
| 5.0 | 14.943 |
| 6.0 | 14.943 |
| 7.0 | 14.943 |
| 8.0 | 14.943 |

Object -15V0.350A

1. Graph



2. Values

| Time since start [H] | Output Voltage [V] |
|----------------------|--------------------|
| 0.0 | -14.959 |
| 0.5 | -14.958 |
| 1.0 | -14.958 |
| 2.0 | -14.958 |
| 3.0 | -14.959 |
| 4.0 | -14.958 |
| 5.0 | -14.959 |
| 6.0 | -14.959 |
| 7.0 | -14.959 |
| 8.0 | -14.959 |

COSEL

LOREL

| | | |
|-------|----------------------------------|-------------------------------|
| | | Testing Circuitry Figure A |
| Model | ZUW101215 | |
| Item | Output Voltage Accuracy 定電圧精度 | |

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) : 0.000~0.350 A

 (AVR 2) : 0.000~0.350 A

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

* 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) 0.000~0.350 A

 (AVR 2) 0.000~0.350 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

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

| | |
|--------|------------|
| Object | +15V0.350A |
|--------|------------|

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration) [%] |
|-----------------|--------------------|----------------------|-----------------------|-----------------------|---------------------------------|--|
| Maximum Voltage | 55 | 9.0 | 0.350 | 14.955 | ±234 | ±1.6 |
| Minimum Voltage | 55 | 18.0 | 0.000 | 14.487 | | |

| | |
|--------|------------|
| Object | -15V0.350A |
|--------|------------|

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy(Ration) [%] |
|-----------------|--------------------|----------------------|-----------------------|-----------------------|---------------------------------|--|
| Maximum Voltage | 55 | 18.0 | 0.350 | -14.974 | ±227 | ±1.6 |
| Minimum Voltage | 55 | 18.0 | 0.000 | -14.521 | | |

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BC-2078

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| Model | ZUW101215 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------|--------------------|---------------------|-------------------|-------|--------------------|---------------------|-------------------|-----------|---|--------|----|----|---|--------|----|----|---|--------|----|----|------------|---|--------|----|----|---|--------|----|----|---|--------|----|----|
| Item | Condensation 結露特性 | Testing Circuitry | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +15V0.350A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>1. Condensation test</div> <div>Testing procedure is as follows.</div> <div>① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.</div> <div>② Taking it out of the tank and dewing itself in a room where the temperature is 25℃ and the humidity is 40%RH.</div> <div>③ Testing electrical characteristics of the unit to confirm there be no fault.</div> <div>④ Repeating ①, ② and ③ three times.</div> <div>1. 結露特性試験</div> <div>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。</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div>2. Values</div> <table><thead><tr><th></th><th>Times</th><th>Output Voltage [V]</th><th>Ripple Voltage [mV]</th><th>Ripple Noise [mV]</th></tr></thead><tbody><tr><td rowspan="3">Load 50 %</td><td>1</td><td>15.045</td><td>10</td><td>40</td></tr><tr><td>2</td><td>15.045</td><td>10</td><td>40</td></tr><tr><td>3</td><td>15.044</td><td>10</td><td>40</td></tr><tr><td rowspan="3">Load 100 %</td><td>1</td><td>14.932</td><td>15</td><td>55</td></tr><tr><td>2</td><td>14.922</td><td>15</td><td>55</td></tr><tr><td>3</td><td>14.926</td><td>15</td><td>55</td></tr></tbody></table> <div>Input Volt. 12.0 V</div> | | | | | Times | Output Voltage [V] | Ripple Voltage [mV] | Ripple Noise [mV] | Load 50 % | 1 | 15.045 | 10 | 40 | 2 | 15.045 | 10 | 40 | 3 | 15.044 | 10 | 40 | Load 100 % | 1 | 14.932 | 15 | 55 | 2 | 14.922 | 15 | 55 | 3 | 14.926 | 15 | 55 |
| | Times | Output Voltage [V] | Ripple Voltage [mV] | Ripple Noise [mV] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Load 50 % | 1 | 15.045 | 10 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 15.045 | 10 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 15.044 | 10 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Load 100 % | 1 | 14.932 | 15 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 14.922 | 15 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 14.926 | 15 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

COSEL

| | | | |
|--------|-------------------|-------------------|----------|
| | | | |
| Model | ZUW101215 | | |
| Item | Condensation 結露特性 | Testing Circuitry | Figure A |
| Object | −15V0.350A | | |

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.

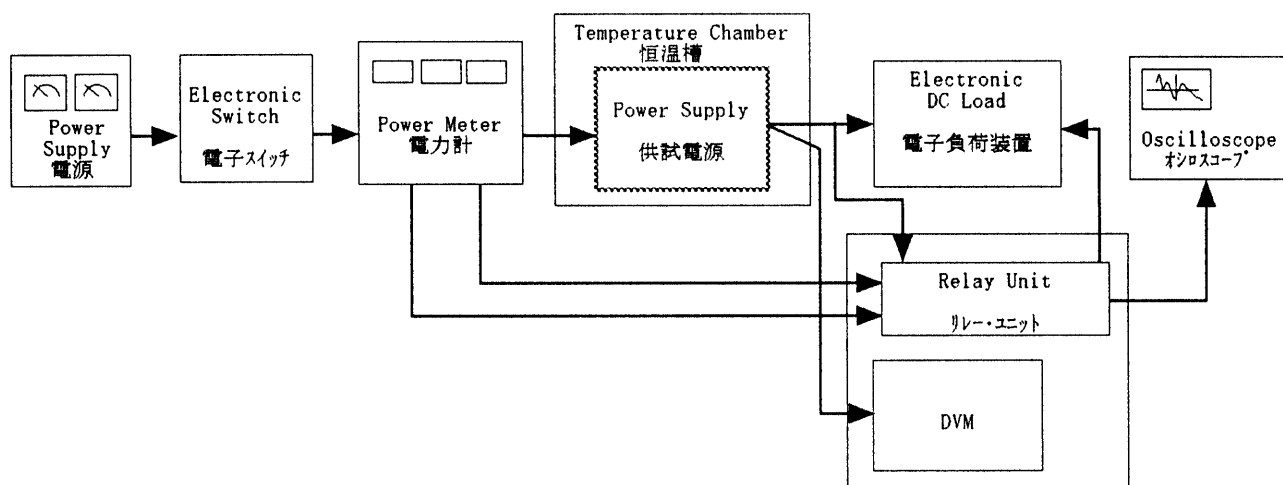
④ Repeating ①,② and ③ three times.

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 | 15.077 | 10 | 45 |
| | 2 | 15.077 | 10 | 45 |
| | 3 | 15.065 | 10 | 45 |
| Load 100 % | 1 | 14.944 | 15 | 60 |
| | 2 | 14.950 | 15 | 60 |
| | 3 | 14.942 | 15 | 60 |

Input Volt. 12.0 V

COSEL

Data Acquisition/Control Unit
データ集録システム

Figure A