参考資料

COSEL

# TEST DATA OF ZUW102412

(24.0V INPUT)

Regulated DC Power Supply

Date : Sep 21. 1996

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Design Manager

Prepared by : M. Takashima
Design Engineer

コーセル株式会社

COSEL CO.,LTD.

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(Final Page 20 )

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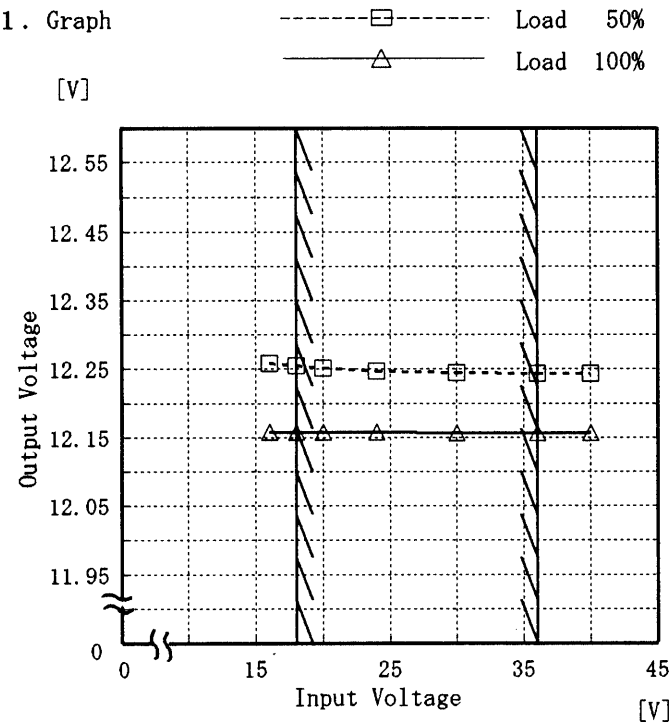
| | |
|---|---|
| Model | ZUW102412 |
| Item | Line Regulation 静的入力変動 |

Temperature 25℃
Testing Circuitry Figure A

Object ＋12V0.450A

1. Graph

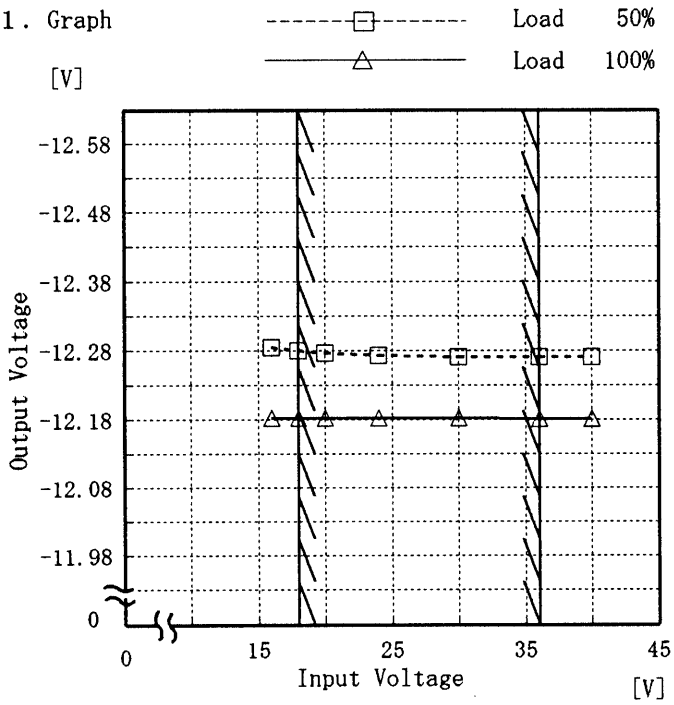



2. Values

| Input Voltage [V] | Load 50% Output Volt. [V] | Load 100% Output Volt. [V] |
|---|---|---|
| 16.0 | 12.259 | 12.158 |
| 18.0 | 12.255 | 12.158 |
| 20.0 | 12.251 | 12.158 |
| 24.0 | 12.247 | 12.158 |
| 30.0 | 12.244 | 12.157 |
| 36.0 | 12.244 | 12.157 |
| 40.0 | 12.244 | 12.156 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

Object －12V0.450A

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] |
|---|---|---|
| 16.0 | -12.284 | -12.182 |
| 18.0 | -12.280 | -12.182 |
| 20.0 | -12.277 | -12.182 |
| 24.0 | -12.273 | -12.182 |
| 30.0 | -12.270 | -12.182 |
| 36.0 | -12.270 | -12.182 |
| 40.0 | -12.270 | -12.181 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |



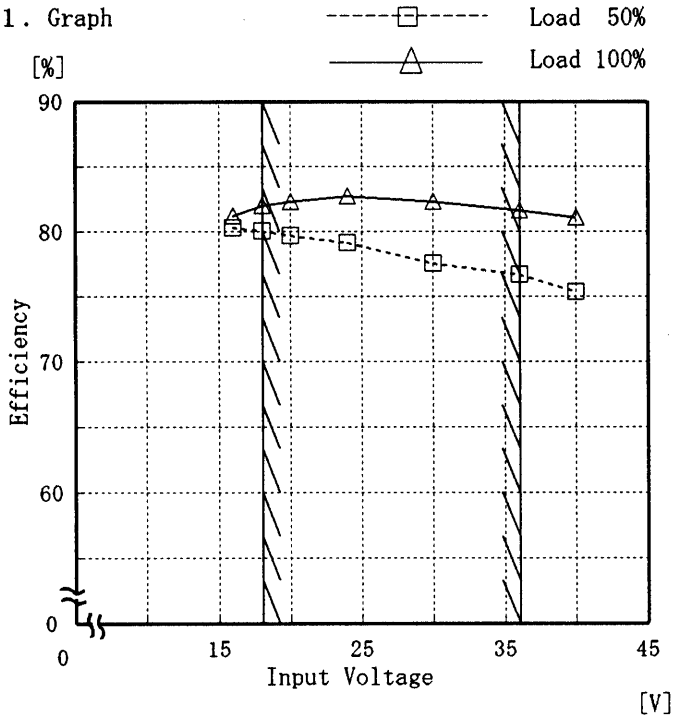
BC－2079

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| 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 [%] |
|---|---|---|
| 16.0 | 80.3 | 81.2 |
| 18.0 | 80.1 | 82.0 |
| 20.0 | 79.7 | 82.3 |
| 24.0 | 79.1 | 82.7 |
| 30.0 | 77.5 | 82.3 |
| 36.0 | 76.7 | 81.6 |
| 40.0 | 75.3 | 81.1 |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |
| — | — | — |

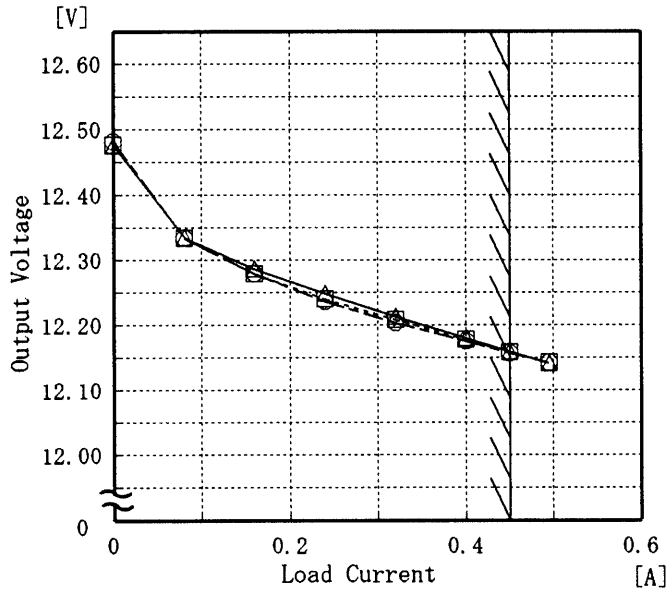
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Load Regulation 静的負荷変動 |

Temperature 25℃
Testing Circuitry Figure A

Object ＋12V0.450A

1. Graph

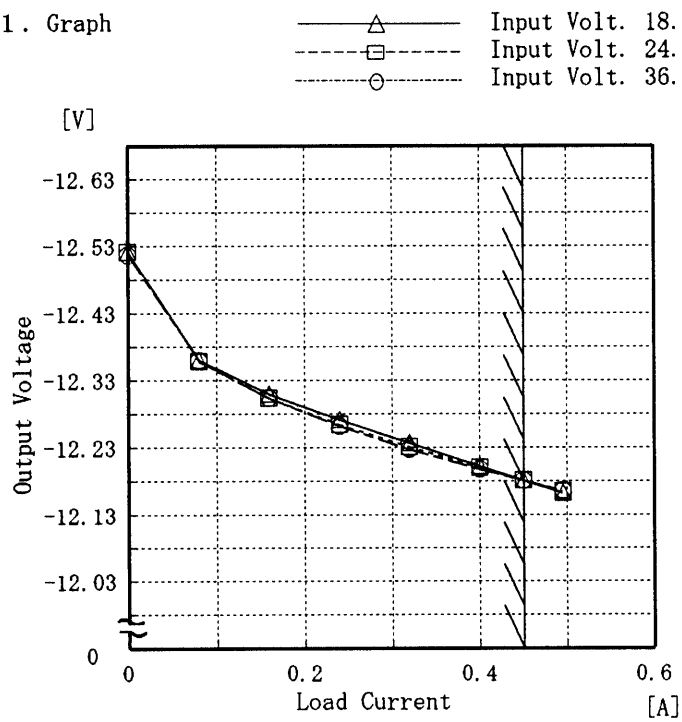



2. Values

| Load Current [A] | Input Volt. 18.0[V] Output Volt. [V] | Input Volt. 24.0[V] Output Volt. [V] | Input Volt. 36.0[V] Output Volt. [V] |
|---|---|---|---|
| 0.000 | 12.476 | 12.478 | 12.482 |
| 0.080 | 12.335 | 12.334 | 12.334 |
| 0.160 | 12.286 | 12.280 | 12.279 |
| 0.240 | 12.248 | 12.241 | 12.237 |
| 0.320 | 12.214 | 12.208 | 12.203 |
| 0.400 | 12.180 | 12.178 | 12.175 |
| 0.450 | 12.160 | 12.159 | 12.157 |
| 0.495 | 12.141 | 12.142 | 12.143 |
| — | — | — | — |
| — | — | — | — |

Object −12V0.450A

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. 18.0[V] Output Volt. [V] | Input Volt. 24.0[V] Output Volt. [V] | Input Volt. 36.0[V] Output Volt. [V] |
|---|---|---|---|
| 0.000 | -12.522 | -12.522 | -12.517 |
| 0.080 | -12.361 | -12.360 | -12.360 |
| 0.160 | -12.310 | -12.304 | -12.304 |
| 0.240 | -12.273 | -12.266 | -12.262 |
| 0.320 | -12.238 | -12.232 | -12.228 |
| 0.400 | -12.203 | -12.201 | -12.199 |
| 0.450 | -12.182 | -12.182 | -12.181 |
| 0.495 | -12.163 | -12.165 | -12.166 |
| — | — | — | — |
| — | — | — | — |



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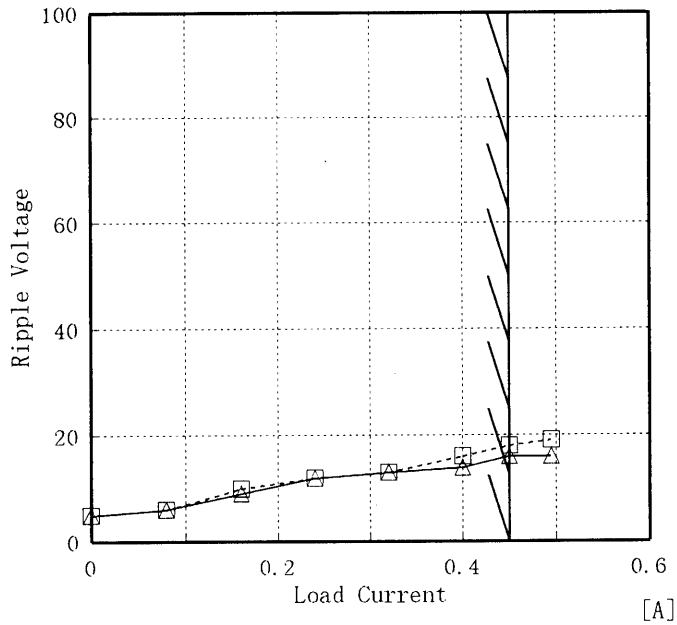
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Ripple Voltage(by Load Current)<br>リップル電圧(負荷電流特性) |
| Object | +12V0.45A |

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

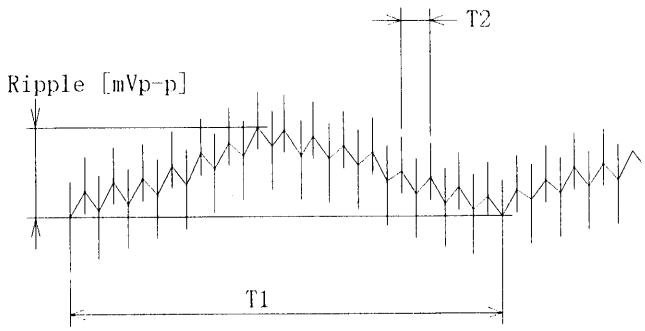



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

| Load Current [A] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] | Input Volt. 36.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 5 | 5 |
| 0.08 | 6 | 6 |
| 0.16 | 10 | 9 |
| 0.24 | 12 | 12 |
| 0.32 | 13 | 13 |
| 0.40 | 16 | 14 |
| 0.45 | 18 | 16 |
| 0.50 | 19 | 16 |
| — | — | — |
| — | — | — |
| — | — | — |



BC－2079

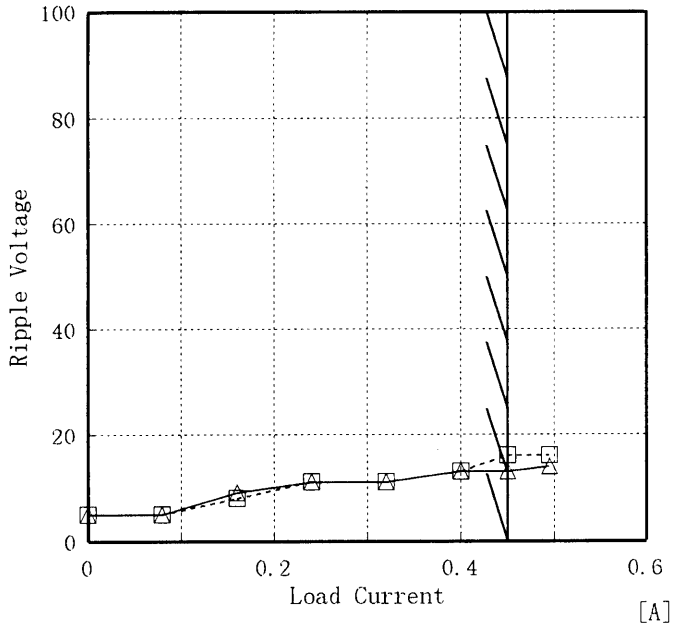
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Ripple Voltage(by Load Current)<br>リップル電圧(負荷電流特性) |
| Object | −12V0.45A |

Temperature 25℃
Testing Circuitry Figure A

1. Graph

[mV]




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

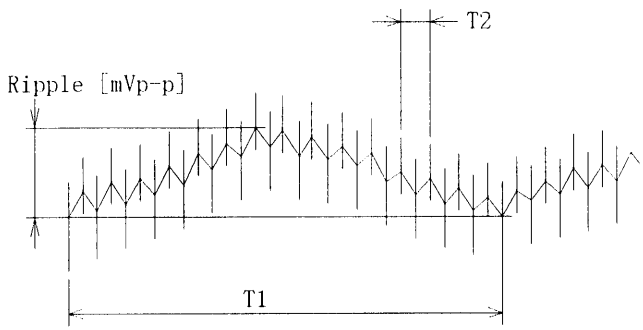



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

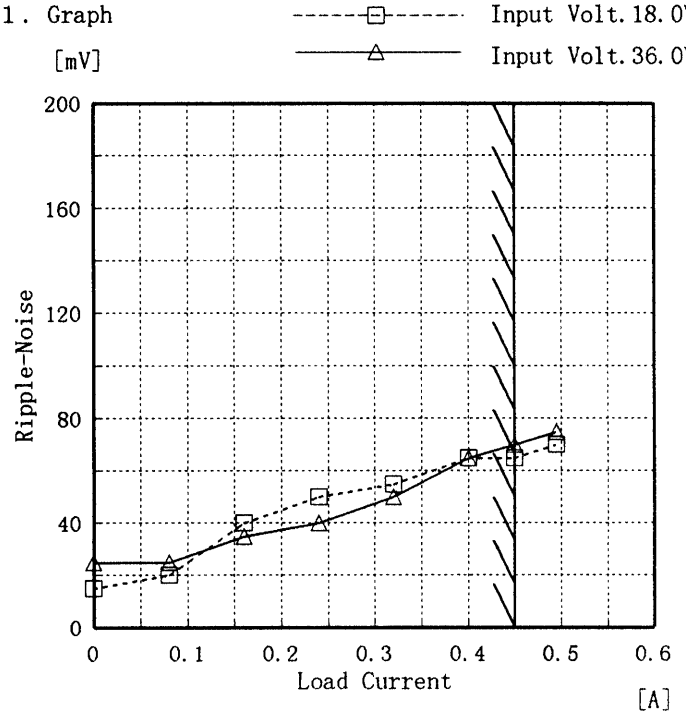
| Load Current [A] | Input Volt. 18.0 [V] Ripple Output Volt. [mV] | Input Volt. 36.0 [V] Ripple Output Volt. [mV] |
|---|---|---|
| 0.00 | 5 | 5 |
| 0.08 | 5 | 5 |
| 0.16 | 8 | 9 |
| 0.24 | 11 | 11 |
| 0.32 | 11 | 11 |
| 0.40 | 13 | 13 |
| 0.45 | 16 | 13 |
| 0.50 | 16 | 14 |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Ripple-Noise リップルノイズ |
| Object | +12V0.450A |

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

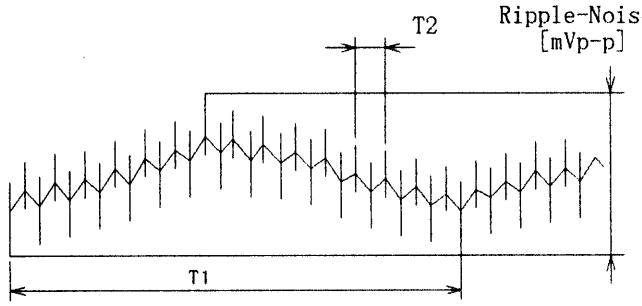



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

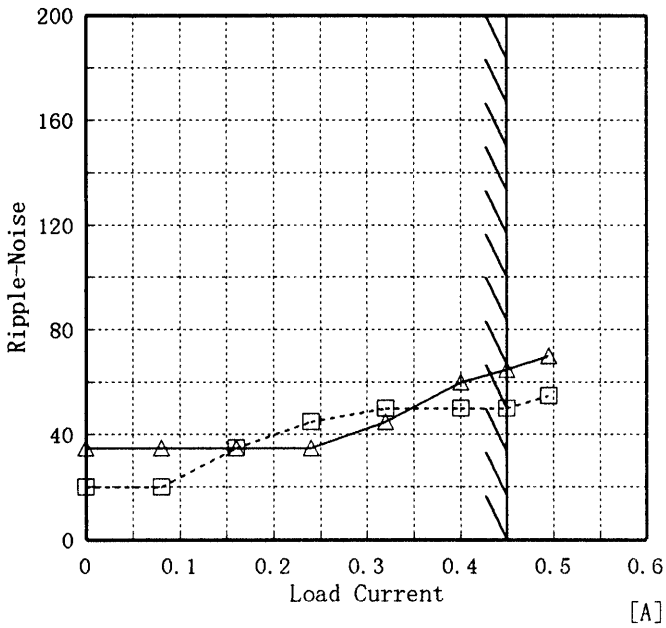
| Load current [A] | Input Volt. 18.0 [V] Ripple-Noise [mV] | Input Volt. 36.0 [V] Ripple-Noise [mV] |
|---|---|---|
| 0.00 | 15 | 25 |
| 0.08 | 20 | 25 |
| 0.16 | 40 | 35 |
| 0.24 | 50 | 40 |
| 0.32 | 55 | 50 |
| 0.40 | 65 | 65 |
| 0.45 | 65 | 70 |
| 0.50 | 70 | 75 |
| — | — | — |
| — | — | — |
| — | — | — |

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Ripple-Noise リップルノイズ |
| Object | -12V0.450A |

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

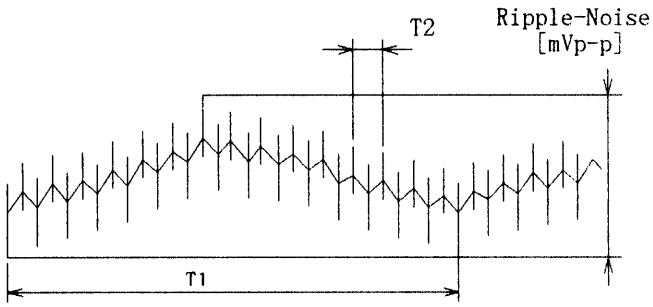



Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

| Load current [A] | Input Volt. 18.0 [V] Ripple-Noise [mV] | Input Volt. 36.0 [V] Ripple-Noise [mV] |
|---|---|---|
| 0.00 | 20 | 35 |
| 0.08 | 20 | 35 |
| 0.16 | 35 | 35 |
| 0.24 | 45 | 35 |
| 0.32 | 50 | 45 |
| 0.40 | 50 | 60 |
| 0.45 | 50 | 65 |
| 0.50 | 55 | 70 |
| — | — | — |
| — | — | — |
| — | — | — |

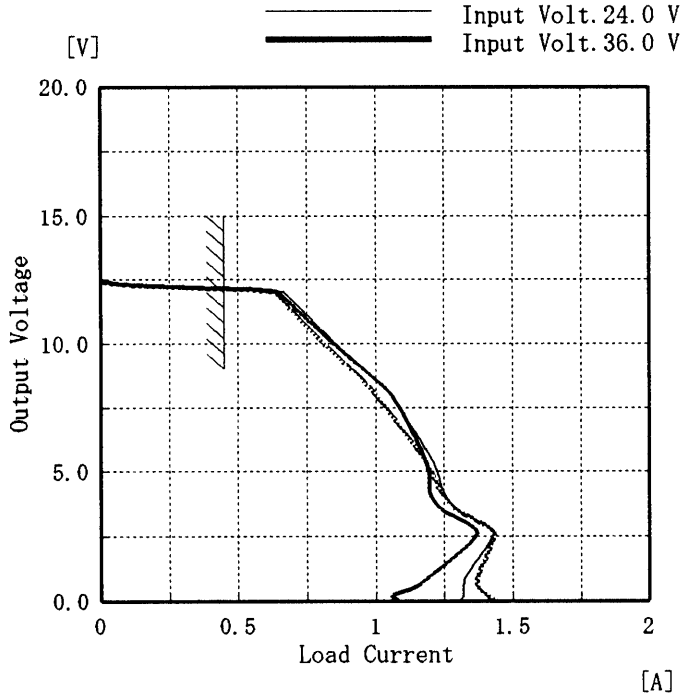
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Overcurrent Protection<br>過電流保護 |

Temperature 25℃
Testing Circuitry Figure A

Object ＋12V0.450A

1. Graph

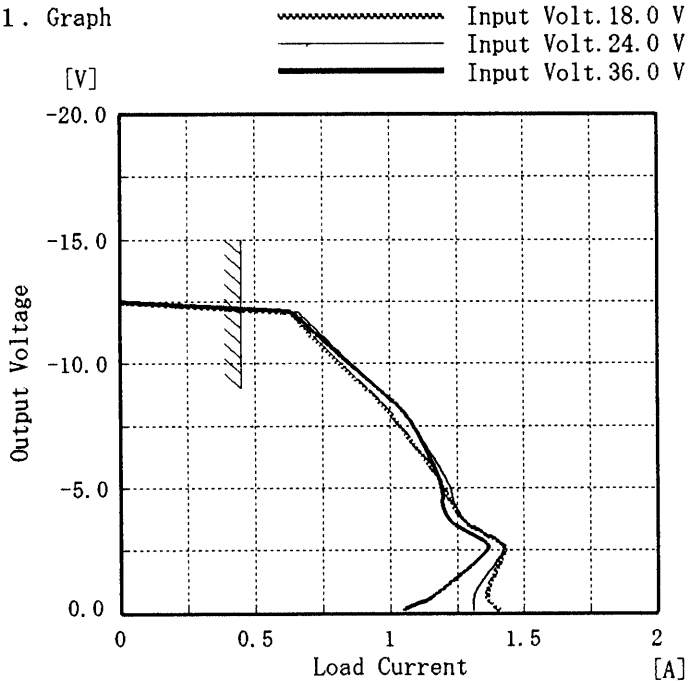



2. Values

| Output Voltage [V] | Input Volt. 18.0[V] Load Current [A] | Input Volt. 24.0[V] Load Current [A] | Input Volt. 36.0[V] Load Current [A] |
|---|---|---|---|
| 12.00 | 0.632 | 0.669 | 0.649 |
| 11.40 | 0.677 | 0.718 | 0.707 |
| 10.80 | 0.730 | 0.772 | 0.758 |
| 9.60 | 0.843 | 0.890 | 0.883 |
| 8.40 | 0.961 | 1.014 | 1.020 |
| 7.20 | 1.056 | 1.104 | 1.102 |
| 6.00 | 1.138 | 1.174 | 1.159 |
| 4.80 | 1.208 | 1.229 | 1.195 |
| 3.60 | 1.279 | 1.280 | 1.228 |
| 2.40 | 1.430 | 1.423 | 1.361 |
| 1.20 | 1.379 | 1.344 | 1.230 |
| 0.00 | 1.428 | 1.306 | 1.085 |

Object －12V0.450A

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. 18.0[V] Load Current [A] | Input Volt. 24.0[V] Load Current [A] | Input Volt. 36.0[V] Load Current [A] |
|---|---|---|---|
| -12.00 | 0.628 | 0.666 | 0.651 |
| -11.40 | 0.682 | 0.723 | 0.707 |
| -10.80 | 0.730 | 0.773 | 0.760 |
| -9.60 | 0.840 | 0.886 | 0.880 |
| -8.40 | 0.964 | 1.017 | 1.018 |
| -7.20 | 1.055 | 1.103 | 1.102 |
| -6.00 | 1.140 | 1.174 | 1.158 |
| -4.80 | 1.207 | 1.227 | 1.195 |
| -3.60 | 1.285 | 1.287 | 1.233 |
| -2.40 | 1.423 | 1.418 | 1.356 |
| -1.20 | 1.373 | 1.338 | 1.227 |
| 0.00 | 1.414 | 1.305 | 1.056 |

COSEL

| | | | |
|---|---|---|---|
| Model | ZUW102412 | | |
| Item | Dynamic Load Responce<br>動的負荷変動 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | +12V0.450A | | |

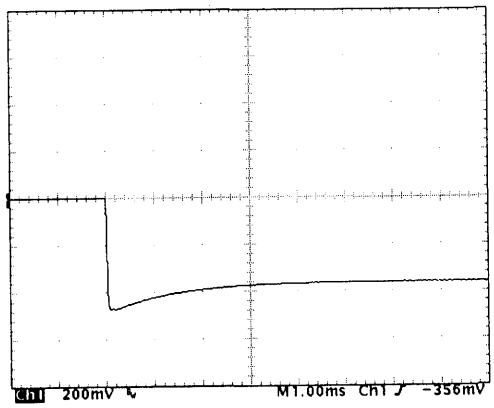
Input Volt. 24 V

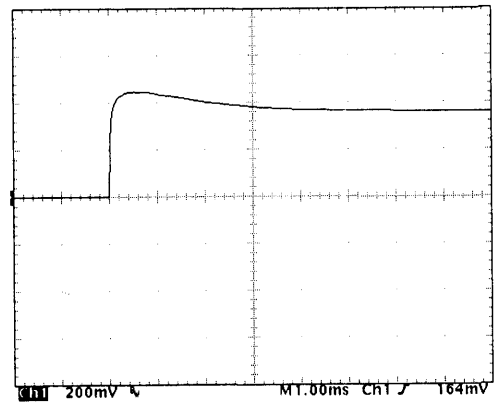
Cycle 100 mS

Load Current

Min. Load ←→
Load 100 %

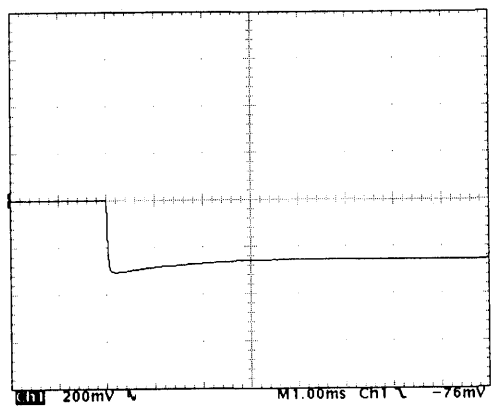
200 mV/div

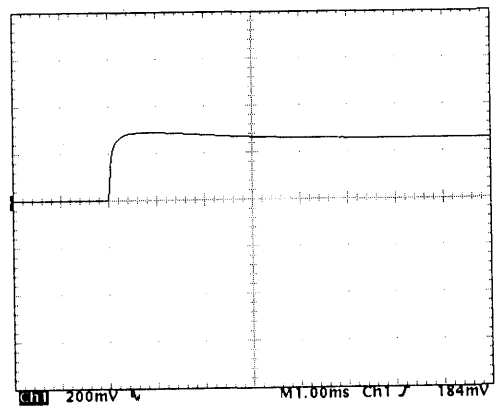



Min. Load ←→
Load 50 %

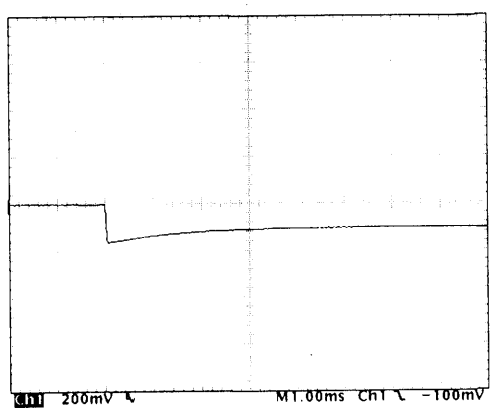
200 mV/div

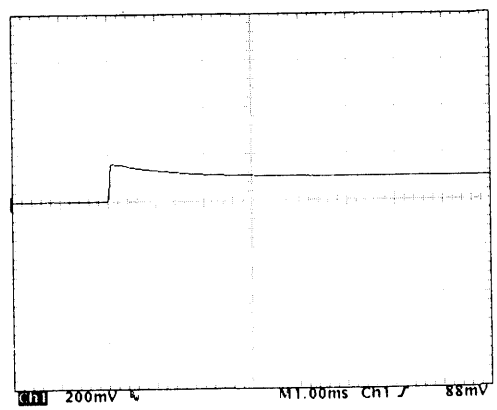



Load 50%←→
Load 100 %

200 mV/div




1 mS/div



BC－2079

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Dynamic Load Responce<br>動的負荷変動 |
| Object | -12V0.450A |

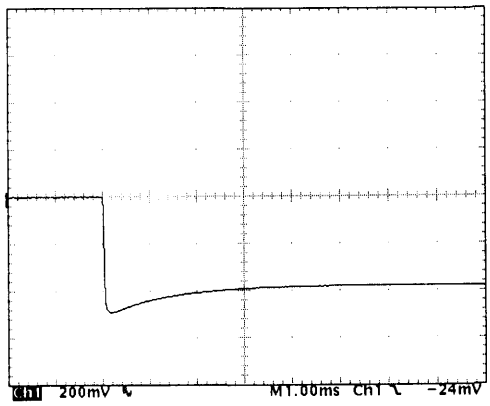
Temperature 25℃
Testing Circuitry Figure A

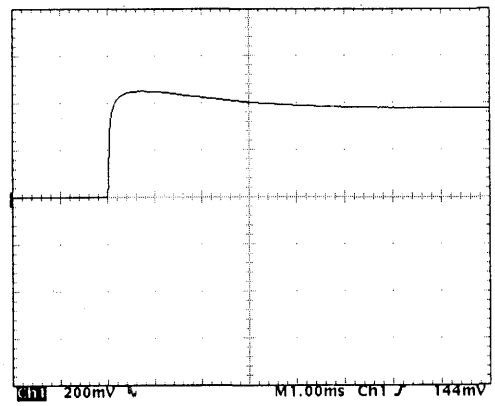
Input Volt. 24 V
Cycle 100 mS

Load Current

Min. Load ←→
Load 100 %

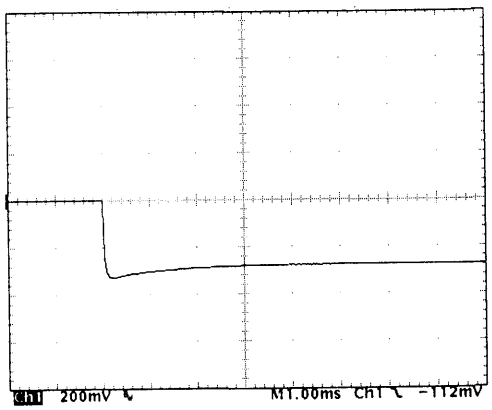
200 mV/div

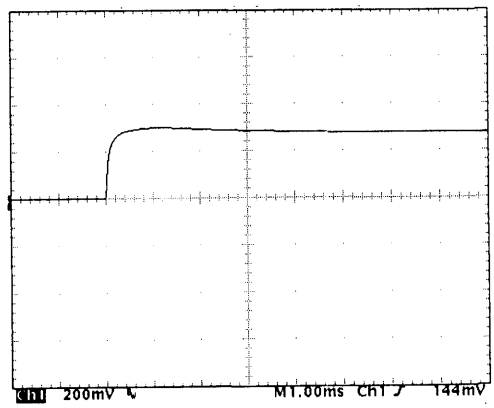



Min. Load ←→
Load 50 %

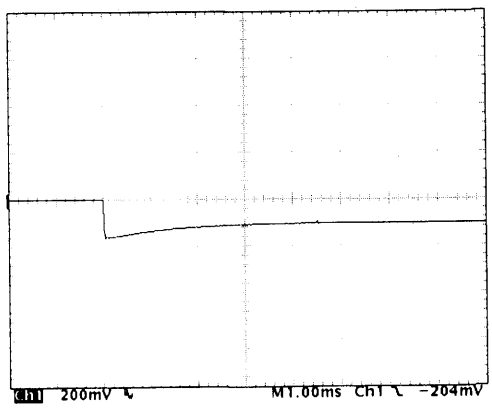
200 mV/div

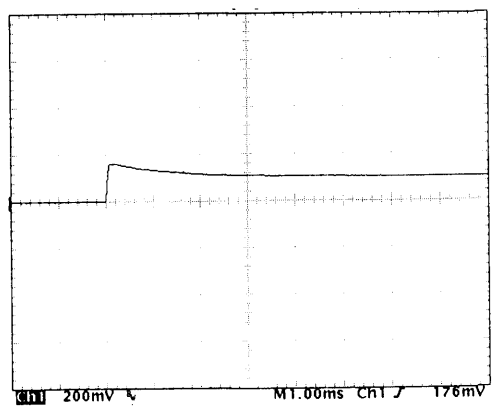



Load 50%←→
Load 100 %

200 mV/div




1 mS/div

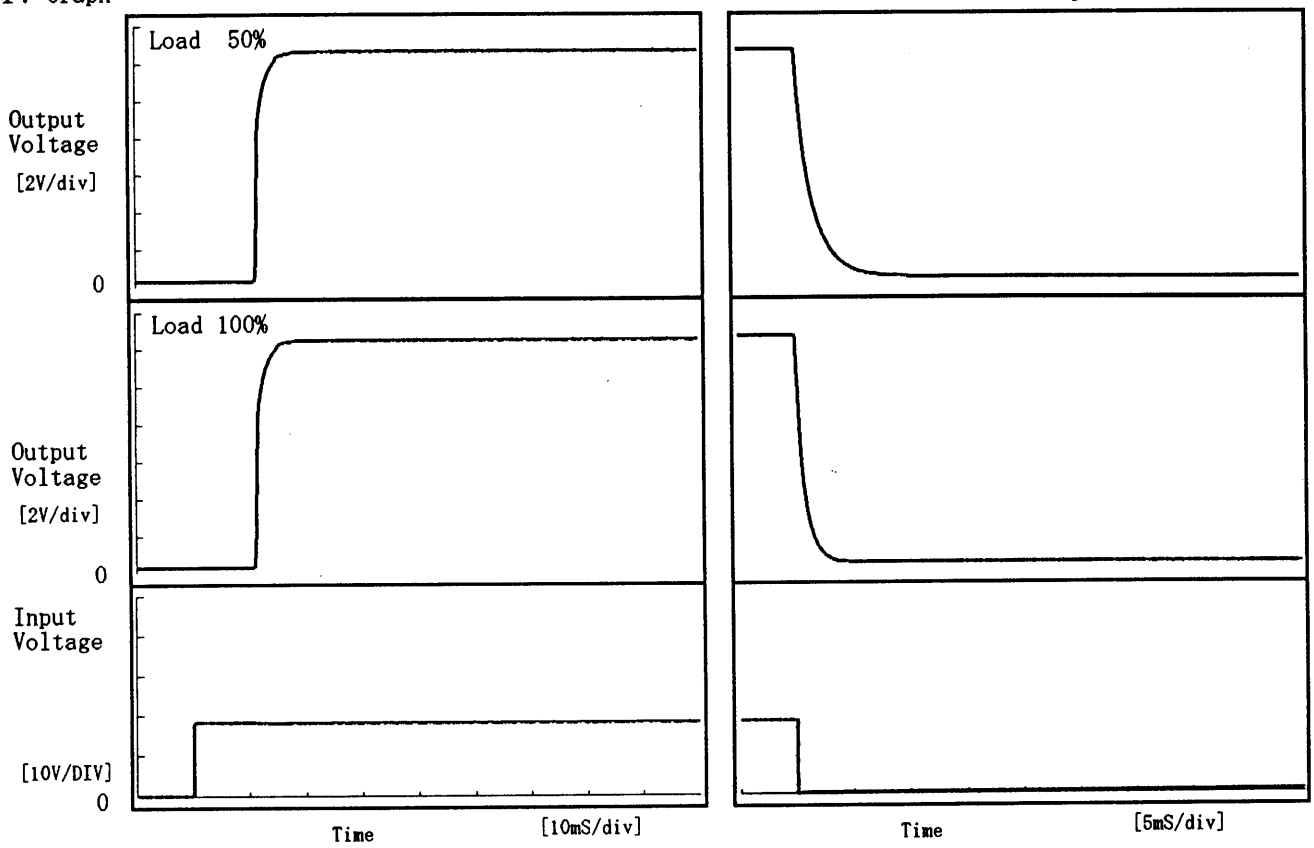
BC－2079

COSEL

| | | | |
|---|---|---|---|
| Model | ZUW102412 | | |
| Item | Rise and Fall Time 立上り、立下り時間 | Temperature<br>Testing Circuitry | 25℃<br>Figure A |
| Object | +12V0.450A | | |

1. Graph

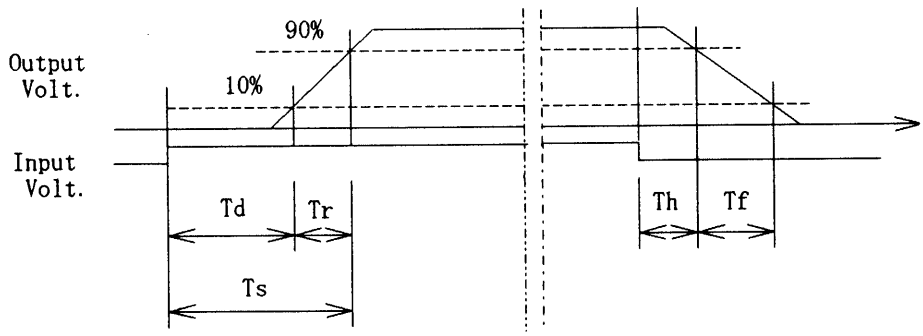
Input Volt. 18.0 V




2. Values

[mS]

| Load \ Time | T d | T r | T s | T h | T f |
|---|---|---|---|---|---|
| 50 % | 11.35 | 1.85 | 13.20 | 0.25 | 3.63 |
| 100 % | 11.20 | 2.00 | 13.20 | 0.15 | 1.85 |



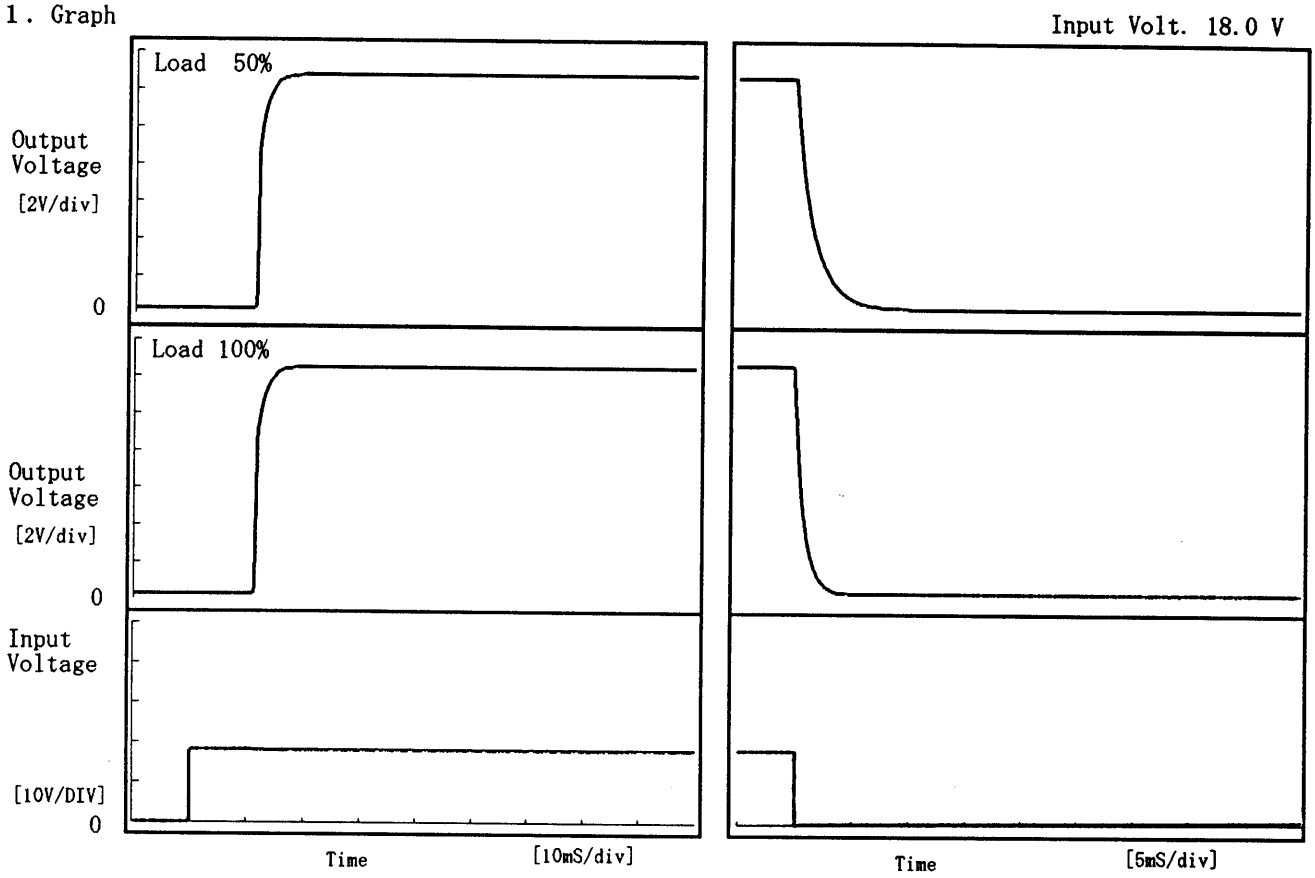



BC−2079

COSEL

| | | | |
|---|---|---|---|
| Model | ZUW102412 | | |
| Item | Rise and Fall Time 立上り、立下り時間 | Temperature | 25℃ |
| | | Testing Circuitry | Figure A |
| Object | -12V0.450A | | |

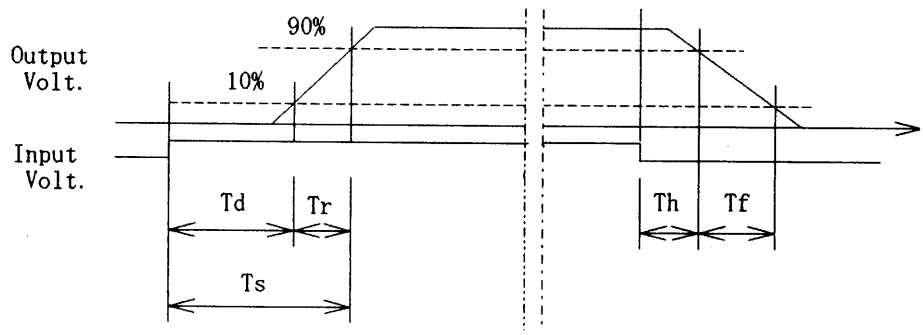
1. Graph




2. Values

[mS]

| Load \ Time | Td | Tr | Ts | Th | Tf |
|---|---|---|---|---|---|
| 50 % | 11.35 | 1.70 | 13.05 | 0.25 | 3.63 |
| 100 % | 11.20 | 2.00 | 13.20 | 0.15 | 1.85 |



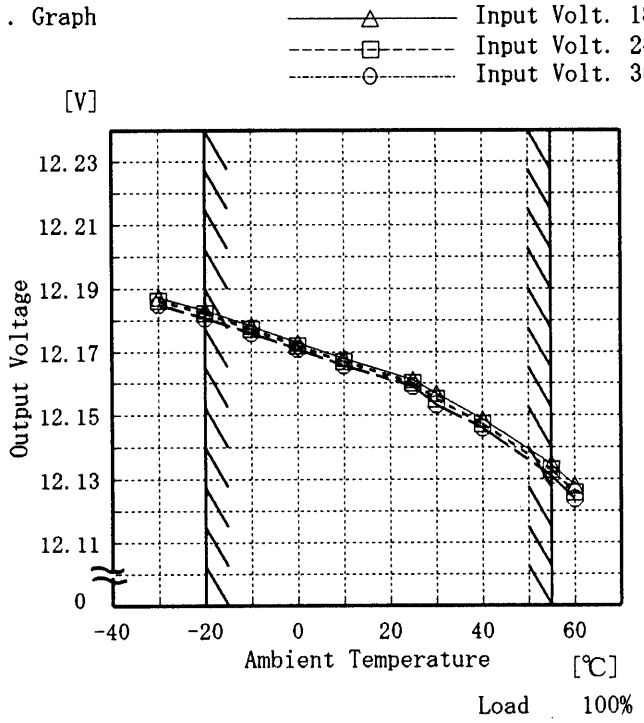
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Ambient Temperature Drift<br>周囲温度変動 |

Testing Circuitry Figure A

Object +12V0.450A

1. Graph

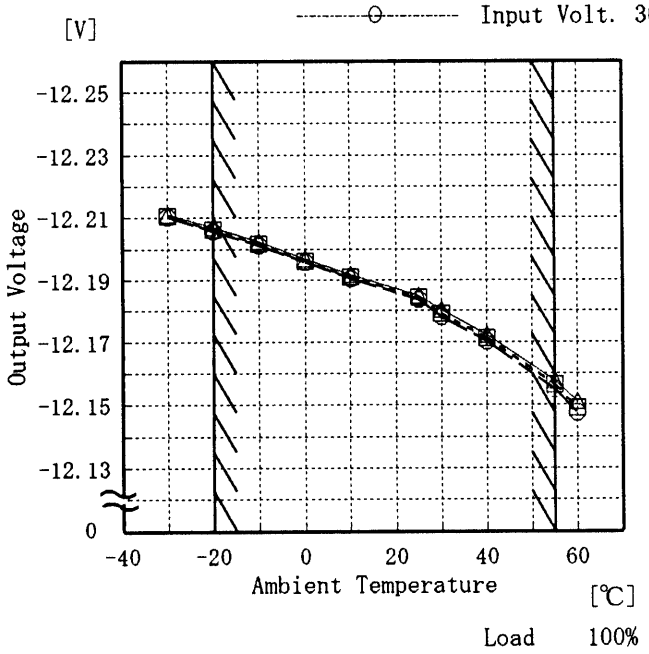



2. Values

| Temperature [℃] | Input Volt. 18.0[V] Output Volt. [V] | Input Volt. 24.0[V] Output Volt. [V] | Input Volt. 36.0[V] Output Volt. [V] |
|---|---|---|---|
| -30 | 12.187 | 12.186 | 12.185 |
| -20 | 12.183 | 12.182 | 12.181 |
| -10 | 12.178 | 12.177 | 12.176 |
| 0 | 12.173 | 12.172 | 12.171 |
| 10 | 12.168 | 12.167 | 12.166 |
| 25 | 12.161 | 12.160 | 12.159 |
| 30 | 12.157 | 12.155 | 12.153 |
| 40 | 12.149 | 12.147 | 12.146 |
| 55 | 12.135 | 12.133 | 12.131 |
| 60 | 12.128 | 12.126 | 12.124 |
| — | — | — | — |

Object −12V0.450A

1. Graph




2. Values

| Temperature [℃] | Input Volt. 18.0[V] Output Volt. [V] | Input Volt. 24.0[V] Output Volt. [V] | Input Volt. 36.0[V] Output Volt. [V] |
|---|---|---|---|
| -30 | -12.211 | -12.211 | -12.210 |
| -20 | -12.207 | -12.206 | -12.206 |
| -10 | -12.202 | -12.202 | -12.201 |
| 0 | -12.197 | -12.196 | -12.196 |
| 10 | -12.192 | -12.191 | -12.190 |
| 25 | -12.185 | -12.184 | -12.184 |
| 30 | -12.180 | -12.179 | -12.178 |
| 40 | -12.172 | -12.171 | -12.170 |
| 55 | -12.158 | -12.156 | -12.155 |
| 60 | -12.151 | -12.149 | -12.148 |
| — | — | — | — |

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。

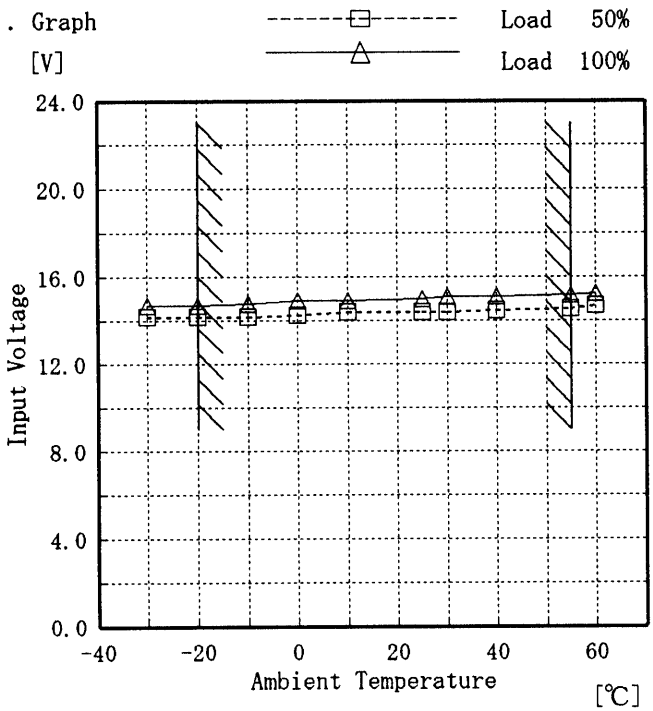
COSEL

| Model | ZUW102412 |
|---|---|
| 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 ＋12V0.450A

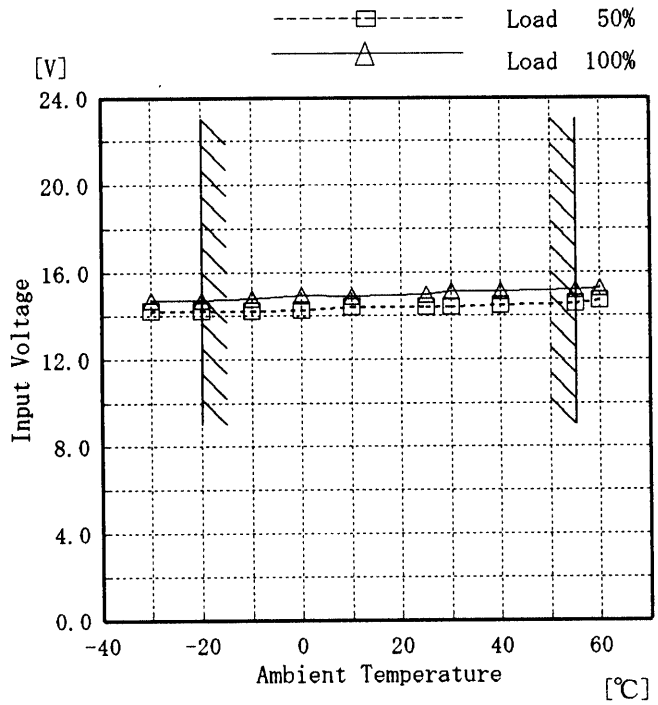
1. Graph




2. Values

| Ambient Temp. [℃] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] |
|---|---|---|
| -30 | 14.2 | 14.7 |
| -20 | 14.2 | 14.7 |
| -10 | 14.2 | 14.8 |
| 0 | 14.3 | 14.9 |
| 10 | 14.4 | 14.9 |
| 25 | 14.4 | 15.0 |
| 30 | 14.4 | 15.1 |
| 40 | 14.5 | 15.1 |
| 55 | 14.6 | 15.2 |
| 60 | 14.7 | 15.3 |
| — | — | — |

Object －12V0.450A




2. Values

| Ambient Temp. [℃] | Load 50% Input Volt. [V] | Load 100% Input Volt. [V] |
|---|---|---|
| -30 | 14.2 | 14.7 |
| -20 | 14.2 | 14.7 |
| -10 | 14.2 | 14.8 |
| 0 | 14.3 | 14.9 |
| 10 | 14.4 | 14.9 |
| 25 | 14.4 | 15.0 |
| 30 | 14.4 | 15.1 |
| 40 | 14.5 | 15.1 |
| 55 | 14.6 | 15.2 |
| 60 | 14.7 | 15.3 |
| — | — | — |

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。

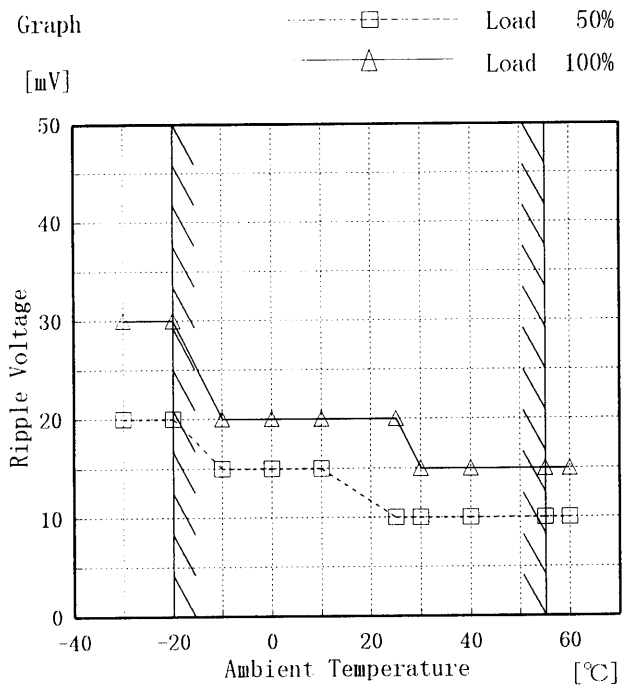
COSEL

| Model | ZUW102412 |
|---|---|
| Item | Ripple Voltage (by Ambient Temp.)<br>リップル電圧（周囲温度特性） |

Testing Circuitry　Figure A

Object　+12V0.450A

1. Graph



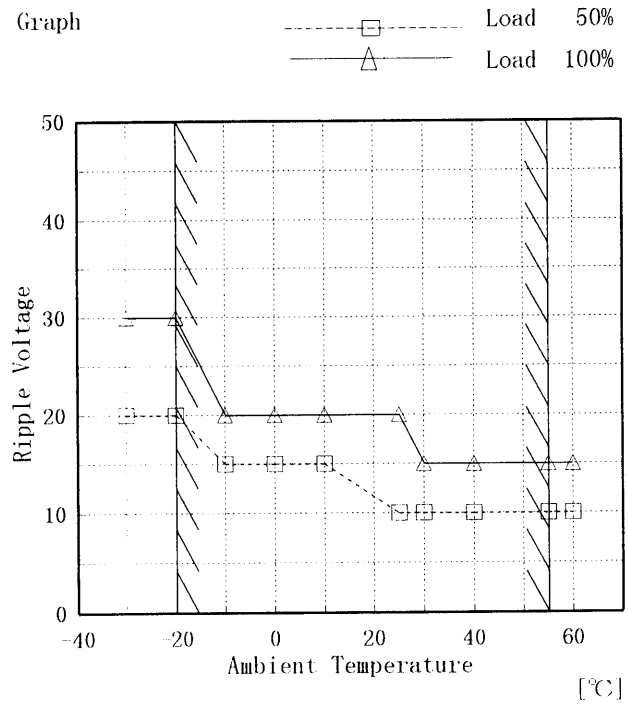

Input Volt.　18.0 V

2. Values

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

Object　−12V0.450A

1. Graph




Input Volt.　18.0 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 | 20 | 35 |
| -20 | 20 | 30 |
| -10 | 15 | 20 |
| 0 | 15 | 20 |
| 10 | 10 | 15 |
| 25 | 10 | 15 |
| 30 | 10 | 15 |
| 40 | 10 | 15 |
| 55 | 10 | 15 |
| 60 | 10 | 15 |
| — | — | — |

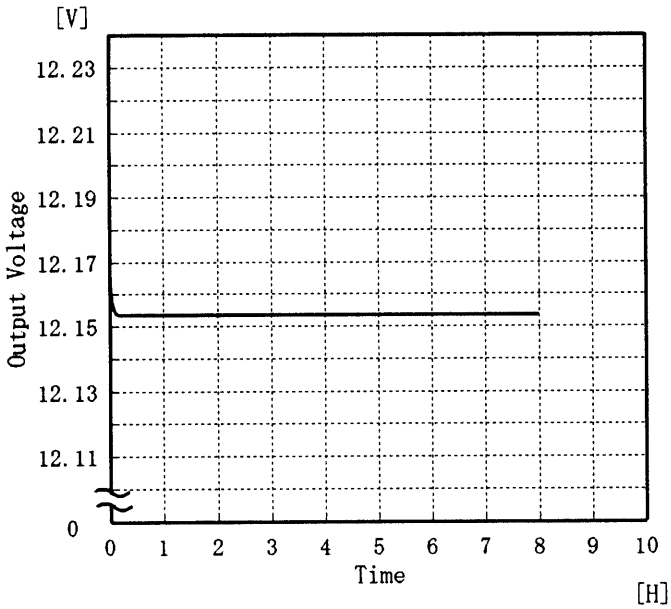
COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Time Lapse Drift 経時ドリフト |

Temperature 25 ℃
Testing Circuitry Figure A

Object ＋12V0.450A

1. Graph



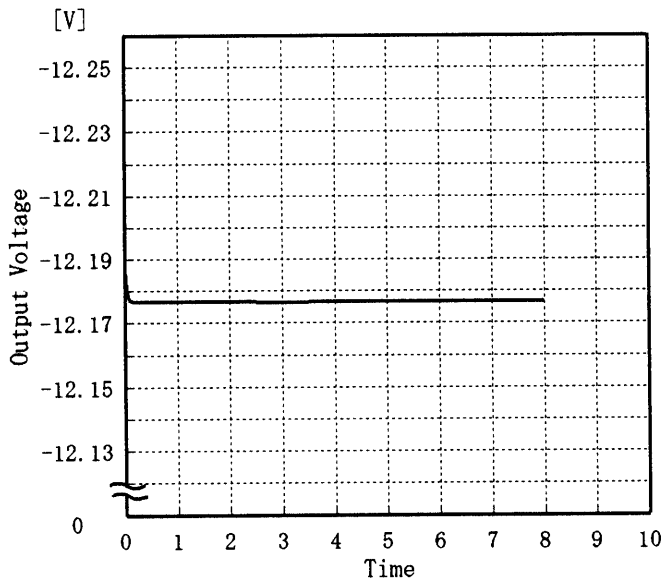

Input Volt. 24.0V
Load 100%

2. Values

| Time since start [H] | Output Voltage [V] |
|---|---|
| 0.0 | 12.164 |
| 0.5 | 12.154 |
| 1.0 | 12.154 |
| 2.0 | 12.154 |
| 3.0 | 12.154 |
| 4.0 | 12.154 |
| 5.0 | 12.154 |
| 6.0 | 12.154 |
| 7.0 | 12.154 |
| 8.0 | 12.154 |

Object －12V0.450A

1. Graph




Input Volt. 24.0V
Load 100%

2. Values

| Time since start [H] | Output Voltage [V] |
|---|---|
| 0.0 | -12.187 |
| 0.5 | -12.177 |
| 1.0 | -12.177 |
| 2.0 | -12.177 |
| 3.0 | -12.177 |
| 4.0 | -12.177 |
| 5.0 | -12.177 |
| 6.0 | -12.177 |
| 7.0 | -12.177 |
| 8.0 | -12.177 |



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COSEL

| Model | ZUW102412 |
|---|---|
| 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 : 18.0～36.0 V

Load Current ( AVR 1 ) : 0.000～0.450 A

( AVR 2 ) : 0.000～0.450 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 18.0～36.0 V

負荷電流 (AVR 1) 0.000～0.450 A

(AVR 2) 0.000～0.450 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 ＋12V0.450A

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy (Ration) [%] |
|---|---|---|---|---|---|---|
| Maximum Voltage | -20 | 18.0 | 0.450 | 12.182 | ±200 | ±1.7 |
| Minimum Voltage | 55 | 18.0 | 0.000 | 11.782 | | |

Object －12V0.450A

| Item | Temperature [℃] | Input Voltage [V] | Output Current [A] | Output Voltage [V] | Output Voltage Accuracy [mV] | Output Voltage Accuracy (Ration) [%] |
|---|---|---|---|---|---|---|
| Maximum Voltage | -20 | 18.0 | 0.450 | -12.206 | ±194 | ±1.7 |
| Minimum Voltage | 55 | 36.0 | 0.000 | -11.819 | | |

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Condensation 結露特性 |
| Object | +12V0.450A |

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 | 12.128 | 10 | 40 |
| | 2 | 12.126 | 10 | 40 |
| | 3 | 12.126 | 10 | 40 |
| Load 100 % | 1 | 12.043 | 15 | 50 |
| | 2 | 12.043 | 15 | 50 |
| | 3 | 12.043 | 15 | 50 |

Input Volt. 24.0 V

COSEL

| | |
|---|---|
| Model | ZUW102412 |
| Item | Condensation 結露特性 |
| Object | −12V0.450A |

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 | 12.156 | 10 | 40 |
| | 2 | 12.154 | 10 | 40 |
| | 3 | 12.156 | 10 | 40 |
| Load 100 % | 1 | 12.068 | 10 | 45 |
| | 2 | 12.067 | 10 | 45 |
| | 3 | 12.073 | 10 | 45 |

Input Volt. 24.0 V

COSEL

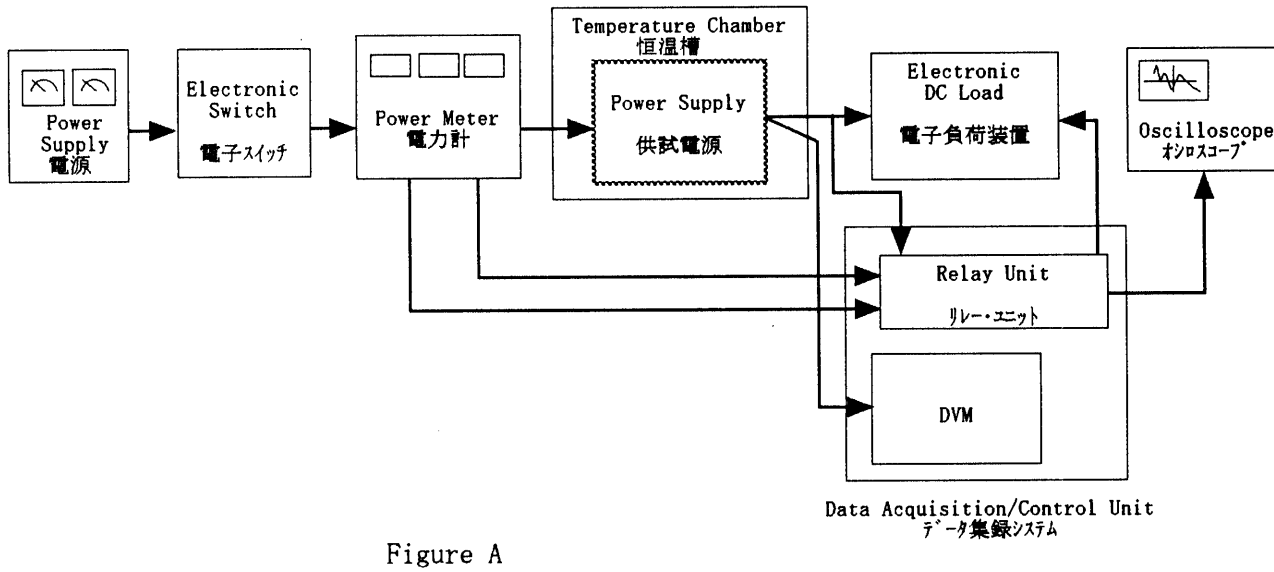


Figure A