COSEL

TEST DATA OF ZUS64812
(48.0V   INPUT)

Regulated DC Power Supply

Date : Sep. 23. 1996

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Design Engineer

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COSEL CO., LTD.

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Model	ZUS64812
Item	Line Regulation　静的入力変動
Object	＋12Ｖ0.5Ａ

Temperature	25℃
Testing Circuitry	Figure A
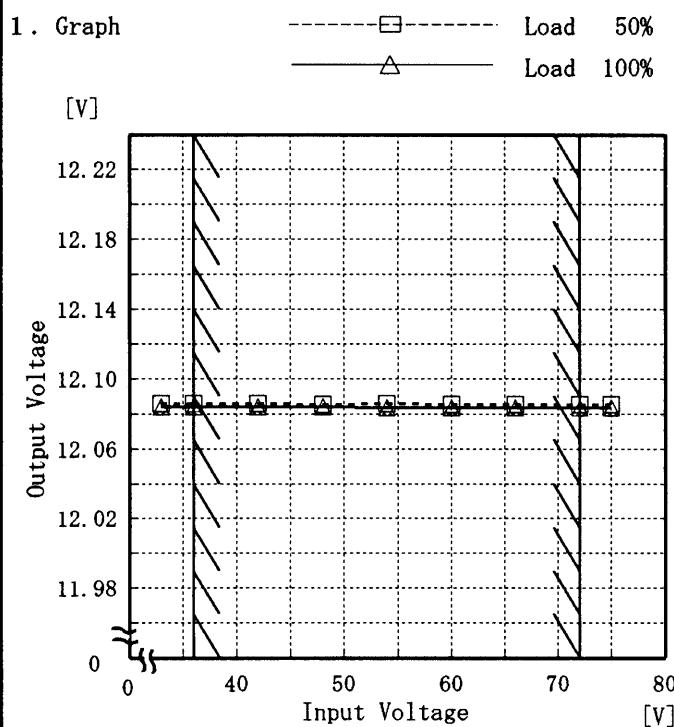
1．Graph

-------◻------- Load　50%

———△——— Load　100%

Note: Slanted line shows the range of the rated
input voltage.

(注)斜線は定格入力電圧範囲を示す。

2．Values

Input Voltage [V]	Load　50% Output Volt. [V]	Load　100% Output Volt. [V]
33.0	12.085	12.084
36.0	12.085	12.084
42.0	12.085	12.084
48.0	12.085	12.084
54.0	12.085	12.084
60.0	12.085	12.084
66.0	12.085	12.083
72.0	12.085	12.083
75.0	12.085	12.083
—	—	—
—	—	—
—	—	—

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Model	ZUS64812
Item	Efficiency 効率
Object	

Temperature　　25℃
Testing Circuitry　Figure A

1. Graph

------□------ Load 50%
———△——— Load 100%

Note: Slanted line shows the range of the rated
input voltage.

(注)斜線は定格入力電圧範囲を示す。
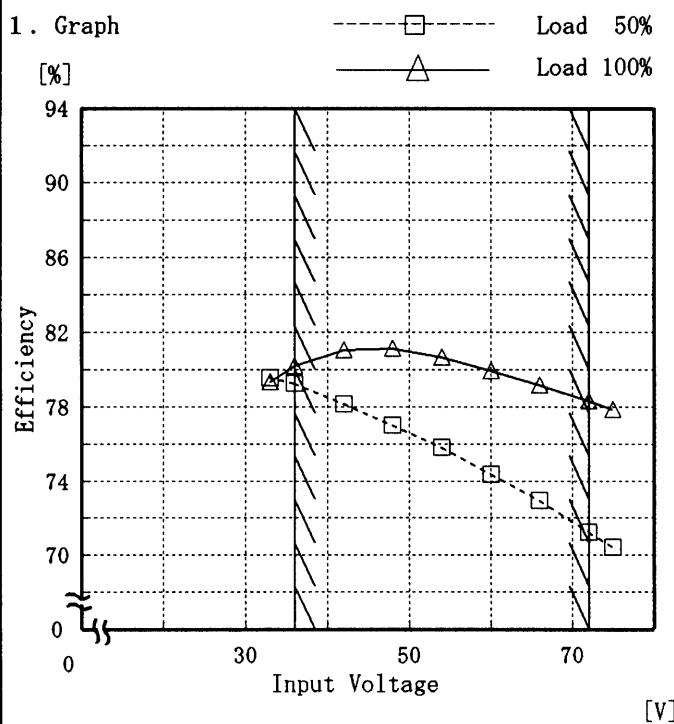
2. Values

Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
33.0	79.6	79.4
36.0	79.3	80.2
42.0	78.2	81.1
48.0	77.0	81.1
54.0	75.8	80.7
60.0	74.4	79.9
66.0	72.9	79.2
72.0	71.3	78.3
75.0	70.4	77.9
—	—	—
—	—	—
—	—	—

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Model	ZUS64812
Item	Load Regulation 静的負荷変動
Object	＋12V0.5A
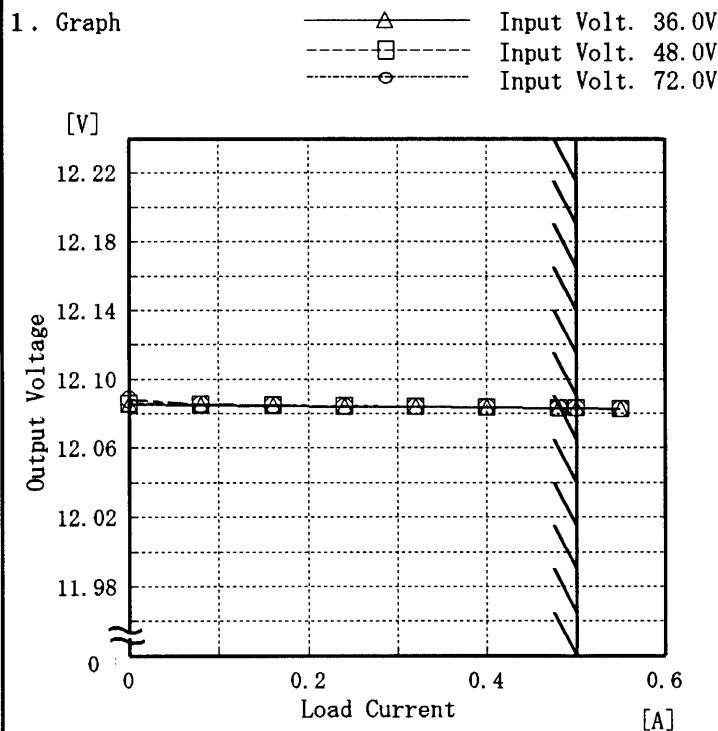
Temperature	25℃
Testing Circuitry	Figure A

1. Graph

Input Volt. 36.0V
Input Volt. 48.0V
Input Volt. 72.0V

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

(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
0.00	12.086	12.086	12.088
0.08	12.085	12.085	12.086
0.16	12.085	12.085	12.085
0.24	12.084	12.085	12.084
0.32	12.084	12.084	12.084
0.40	12.084	12.084	12.084
0.48	12.083	12.083	12.083
0.50	12.083	12.083	12.083
0.55	12.083	12.083	12.083
—	—	—	—

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Model	ZUS64812
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	＋12V 0.5A

Temperature   25℃
Testing   Circuitry   Figure A
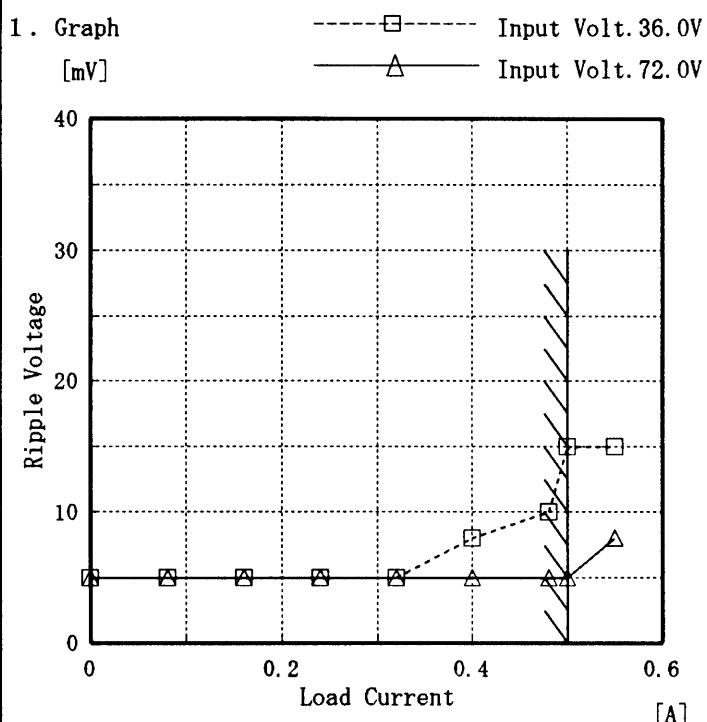
1．Graph   ------□------   Input Volt.36.0V

[mV]   ——△——   Input Volt.72.0V

Load Current [A]

2．Values

Load Current [A]	Input Volt. 36.0 [V] Ripple Output Volt. [mV]	Input Volt. 72.0 [V] Ripple Output Volt. [mV]
0.00	5	5
0.08	5	5
0.16	5	5
0.24	5	5
0.32	5	5
0.40	8	5
0.48	10	5
0.50	15	5
0.55	15	8
—	—	—
—	—	—

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
     スイッチング周期

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

ＢＣ－２０５３
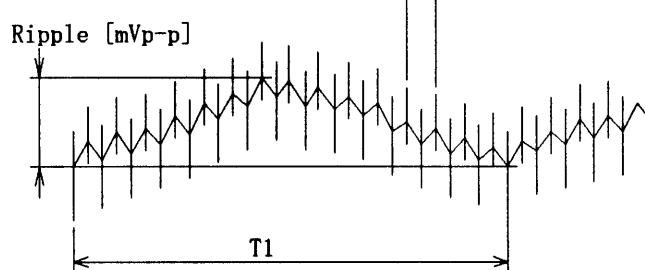
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Model	ZUS64812
Item	Ripple-Noise　リップルノイズ
Object	＋12Ｖ0.5Ａ

Temperature　　　25℃
Testing Circuitry　　Figure A

1．Graph　　　------□------　Input Volt.36.0V
[mV]　　　　　　△　　　　Input Volt.72.0V

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
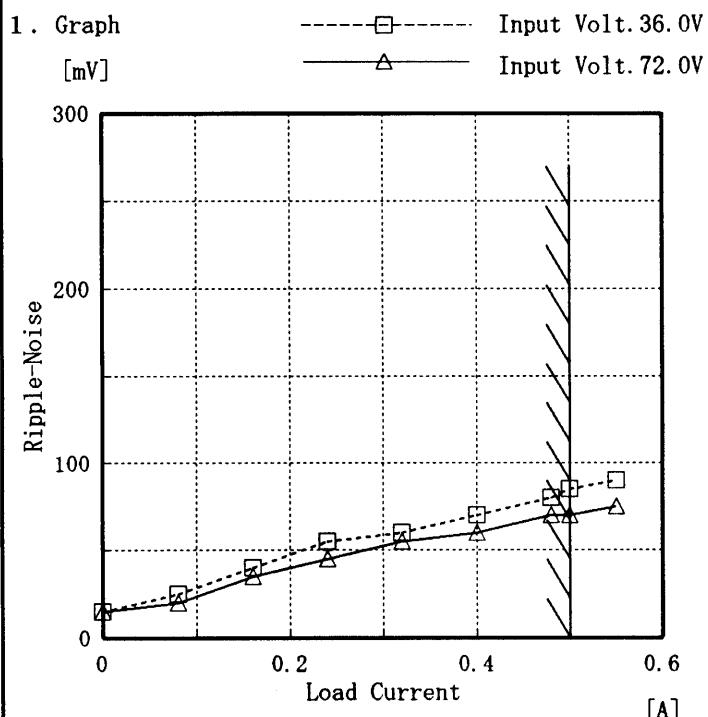
2．Values

Load current [A]	Input Volt. 36.0 [V] Ripple-Noise [mV]	Input Volt. 72.0 [V] Ripple-Noise [mV]
0.00	15	15
0.08	25	20
0.16	40	35
0.24	55	45
0.32	60	55
0.40	70	60
0.48	80	70
0.50	85	70
0.55	90	75
－	－	－
－	－	－

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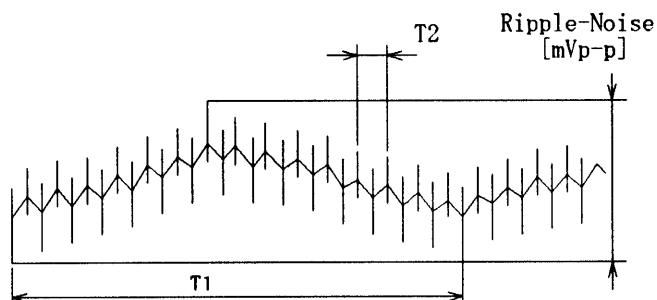
Model	ZUS64812
Item	Overcurrent Protection 過電流保護
Object	＋12Ｖ0.5Ａ

Temperature　　　　25℃
Testing Circuitry　Figure A

1. Graph

〜〜〜〜〜〜〜　Input Volt. 36.0V
───────　Input Volt. 48.0V
━━━━━━━　Input Volt. 72.0V

[V]

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

(注)斜線は定格負荷電流範囲を示す。
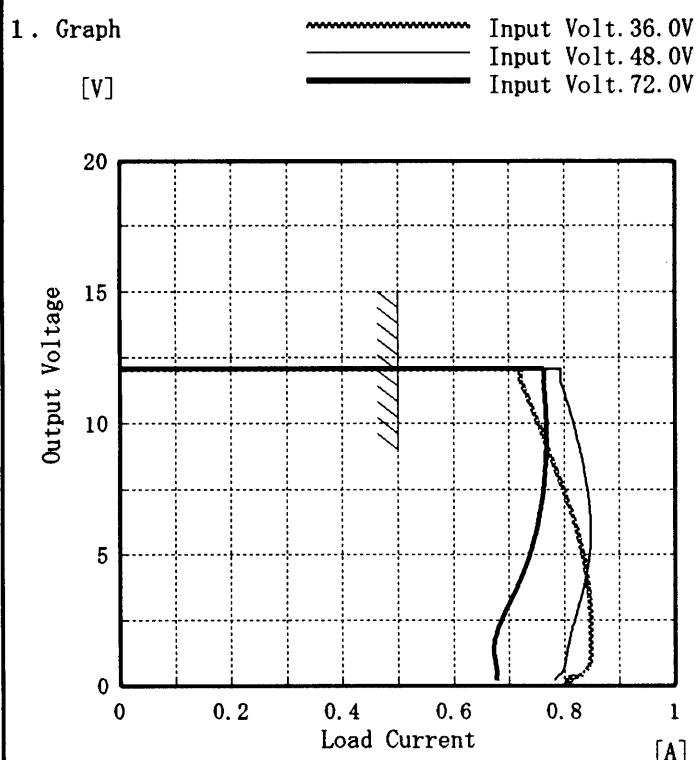
2. Values

Output Voltage [V]	Input Volt. 36.0[V] Load Current [A]	Input Volt. 48.0[V] Load Current [A]	Input Volt. 72.0[V] Load Current [A]
12.00	0.72	0.79	0.76
11.40	0.73	0.80	0.76
10.80	0.74	0.80	0.77
9.60	0.76	0.82	0.77
8.40	0.78	0.83	0.77
7.20	0.80	0.84	0.76
6.00	0.82	0.85	0.75
4.80	0.83	0.84	0.74
3.60	0.84	0.83	0.71
2.40	0.85	0.82	0.68
1.20	0.85	0.80	0.67
0.00	0.83	0.79	0.68

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Model	ZUS64812		
Item	Dynamic Load Responce 動的負荷変動	Temperature	25℃
		Testing Circuitry	Figure A
Object	+12V0.5A		

Input Volt.　　48.0 V

Cycle　　　　100 mS

Load Current

Min. Load ←→
Load 100 %

200 mV/div

Min. Load ←→
Load 50 %

200 mV/div

Load 50%←→
Load 100 %

200 mV/div

1 mS/div

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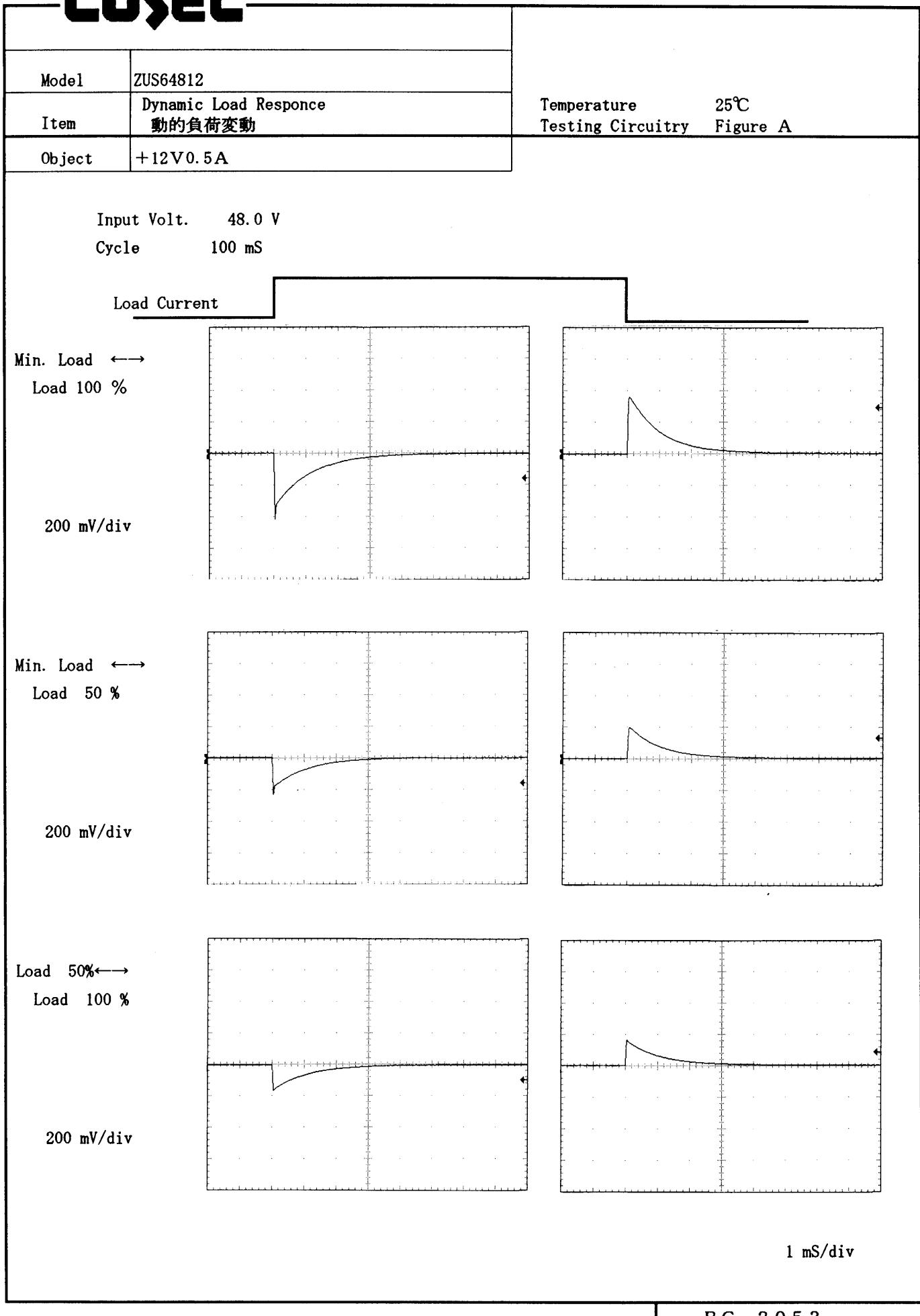
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Model	ZUS64812
Item	Rise and Fall Time 立上り、立下り時間
Object	＋12Ｖ0.5Ａ

Temperature　　　25℃
Testing Circuitry　　Figure A

1．Graph

Input Volt.　36.0 V

Load　50%

Output Voltage [2V/div]

Load 100%

Output Voltage [2V/div]

Input Voltage [10V/DIV]

Time　　　　　[10mS/div]

Time　　　　　[2mS/div]
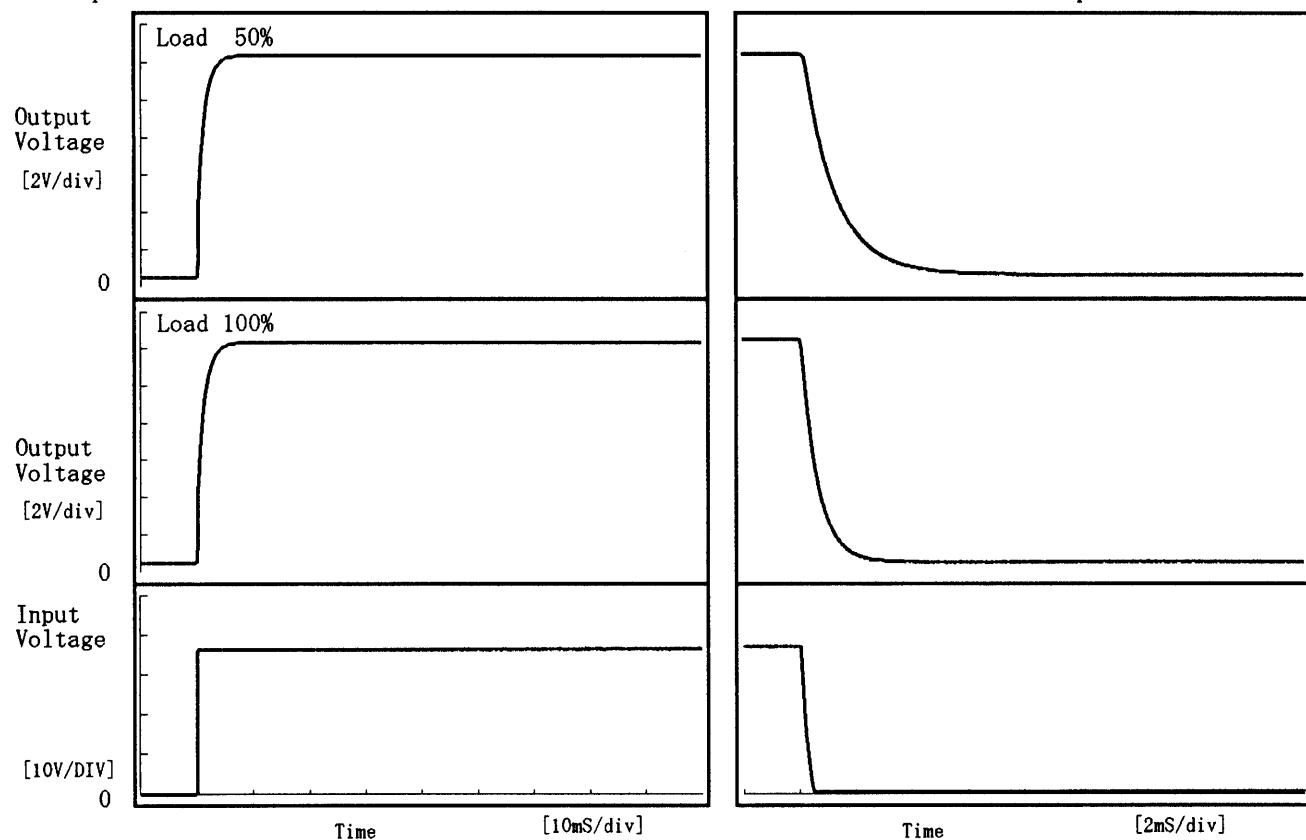
2．Values

[mS]

Load ＼ Time	T d	T r	T s	T h	T f
50 %	0.05	2.45	2.50	0.33	2.91
100 %	0.05	2.50	2.55	0.16	1.38

Output Volt.　90%　10%

Input Volt.

Td　Tr　Ts　Th　Tf

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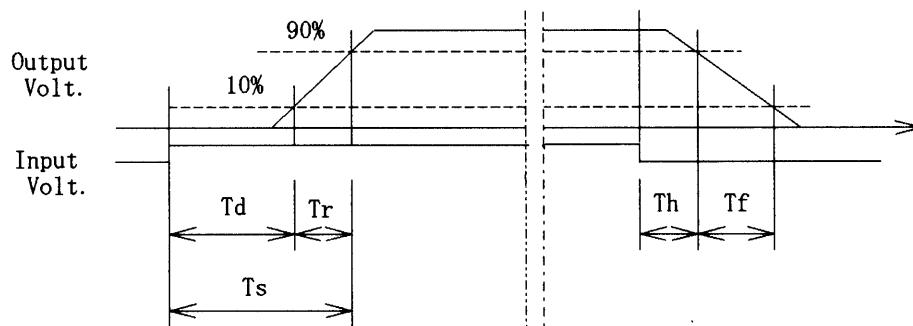
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Model	ZUS64812
Item	Ambient Temperature Drift 周囲温度変動
Object	＋12V0.5A
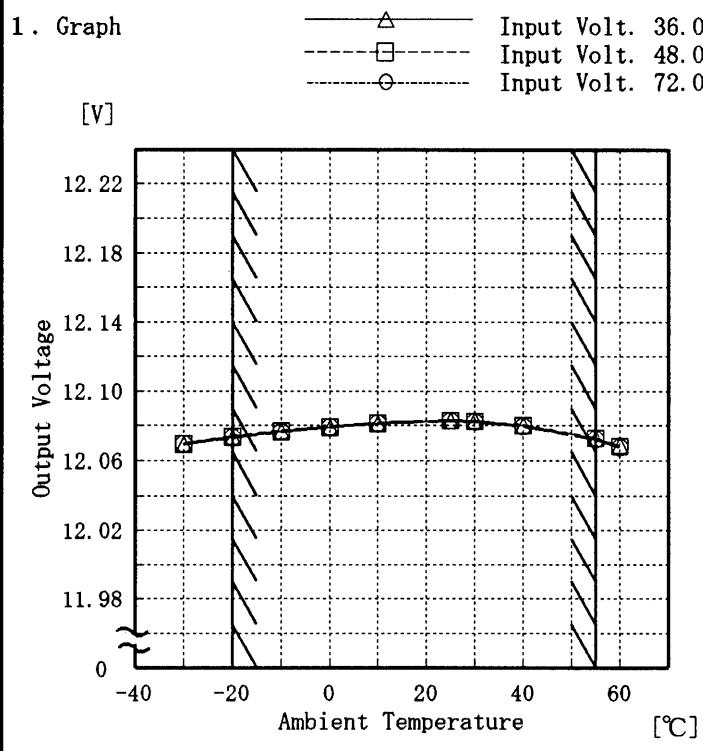
Testing Circuitry　Figure A

1．Graph

———△——— Input Volt. 36.0V
-----□----- Input Volt. 48.0V
--------○-------- Input Volt. 72.0V

[V]

Output Voltage

Ambient Temperature [℃]

Load　100%

Note: Slanted line shows the range of the rated
ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2．Values

Temperature [℃]	Input Volt. 36.0[V] Output Volt. [V]	Input Volt. 48.0[V] Output Volt. [V]	Input Volt. 72.0[V] Output Volt. [V]
-30	12.069	12.070	12.070
-20	12.073	12.074	12.073
-10	12.077	12.077	12.077
0	12.079	12.079	12.079
10	12.081	12.081	12.081
25	12.083	12.083	12.083
30	12.083	12.083	12.082
40	12.080	12.080	12.080
55	12.073	12.073	12.073
60	12.069	12.068	12.068
—	—	—	—

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Model	ZUS64812
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	＋12Ｖ0.5Ａ
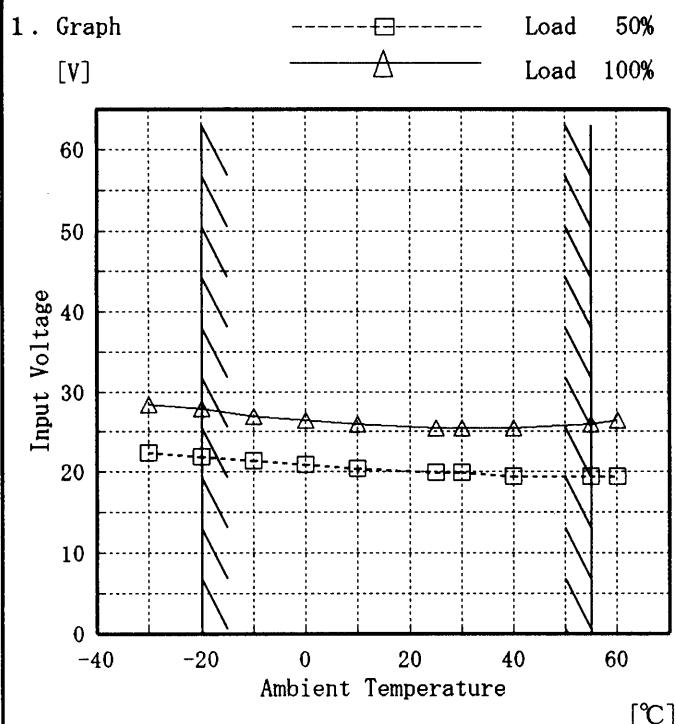
Testing Circuitry　Figure A

1．Graph ------□------ Load 50%

[V] ——△—— Load 100%

Note: Slanted line shows the range of the rated
ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2．Values

Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-30	22.4	28.4
-20	21.9	27.9
-10	21.4	26.9
0	20.9	26.4
10	20.4	25.9
25	19.9	25.4
30	19.9	25.4
40	19.4	25.4
55	19.4	25.9
60	19.4	26.4
—	—	—

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Model	ZUS64812
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	＋12Ｖ0.5Ａ
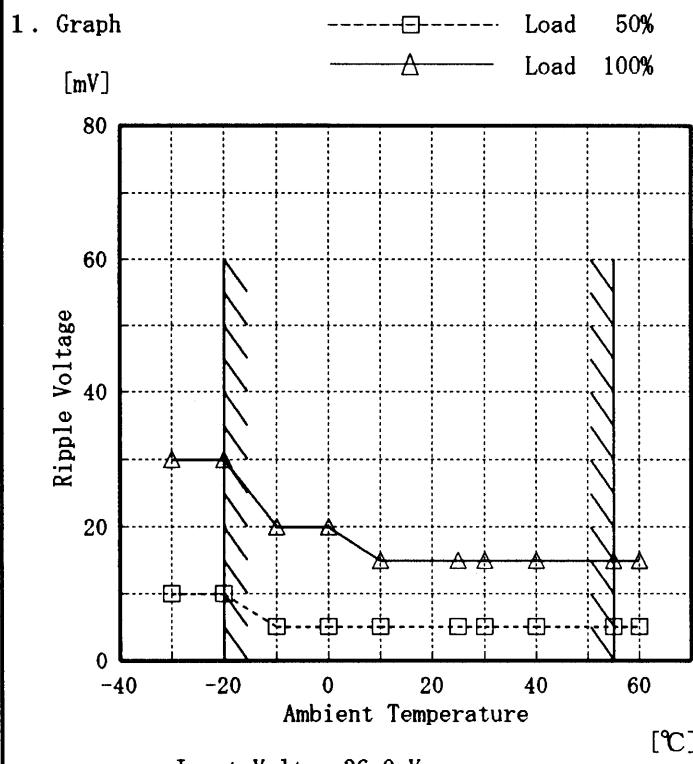
Testing Circuitry　　Figure A

1. Graph　　------□------ Load 50%
　　　　　　　　————△———— Load 100%

[mV]

Input Volt. 36.0 V

Note: Slanted line shows the range of the rated
ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

2. Values

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

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Model	ZUS64812
Item	Time Lapse Drift 経時ドリフト
Object	＋12Ｖ0.5Ａ

Temperature	25 ℃
Testing Circuitry	Figure A

1. Graph

[V]

Input Volt.   48V
Load   100%
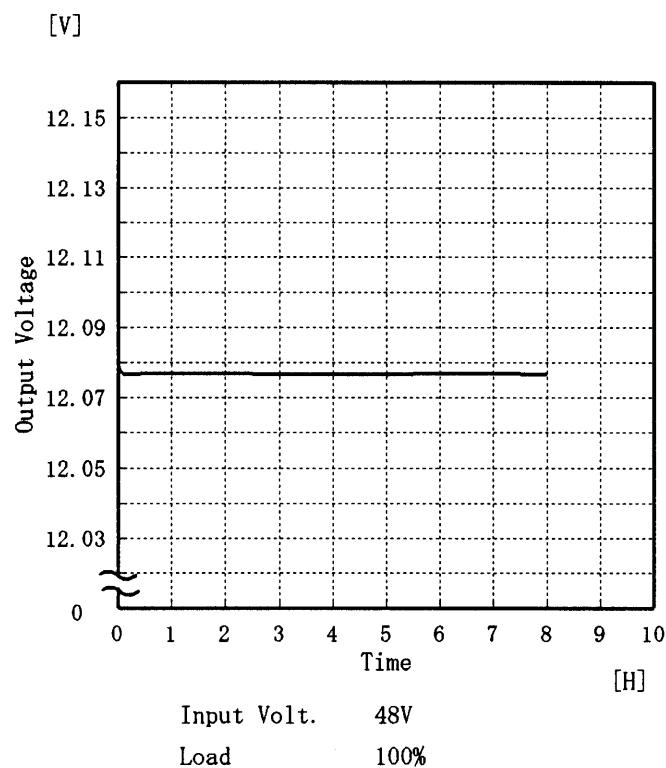
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.080
0.5	12.077
1.0	12.077
2.0	12.077
3.0	12.077
4.0	12.077
5.0	12.077
6.0	12.077
7.0	12.077
8.0	12.077

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Model	ZUS64812
Item	Output Voltage Accuracy　定電圧精度
Object	＋12Ｖ0.5Ａ

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：　36.0〜72.0 V

Load Current　：　0.0〜0.5 A

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

* Output Voltage Accuracy (Ration) ＝ $\dfrac{\text{Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度　　　　　-20〜55 ℃

入力電圧　　　　　36.0〜72.0 V

負荷電流　　　　　0.0〜0.5 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) ＝ $\dfrac{\text{変動値}}{\text{定格出力電圧}} \times 100$

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	25	72.0	0.0	12.089	±10	±0.1
Minimum Voltage	55	72.0	0.5	12.070		

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Model	ZUS64812
Item	Condensation 結露特性
Object	＋12V 0.5A

Testing Circuitry　　　Figure A

1. Condensation test

Testing procedure is as follows.

① Keeping and cooling the unit in a tank at -10℃ for an hour with the input off.

② Taking it out of the tank and dewing itself in a room where the temperature is
　26℃ and the humidity is 40%RH.

③ Testing electrical characteristics of the unit to confirm there be no fault.

④ Repeating ①,② and ③ three times.

１．結露特性試験

　　　入力を切った状態で、恒温槽で－１０℃に冷却しておき、約１時間後に恒温槽から取り出し、
　　室温２６℃、湿度４０％RHの状態におき結露させ、その電気的特性の測定を３度行い、異常の
　　ないことを確認する。

２．Values

	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load	1	12.078	5	40
50	2	12.079	5	45
%	3	12.080	5	45
Load	1	12.076	15	75
100	2	12.077	15	80
%	3	12.078	15	80

Input Volt. 48.0　V

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Figure A

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