



TEST DATA OF ZUS62415

(24.0V INPUT)

Regulated DC Power Supply

Date : Sep. 23. 1996

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Design Manager

Prepared by : H. Ise
Design Engineer

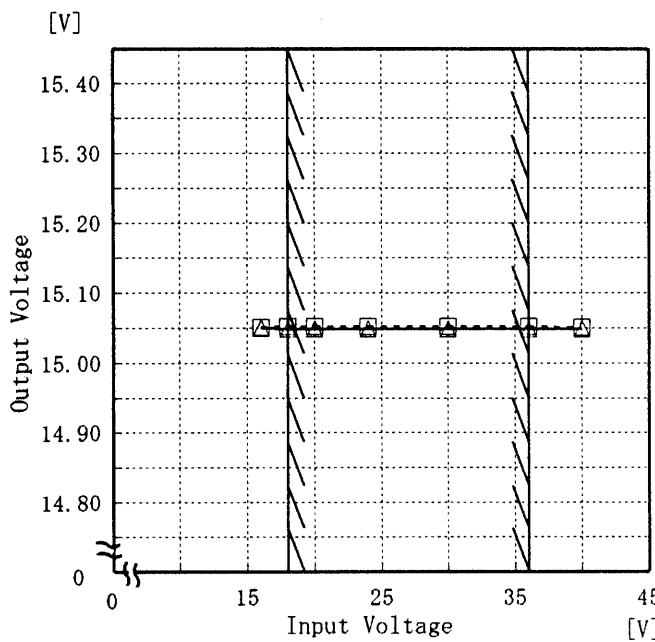
コーセル株式会社
COSEL CO., LTD.

CONTENTS

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

(Final Page 15)

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Model		ZUS62415	Temperature Testing Circuitry	25℃ Figure A																																									
Item		Line Regulation 静的入力変動																																											
Object		+15V0.4A																																											
1. Graph		<div><div>-----□-----</div>Load 50%</div> <div><div>-----△-----</div>Load 100%</div>  <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>	2. Values																																										
			<table><tr><th rowspan="2">Input Voltage [V]</th><th>Load 50%</th><th>Load 100%</th></tr><tr><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr><tr><td>16.0</td><td>15.051</td><td>15.049</td></tr><tr><td>18.0</td><td>15.052</td><td>15.049</td></tr><tr><td>20.0</td><td>15.052</td><td>15.049</td></tr><tr><td>24.0</td><td>15.052</td><td>15.049</td></tr><tr><td>30.0</td><td>15.052</td><td>15.049</td></tr><tr><td>36.0</td><td>15.052</td><td>15.048</td></tr><tr><td>40.0</td><td>15.051</td><td>15.048</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table>		Input Voltage [V]	Load 50%	Load 100%	Output Volt. [V]	Output Volt. [V]	16.0	15.051	15.049	18.0	15.052	15.049	20.0	15.052	15.049	24.0	15.052	15.049	30.0	15.052	15.049	36.0	15.052	15.048	40.0	15.051	15.048	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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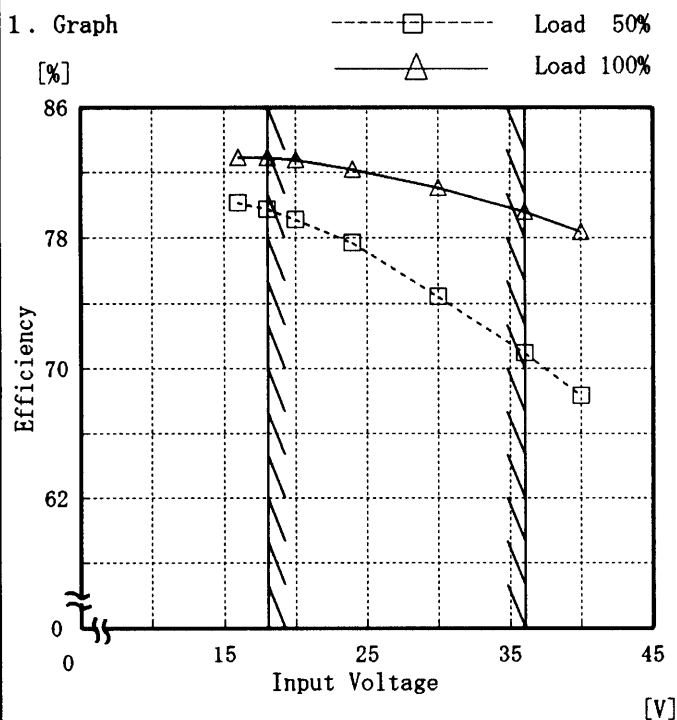
Model ZUS62415

Item Efficiency 効率

Temperature 25°C
Testing Circuitry Figure A

Object

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。

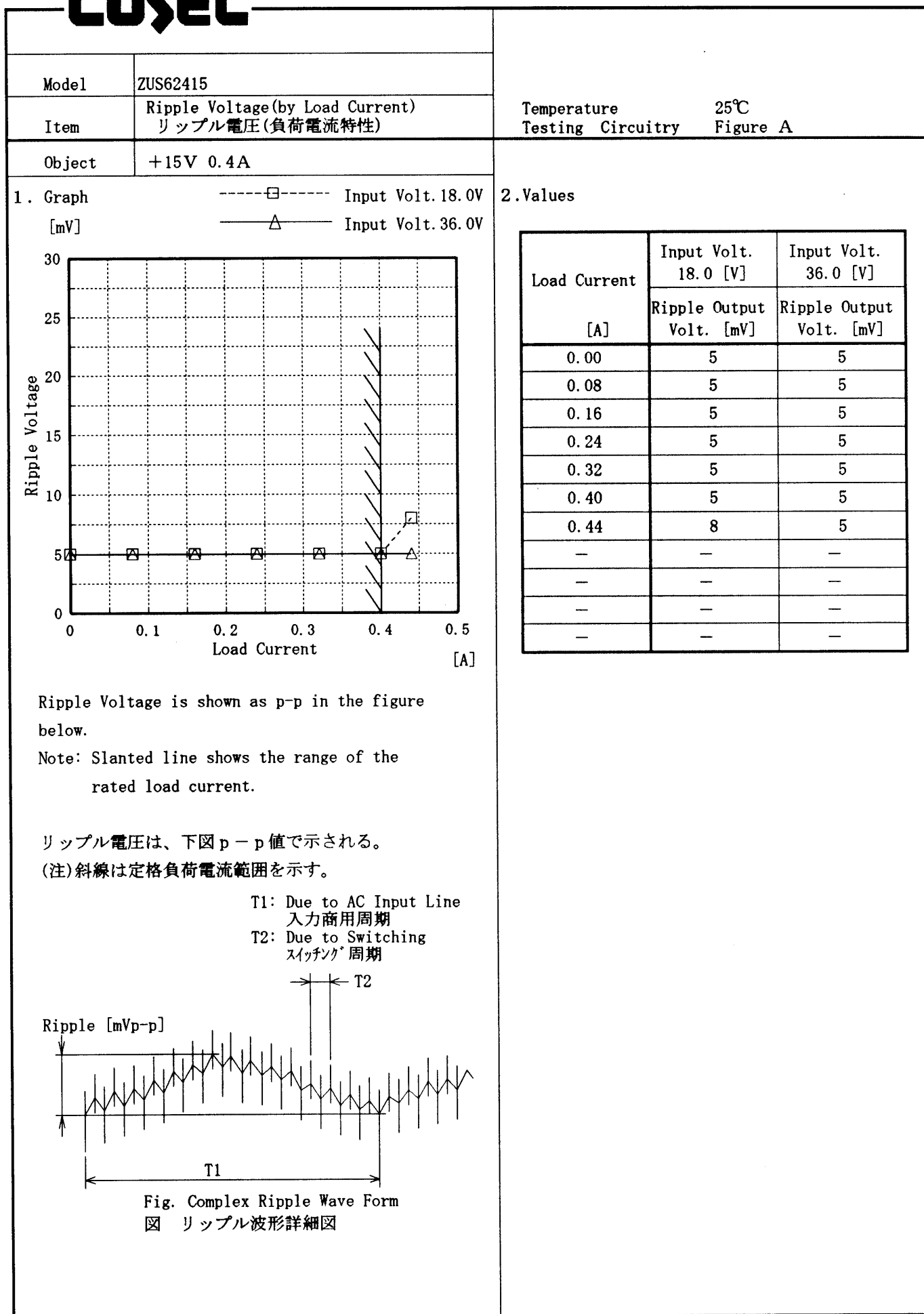
2. Values

Input Voltage [V]	Load 50%	Load 100%
	Efficiency [%]	Efficiency [%]
16.0	80.1	82.9
18.0	79.7	82.9
20.0	79.1	82.8
24.0	77.7	82.2
30.0	74.4	81.1
36.0	71.0	79.6
40.0	68.3	78.4
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

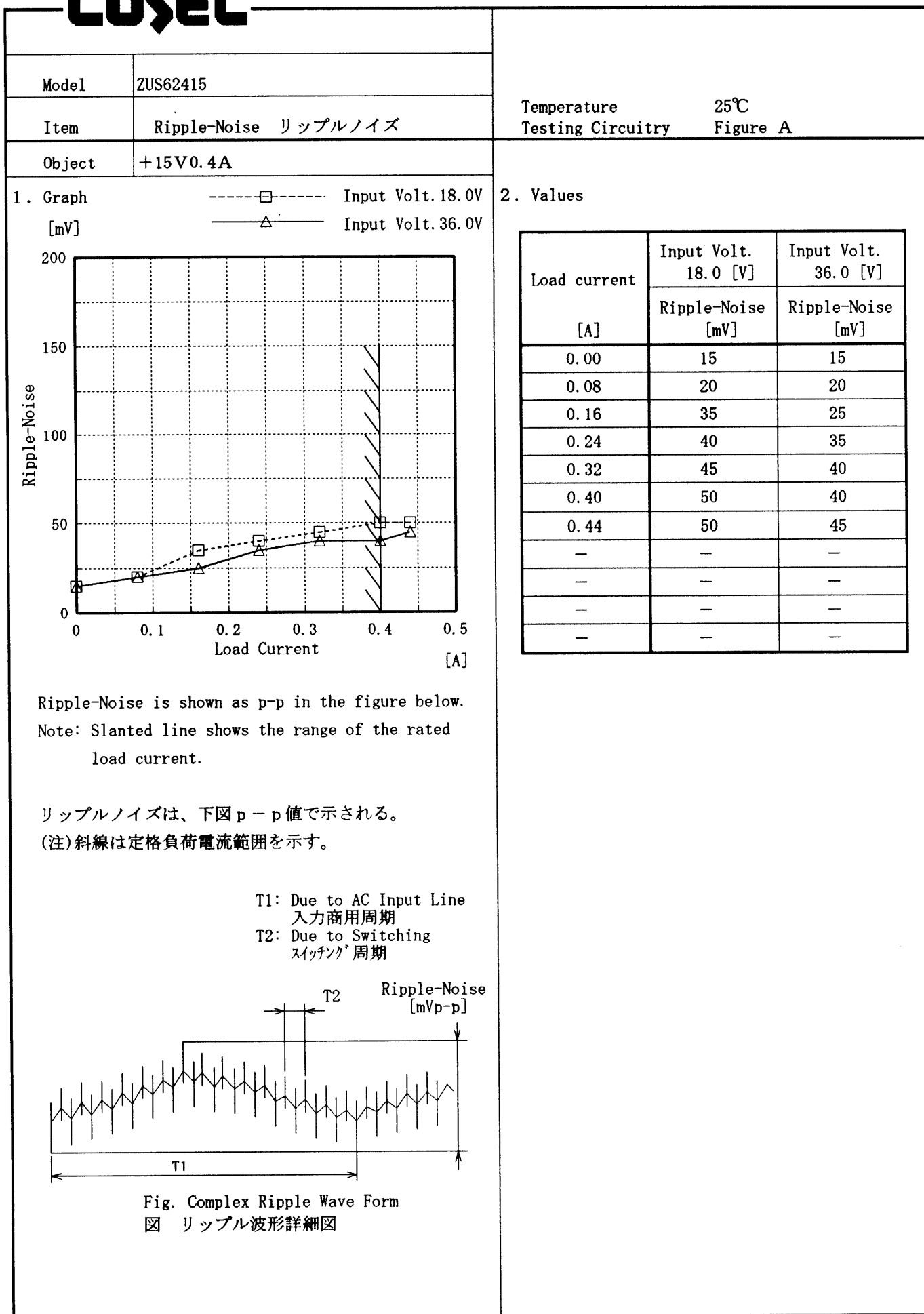
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Model		ZUS62415		Temperature		25℃																																														
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<div><div><div>Output Voltage</div><div>[V]</div></div><div><div><div>15.19</div><div>15.15</div><div>15.11</div><div>15.07</div><div>15.03</div><div>14.99</div><div>14.95</div><div>0</div></div><div><div>0</div><div>0.1</div><div>0.2</div><div>0.3</div><div>0.4</div><div>0.5</div></div><div><div>Load Current</div><div>[A]</div></div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th>Input Volt. 18.0[V]</th><th>Input Volt. 24.0[V]</th><th>Input Volt. 36.0[V]</th></tr><tr><th>Output Volt. [V]</th><th>Output Volt. [V]</th><th>Output Volt. [V]</th></tr><tr><td>0.00</td><td>15.052</td><td>15.052</td><td>15.054</td></tr><tr><td>0.08</td><td>15.052</td><td>15.052</td><td>15.051</td></tr><tr><td>0.16</td><td>15.051</td><td>15.051</td><td>15.050</td></tr><tr><td>0.24</td><td>15.051</td><td>15.051</td><td>15.050</td></tr><tr><td>0.32</td><td>15.050</td><td>15.050</td><td>15.050</td></tr><tr><td>0.40</td><td>15.050</td><td>15.050</td><td>15.049</td></tr><tr><td>0.44</td><td>15.049</td><td>15.049</td><td>15.049</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>		Load Current [A]	Input Volt. 18.0[V]	Input Volt. 24.0[V]	Input Volt. 36.0[V]	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]	0.00	15.052	15.052	15.054	0.08	15.052	15.052	15.051	0.16	15.051	15.051	15.050	0.24	15.051	15.051	15.050	0.32	15.050	15.050	15.050	0.40	15.050	15.050	15.049	0.44	15.049	15.049	15.049	—	—	—	—	—	—	—	—	—	—	—	—		
Load Current [A]	Input Volt. 18.0[V]	Input Volt. 24.0[V]	Input Volt. 36.0[V]																																																	
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Model		ZUS62415	Temperature		25℃																																																							
Item		Overcurrent Protection 過電流保護	Testing Circuitry		Figure A																																																							
Object		+15V0.4A																																																										
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Model	ZUS62415	Temperature	25°C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+15V0.4A		

Input Volt. 24.0 V

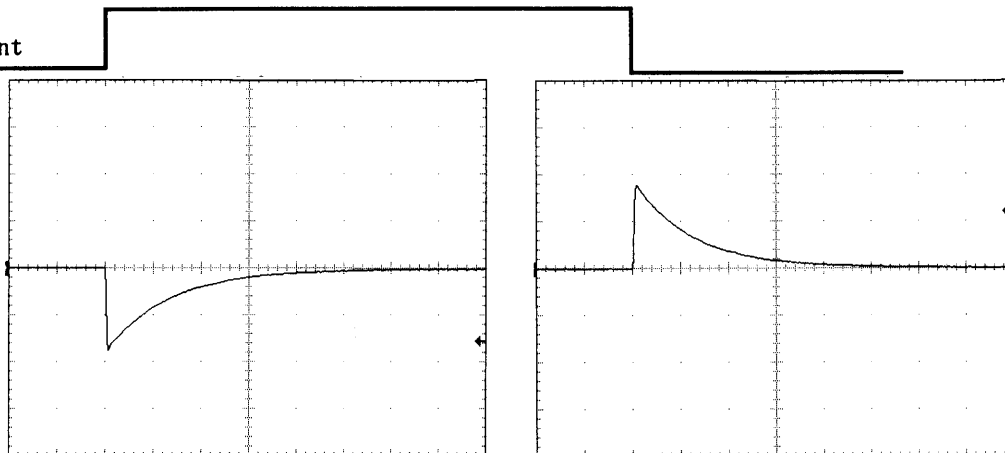
Cycle 100 mS

Load Current

Min. Load ↔

Load 100 %

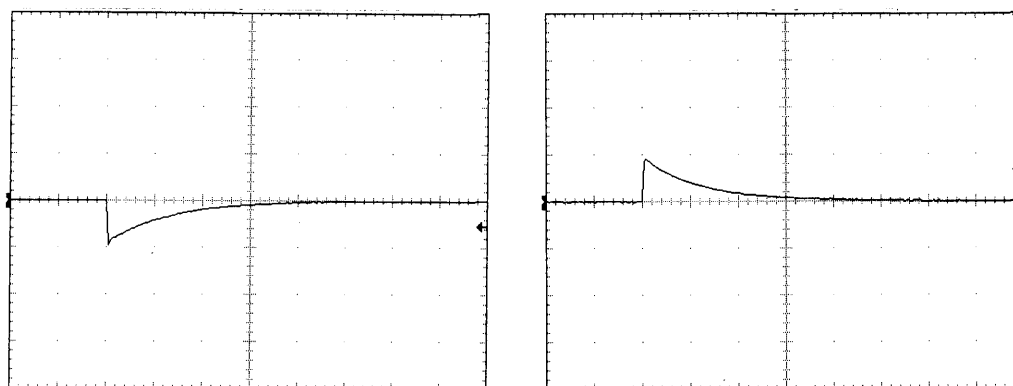
200 mV/div



Min. Load ↔

Load 50 %

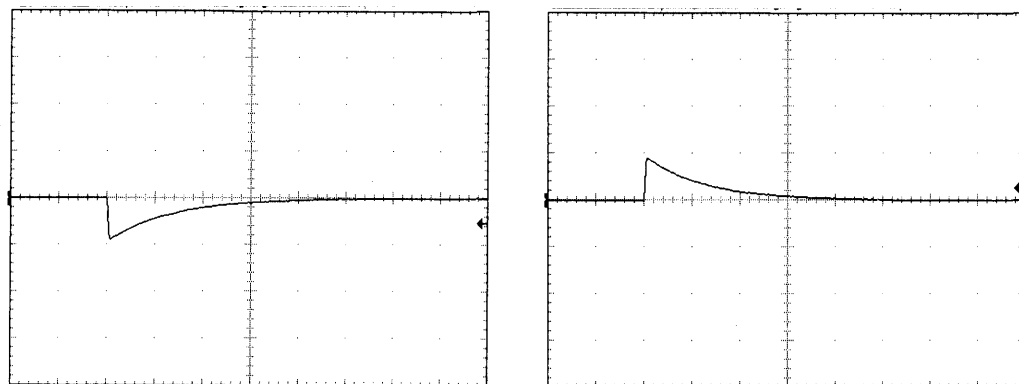
200 mV/div



Load 50% ↔

Load 100 %

200 mV/div



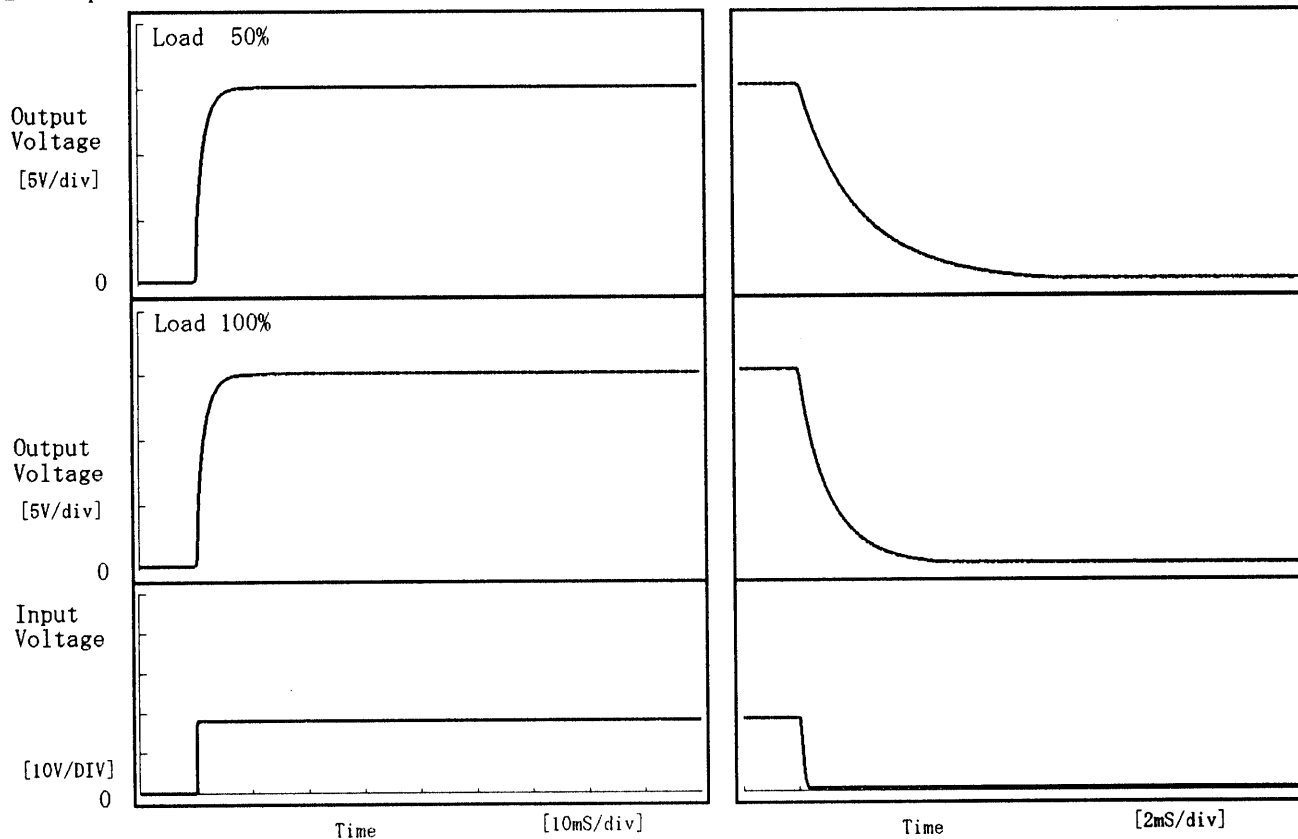
1 mS/div

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Model	ZUS62415	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+15V0.4A		

1. Graph

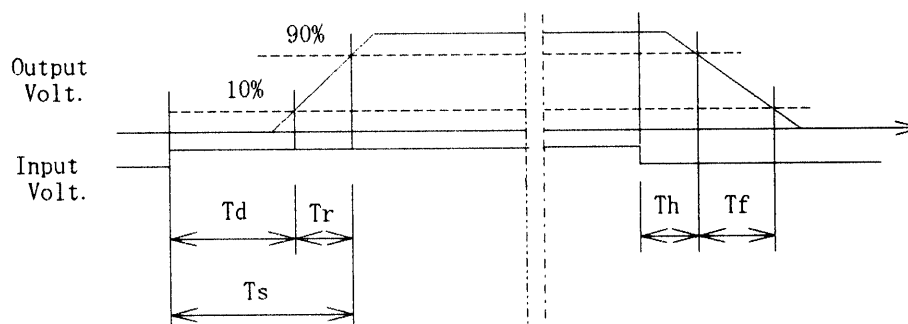
Input Volt. 18.0 V



2. Values

[ms]

Load \ Time	T d	T r	T s	T h	T f
50 %	0.30	3.25	3.55	0.33	4.83
100 %	0.25	3.35	3.60	0.17	2.52



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Model		ZUS62415	Testing Circuitry Figure A
Item		Ambient Temperature Drift 周囲温度変動	
Object		+15V0.4A	

1. Graph

△

Input Volt. 18.0V

□

Input Volt. 24.0V

○

Input Volt. 36.0V

Output Voltage [V]

COSEL

Model

ZUS62415

Item

Minimum Input Voltage for Regulated Output Voltage
最低レギュレーション電圧

Object

+15V0.4A

Testing Circuitry Figure A

1. Graph

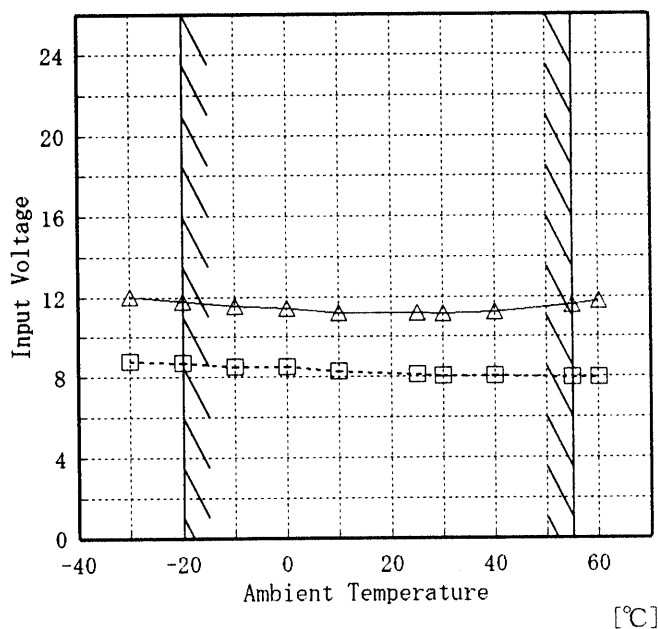
[V]

-----□-----

Load 50%

-----△-----

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. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-30	8.8	12.0
-20	8.7	11.8
-10	8.5	11.6
0	8.5	11.5
10	8.3	11.2
25	8.1	11.2
30	8.1	11.2
40	8.1	11.3
55	8.0	11.6
60	8.0	11.8
—	—	—

COSEL

Model

ZUS62415

Item

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

Object

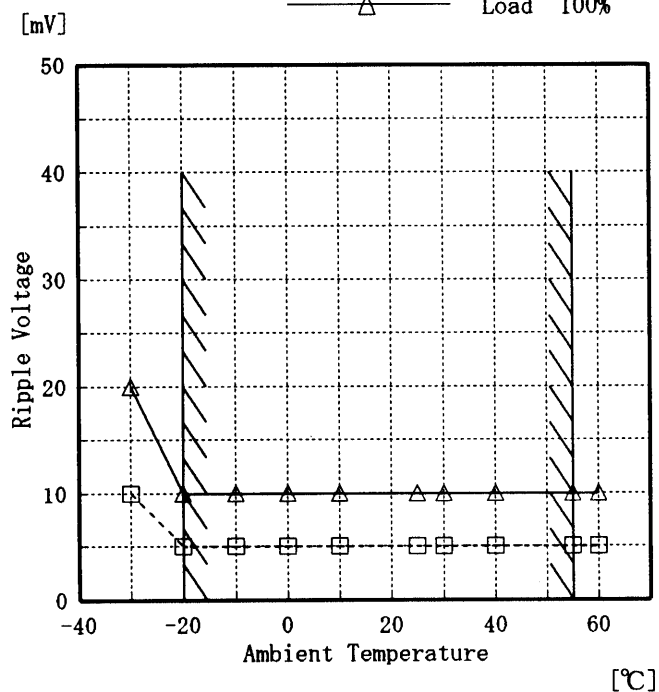
+15V0.4A

Testing Circuitry

Figure A

1. Graph

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

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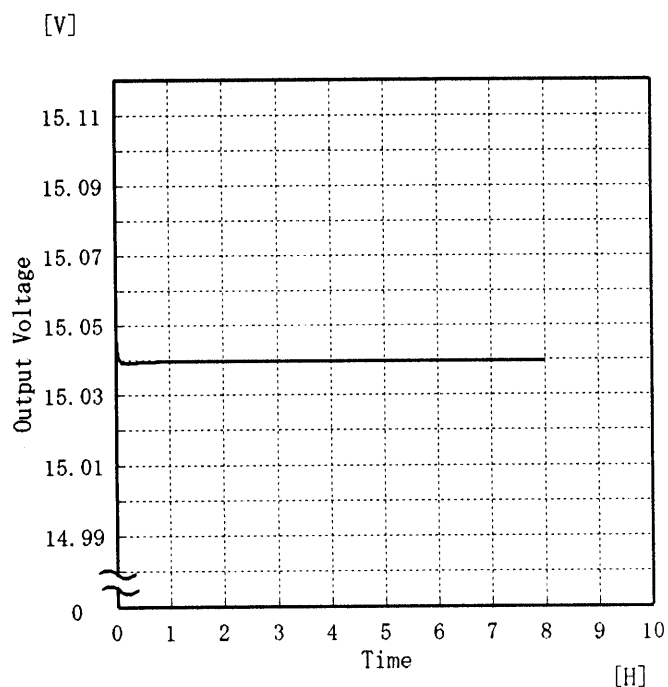
Model ZUS62415

Item Time Lapse Drift 経時ドリフト

Temperature 25 °C
Testing Circuitry Figure A

Object +15V0.4A

1. Graph

Input Volt. 24V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	15.047
0.5	15.039
1.0	15.040
2.0	15.040
3.0	15.040
4.0	15.040
5.0	15.040
6.0	15.040
7.0	15.040
8.0	15.040

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Model		ZUS62415	Testing Circuitry Figure A
Item		Output Voltage Accuracy 定電圧精度	
Object		+15V0.4A	

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 °C

Input Voltage : 18.0~36.0 V

Load Current : 0.0~0.4 A

* Output Voltage Accuracy = $\pm (\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

* 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 °C

入力電圧 : 18.0~36.0 V

負荷電流 : 0.0~0.4 A

* 定電圧精度(変動値) = $\pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

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

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-20	36.0	0.0	15.072	±28	±0.2
Minimum Voltage	55	36.0	0.4	15.016		

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Model		ZUS62415	Testing Circuitry Figure A
Item		Condensation 結露特性	
Object		+15V 0.4A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C 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°C 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°C 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°C 、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	15.049	5	40
	2	15.053	5	40
	3	15.053	5	35
Load 100 %	1	15.048	10	65
	2	15.052	10	55
	3	15.053	10	55

Input Volt. 24.0 V

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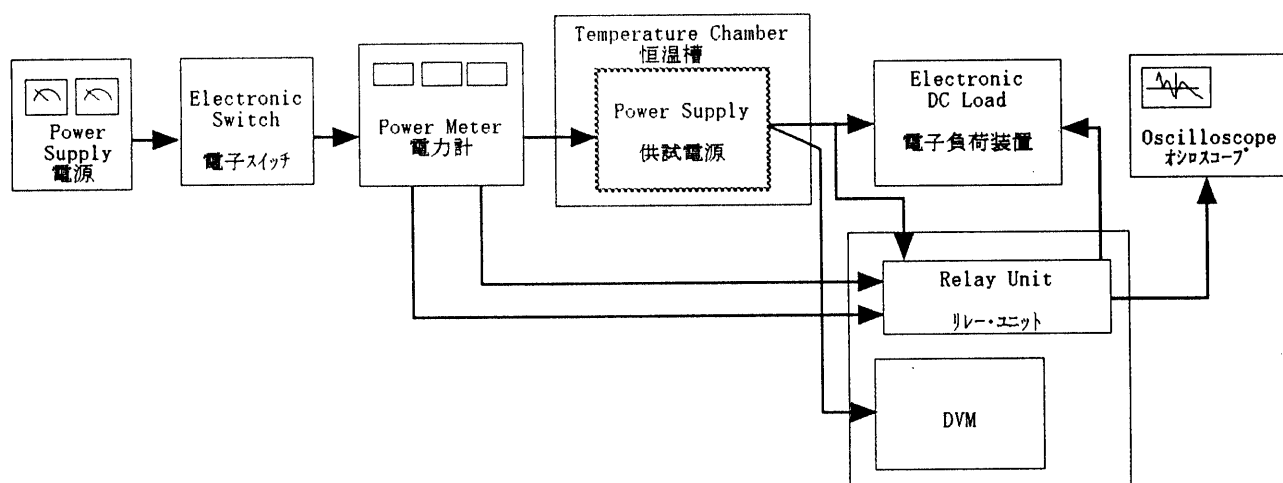


Figure A