参考資料

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TEST DATA OF ZTS1R51205
(12.0V INPUT)

Regulated DC Power Supply

Date : Mar.5. 1998

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COSEL CO.,LTD.

参考資料

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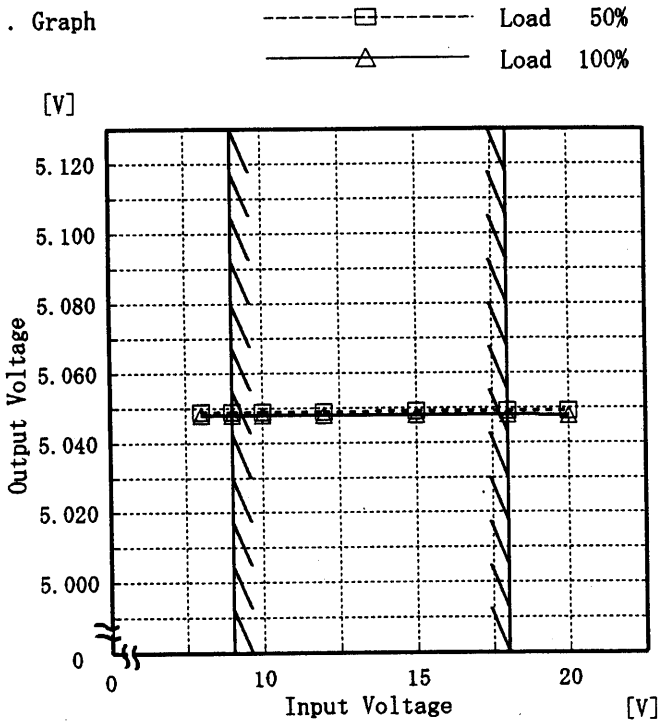
Model	ZTS1R51205
Item	Line Regulation 静的入力変動
Object	+5V0.3A

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% Output Volt. [V]	Load 100% Output Volt. [V]
8.0	5.049	5.048
9.0	5.049	5.048
10.0	5.049	5.048
12.0	5.049	5.048
15.0	5.049	5.048
18.0	5.049	5.048
20.0	5.049	5.048
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

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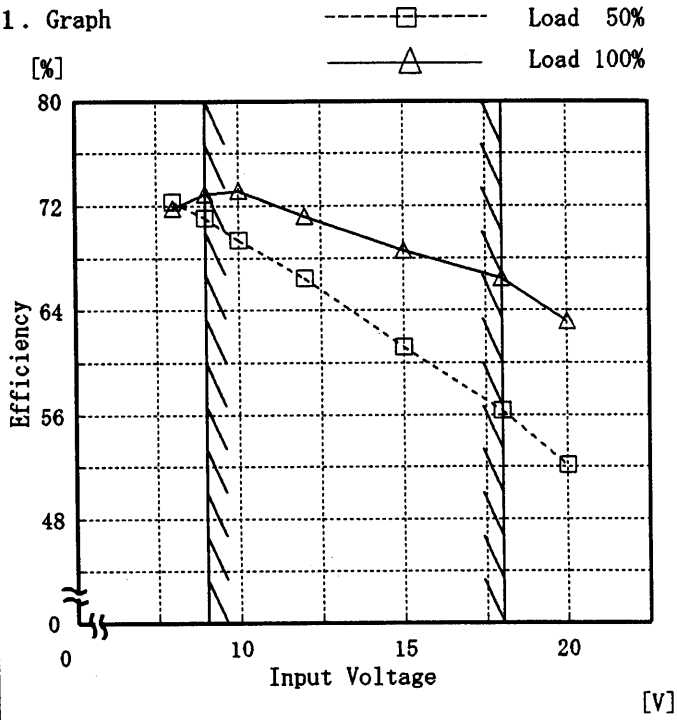
Model	ZTS1R51205
Item	Efficiency 効率
Object	――――――――――

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	Load 50% Efficiency [%]	Load 100% Efficiency [%]
8.0	72.3	71.8
9.0	71.1	72.9
10.0	69.4	73.2
12.0	66.5	71.2
15.0	61.2	68.6
18.0	56.3	66.4
20.0	52.1	63.2
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—

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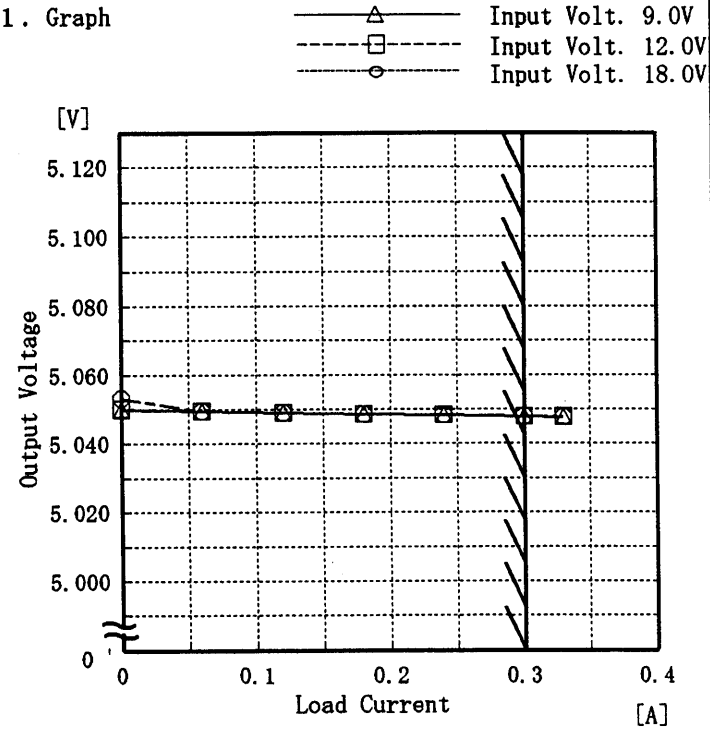
Model	ZTS1R51205
Item	Load Regulation 静的負荷変動
Object	+5V0.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格負荷電流範囲を示す。

2. Values

Load Current [A]	Input Volt. 9.0[V] Output Volt. [V]	Input Volt. 12.0[V] Output Volt. [V]	Input Volt. 18.0[V] Output Volt. [V]
0.00	5.050	5.050	5.053
0.06	5.049	5.050	5.050
0.12	5.049	5.049	5.049
0.18	5.049	5.049	5.049
0.24	5.048	5.048	5.048
0.30	5.048	5.048	5.048
0.33	5.048	5.048	5.048
—	—	—	—
—	—	—	—
—	—	—	—

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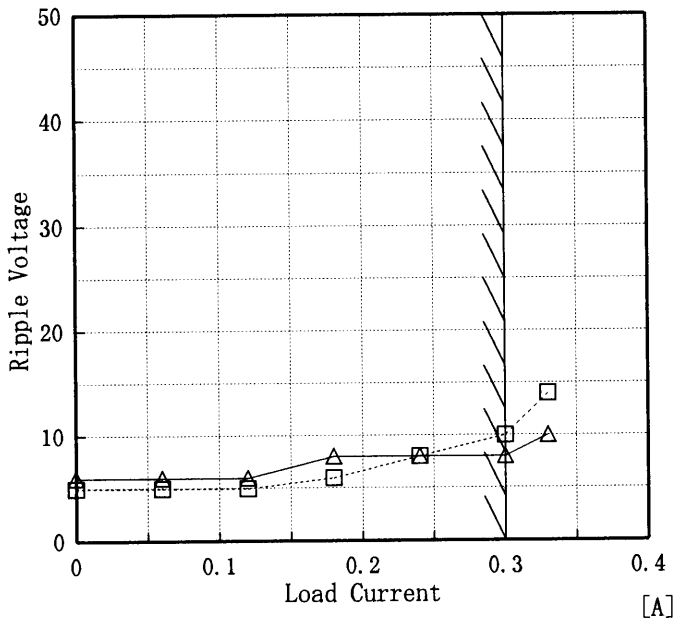
Model	ZTS1R51205
Item	Ripple Voltage(by Load Current) リップル電圧(負荷電流特性)
Object	+5V0.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Ripple Voltage is shown as p-p in the figure below.

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

リップル電圧は、下図ｐ－ｐ値で示される。
(注)斜線は定格負荷電流範囲を示す。

T1: Due to AC Input Line
入力商用周期
T2: Due to Switching
ｽｲｯﾁﾝｸﾞ周期

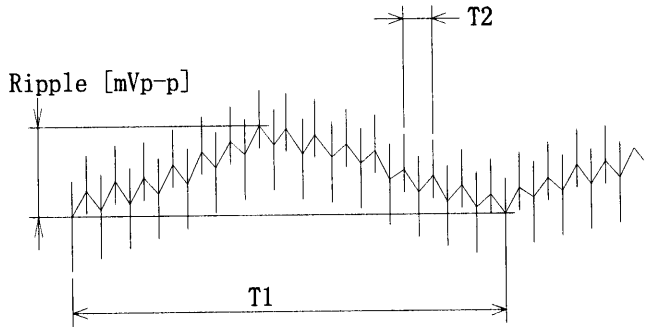


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

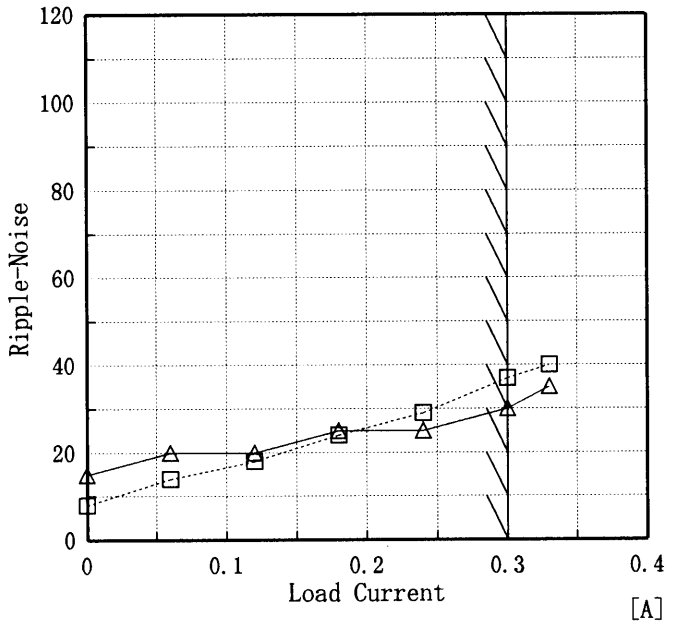
Load Current [A]	Input Volt. 9.0 [V] Ripple Output Volt. [mV]	Input Volt. 18.0 [V] Ripple Output Volt. [mV]
0.00	5	6
0.06	5	6
0.12	5	6
0.18	6	8
0.24	8	8
0.30	10	8
0.33	14	10
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	ZTS1R51205
Item	Ripple-Noise リップルノイズ
Object	+5V0.3A

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

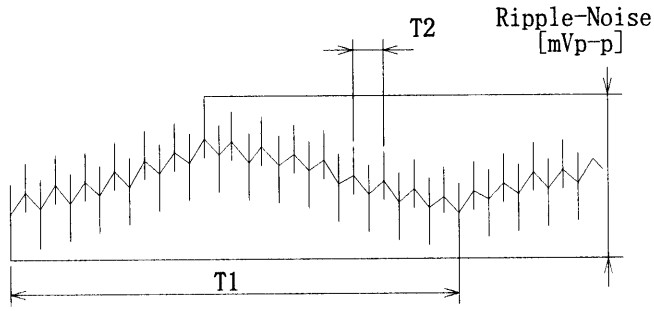


Fig. Complex Ripple Wave Form
図 リップル波形詳細図

2. Values

Load current [A]	Input Volt. 9.0 [V] Ripple-Noise [mV]	Input Volt. 18.0 [V] Ripple-Noise [mV]
0.00	8	15
0.06	15	20
0.12	20	20
0.18	25	25
0.24	30	25
0.30	35	30
0.33	40	35
—	—	—
—	—	—
—	—	—
—	—	—

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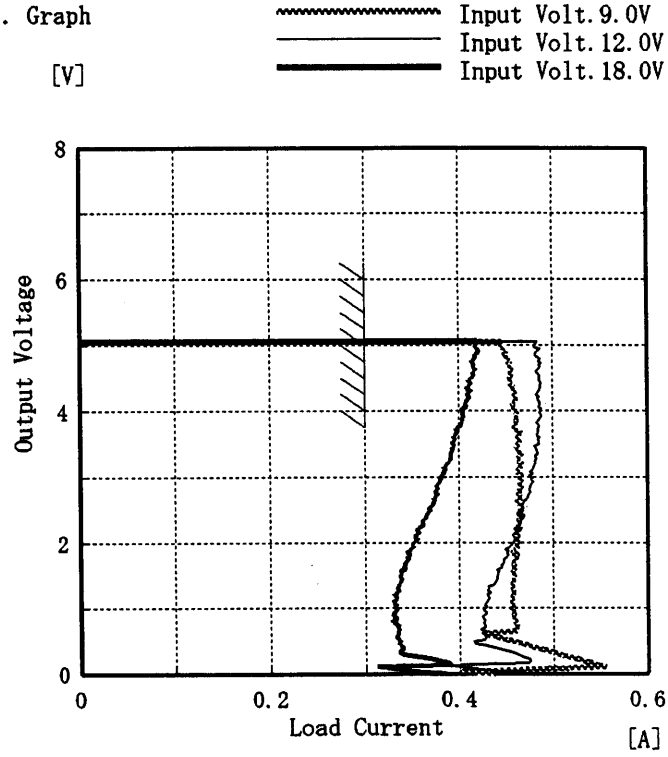
Model	ZTS1R51205
Item	Overcurrent Protection 過電流保護
Object	+5V0.3A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格負荷電流範囲を示す。

2. Values

Output Voltage [V]	Input Volt. 9.0[V] Load Current [A]	Input Volt. 12.0[V] Load Current [A]	Input Volt. 18.0[V] Load Current [A]
5.00	0.44	0.48	0.42
4.75	0.45	0.48	0.41
4.50	0.46	0.49	0.42
4.00	0.46	0.49	0.40
3.50	0.46	0.49	0.39
3.00	0.47	0.47	0.38
2.50	0.47	0.47	0.37
2.00	0.46	0.46	0.35
1.50	0.46	0.44	0.34
1.00	0.46	0.43	0.33
0.50	0.45	0.43	0.33
0.00	0.50	0.55	0.44

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Model	ZTS1R51205		
Item	Dynamic Load Responce 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.3A		

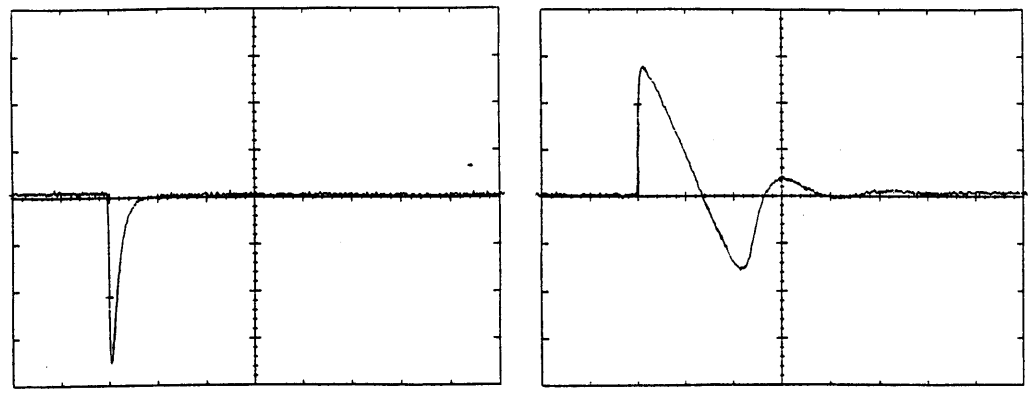
Input Volt. 12.0 V

Cycle 100 mS

Load Current

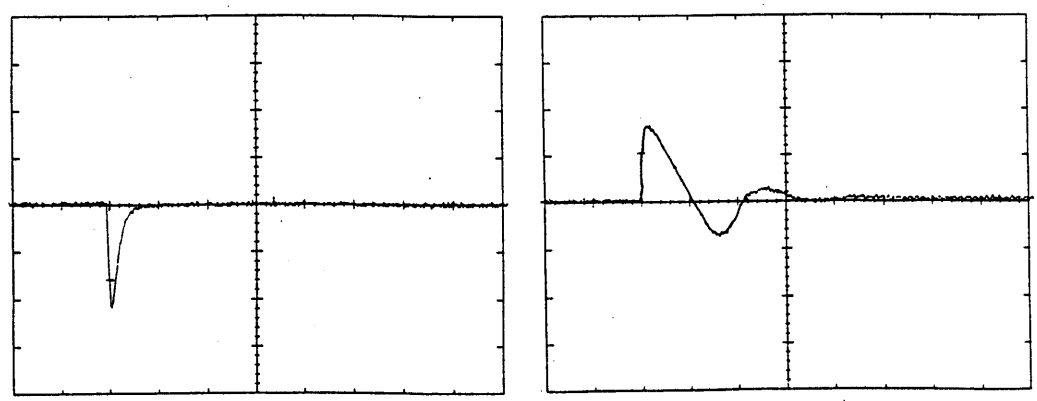
Min. Load ⟷
Load 100 %

100 mV/div



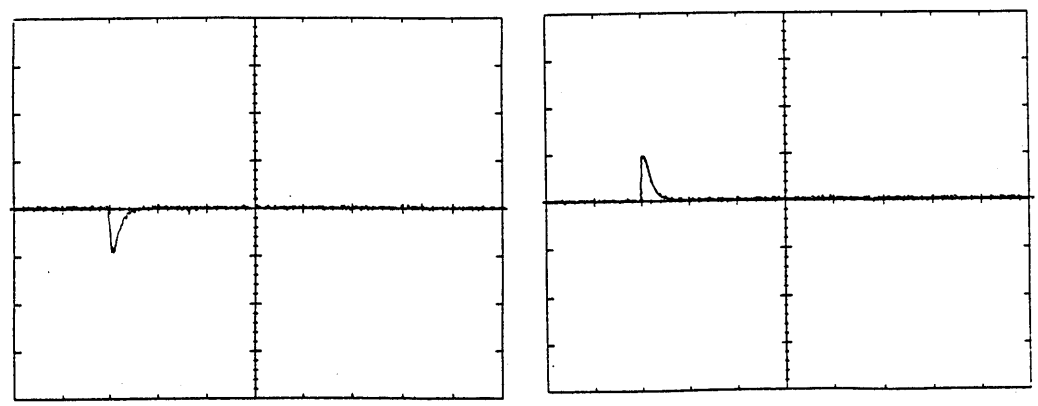
Min. Load ⟷
Load 50 %

100 mV/div



Load 50%⟷
Load 100 %

100 mV/div



1 mS/div

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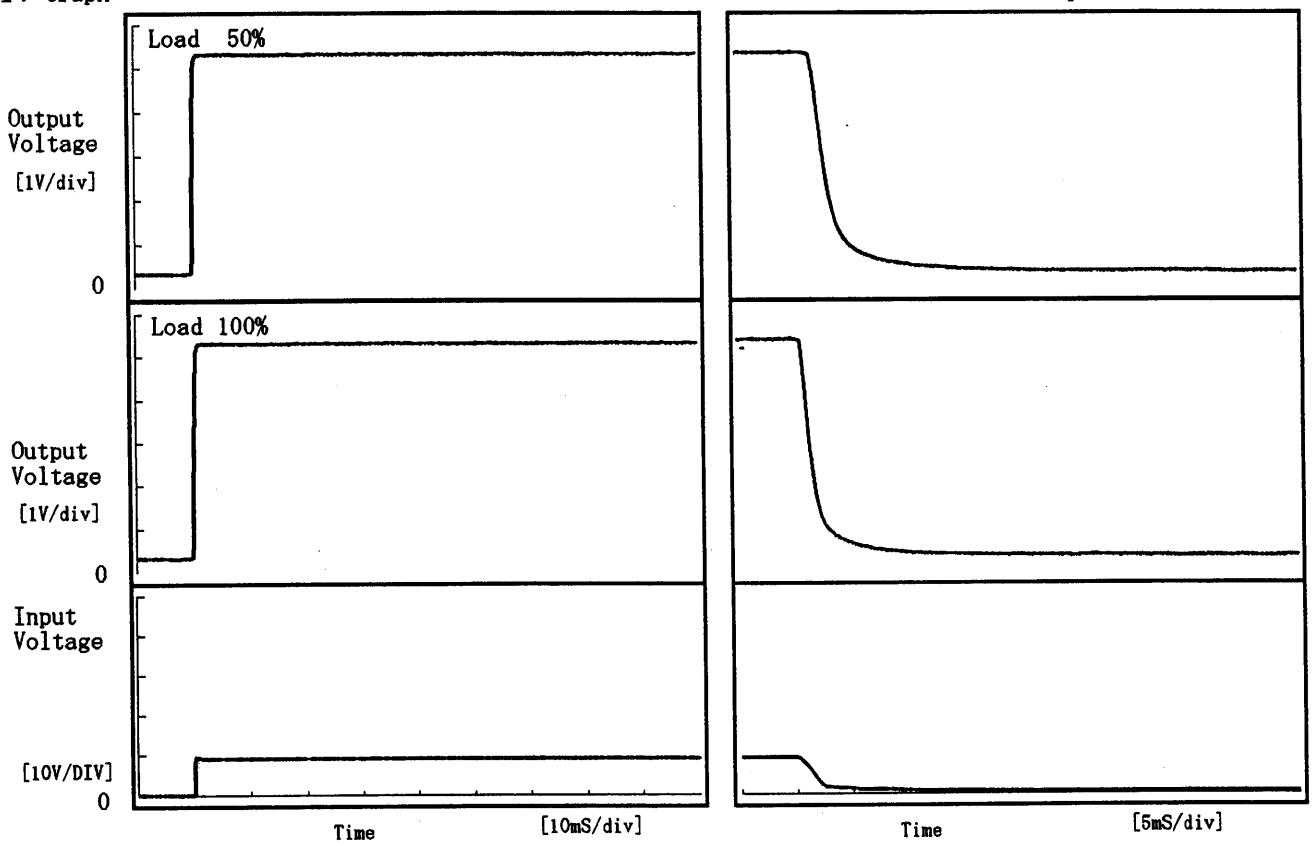
Model	ZTS1R51205		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+5V0.3A		

1. Graph

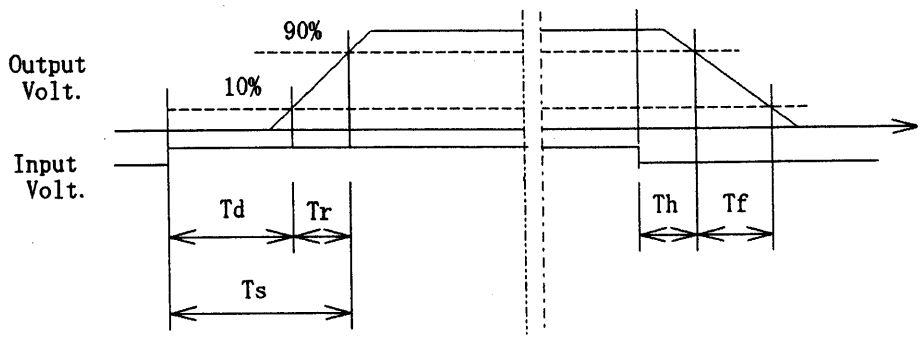
Input Volt. 9.0 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	0.05	0.40	0.45	1.85	4.25
100 %	0.10	0.40	0.50	0.75	3.25



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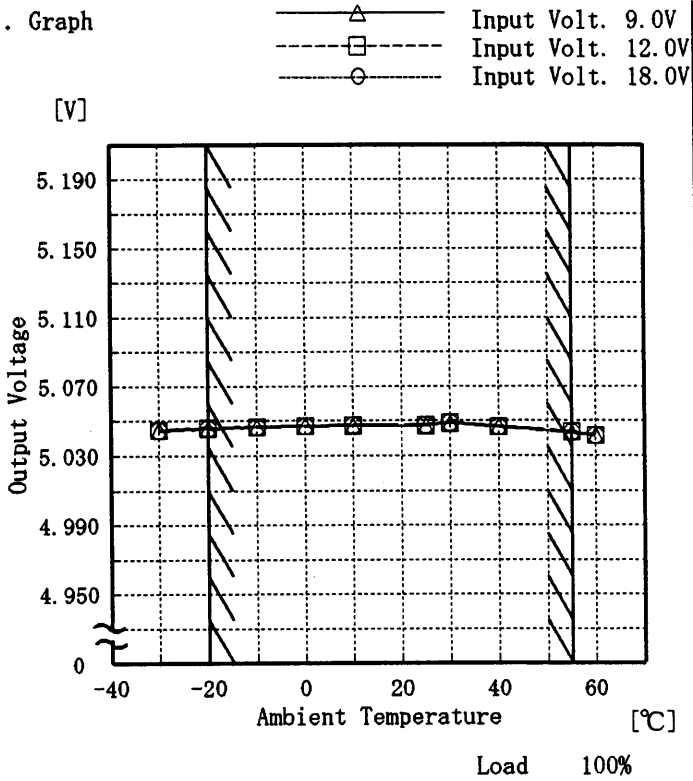
Model	ZTS1R51205
Item	Ambient Temperature Drift 周囲温度変動
Object	+5V0.3A

Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格周囲温度範囲を示す。

2. Values

Temperature [℃]	Input Volt. 9.0[V] Output Volt. [V]	Input Volt. 12.0[V] Output Volt. [V]	Input Volt. 18.0[V] Output Volt. [V]
-30	5.045	5.045	5.045
-20	5.046	5.046	5.046
-10	5.046	5.047	5.047
0	5.047	5.047	5.047
10	5.047	5.047	5.047
25	5.047	5.047	5.047
30	5.048	5.049	5.049
40	5.046	5.047	5.046
55	5.043	5.044	5.043
60	5.042	5.042	5.042
—	—	—	—

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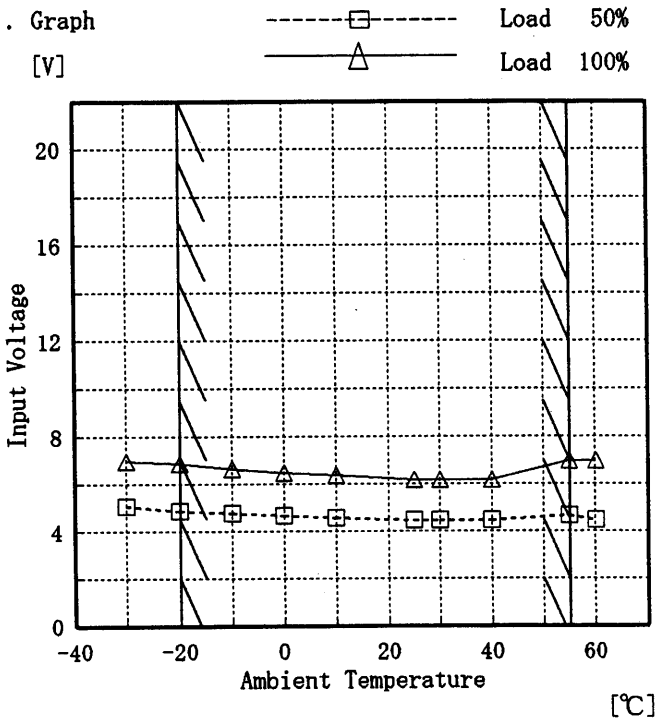
Model	ZTS1R51205
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5V0.3A

Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格周囲温度範囲を示す。

2. Values

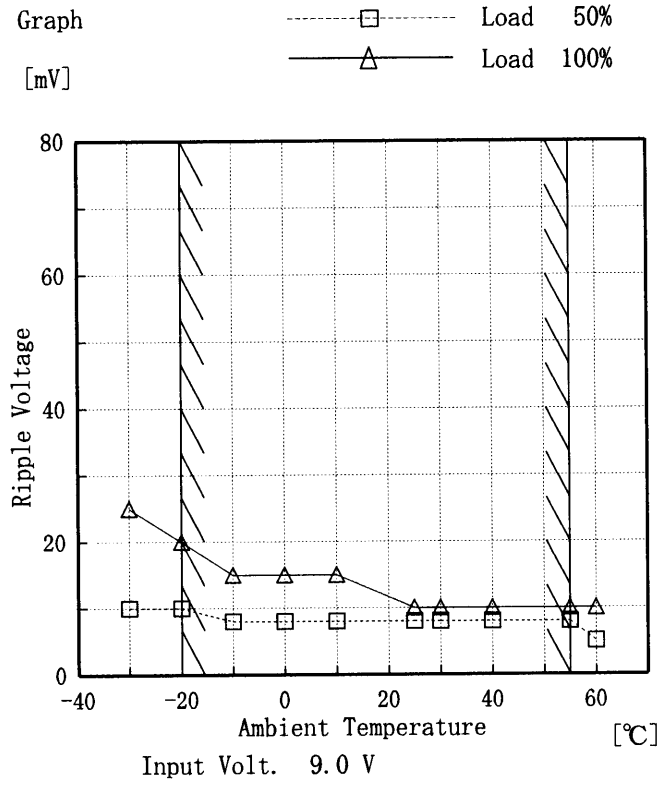
Ambient Temp. [℃]	Load 50% Input Volt. [V]	Load 100% Input Volt. [V]
-30	5.1	7.0
-20	4.9	6.9
-10	4.8	6.7
0	4.7	6.5
10	4.6	6.4
25	4.5	6.2
30	4.5	6.2
40	4.5	6.2
55	4.7	7.0
60	4.5	7.0
—	—	—

COSEL

Model	ZTS1R51205
Item	Ripple Voltage (by Ambient Temp.) リップル電圧（周囲温度特性）
Object	+5V0.3A

Testing Circuitry Figure A

1. Graph



Input Volt. 9.0 V

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

(注)斜線は定格周囲温度範囲を示す。

2. Values

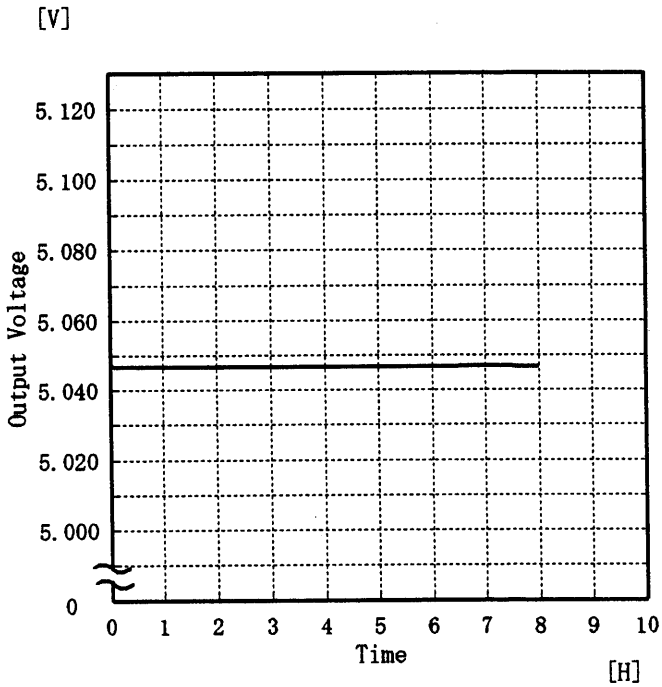
Ambient Temp. [℃]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]
-30	10	25
-20	10	20
-10	8	15
0	8	15
10	8	15
25	8	10
30	8	10
40	8	10
55	8	10
60	5	10
—	—	—

COSEL

Model	ZTS1R51205
Item	Time Lapse Drift 経時ドリフト
Object	+5V0.3A

Temperature 25 ℃
Testing Circuitry Figure A

1. Graph



Input Volt. 12V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	5.048
0.5	5.047
1.0	5.047
2.0	5.047
3.0	5.047
4.0	5.047
5.0	5.047
6.0	5.047
7.0	5.047
8.0	5.047

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Model	ZTS1R51205	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+5V0.3A	

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 : 0.0～0.3 A

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

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

定電圧精度

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

周囲温度 -20～55 ℃
入力電圧 9.0～18.0 V
負荷電流 0.0～0.3 A

* 定電圧精度(変動値) = ±(出力電圧の最高値−出力電圧の最低値)／2

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

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	25	18.0	0.0	5.053	±6	±0.2
Minimum Voltage	55	18.0	0.3	5.042		

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Model	ZTS1R51205
Item	Condensation 結露特性
Object	+5V0.3A

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.

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行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	5.043	Input Volt.: 12V, Load Current:0.3A
Line Regulation [mV]	1	Input Volt.: 9～18V, Load Current:0.3A
Load Regulation [mV]	5	Input Volt.: 12V, Load Current:0～0.3A

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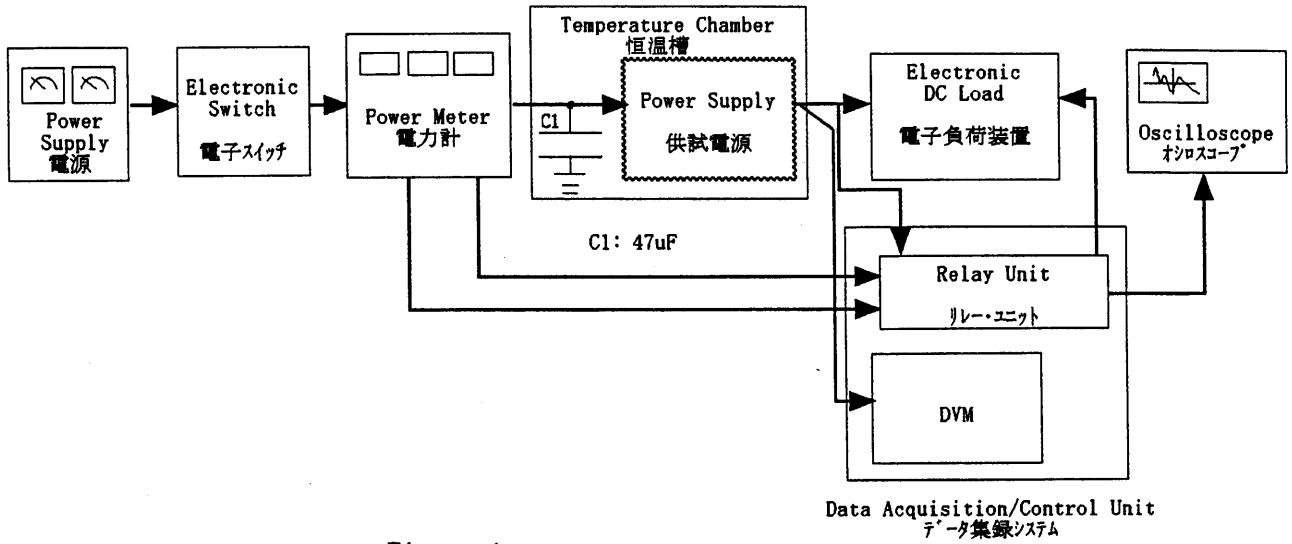

Figure A