参考資料

COSEL

TEST DATA OF CDS6004828

(48V INPUT)

Regulated DC Power Supply

July 4, 2001

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COSEL CO., LTD.

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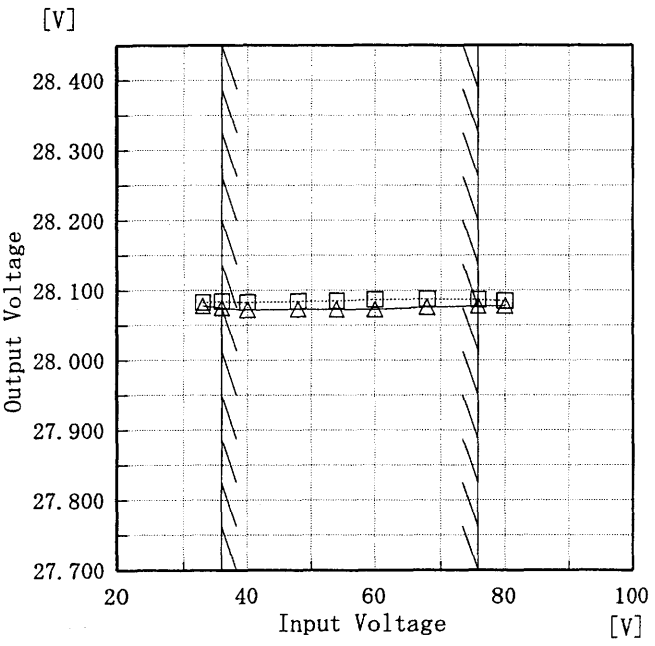


Note: Slanted line shows the range of the rated input voltage.

(注)斜線は定格入力電圧範囲を示す。

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	28.083	28.078
36	28.084	28.075
40	28.083	28.072
48	28.084	28.073
54	28.085	28.073
60	28.087	28.073
68	28.088	28.076
76	28.087	28.078
80	28.085	28.078

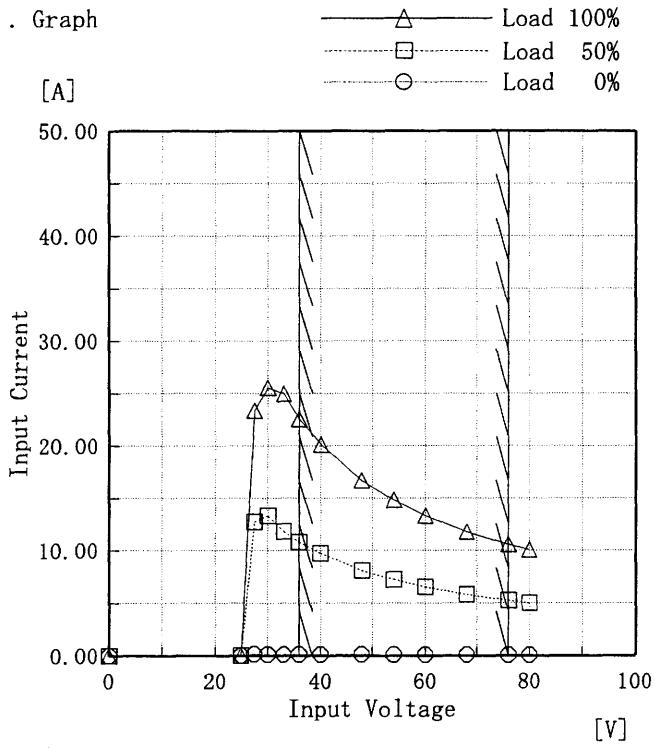
BC−3384

COSEL

Model	CDS6004828
Item	Input Current (by Input Voltage) 入力電流（入力電圧特性）
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

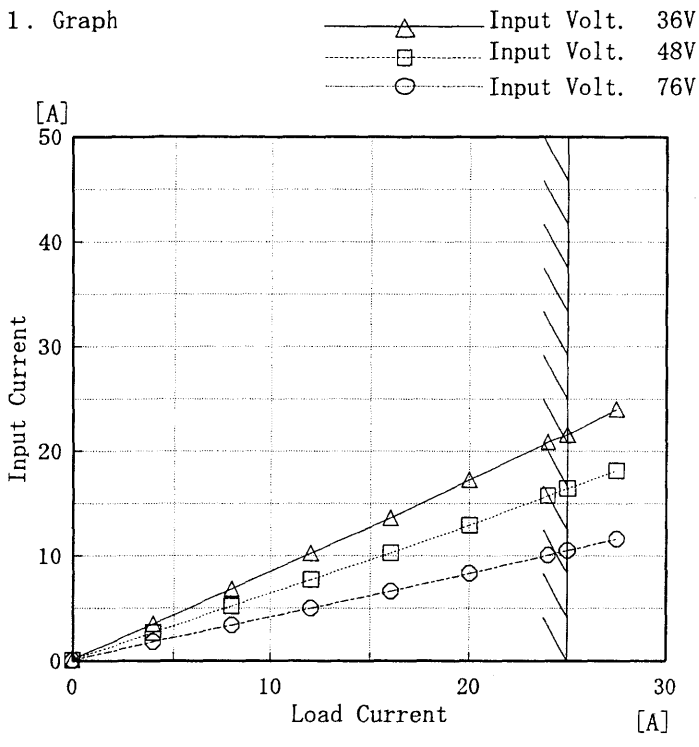
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
25.0	0.025	0.023	0.024
27.5	0.131	12.760	23.370
30.0	0.121	13.330	25.530
33.0	0.113	11.850	24.970
36.0	0.109	10.820	22.530
40.0	0.103	9.730	20.130
48.0	0.094	8.130	16.680
54.0	0.083	7.240	14.810
60.0	0.071	6.540	13.330
68.0	0.062	5.800	11.780
76.0	0.056	5.230	10.580
80.0	0.054	4.990	10.080
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6004828
Item	Input Current (by Load Current) 入力電流 (負荷特性)
Object	————

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

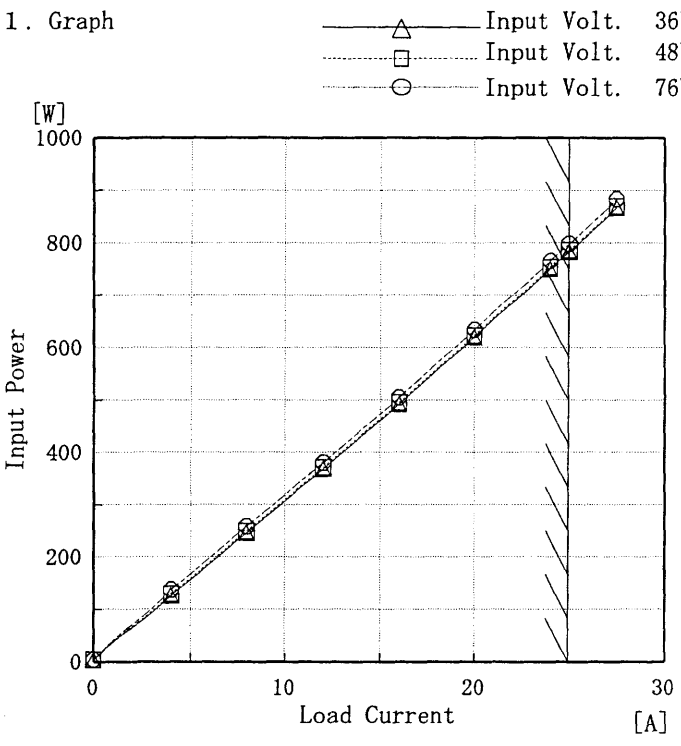
Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.107	0.088	0.054
4.0	3.523	2.698	1.805
8.0	6.860	5.220	3.398
12.0	10.250	7.750	5.010
16.0	13.630	10.290	6.650
20.0	17.280	12.940	8.360
24.0	20.900	15.760	10.080
25.0	21.600	16.460	10.520
27.5	24.010	18.160	11.640
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6004828
Item	Input Power (by Load Current) 入力電力 (負荷特性)
Object	————

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 Power [W] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	3.80	4.20	4.10
4.0	126.20	129.20	137.10
8.0	246.00	249.00	257.90
12.0	368.00	371.00	380.00
16.0	492.00	495.00	505.00
20.0	620.00	623.00	634.00
24.0	750.00	753.00	765.00
25.0	783.00	786.00	798.00
27.5	867.00	869.00	883.00
—	—	—	—
—	—	—	—
—	—	—	—

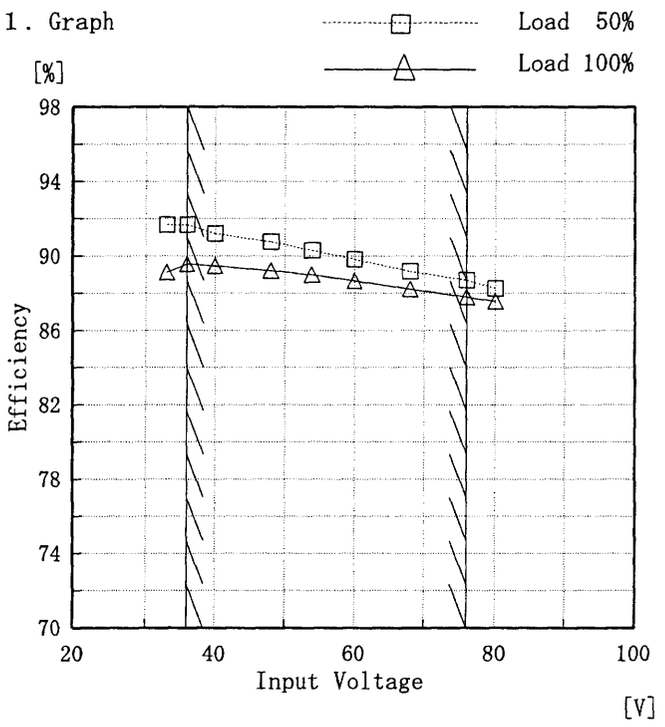
BC−3384

COSEL

Model	CDS6004828
Item	Efficiency (by Input Voltage) 効率（入力電圧特性）
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

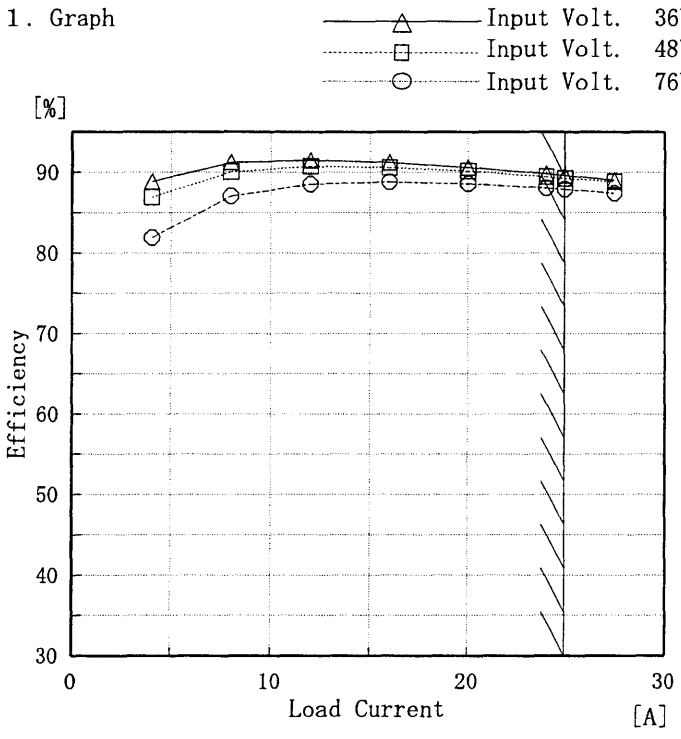
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	91.7	89.1
36	91.7	89.6
40	91.2	89.5
48	90.8	89.2
54	90.3	89.0
60	89.8	88.7
68	89.2	88.2
76	88.7	87.8
80	88.2	87.6

COSEL

Model	CDS6004828
Item	Efficiency (by Load Current) 効率 (負荷特性)
Object	————

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

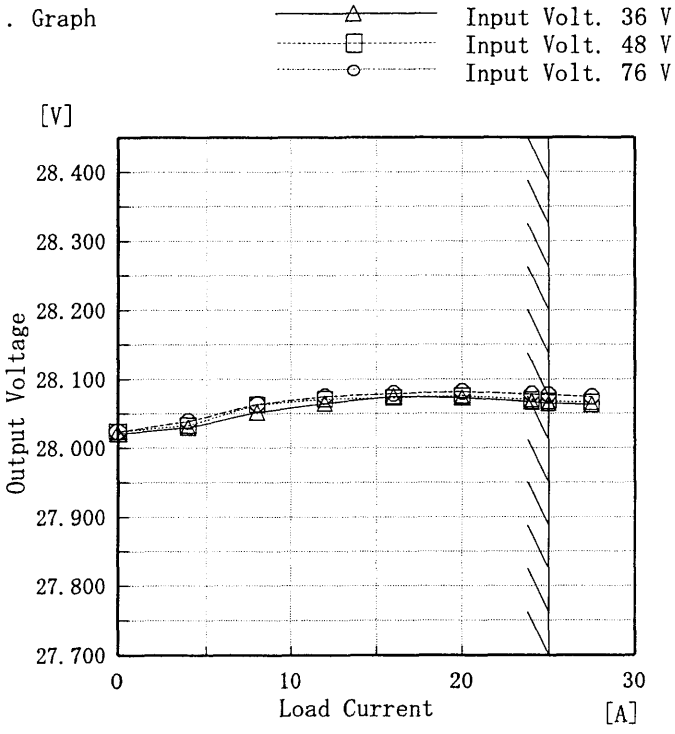
Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
4.0	88.9	86.9	81.9
8.0	91.3	90.1	87.0
12.0	91.5	90.8	88.5
16.0	91.3	90.6	88.8
20.0	90.6	90.2	88.6
24.0	89.8	89.5	88.1
25.0	89.6	89.3	87.9
27.5	89.0	88.8	87.4
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

COSEL

Model	CDS6004828
Item	Load Regulation 静的負荷変動
Object	+28.0V25A

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

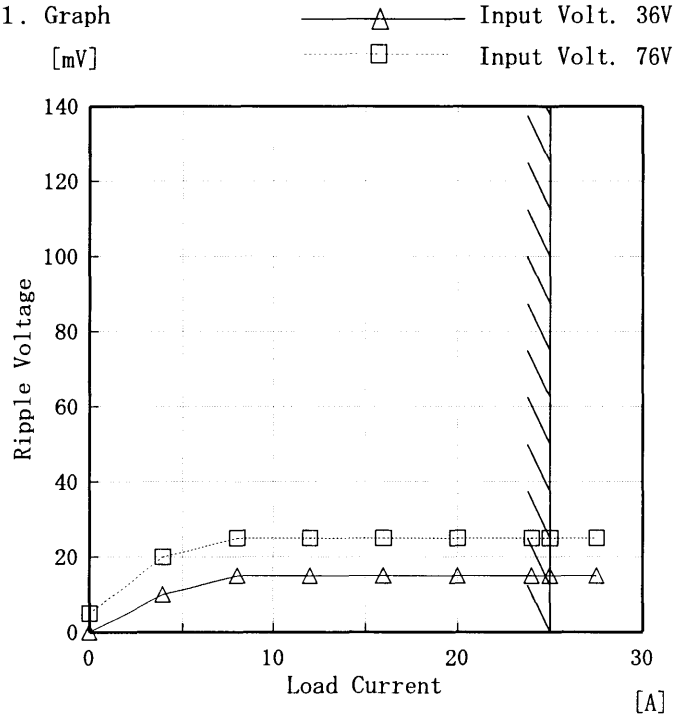
Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	28.021	28.024	28.024
4.0	28.030	28.033	28.039
8.0	28.052	28.063	28.064
12.0	28.065	28.071	28.075
16.0	28.075	28.073	28.079
20.0	28.073	28.076	28.082
24.0	28.067	28.070	28.078
25.0	28.065	28.068	28.077
27.5	28.063	28.066	28.074
—	—	—	—

COSEL

Model	CDS6004828
Item	Ripple Voltage(by Load Current) リップル電圧(負荷特性)
Object	+28.0V25A

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。

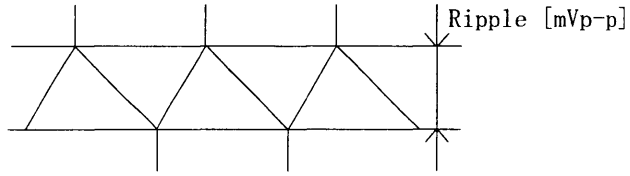


図　リップル波形図

2. Values

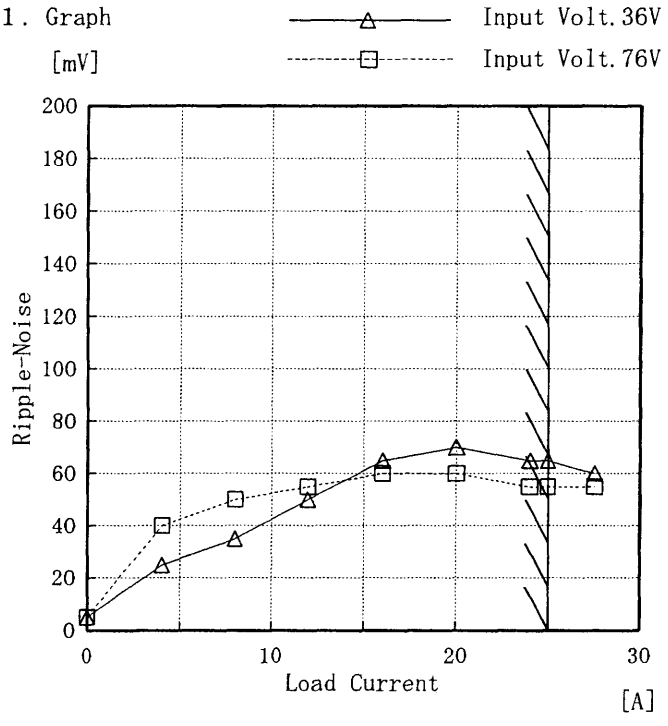
Load Current [A]	Ripple Output Volt. [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	0	5
4.0	10	20
8.0	15	25
12.0	15	25
16.0	15	25
20.0	15	25
24.0	15	25
25.0	15	25
27.5	15	25
—	—	—
—	—	—

COSEL

Model	CDS6004828
Item	Ripple-Noise　リップルノイズ
Object	+28.0V25A

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。

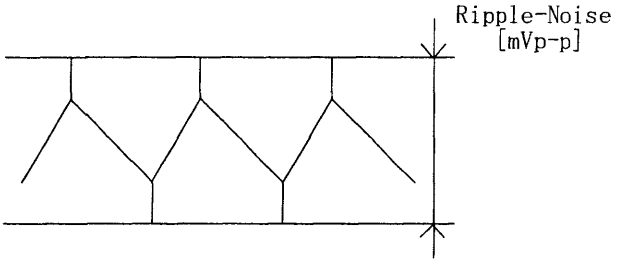


図　リップルノイズ波形図

2. Values

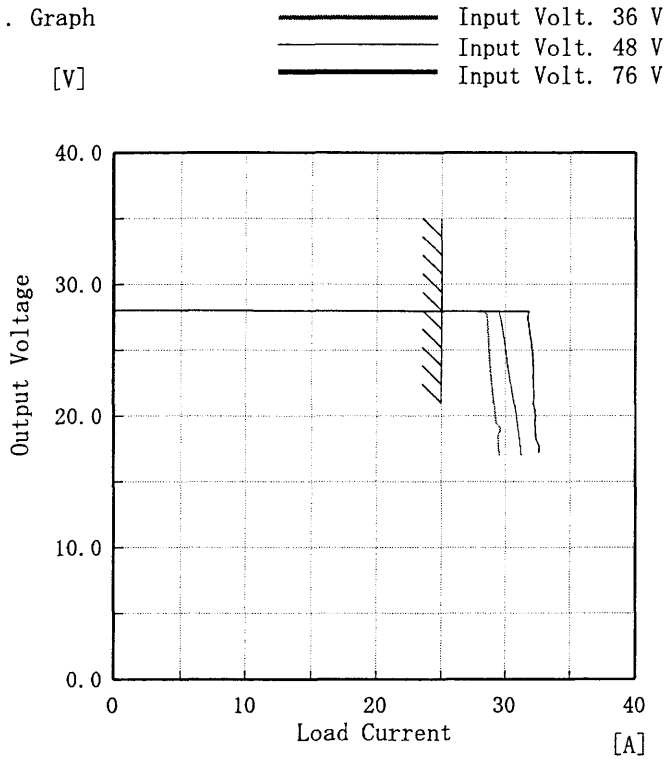
Load current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	5	5
4.0	25	40
8.0	35	50
12.0	50	55
16.0	65	60
20.0	70	60
24.0	65	55
25.0	65	55
27.5	60	55
—	—	—
—	—	—

COSEL

Model	CDS6004828
Item	Overcurrent Protection 過電流保護
Object	+28.0V25A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Note: Slanted line shows the range of the rated load current.
Intermittent operation occurs when the output voltage is from 16.8V to 0V.

(注)斜線は定格負荷電流範囲を示す。
16.8V～0V間は、間欠モードとなる。

2. Values

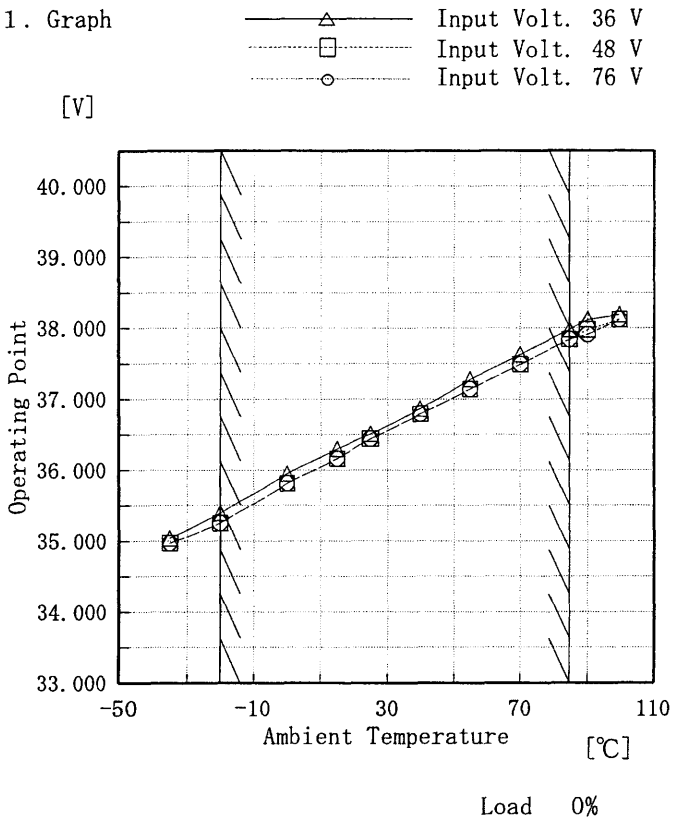
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
28.00	0.00	29.45	0.00
26.60	28.64	29.75	31.81
25.20	28.72	29.97	32.02
22.40	28.97	30.41	32.18
19.60	29.27	30.89	32.29
16.80	29.59	31.27	32.58
14.00	—	—	—
11.20	—	—	—
8.40	—	—	—
5.60	—	—	—
2.80	—	—	—
0.00	—	—	—

COSEL

Model	CDS6004828
Item	Overvoltage Protection 過電圧保護
Object	+28.0V25A

Testing Circuitry Figure A

1. Graph



Load 0%

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 Temperature [℃]	Operating Point [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-35	35.04	34.97	34.97
-20	35.39	35.25	35.25
0	35.95	35.81	35.81
15	36.30	36.16	36.16
25	36.51	36.44	36.44
40	36.86	36.79	36.79
55	37.28	37.14	37.14
70	37.63	37.49	37.49
85	37.98	37.84	37.84
90	38.12	37.98	37.91
100	38.19	38.12	38.12

COSEL

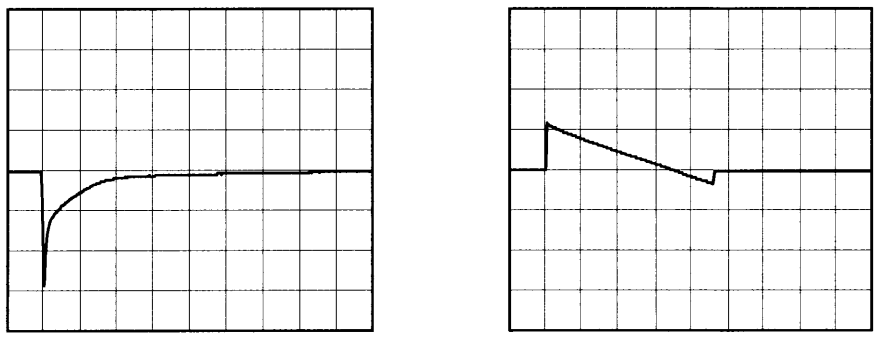
Model	CDS6004828		
Item	Dynamic Load Response 動的負荷変動	Temperature Testing Circuitry	25℃ Figure A
Object	+28.0V25A		

Input Volt. 48 V

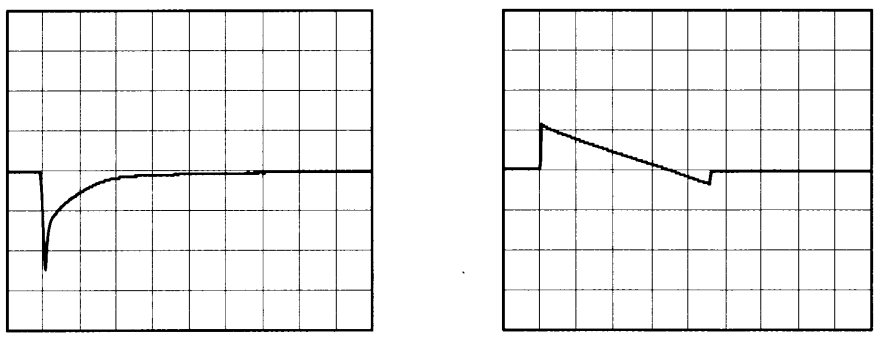
Cycle 1000 ms

Load Current

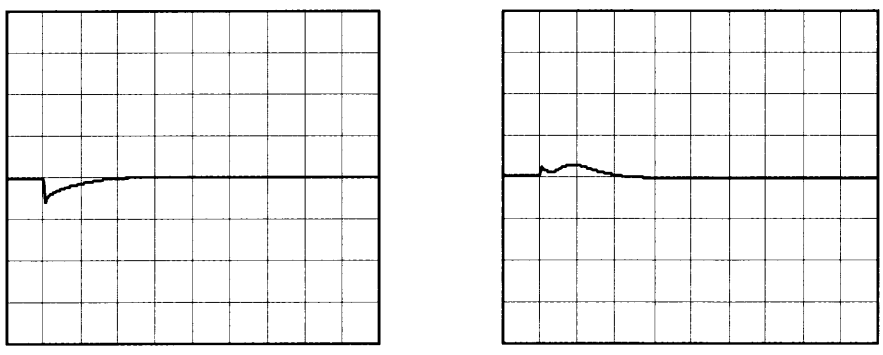
Min. Load (0A) ⟷
Load 100% (25A)



Min. Load (0A) ⟷
Load 50% (12.5A)



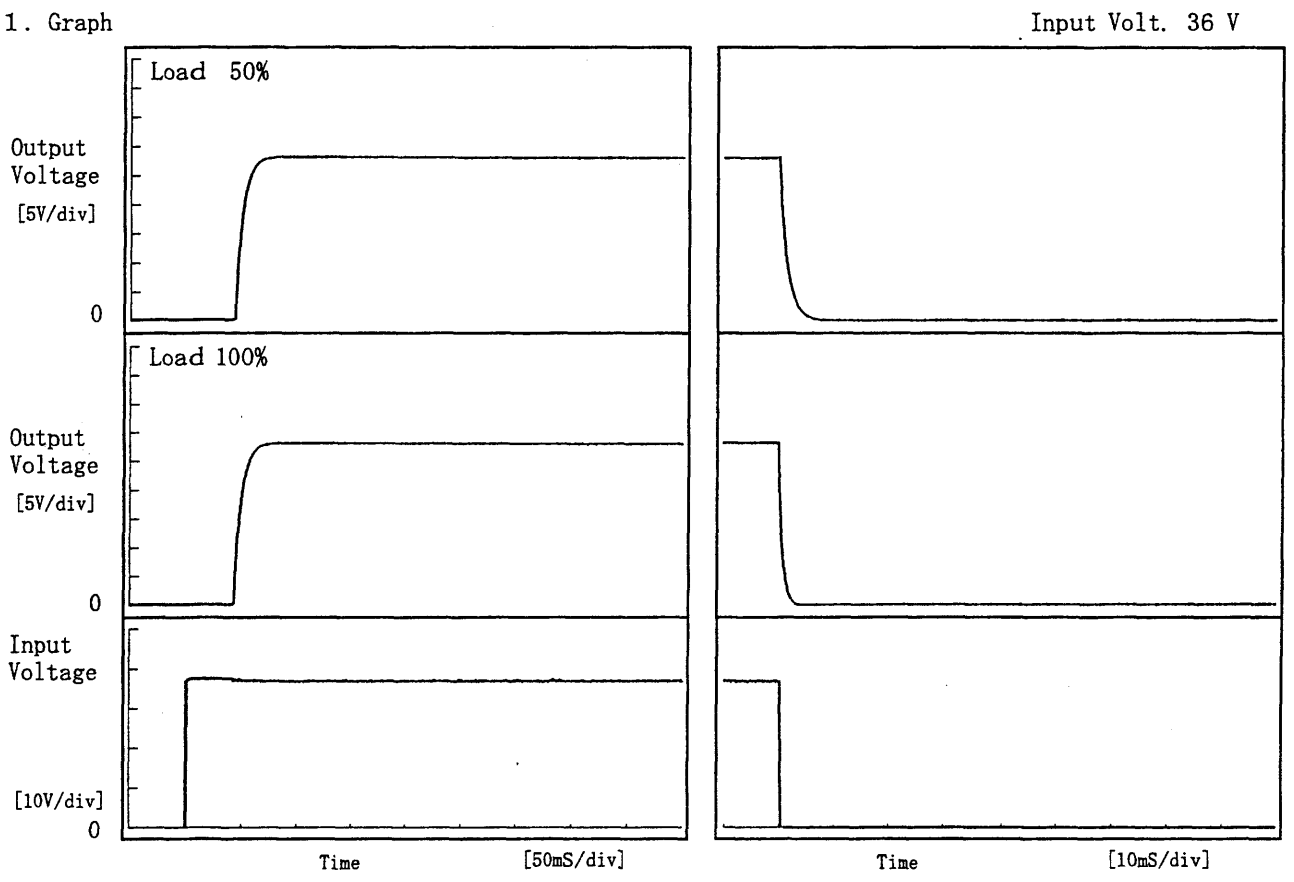
Load 10% (2.5A) ⟷
Load 100% (25A)



COSEL

Model	CDS6004828		
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25℃ Figure A
Object	+28.0V25A		

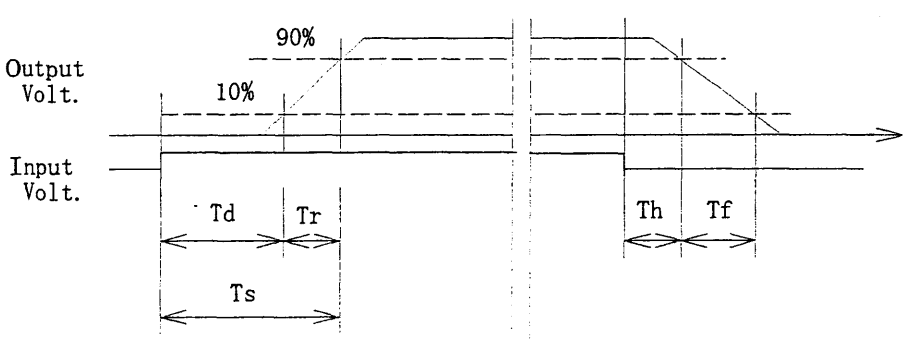
1. Graph



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	42.75	13.75	56.50	0.25	3.10
100 %	42.75	13.50	56.25	0.20	1.55

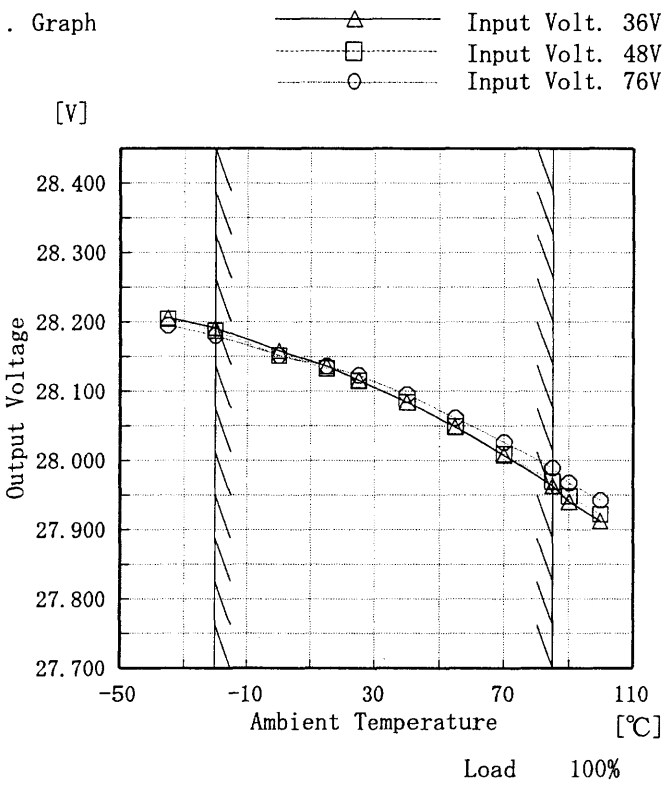


COSEL

Model	CDS6004828
Item	Ambient Temperature Drift 周囲温度変動
Object	+28.0V25A

Testing Circuitry Figure A

1. Graph



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

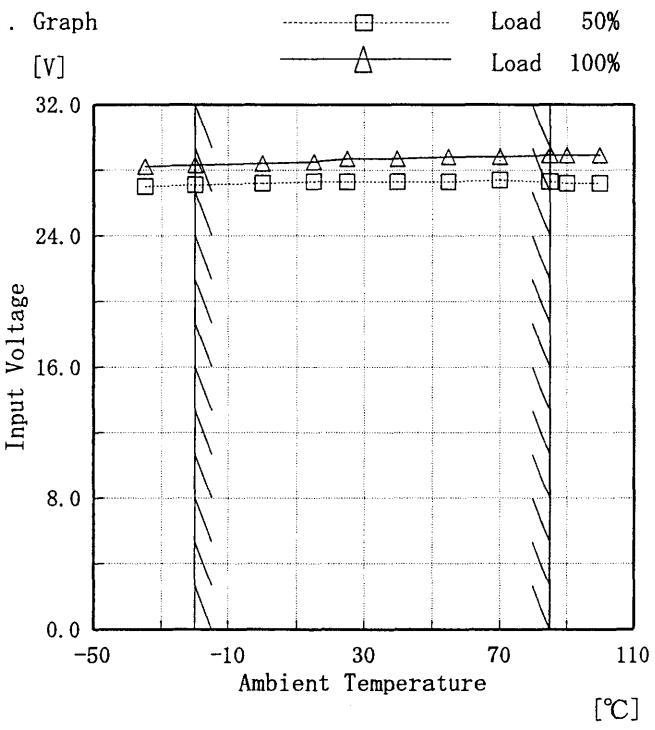
Ambient Temperature [℃]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-35	28.206	28.204	28.195
-20	28.191	28.187	28.180
0	28.158	28.151	28.151
15	28.136	28.133	28.136
25	28.116	28.115	28.123
40	28.084	28.084	28.095
55	28.048	28.049	28.061
70	28.007	28.009	28.026
85	27.963	27.969	27.989
90	27.940	27.948	27.967
100	27.912	27.922	27.942

COSEL

Model	CDS6004828
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+28.0V25A

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

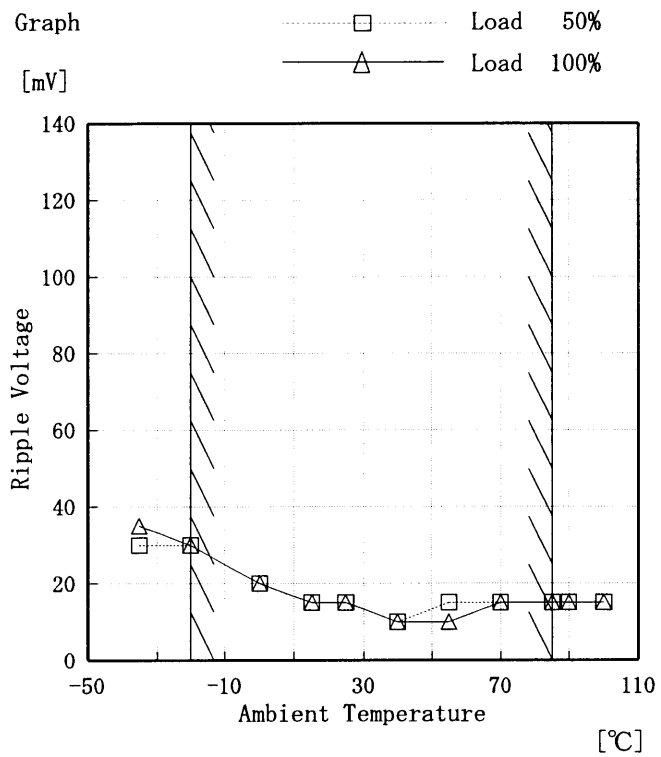
Ambient Temperature [℃]	Input Voltage [V]	
	Load 50%	Load 100%
-35	27.0	28.2
-20	27.1	28.3
0	27.2	28.4
15	27.3	28.5
25	27.3	28.7
40	27.3	28.7
55	27.3	28.8
70	27.4	28.8
85	27.3	28.9
90	27.2	28.9
100	27.2	28.9

COSEL

Model	CDS6004828
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+28.0V25A

Testing Circuitry Figure A

1. Graph



Input Volt. 48 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

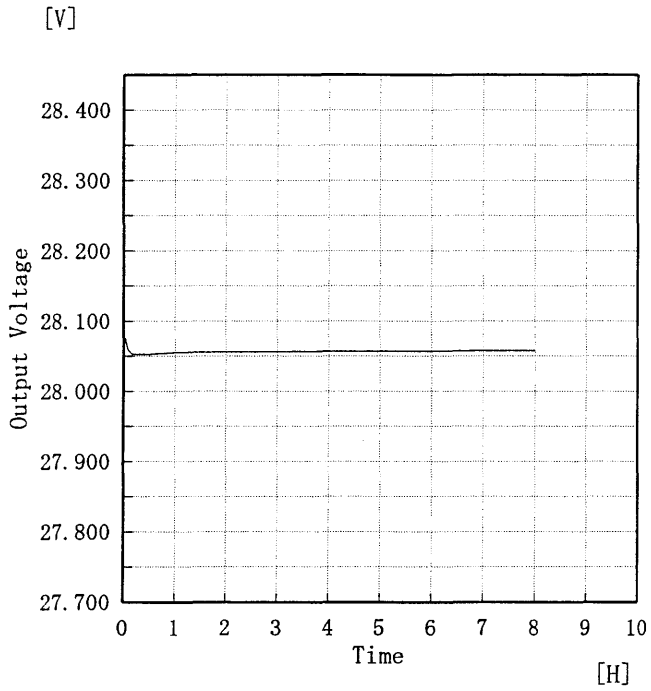
Ambient Temp. [℃]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-35	30	35
-20	30	30
0	20	20
15	15	15
25	15	15
40	10	10
55	15	10
70	15	15
85	15	15
90	15	15
100	15	15

COSEL

Model	CDS6004828
Item	Time Lapse Drift 経時ドリフト
Object	+28.0V25A

Temperature 25℃
Testing Circuitry Figure A

1. Graph



Input Volt. 48V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	28.110
0.5	28.053
1.0	28.055
2.0	28.056
3.0	28.056
4.0	28.057
5.0	28.057
6.0	28.057
7.0	28.058
8.0	28.058

COSEL

Model	CDS6004828	
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry Figure A
Object	+28.0V25A	

1. 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 : -20～85 ℃
Input Voltage : 36～ 76 V
Load Current : 0～25 A

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

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

1. 定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、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 -20～85 ℃
入力電圧 36～ 76 V
負荷電流 0～25 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

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

2. Values

Item	Temperature [℃]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy (Ration) [%]
Maximum Voltage	-20	36	25	28.189	±135	±0.5
Minimum Voltage	85	36	0	27.921		

COSEL

Model	CDS6004828	
Item	Condensation 結露特性	Testing Circuitry Figure A
Object	+28.0V25A	

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]	28.073	Input Volt.: 48V, Load Current:25A
Line Regulation [mV]	6	Input Volt.: 36～76V, Load Current:25A
Load Regulation [mV]	58	Input Volt.: 48V, Load Current:0～25A

COSEL

Model	CDS6004828		
Item	Line Noise Tolerance 入力雑音耐量	Temperature Testing Circuitry	25℃ Figure B
Object	+28.0V25A		

1. Results

Pulse Width [nS]	MODE	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

Conditions

Input Voltage :48 V
Pulse Voltage :±2000 V
Pulse Cycle :10 mS
Pulse Input Duration :1 min. or more
Load :100 %

COSEL

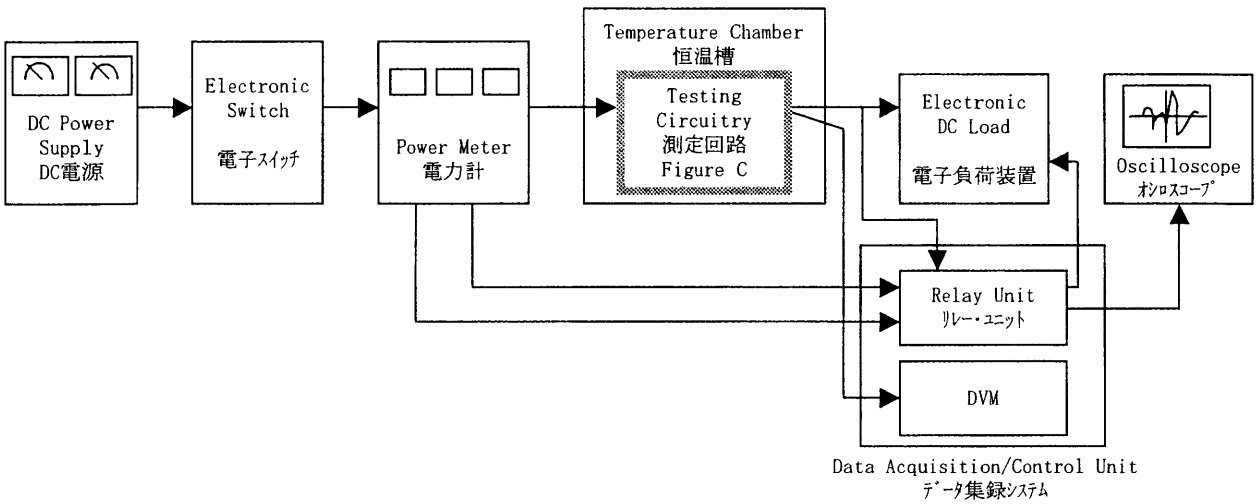


Figure A

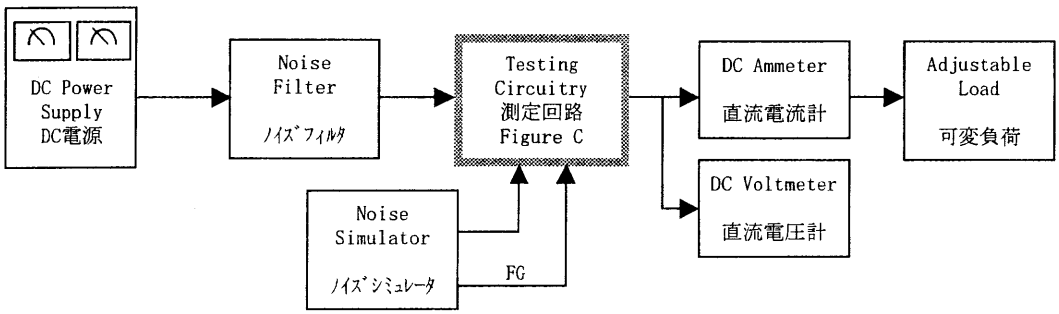


Figure B

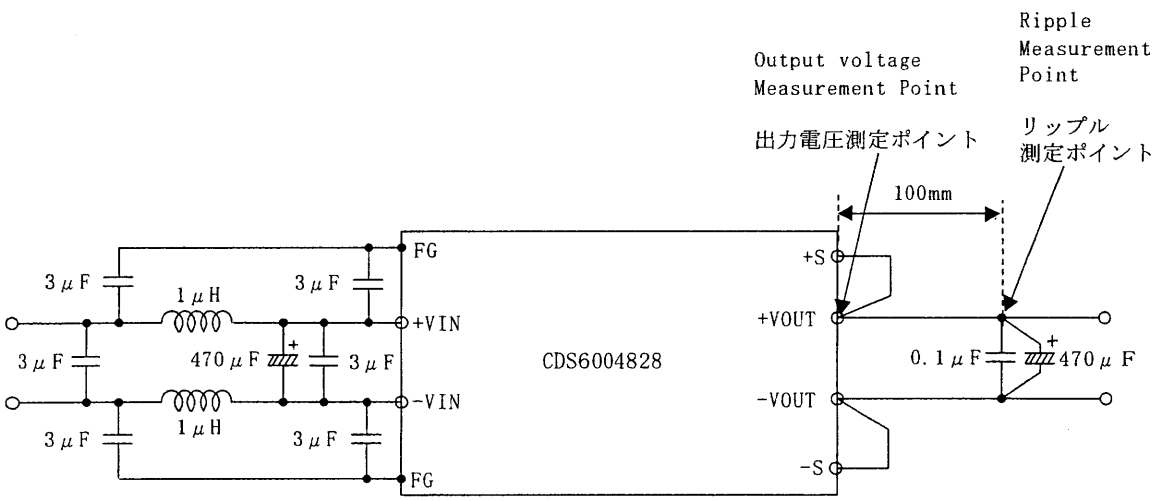


Figure C (General Electric Characteristic)
一般電気特性