参考資料

COSEL

TEST DATA OF CES48033-30P

Regulated DC Power Supply
Nov 13, 2008

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COSEL CO.,LTD.

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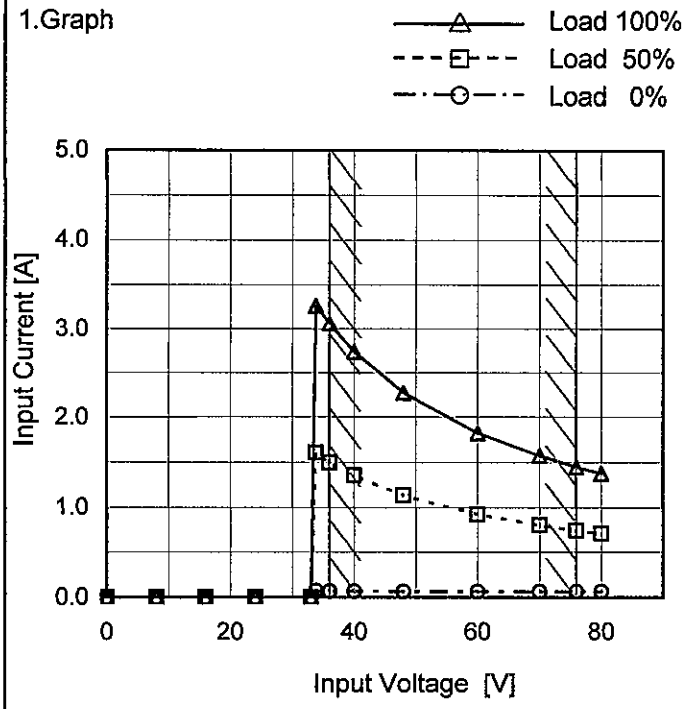
COSEL

Model	CES48033-30P
Item	Input Current (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
16.0	0.000	0.000	0.000
24.0	0.000	0.000	0.000
33.0	0.000	0.000	0.000
33.8	0.076	1.604	3.262
36.0	0.070	1.497	3.061
40.0	0.067	1.354	2.738
48.0	0.066	1.135	2.278
60.0	0.065	0.918	1.823
70.0	0.064	0.797	1.572
76.0	0.064	0.737	1.447
80.0	0.064	0.704	1.374
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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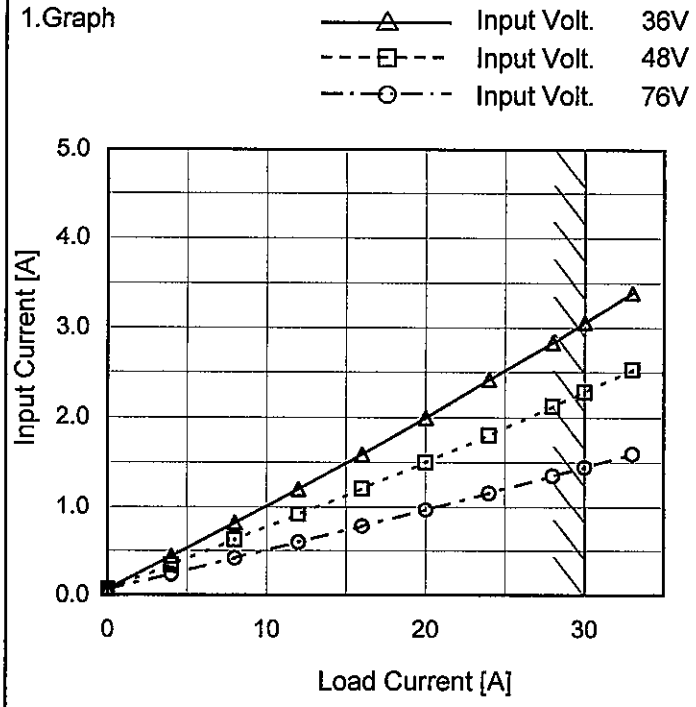
COSEL

Model	CES48033-30P
Item	Input Current (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.068	0.063	0.063
4	0.437	0.341	0.238
8	0.814	0.624	0.416
12	1.201	0.912	0.596
16	1.593	1.204	0.780
20	1.996	1.501	0.966
24	2.412	1.807	1.156
28	2.832	2.122	1.350
30	3.056	2.278	1.449
33	3.388	2.529	1.599
--	-	-	-

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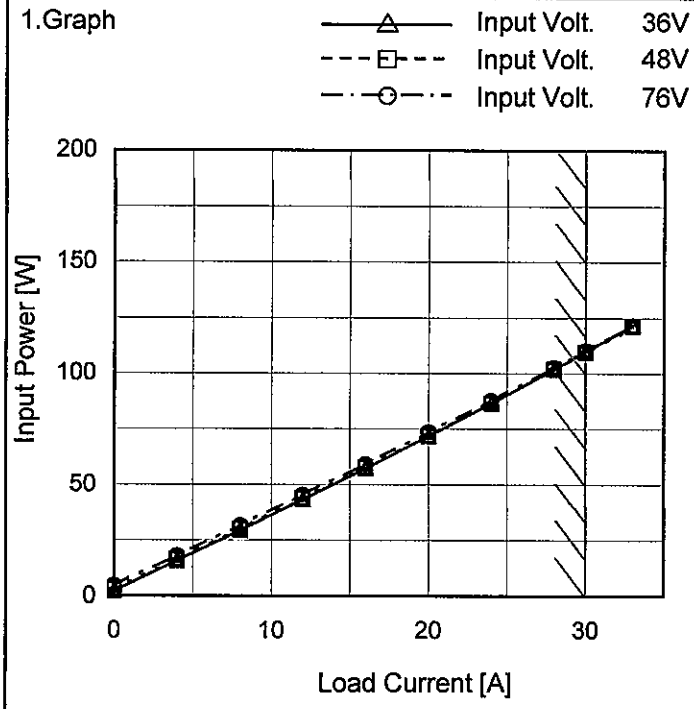
COSEL

Model	CES48033-30P
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	2.5	3.1	4.8
4	15.8	16.4	18.1
8	29.4	30.0	31.7
12	43.2	43.8	45.5
16	57.3	57.9	59.3
20	71.9	72.0	73.7
24	86.6	86.6	88.0
28	101.8	101.8	102.8
30	109.7	109.4	110.3
33	121.9	121.1	121.7
--	-	-	-

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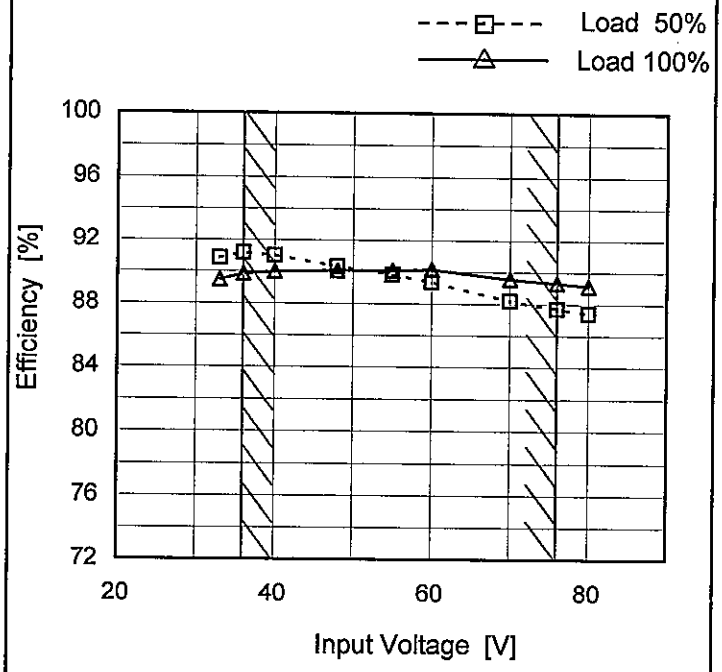
COSEL

Model	CES48033-30P
Item	Efficiency (by Input Voltage)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	90.8	89.5
36	91.2	89.8
40	91.0	90.0
48	90.3	90.1
55	89.8	90.1
60	89.4	90.1
70	88.2	89.6
76	87.7	89.3
80	87.4	89.1

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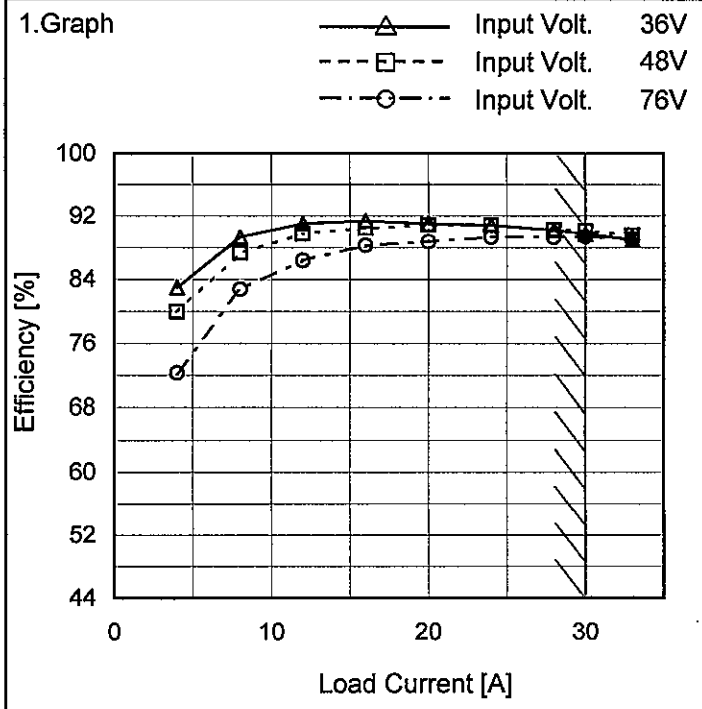
Model	CES48033-30P
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-
4	83.0	80.0	72.3
8	89.3	87.3	82.8
12	91.0	89.8	86.4
16	91.4	90.4	88.3
20	91.0	90.8	88.7
24	90.8	90.8	89.3
28	90.2	90.2	89.3
30	89.7	90.1	89.4
33	89.0	89.6	89.1
--	-	-	-

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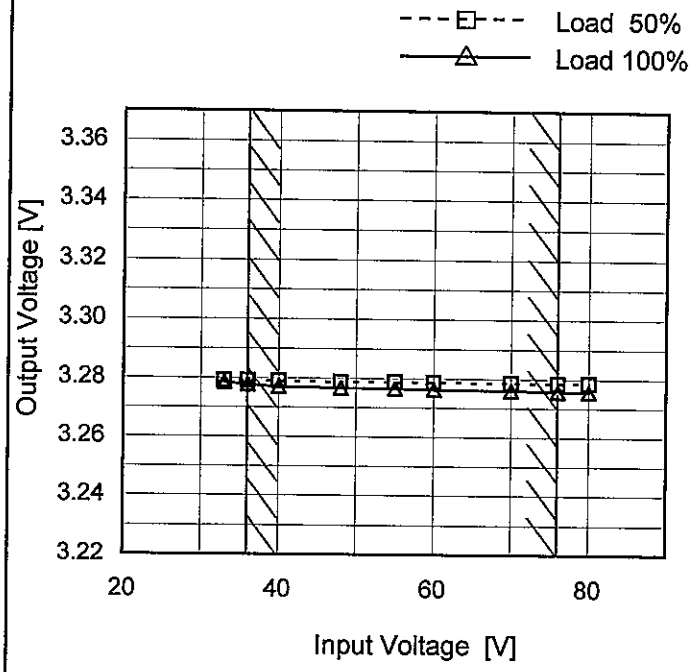
Model	CES48033-30P
Item	Line Regulation
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

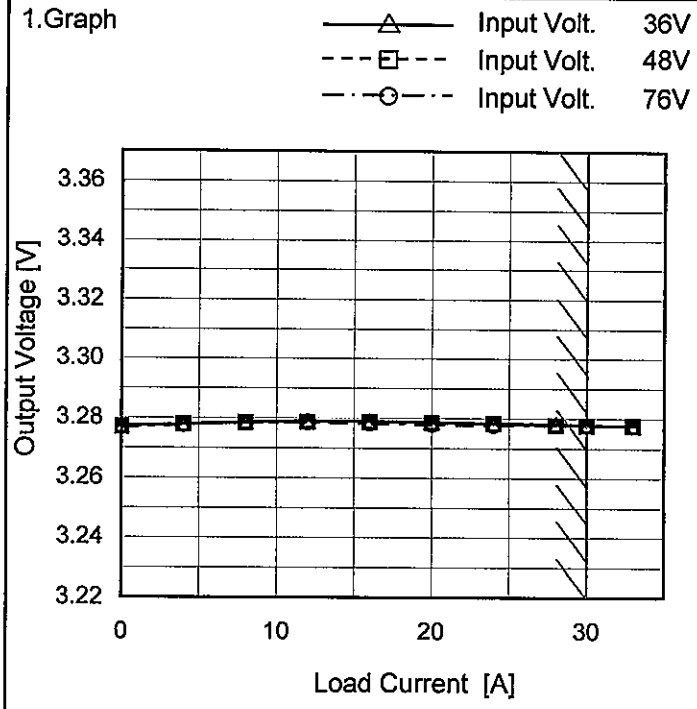
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	3.279	3.278
36	3.279	3.278
40	3.279	3.277
48	3.279	3.277
55	3.279	3.276
60	3.279	3.276
70	3.279	3.276
76	3.278	3.276
80	3.278	3.276

COSEL

Model	CES48033-30P
Item	Load Regulation
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	3.277	3.277	3.277
4	3.278	3.278	3.278
8	3.279	3.278	3.278
12	3.279	3.279	3.278
16	3.279	3.279	3.278
20	3.279	3.279	3.278
24	3.278	3.278	3.278
28	3.278	3.278	3.278
30	3.278	3.278	3.278
33	3.278	3.278	3.278
--	-	-	-

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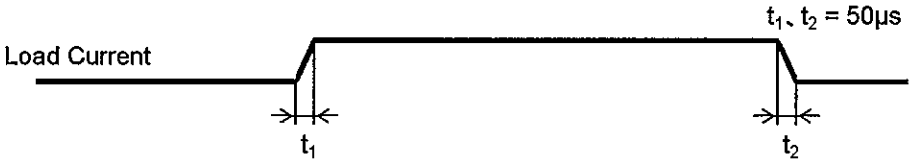
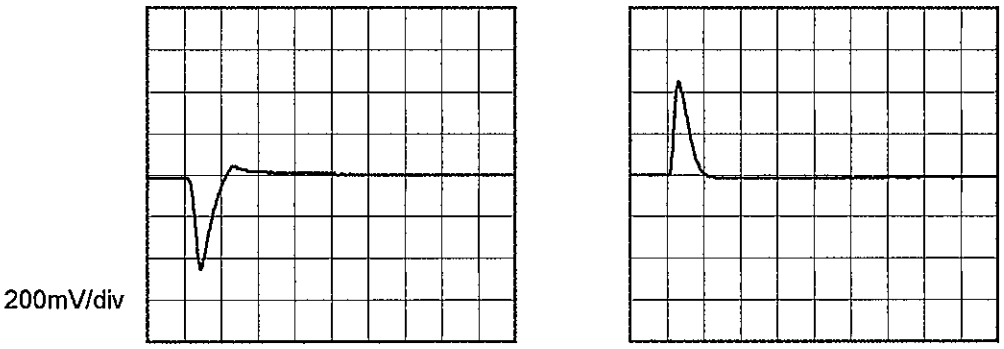
Model	CES48033-30P
Item	Dynamic Load Response
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure A

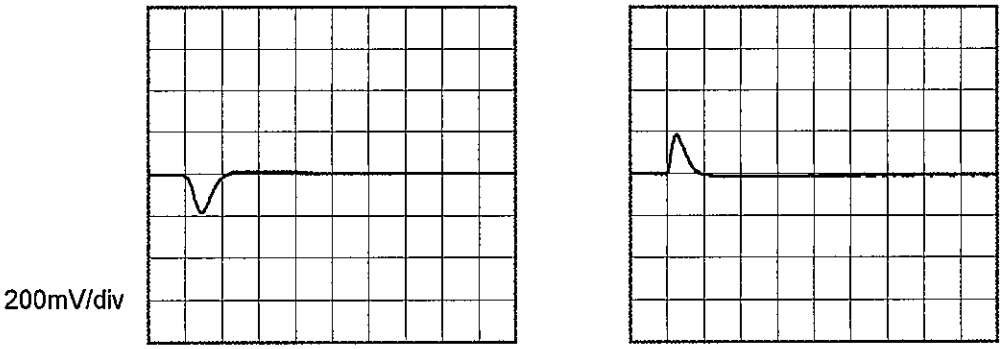
Input Volt. 48 V
Cycle 5 mS



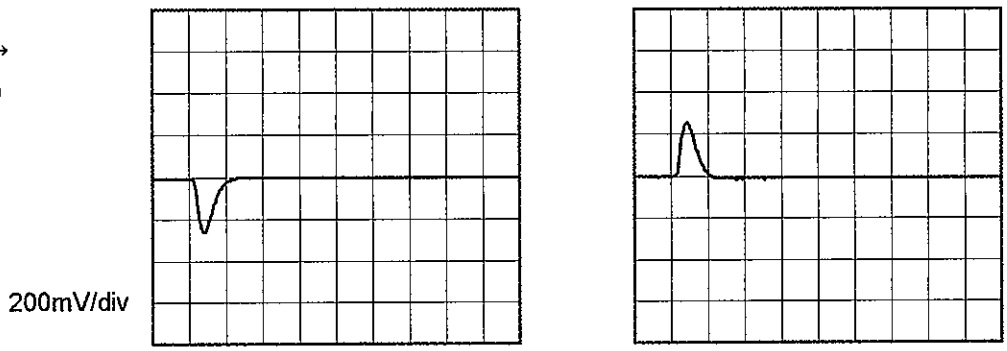
Min. Load (0A) ⟷
Load 100% (30A)



Min. Load (0A) ⟷
Load 50% (15A)



Load 50% (15A) ⟷
Load 100% (30A)

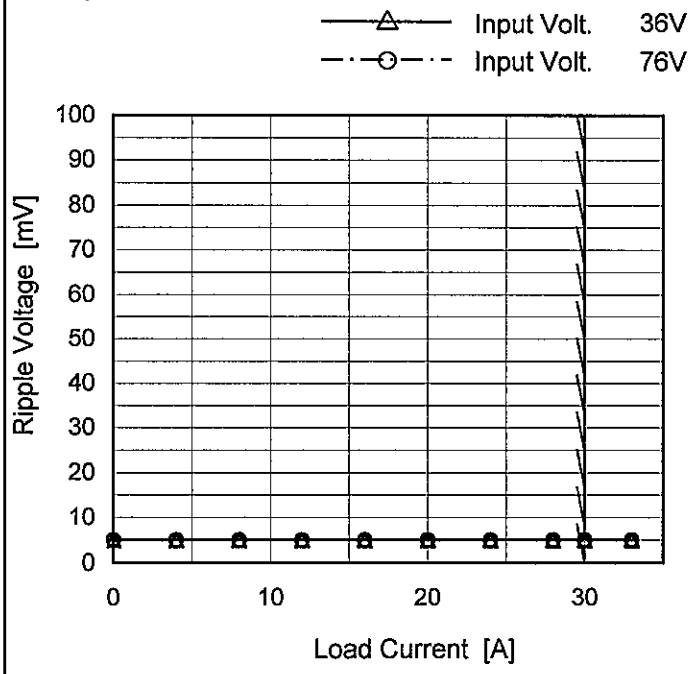


COSEL

Model	CES48033-30P
Item	Ripple Voltage (by Load Current)
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

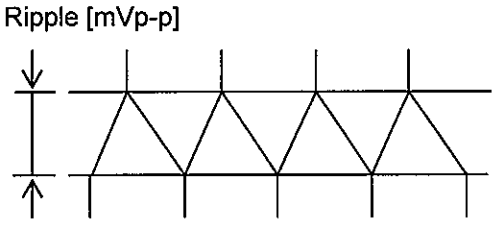


Fig.Complex Ripple Wave Form

2.Values

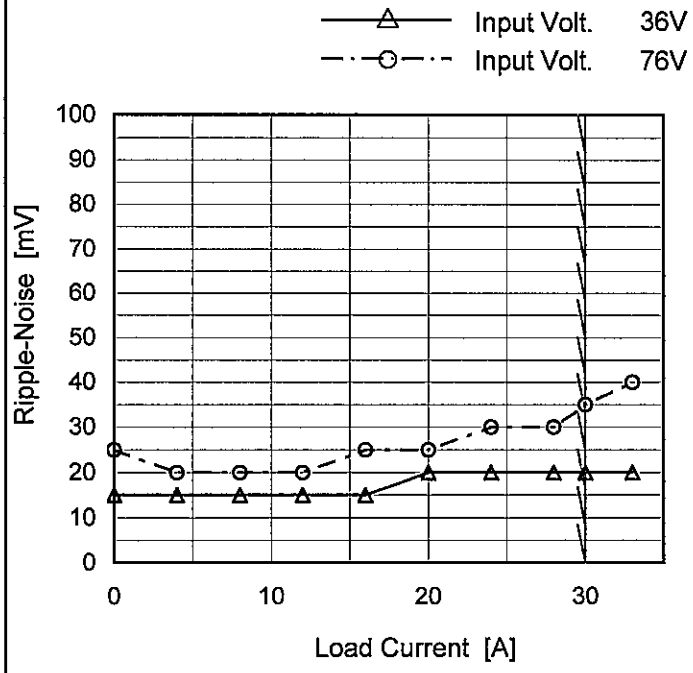
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	5	5
4	5	5
8	5	5
12	5	5
16	5	5
20	5	5
24	5	5
28	5	5
30	5	5
33	5	5
--	-	-

COSEL

Model	CES48033-30P
Item	Ripple-Noise
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 100 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

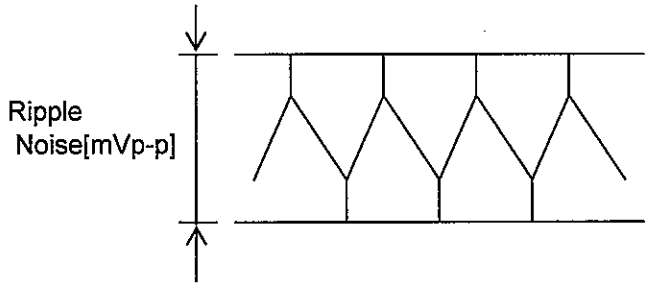


Fig.Complex Ripple Noise Wave Form

2.Values

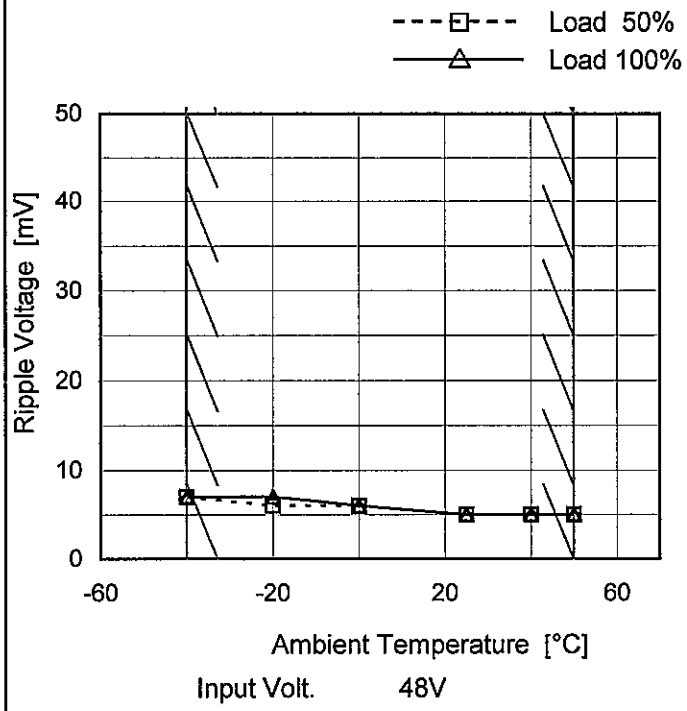
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	15	25
4	15	20
8	15	20
12	15	20
16	15	25
20	20	25
24	20	30
28	20	30
30	20	35
33	20	40
--	-	-

COSEL

Model	CES48033-30P
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V30A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	7	7
-20	6	7
0	6	6
25	5	5
40	5	5
50	5	5
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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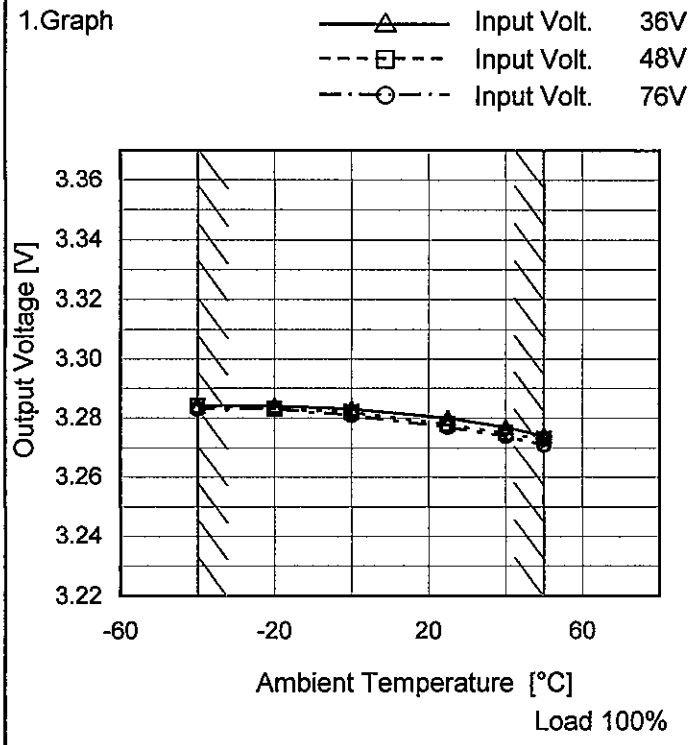
COSEL

Model	CES48033-30P
Item	Ambient Temperature Drift
Object	+3.3V30A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	3.284	3.284	3.283
-20	3.284	3.283	3.283
0	3.283	3.282	3.281
25	3.280	3.278	3.277
40	3.277	3.275	3.274
50	3.274	3.273	3.271
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CES48033-30P	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+3.3V30A	

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 : -40 - 50°C
Input Voltage : 36 - 76V
Load Current : 0 - 30A

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

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

2.Values

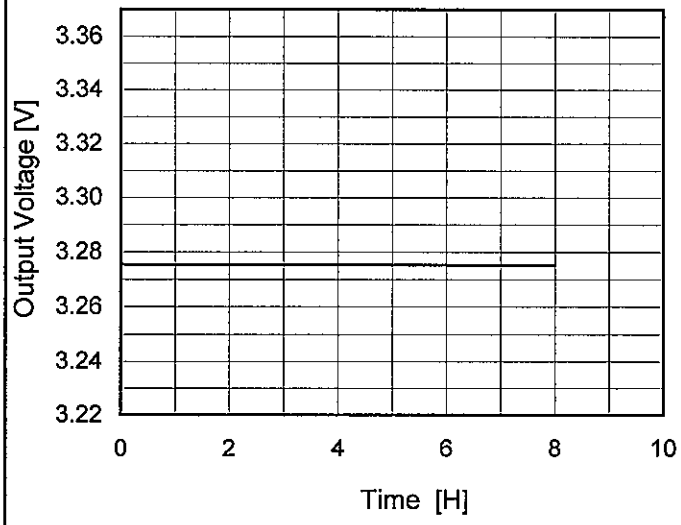
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	36	0	3.285	±7	±0.2
Minimum Voltage	50	76	30	3.271		

COSEL

Model	CES48033-30P
Item	Time Lapse Drift
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 48V
Load 100%

2.Values

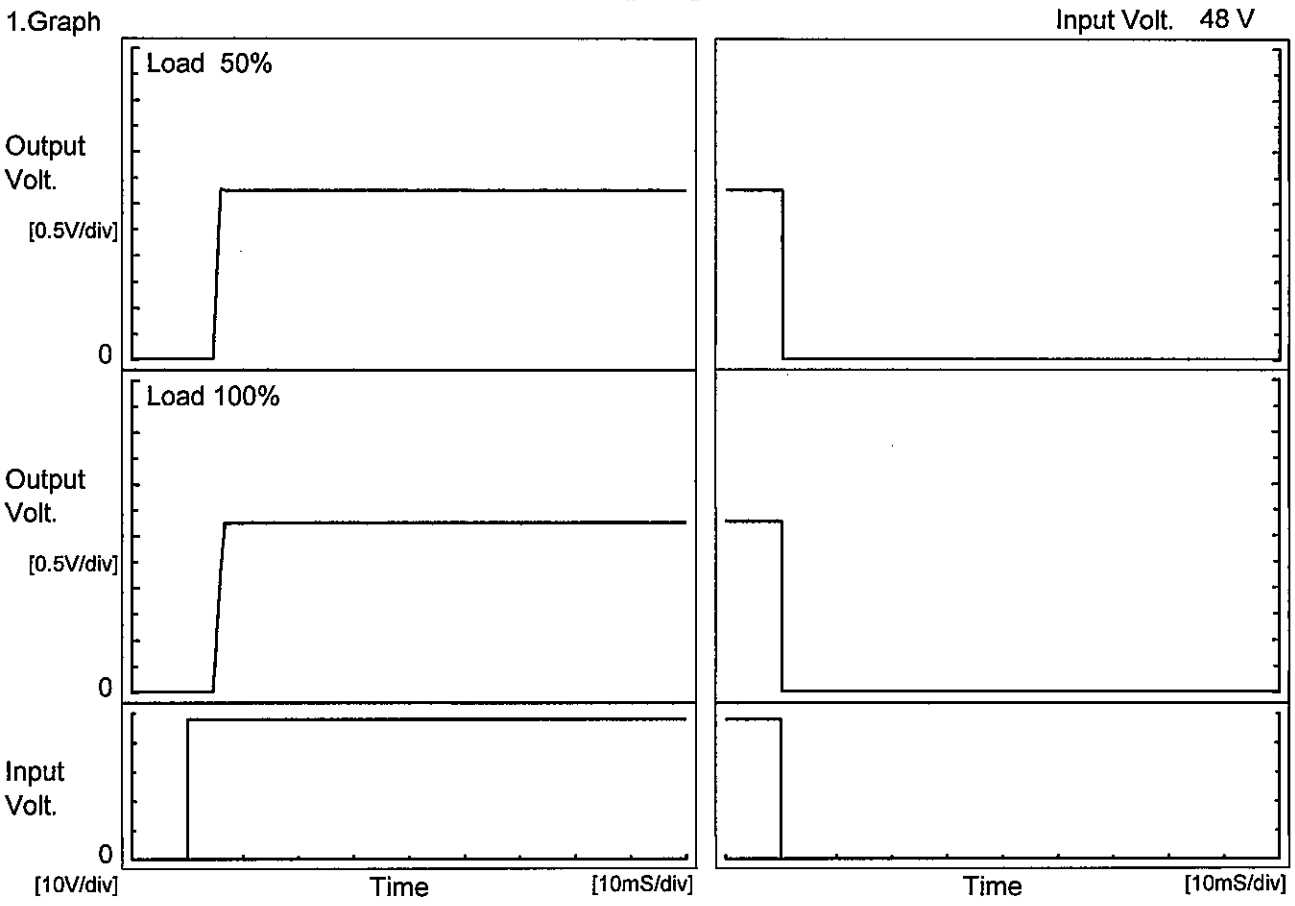
Time since start [H]	Output Voltage [V]
0.0	3.277
0.5	3.275
1.0	3.275
2.0	3.275
3.0	3.275
4.0	3.275
5.0	3.275
6.0	3.275
7.0	3.275
8.0	3.275

COSEL

Model	CES48033-30P
Item	Rise and Fall Time
Object	+3.3V30A

Temperature 25°C
Testing Circuitry Figure A

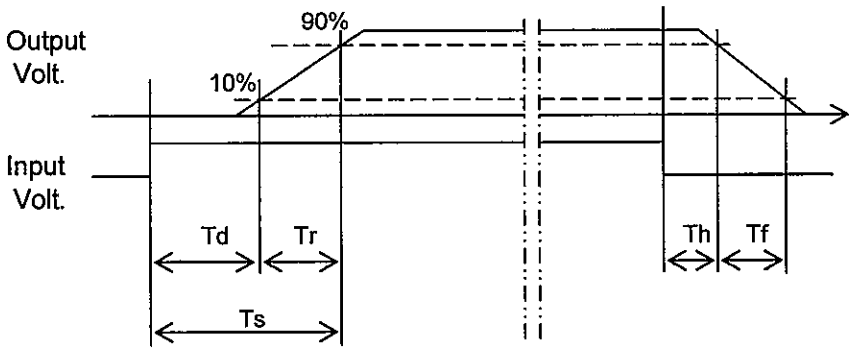
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	4.8	1.1	5.9	0.1	0.1
100 %	4.9	1.7	6.6	0.1	0.1

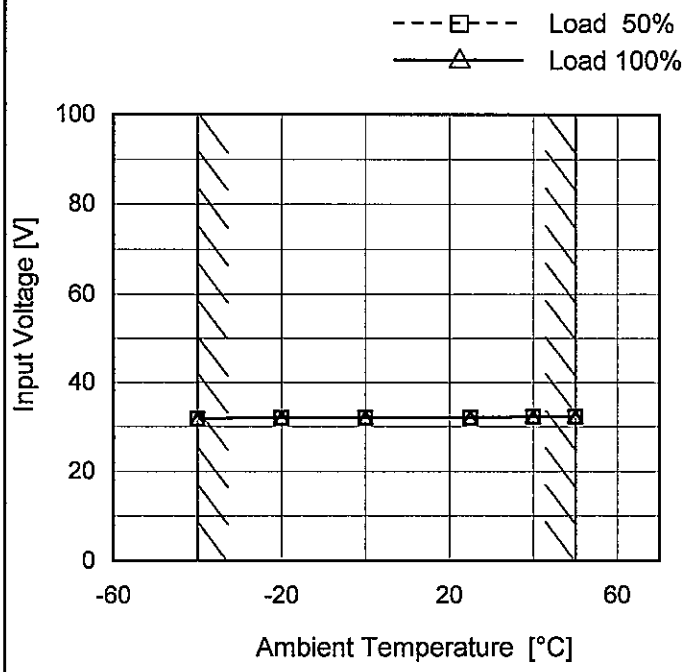


COSEL

Model	CES48033-30P
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V30A

Testing Circuitry Figure A

1.Graph



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

2.Values

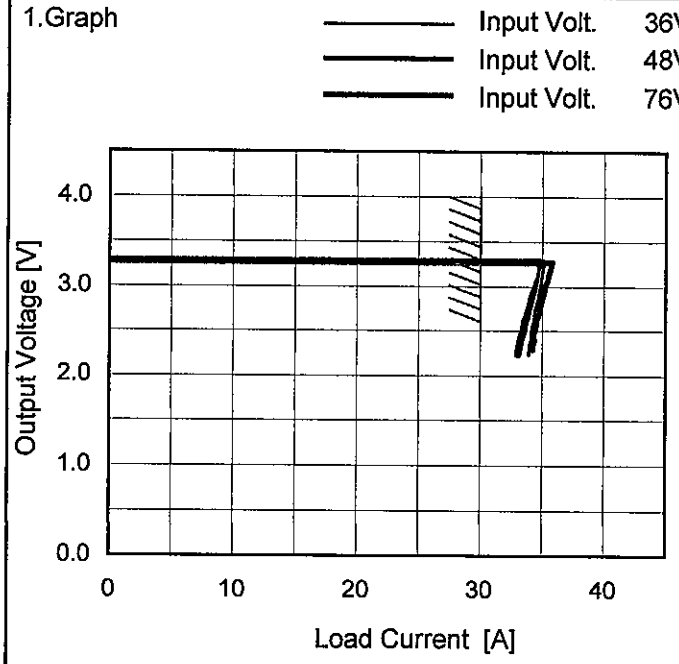
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	31.8	31.8
-20	32.0	32.1
0	32.1	32.1
25	32.1	32.1
40	32.3	32.3
50	32.3	32.3
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CES48033-30P
Item	Overcurrent Protection
Object	+3.3V30A

Temperature 25°C
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 2.2V to 0V.

2.Values

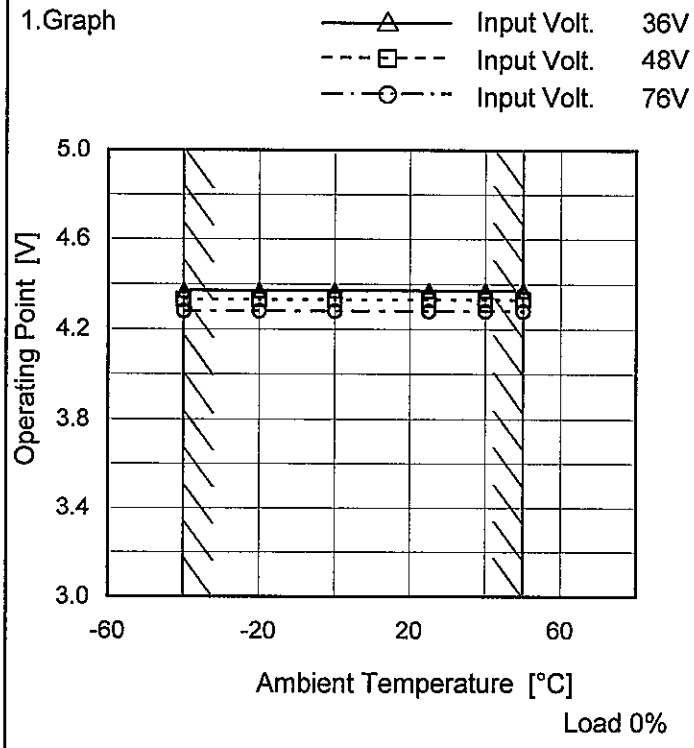
Output Voltage [V]	Load Current [A] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.30	35.16	35.81	34.96
3.14	35.16	35.42	34.77
2.97	34.85	35.19	34.46
2.64	34.38	34.79	33.74
2.31	33.96	34.23	33.17
2.20	33.92	34.11	33.01
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CES48033-30P
Item	Overvoltage Protection
Object	+3.3V30A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	4.37	4.33	4.28
-20	4.37	4.33	4.28
0	4.37	4.33	4.28
25	4.37	4.33	4.28
40	4.37	4.33	4.28
50	4.37	4.33	4.28
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

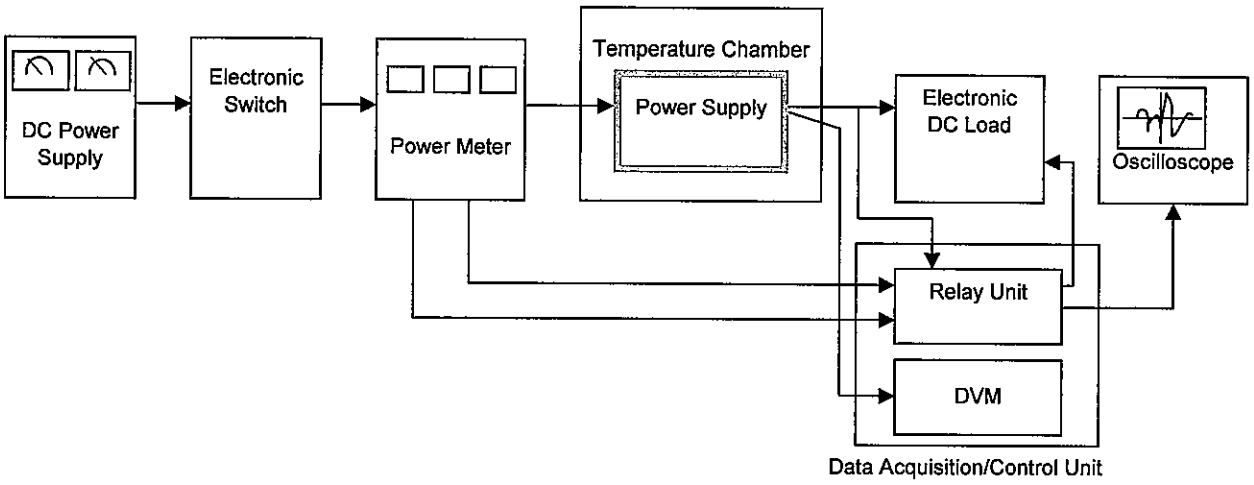


Figure A

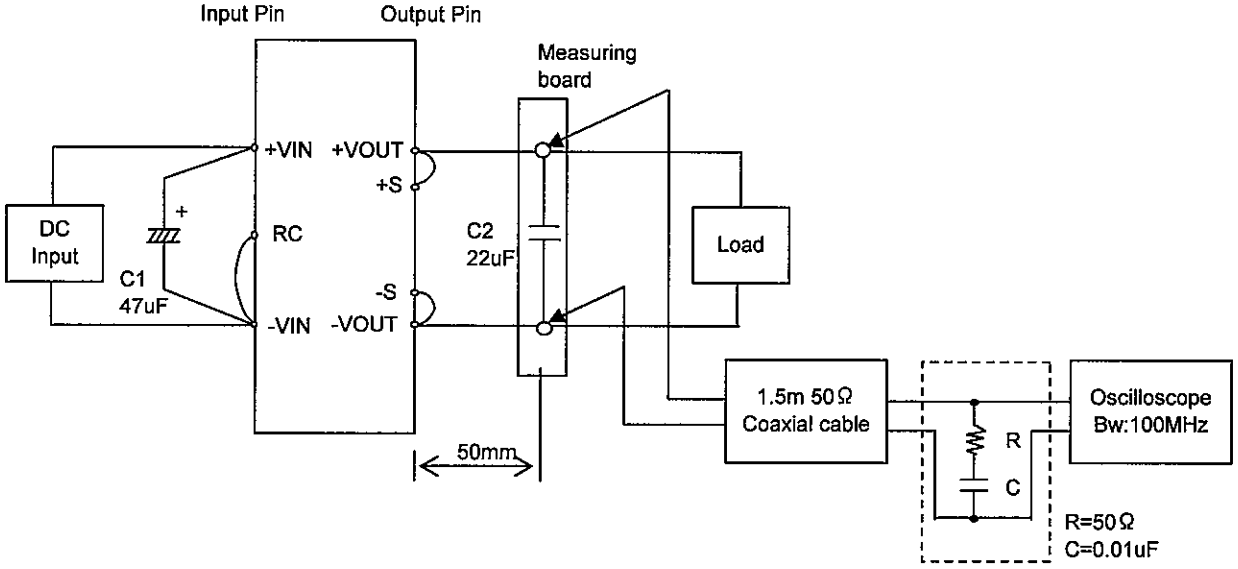


Figure B