参考資料

COSEL

TEST DATA OF CES48120-7P

Regulated DC Power Supply
Jan 13, 2009

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COSEL CO.,LTD.

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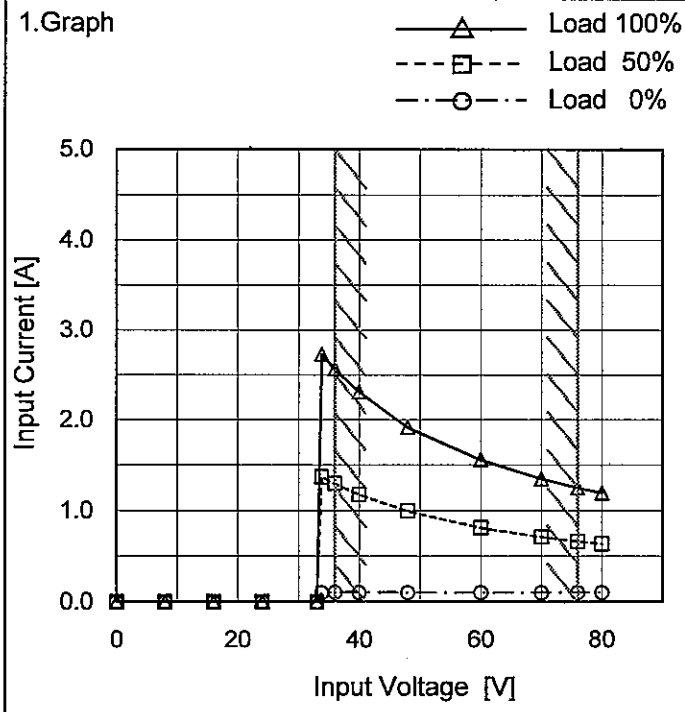
COSEL

Model	CES48120-7P
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	0.101	1.373	2.728
36.0	0.105	1.300	2.564
40.0	0.105	1.178	2.308
48.0	0.104	0.997	1.916
60.0	0.102	0.814	1.557
70.0	0.102	0.713	1.349
76.0	0.102	0.664	1.250
80.0	0.102	0.636	1.192
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

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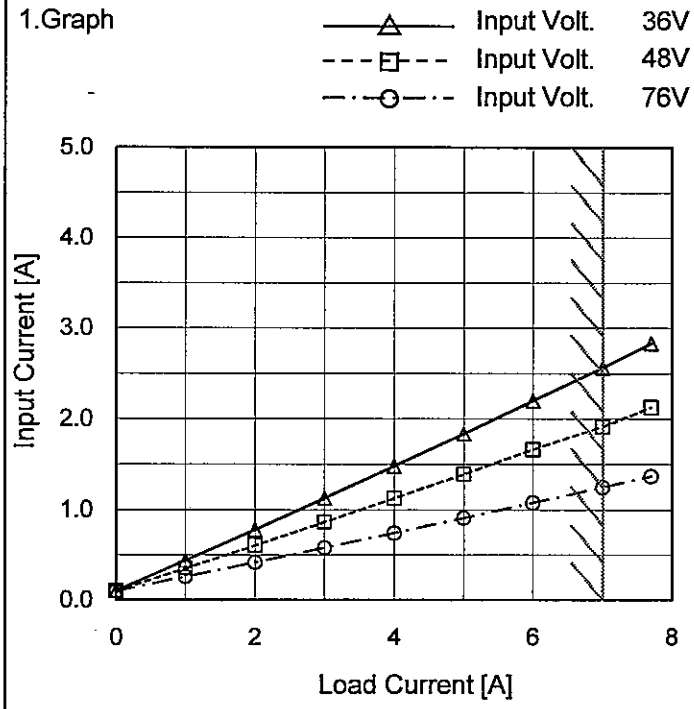
COSEL

Model	CES48120-7P
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	0.104	0.101	0.101
1.0	0.441	0.354	0.260
2.0	0.783	0.610	0.420
3.0	1.130	0.868	0.583
4.0	1.482	1.130	0.746
5.0	1.836	1.395	0.912
6.0	2.200	1.664	1.081
7.0	2.564	1.916	1.250
7.7	2.830	2.130	1.371
--	-	-	-
--	-	-	-

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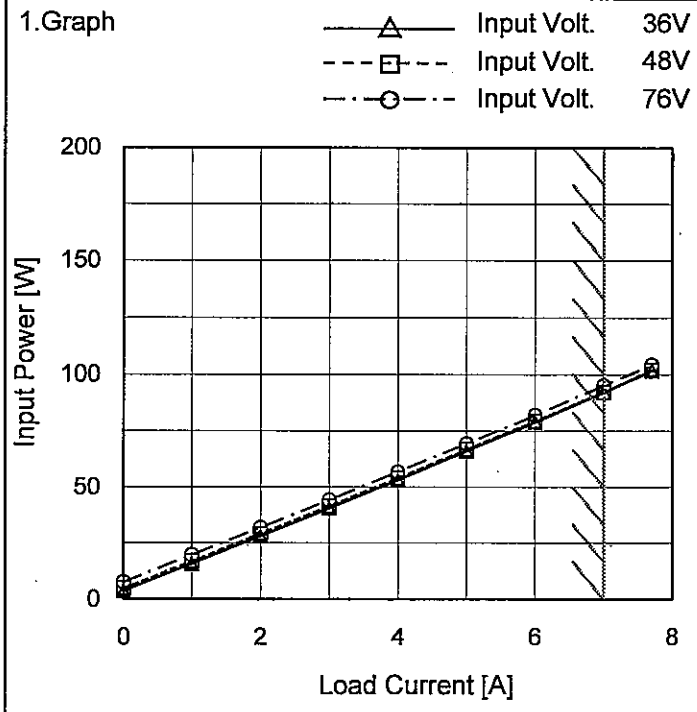
COSEL

Model	CES48120-7P
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]
0.0	3.8	4.9	7.7
1.0	15.9	17.0	19.8
2.0	28.2	29.3	32.0
3.0	40.7	41.7	44.4
4.0	53.2	54.2	56.8
5.0	66.1	66.9	69.4
6.0	79.1	79.7	82.2
7.0	92.3	92.4	95.2
7.7	101.8	102.1	104.3
—	-	-	-
—	-	-	-

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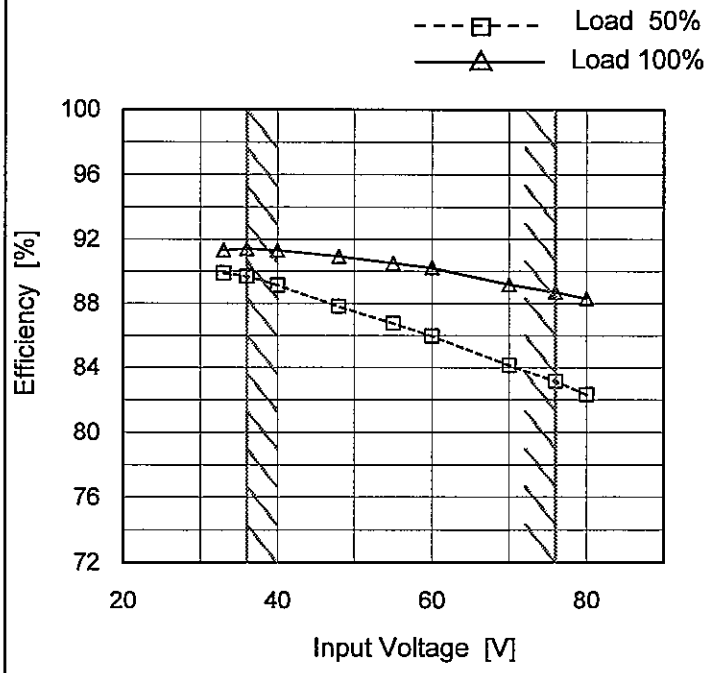
COSEL

Model	CES48120-7P
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

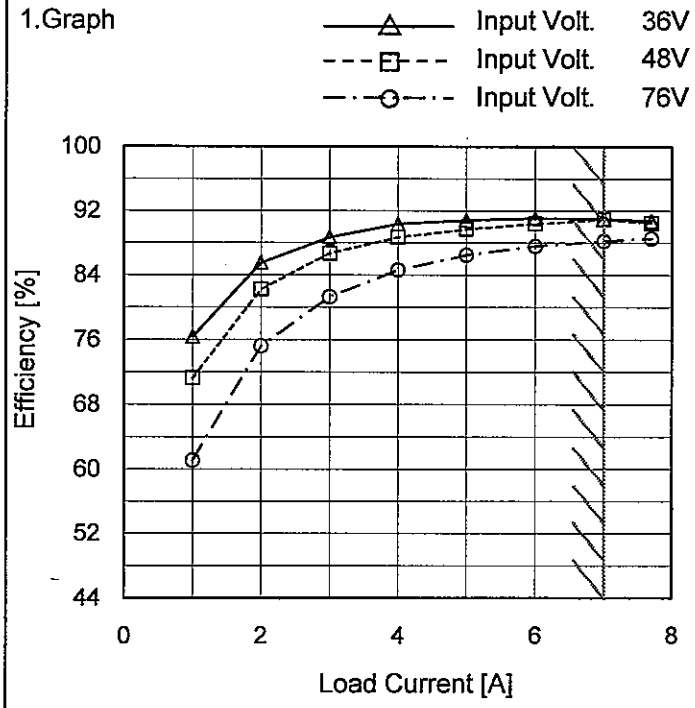
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	89.9	91.3
36	89.7	91.4
40	89.2	91.3
48	87.8	90.9
55	86.8	90.5
60	86.0	90.2
70	84.1	89.2
76	83.2	88.7
80	82.3	88.3

COSEL

Model	CES48120-7P
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]
0.0	-	-	-
1.0	76.4	71.3	61.1
2.0	85.5	82.3	75.3
3.0	88.7	86.7	81.3
4.0	90.4	88.7	84.6
5.0	90.8	89.7	86.5
6.0	91.1	90.4	87.6
7.0	91.0	90.9	88.2
7.7	90.8	90.5	88.6
—	-	-	-
—	-	-	-

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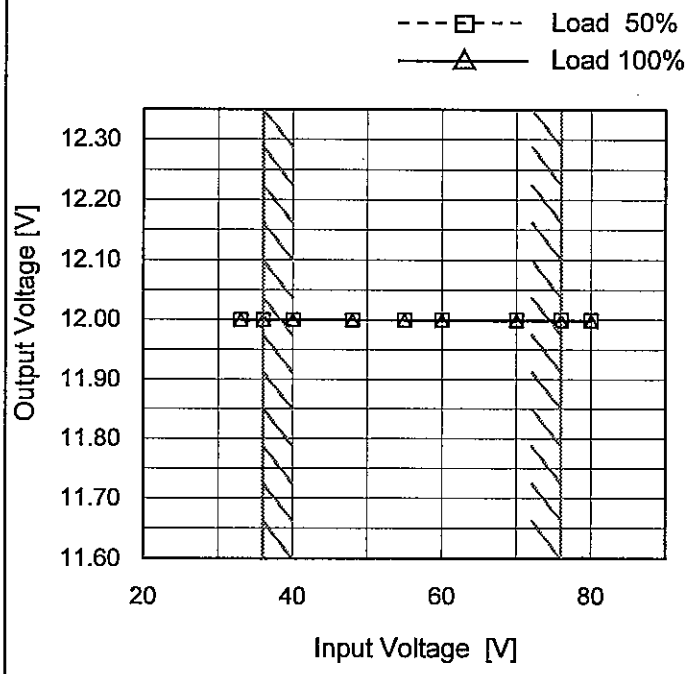
COSEL

Model	CES48120-7P
Item	Line Regulation
Object	+12V7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

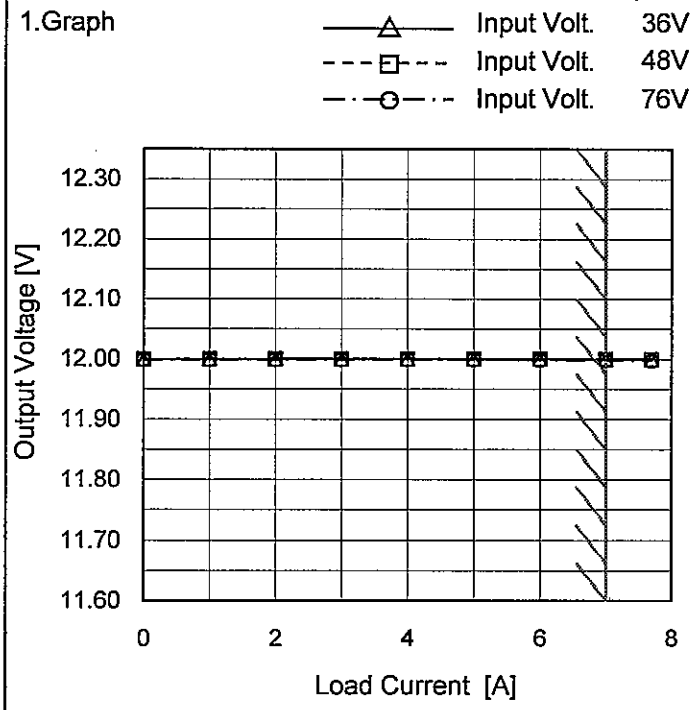
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	12.000	12.000
36	12.000	12.000
40	12.000	12.000
48	12.000	12.000
55	12.000	11.999
60	12.000	11.999
70	12.000	11.998
76	12.000	11.998
80	12.000	11.998

COSEL

Model	CES48120-7P
Item	Load Regulation
Object	+12V7A

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]
0.0	12.000	12.000	11.999
1.0	12.000	12.000	11.999
2.0	12.000	12.000	11.999
3.0	12.000	12.000	11.999
4.0	12.000	12.000	11.999
5.0	12.000	12.000	11.999
6.0	12.000	12.000	11.999
7.0	12.000	12.000	11.998
7.7	12.000	12.000	11.998
--	-	-	-
--	-	-	-

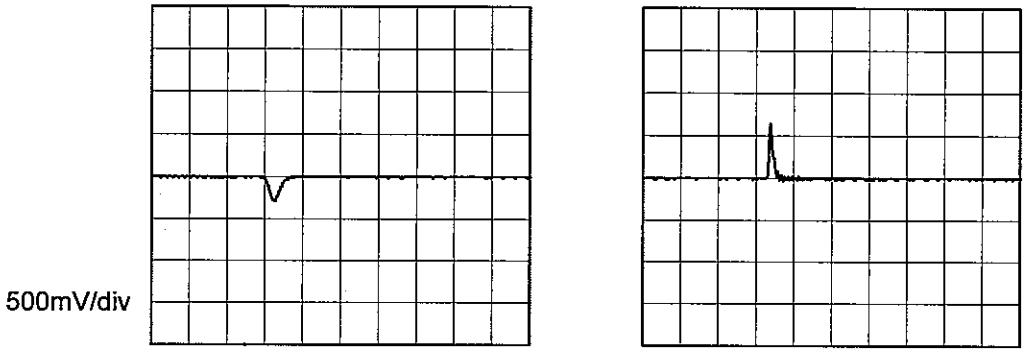
COSEL

Model	CES48120-7P
Item	Dynamic Load Response
Object	+12V7A

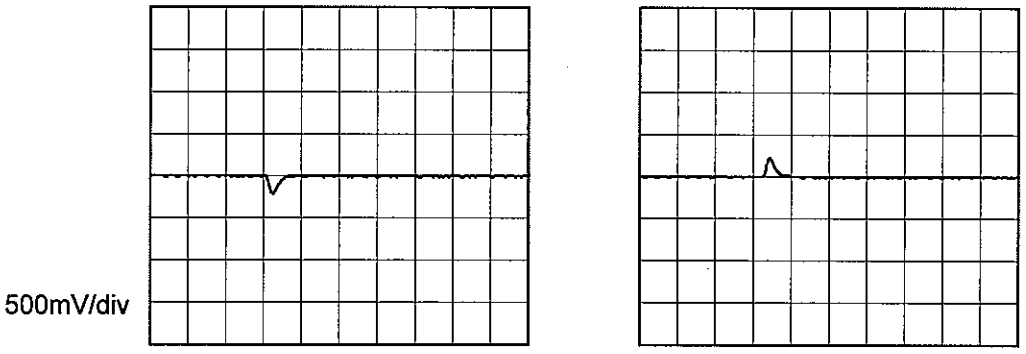
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 5 mS

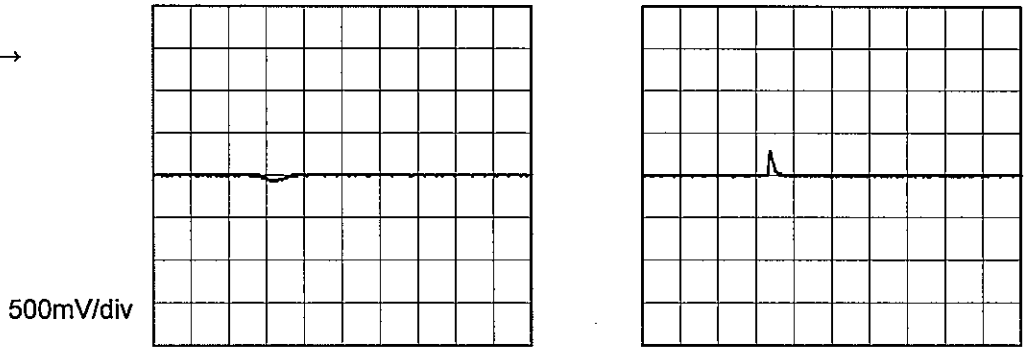
Min. Load (0A) ⟷
Load 100% (7A)



Min. Load (0A) ⟷
Load 50% (3.5A)



Load 50% (3.5A) ⟷
Load 100% (7A)

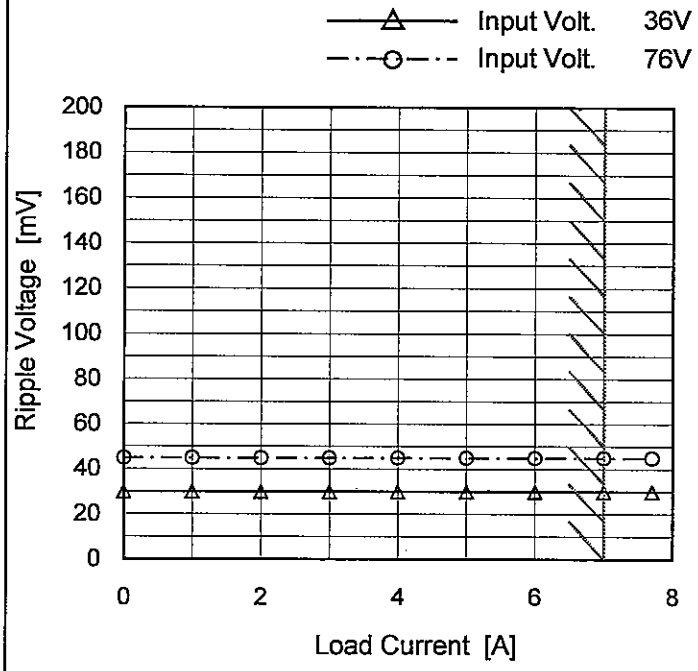


COSEL

Model	CES48120-7P
Item	Ripple Voltage (by Load Current)
Object	+12V7A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

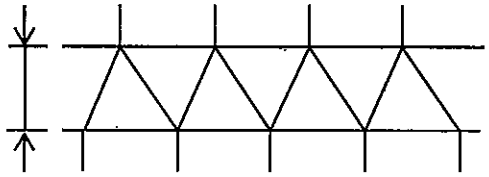


Fig.Complex Ripple Wave Form

2.Values

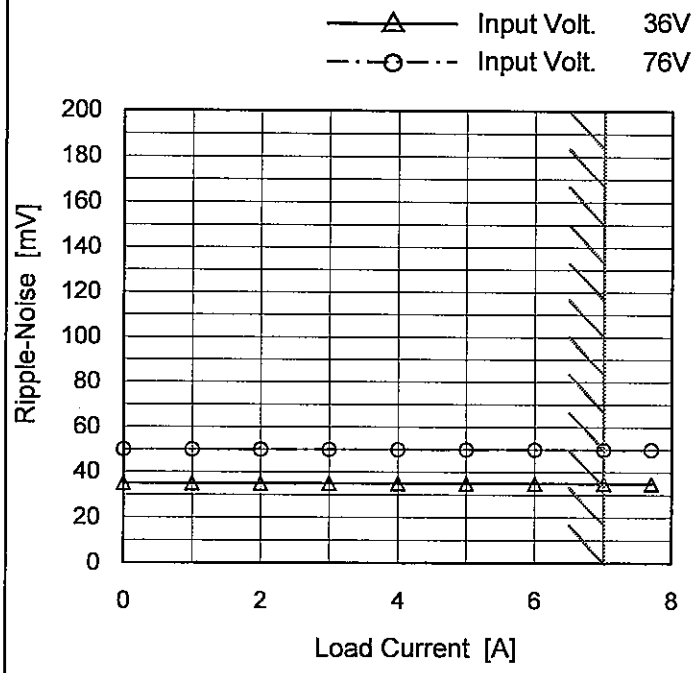
Load Current [A]	Ripple Voltage [mV] Input Volt. 36 [V]	Ripple Voltage [mV] Input Volt. 76 [V]
0.0	30	45
1.0	30	45
2.0	30	45
3.0	30	45
4.0	30	45
5.0	30	45
6.0	30	45
7.0	30	45
7.7	30	45
–	-	-
–	-	-

COSEL

Model	CES48120-7P
Item	Ripple-Noise
Object	+12V7A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

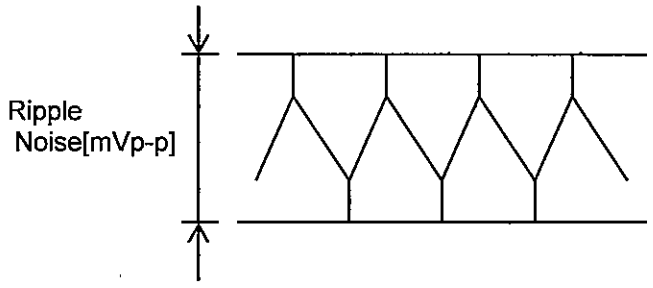


Fig.Complex Ripple Noise Wave Form

2.Values

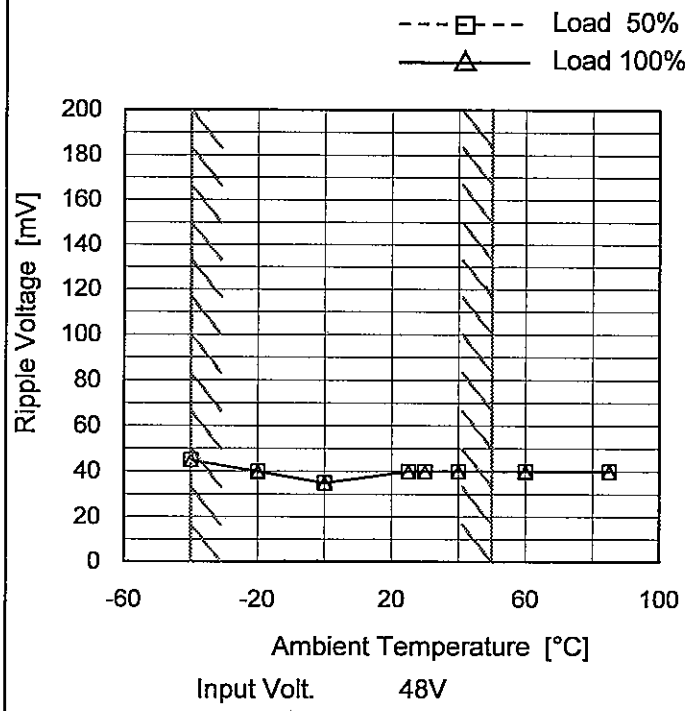
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	35	50
1.0	35	50
2.0	35	50
3.0	35	50
4.0	35	50
5.0	35	50
6.0	35	50
7.0	35	50
7.7	35	50
--	-	-
--	-	-

COSEL

Model	CES48120-7P
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V7A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

Measured by 20 MHz Oscilloscope.

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

2.Values

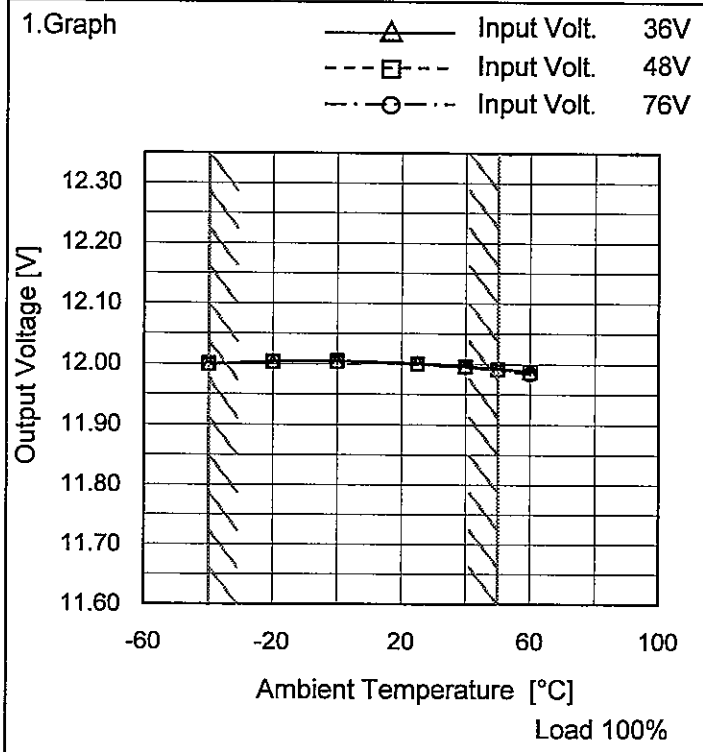
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	45	45
-20	40	40
0	35	35
25	40	40
30	40	40
40	40	40
60	40	40
85	40	40
--	-	-
--	-	-
--	-	-

COSEL

Model	CES48120-7P
Item	Ambient Temperature Drift
Object	+12V7A

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	12.000	12.000	11.999
-20	12.004	12.004	12.004
0	12.005	12.005	12.004
25	12.002	12.000	12.000
40	11.997	11.996	11.995
50	11.993	11.992	11.991
60	11.988	11.987	11.984
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CES48120-7P	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V7A	

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 - 85°C
Input Voltage : 36 - 76V
Load Current : 0 - 7A

* 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

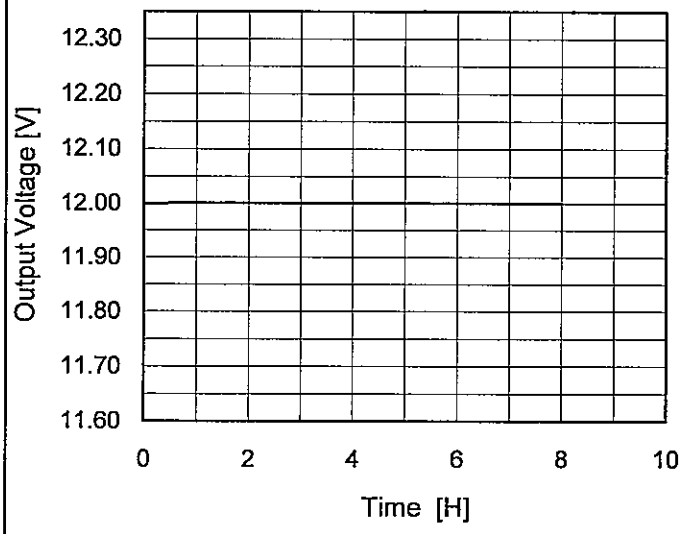
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	48	0	12.005	±11	±0.1
Minimum Voltage	60	76	7	11.984		

COSEL

Model	CES48120-7P
Item	Time Lapse Drift
Object	+12V7A

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	12.003
0.5	12.000
1.0	12.000
2.0	12.000
3.0	12.000
4.0	12.000
5.0	12.000
6.0	12.000
7.0	12.000
8.0	12.000

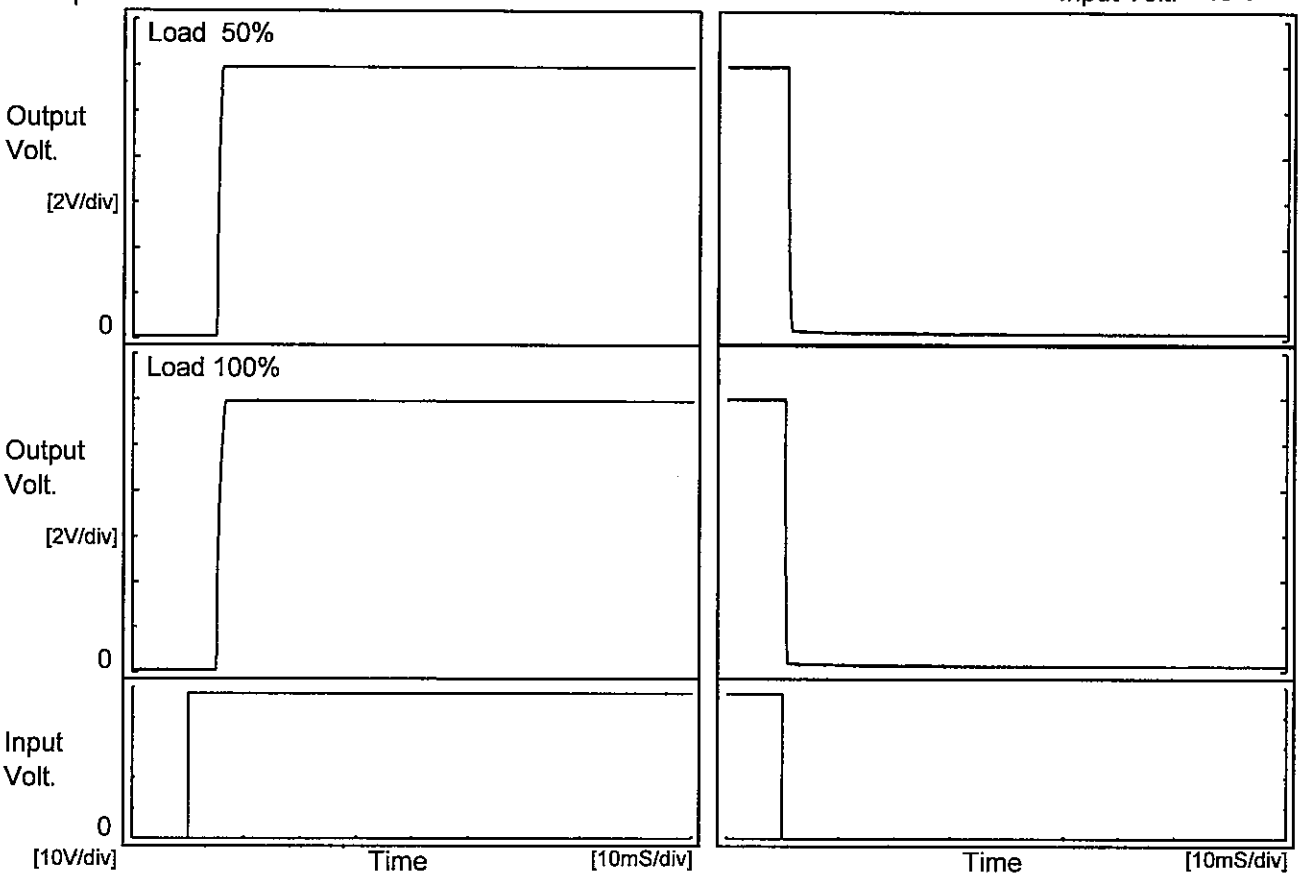
COSEL

Model	CES48120-7P
Item	Rise and Fall Time
Object	+12V7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

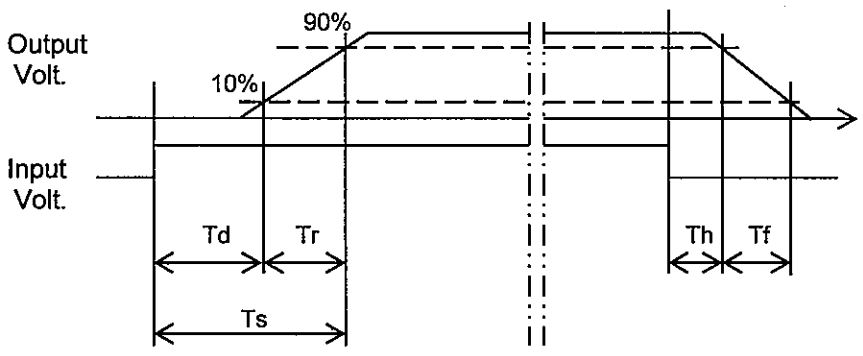
Input Volt. 48 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	5.2	0.6	5.8	0.9	0.5
100 %	5.2	1.1	6.3	0.5	0.3



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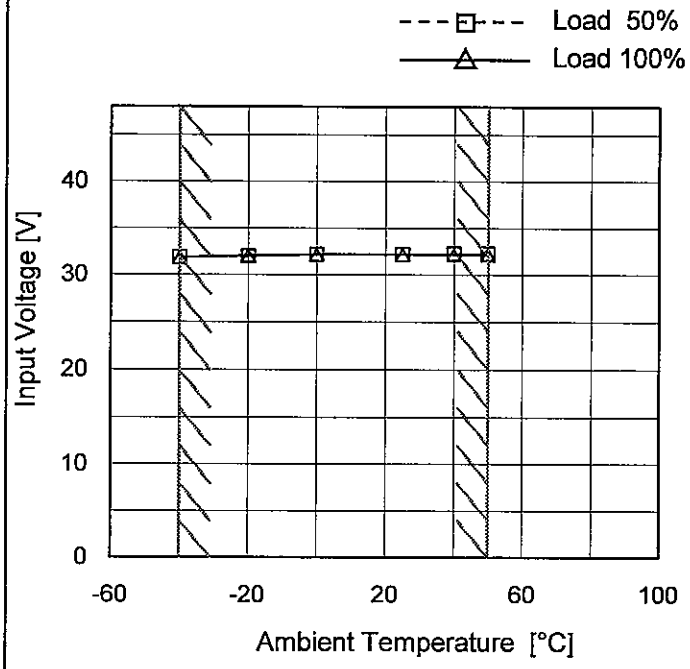
COSEL

Model	CES48120-7P
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V7A

Testing Circuitry Figure A

1.Graph



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

2.Values

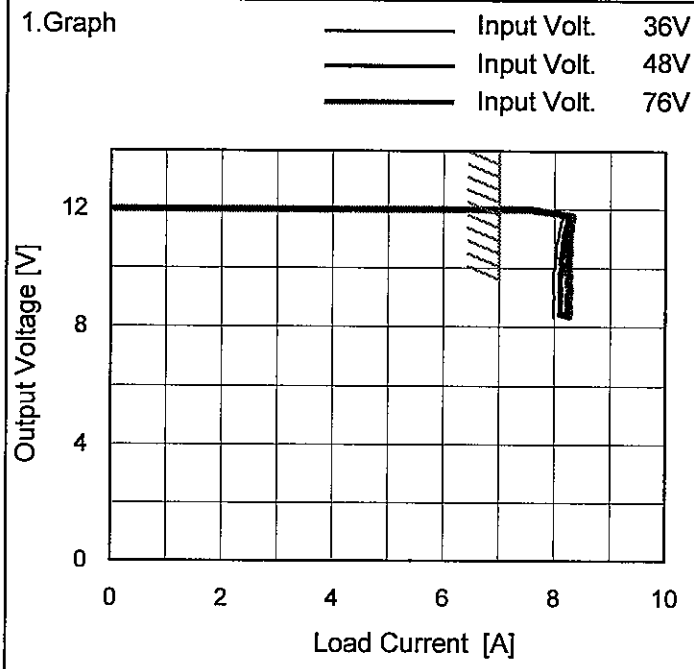
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	31.9	31.9
-20	32.0	32.1
0	32.2	32.2
25	32.2	32.2
40	32.3	32.2
50	32.3	32.2
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CES48120-7P
Item	Overcurrent Protection
Object	+12V7A

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 8.4V to 0V.

2.Values

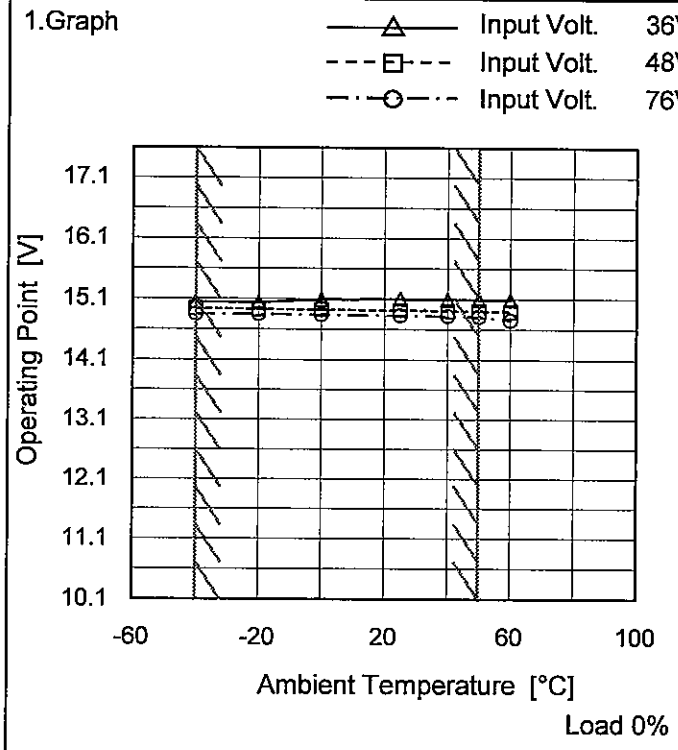
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
12.0	7.03	7.03	7.03
11.4	8.10	8.20	8.29
10.8	8.03	8.15	8.25
9.6	7.98	8.09	8.25
8.4	7.98	8.09	8.26
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CES48120-7P
Item	Overvoltage Protection
Object	+12V7A

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	15.07	14.96	14.87
-20	15.06	14.95	14.87
0	15.11	14.94	14.86
25	15.12	14.93	14.85
40	15.11	14.92	14.84
50	15.11	14.92	14.83
60	15.10	14.91	14.77
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

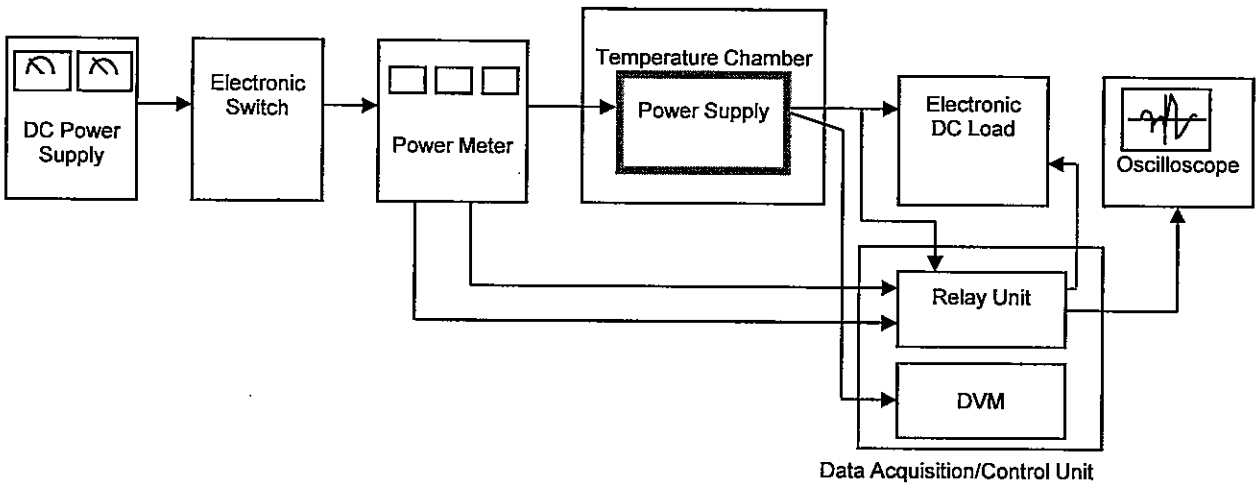


Figure A

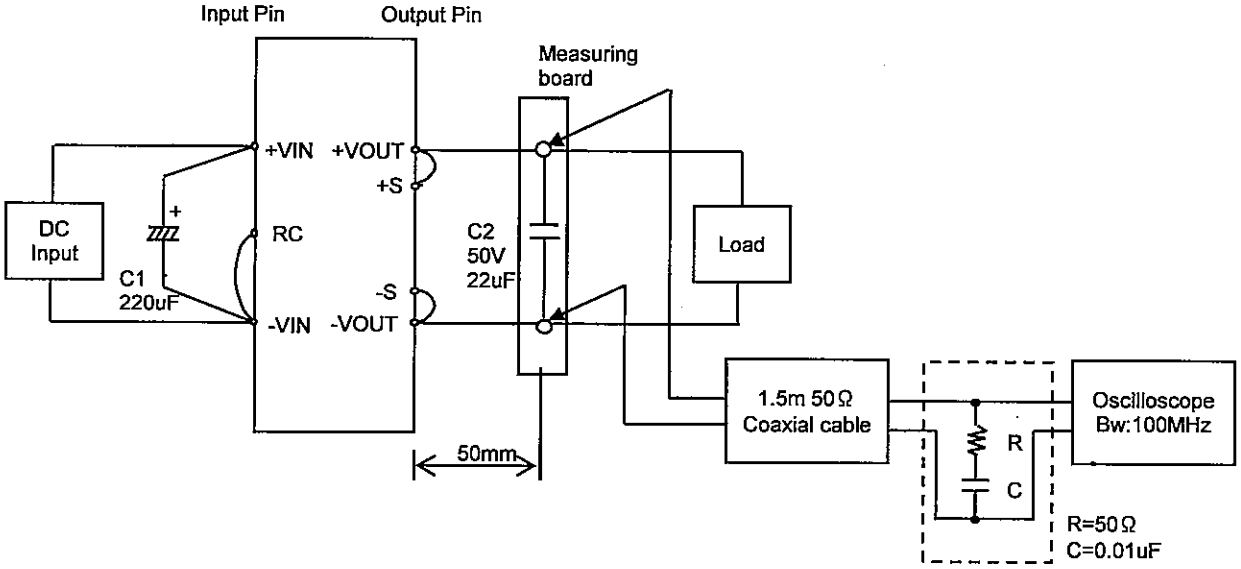


Figure B