



TEST DATA OF CQS48033-45

Regulated DC Power Supply
Sep.4, 2003

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COSEL CO.,LTD.

CONTENTS

1.Input Current (by Input Voltage)	1
2.Input Current (by Load Current)	2
3.Input Power (by Load Current)	3
4.Efficiency (by Input Voltage)	4
5.Efficiency (by Load Current)	5
6.Line Regulation	6
7.Load Regulation	7
8.Dynamic Load Response	8
9.Ripple Voltage (by Load Current)	9
10.Ripple-Noise	10
11.Ripple Voltage (by Ambient Temperature)	11
12.Ambient Temperature Drift	12
13.Output Voltage Accuracy	13
14.Time Lapse Drift	14
15.Rise and Fall Time	15
16.Minimum Input Voltage for Regulated Output Voltage	16
17.Overcurrent Protection	17
18.Overvoltage Protection	18
19.Figure of Testing Circuitry	19

(Final Page 19)

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Model		CQS48033-45	
Item		Input Current (by Input Voltage)	
Object			

1.Graph

—△—

Load 100%

---□---

Load 50%

---○---

Load 0%

Input Current [A]

10

8

6

4

2

0

0

20

40

60

80

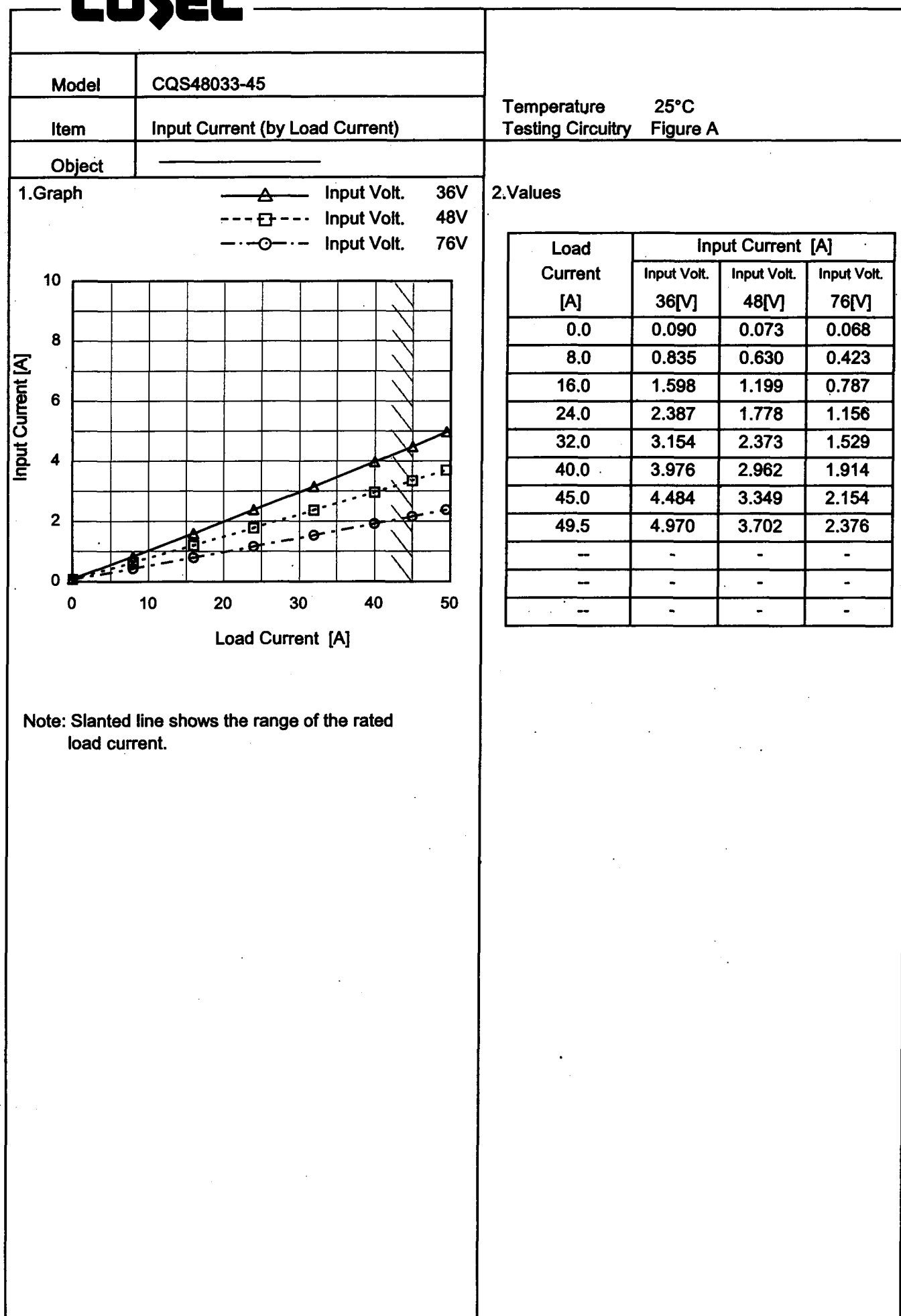
Input Voltage [V]

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

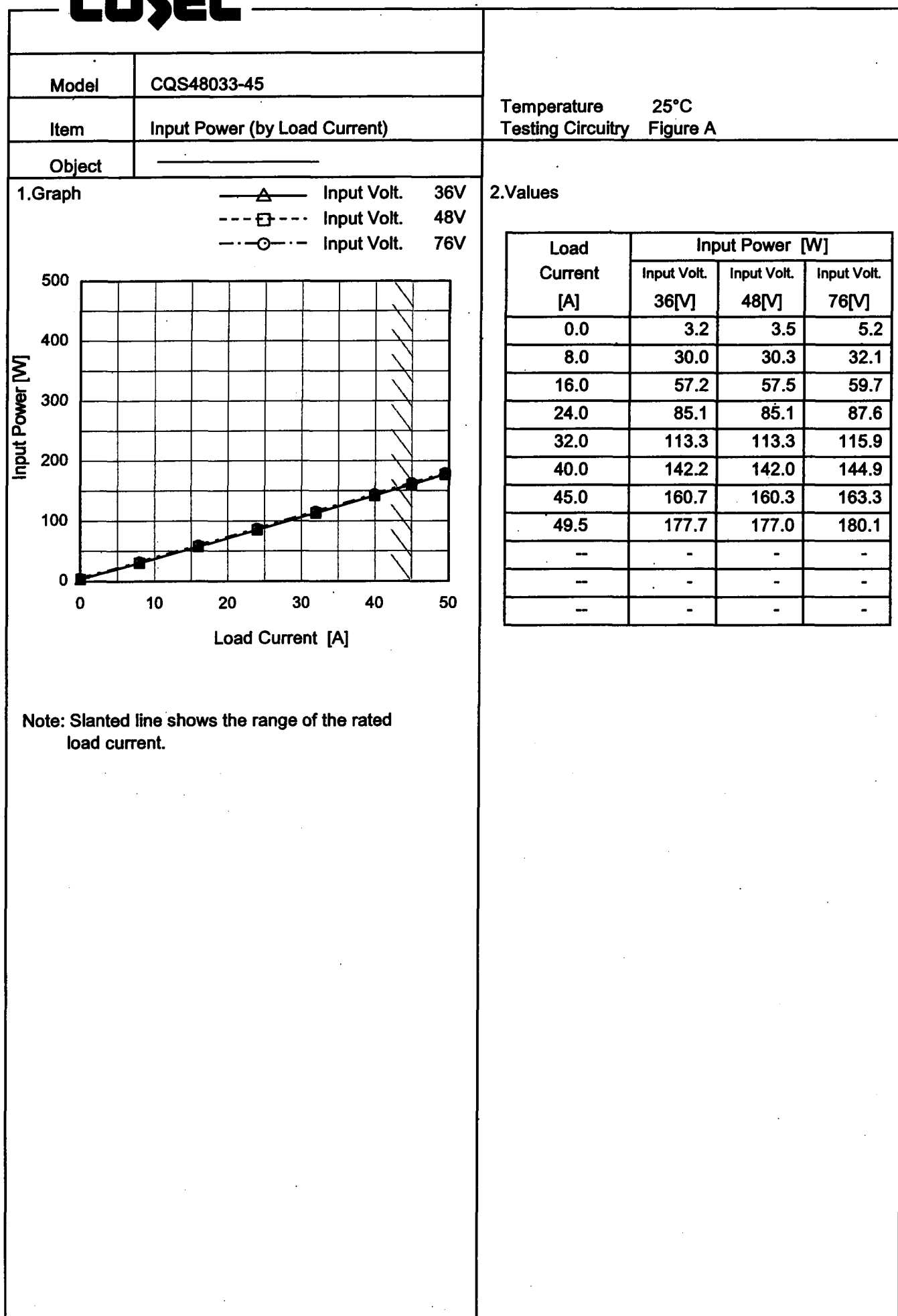
2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
8	0.000	0.000	0.000
16	0.000	0.000	0.000
24	0.000	0.000	0.000
33	0.105	2.448	4.968
36	0.091	2.236	4.484
40	0.081	2.006	4.006
48	0.074	1.680	3.344
60	0.071	1.359	2.710
70	0.069	1.180	2.332
76	0.069	1.094	2.154
80	0.068	1.043	2.066
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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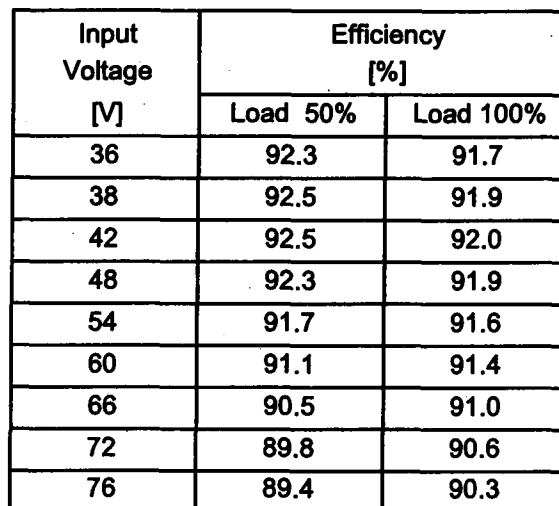


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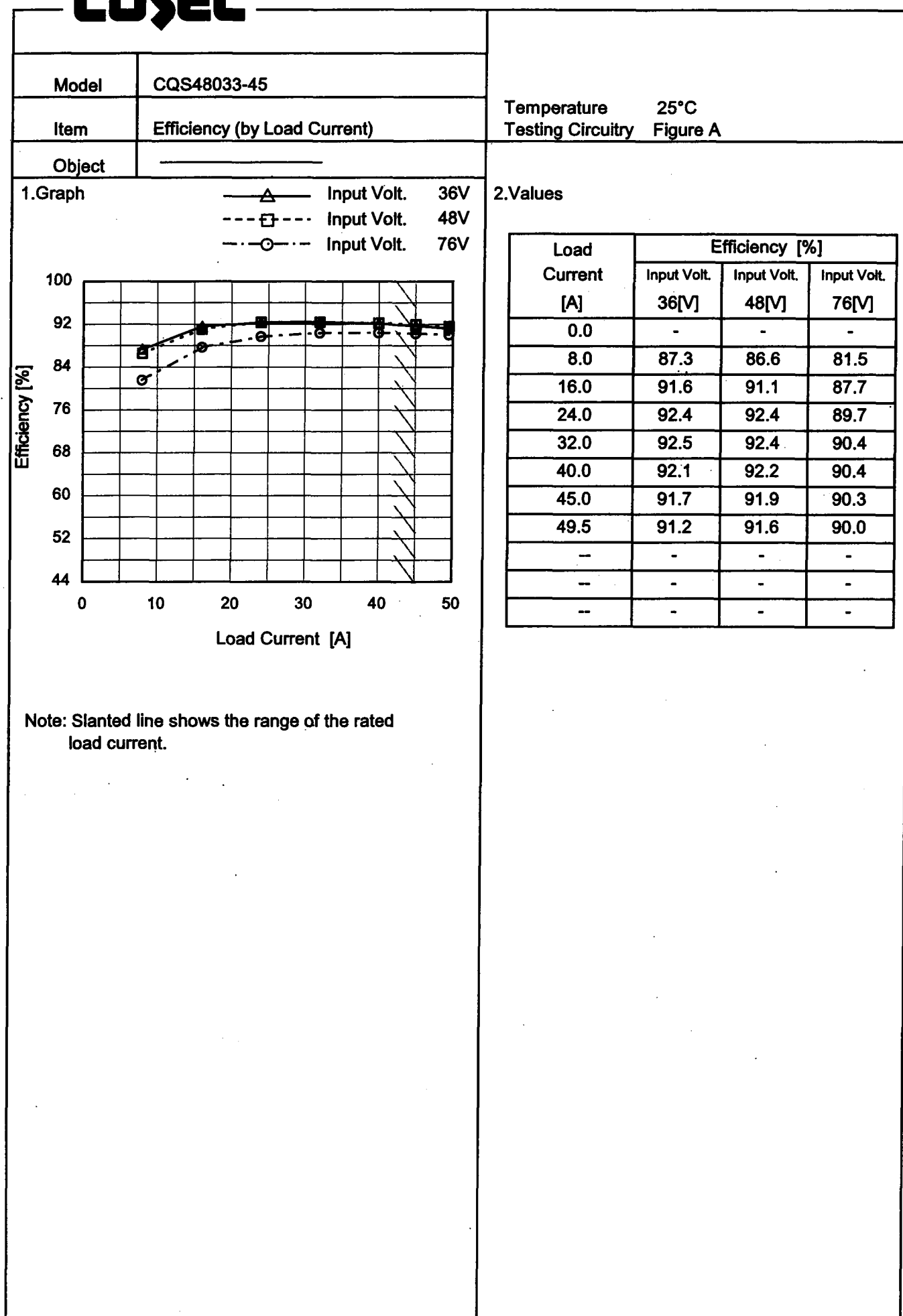
Temperature 25°C
Testing Circuitry Figure A

2.Values



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

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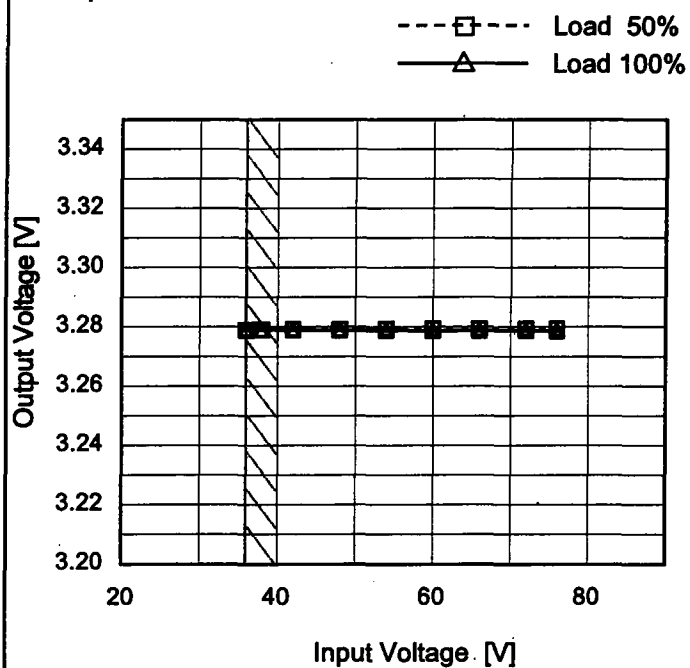
Model CQS48033-45

Item Line Regulation

Object +3.3V45A

Temperature 25°C
Testing Circuitry Figure A

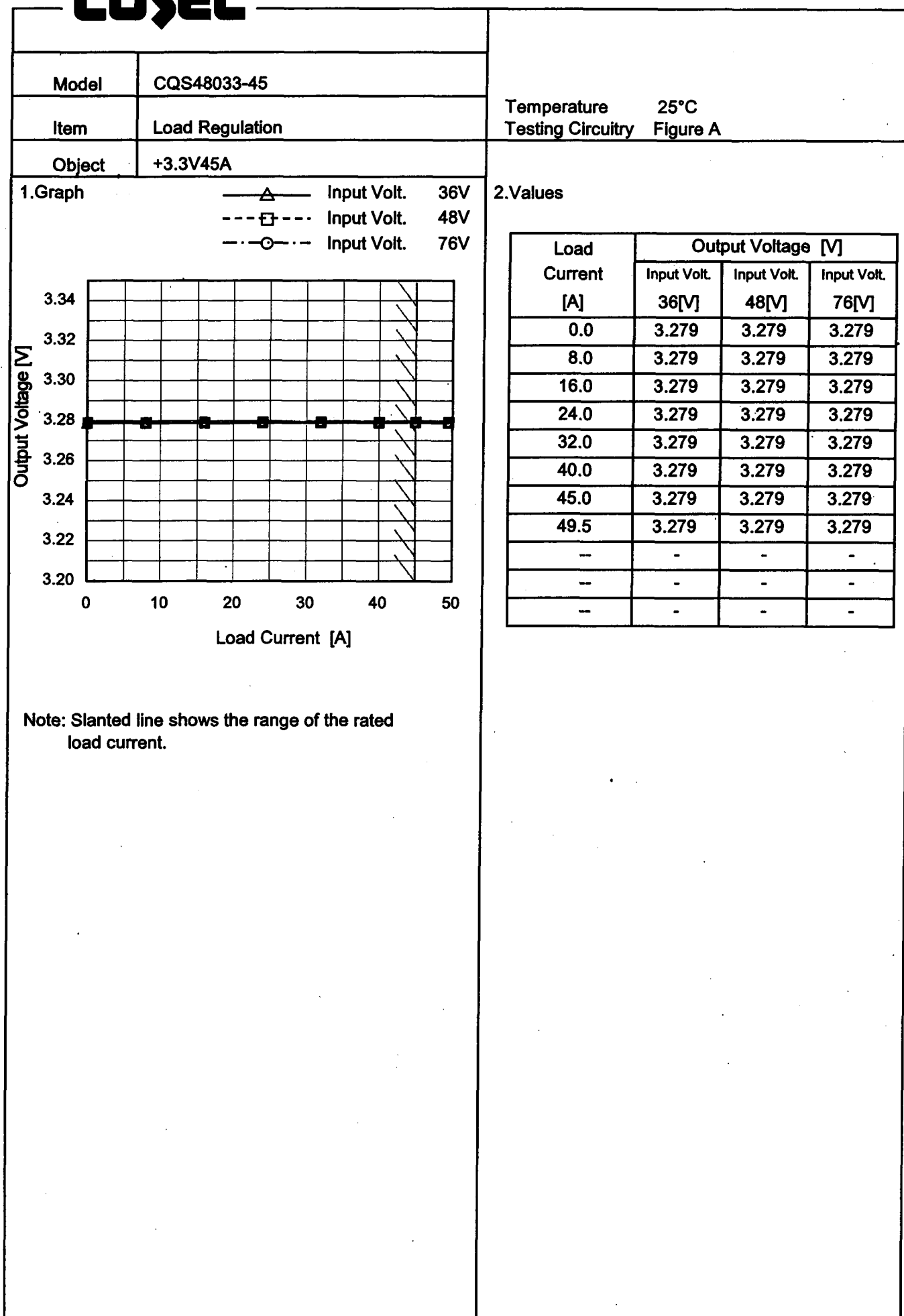
1. Graph



2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
36	3.279	3.279
38	3.279	3.279
42	3.279	3.279
48	3.279	3.279
54	3.279	3.279
60	3.279	3.279
66	3.279	3.279
72	3.279	3.279
76	3.279	3.279

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Model	CQS48033-45
Item	Dynamic Load Response
Object	+3.3V45A

Temperature
Testing Circuitry

25°C
Figure A

Input Volt. 48 V
Cycle 10 ms

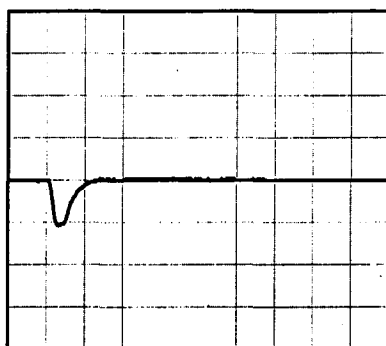
Load Current

1A/μs

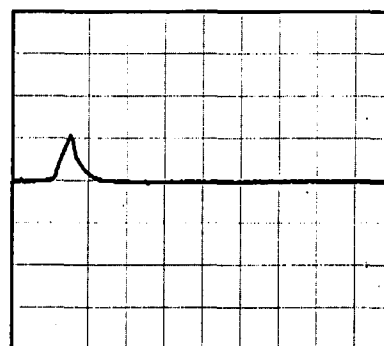
Min. Load (0A) ←→

Load 100% (45A)

100 mV/div



100 μs/div

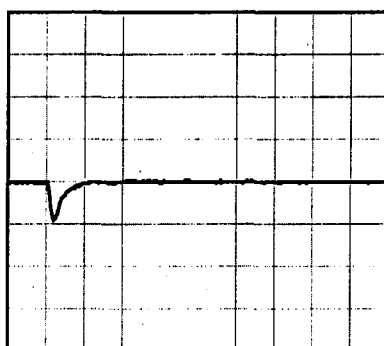


100 μs/div

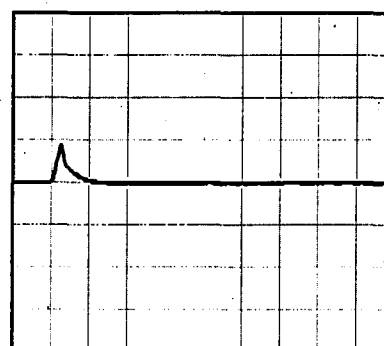
Min. Load (0A) ←→

Load 50% (22.5A)

100 mV/div



100 μs/div

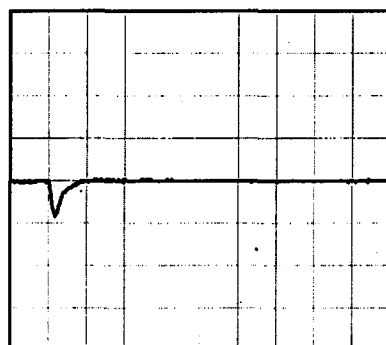


100 μs/div

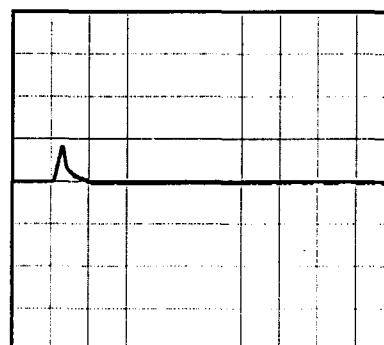
Load 50% (22.5A) ←→

Load 100% (45A)

100 mV/div



100 μs/div



100 μs/div

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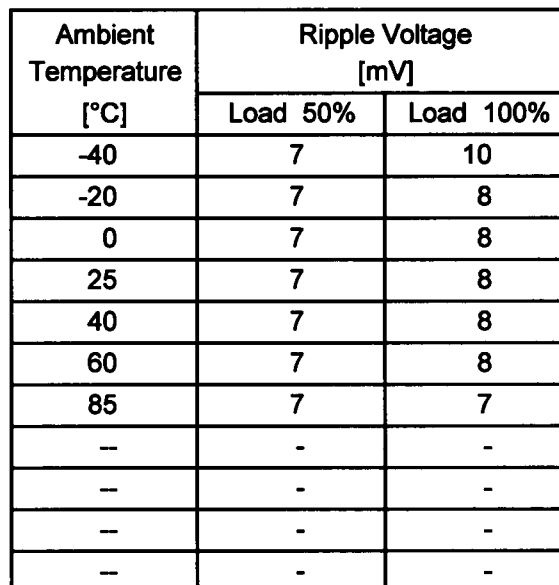
Model	CQS48033-45																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
Object	+3.3V45A	Testing Circuitry	Figure B																																						
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 36V</div><div>-·-○-·- Input Volt. 76V</div></div><div>Ripple Voltage [mV]</div><div>Load Current [A]</div></div> <div><p>Measured by 100 MHz Oscilloscope.</p><p>Ripple Voltage is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p></div> <div><div>Ripple [mVp-p]</div><div>Fig.Complex Ripple Wave Form</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.0</td><td>5</td><td>7</td></tr><tr><td>8.0</td><td>5</td><td>7</td></tr><tr><td>16.0</td><td>5</td><td>7</td></tr><tr><td>24.0</td><td>5</td><td>8</td></tr><tr><td>32.0</td><td>5</td><td>8</td></tr><tr><td>40.0</td><td>6</td><td>8</td></tr><tr><td>45.0</td><td>6</td><td>10</td></tr><tr><td>49.5</td><td>6</td><td>10</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>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.0	5	7	8.0	5	7	16.0	5	7	24.0	5	8	32.0	5	8	40.0	6	8	45.0	6	10	49.5	6	10	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
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40.0	6	8																																							
45.0	6	10																																							
49.5	6	10																																							
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Model	CQS48033-45	Temperature25°C Testing CircuitryFigure B																																							
Item	Ripple-Noise																																								
Object	+3.3V45A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 36V</div><div>-·-○-- Input Volt. 76V</div></div><div>Ripple-Noise [mV]</div><div>Load Current [A]</div></div> <div>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.</div> <div><div><div>Ripple Noise[mVp-p]</div></div><div>Fig.Complex Ripple Noise Wave Form</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.0</td><td>10</td><td>20</td></tr><tr><td>8.0</td><td>10</td><td>20</td></tr><tr><td>16.0</td><td>30</td><td>30</td></tr><tr><td>24.0</td><td>40</td><td>45</td></tr><tr><td>32.0</td><td>45</td><td>50</td></tr><tr><td>40.0</td><td>45</td><td>50</td></tr><tr><td>45.0</td><td>45</td><td>55</td></tr><tr><td>49.5</td><td>45</td><td>55</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>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.0	10	20	8.0	10	20	16.0	30	30	24.0	40	45	32.0	45	50	40.0	45	50	45.0	45	55	49.5	45	55	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 36 [V]	Input Volt. 76 [V]																																							
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40.0	45	50																																							
45.0	45	55																																							
49.5	45	55																																							
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Testing Circuitry Figure B

2.Values



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

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Model

CQS48033-45

Item

Ambient Temperature Drift

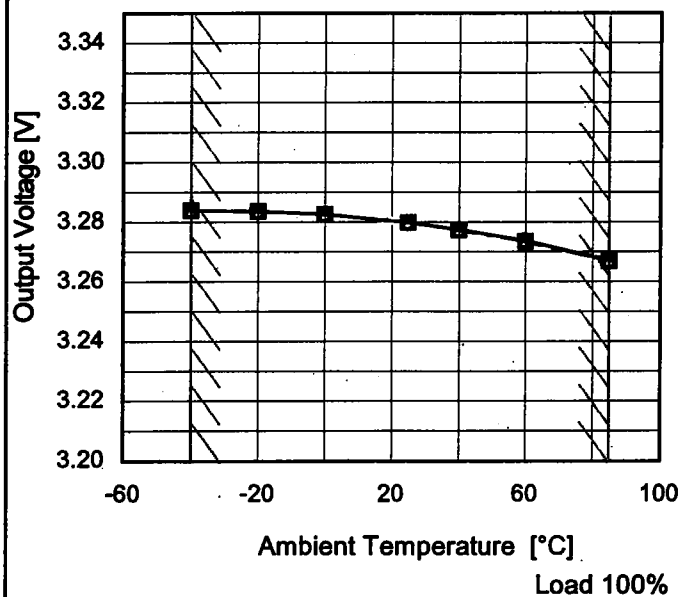
Object

+3.3V45A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 36V
 ---□--- Input Volt. 48V
 ---○--- Input Volt. 76V



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	3.284
-20	3.284	3.284	3.284
0	3.283	3.283	3.283
25	3.280	3.280	3.280
40	3.278	3.277	3.277
60	3.274	3.274	3.274
85	3.267	3.267	3.267
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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		Testing Circuitry Figure A
Model	CQS48033-45	
Item	Output Voltage Accuracy	
Object	+3.3V45A	

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 - 45A

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

* 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	76	0	3.284	±9	±0.3
Minimum Voltage	85	76	45	3.266		

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Model

CQS48033-45

Item

Time Lapse Drift

Object

+3.3V45A

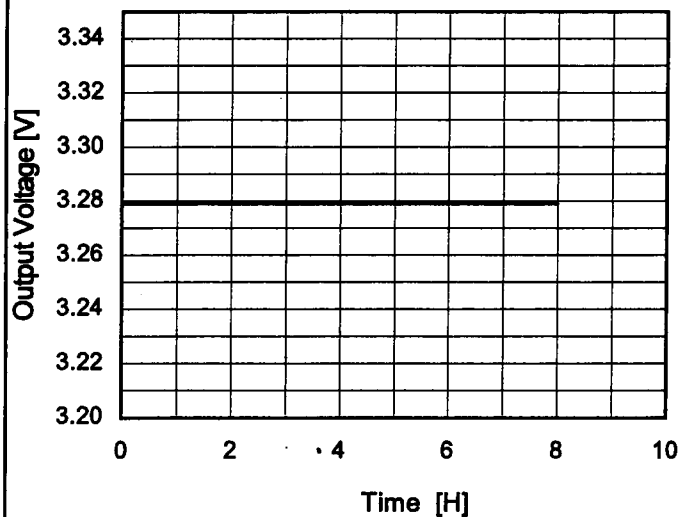
Temperature

25°C

Testing Circuitry

Figure A

1.Graph



Input Volt.

48V

Load

100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	3.280
0.5	3.279
1.0	3.279
2.0	3.279
3.0	3.279
4.0	3.279
5.0	3.279
6.0	3.279
7.0	3.279
8.0	3.279

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Model

CQS48033-45

Item

Rise and Fall Time

Temperature

25°C

Testing Circuitry

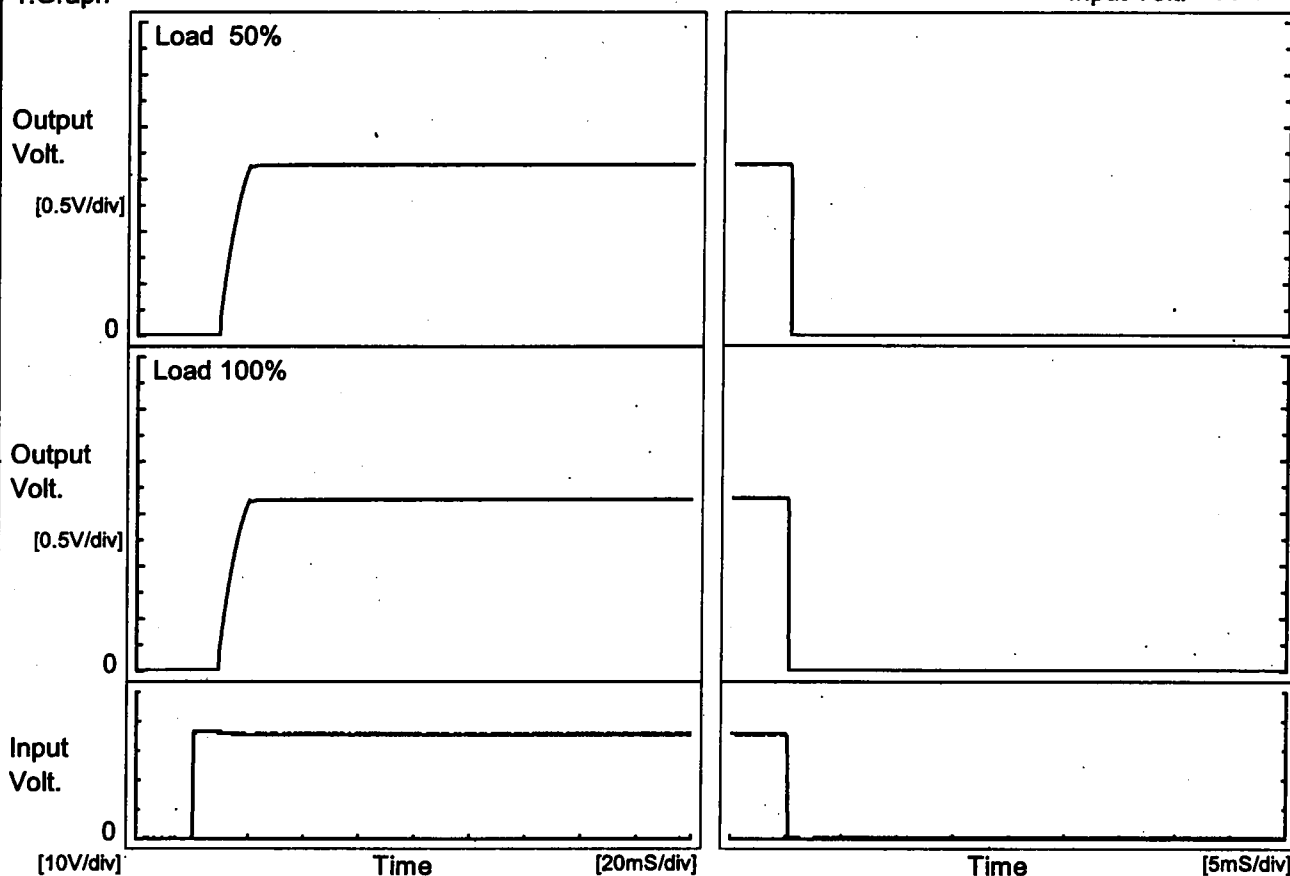
Figure A

Object

+3.3V45A

1. Graph

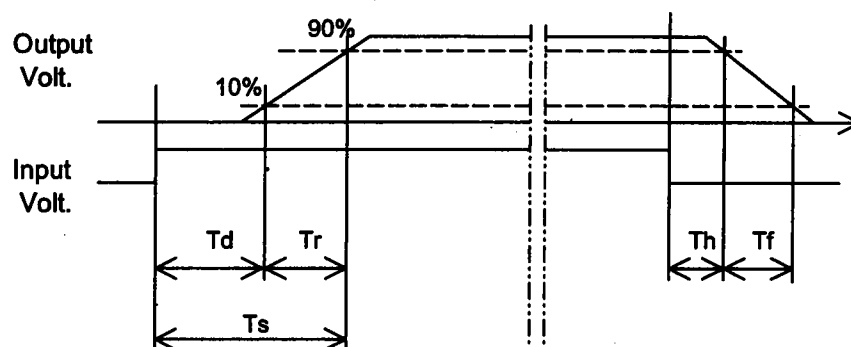
Input Volt. 36 V



2. Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	9.5	8.6	18.1	0.1	0.1
100 %	9.5	8.8	18.3	0.1	0.1



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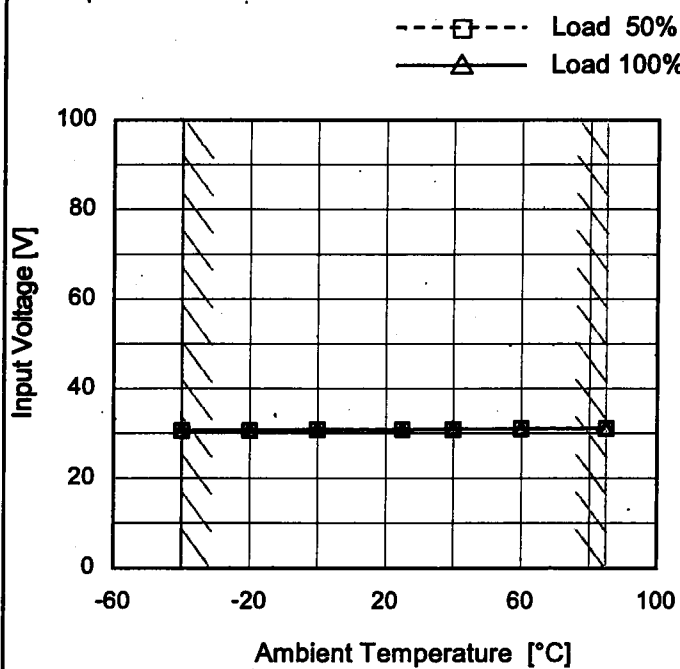
Model CQS48033-45

Item Minimum Input Voltage
for Regulated Output Voltage

Object +3.3V45A

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	30.6	30.8
-20	30.7	30.8
0	30.9	31.0
25	30.9	30.9
40	31.0	31.1
60	31.1	31.1
85	31.2	31.2
--	-	-
--	-	-
--	-	-
--	-	-

Model

CQS48033-45

Item

Overcurrent Protection

Object

+3.3V45A

1.Graph

Input Volt.

36V

Input Volt.

48V

Input Volt.

76V

Output Voltage [V]

4.0

3.0

2.0

1.0

0.0

0

20

40

60

Load Current [A]

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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.30	46.82	45.51	46.97
3.14	52.68	53.33	54.59
2.97	52.55	53.37	54.71
2.64	52.47	53.52	55.00
2.31	52.52	53.74	55.34
1.98	0.00	0.00	0.00
1.65	0.00	0.00	0.00
1.32	0.00	0.00	0.00
0.99	0.00	0.00	0.00
0.66	0.00	0.00	0.00
0.33	0.00	0.00	0.00
0.00	0.00	0.00	0.00

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Model

CQS48033-45

Item

Overvoltage Protection

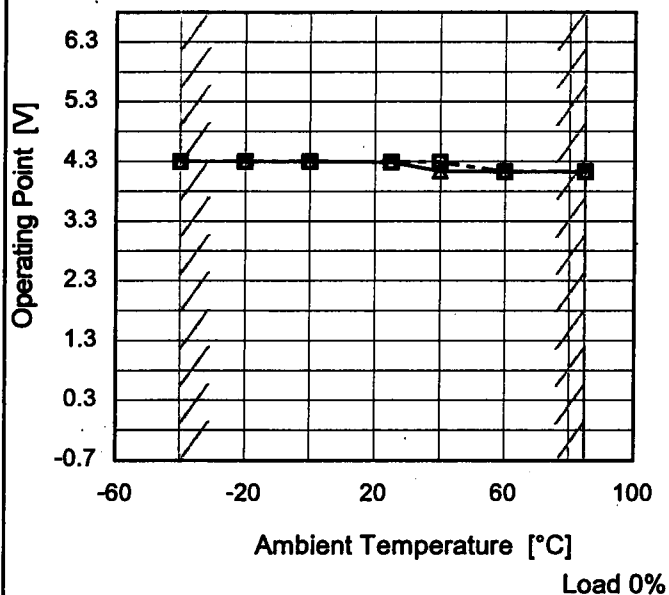
Object

+3.3V45A

Testing Circuitry Figure A

1.Graph

—△— Input Volt. 36V
 ---□--- Input Volt. 48V
 ---○--- Input Volt. 76V



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	4.31	4.31	4.31
-20	4.31	4.31	4.31
0	4.31	4.31	4.31
25	4.30	4.30	4.30
40	4.15	4.30	4.30
60	4.14	4.14	4.14
85	4.14	4.14	4.14
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

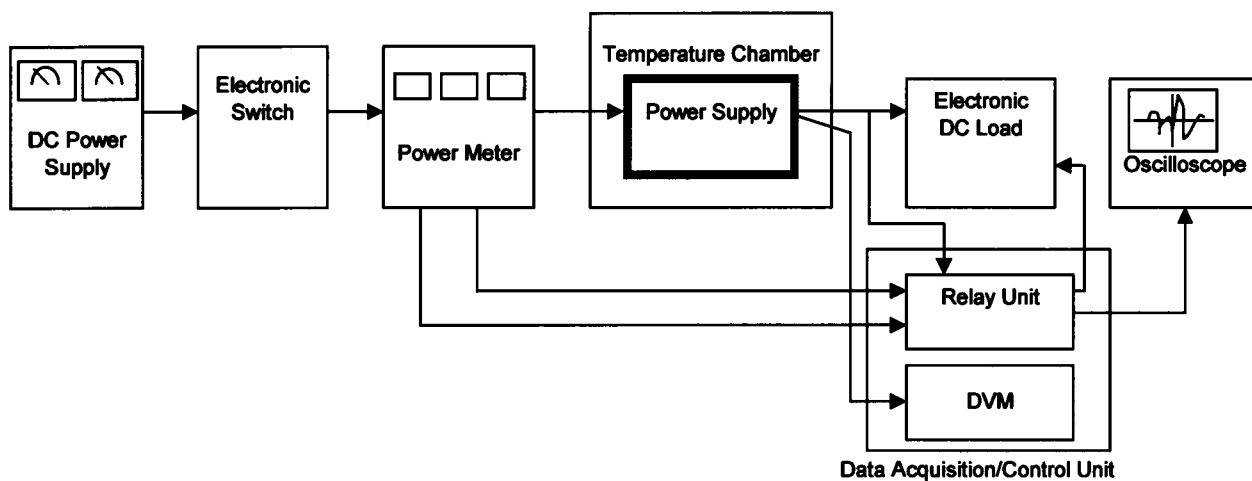


Figure A

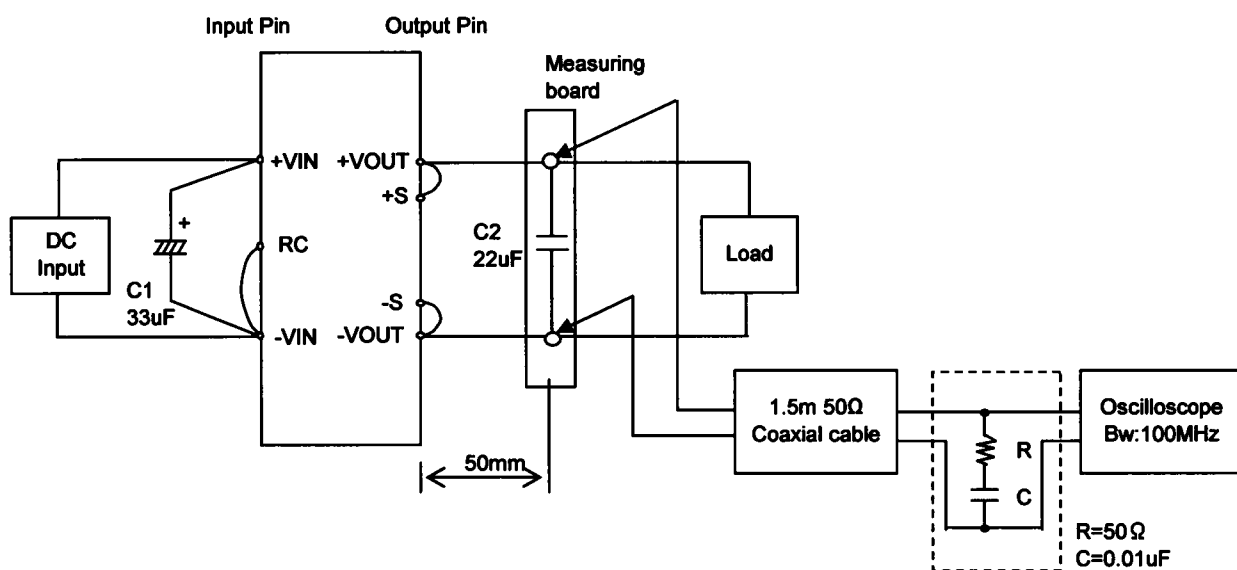


Figure B