COSEL

TEST DATA OF GT2.5-12

Regulated DC Power Supply
July 23, 2010

Approved by : _Eiyoshi Wakamatsu_
Eiyoshi Wakamatsu   Design Manager

Prepared by : _Satoshi Kinoshita_
Satoshi Kinoshita   Design Engineer

COSEL CO.,LTD.

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Object	————

Temperature   25°C
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1.Graph

————△———— Input Volt.   90V
- - -□- - - Input Volt.   100V
—·-○—·- Input Volt.   110V

Input Current [A] vs Load Current [A]

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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	0.021	0.025	0.029
0.40	0.167	0.171	0.175
0.80	0.290	0.295	0.301
1.20	0.402	0.410	0.418
1.60	0.508	0.518	0.527
2.00	0.610	0.622	0.633
2.20	0.659	0.672	0.684
2.42	0.712	0.726	0.738
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Input Power (by Load Current)
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   90V
---☐--- Input Volt.   100V
—·—○—·— Input Volt.   110V

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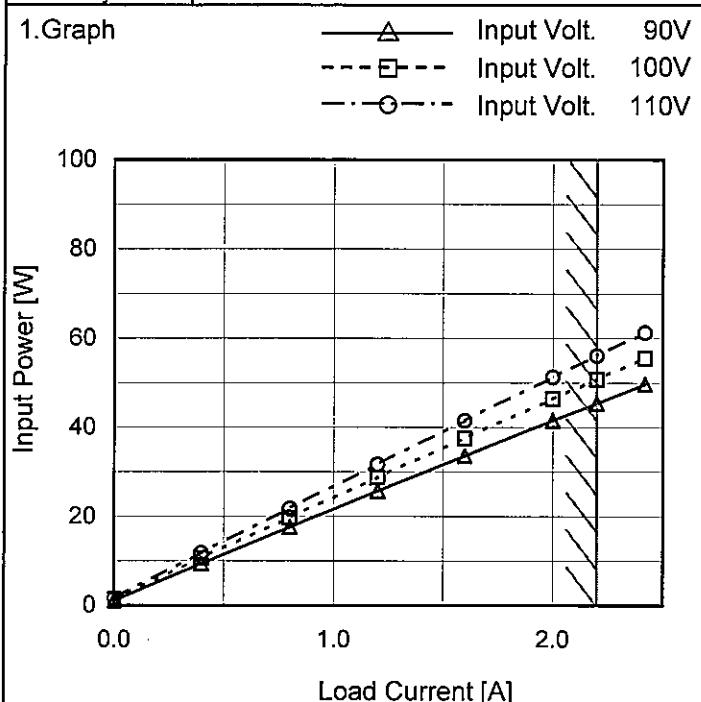
2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	1.10	1.40	1.60
0.40	9.40	10.60	11.80
0.80	17.60	19.70	21.80
1.20	25.70	28.70	31.70
1.60	33.60	37.60	41.50
2.00	41.60	46.40	51.30
2.20	45.40	50.80	56.10
2.42	49.70	55.50	61.30
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Efficiency (by Input Voltage)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

- - -⊡- - -   Load 50%
———△———   Load 100%

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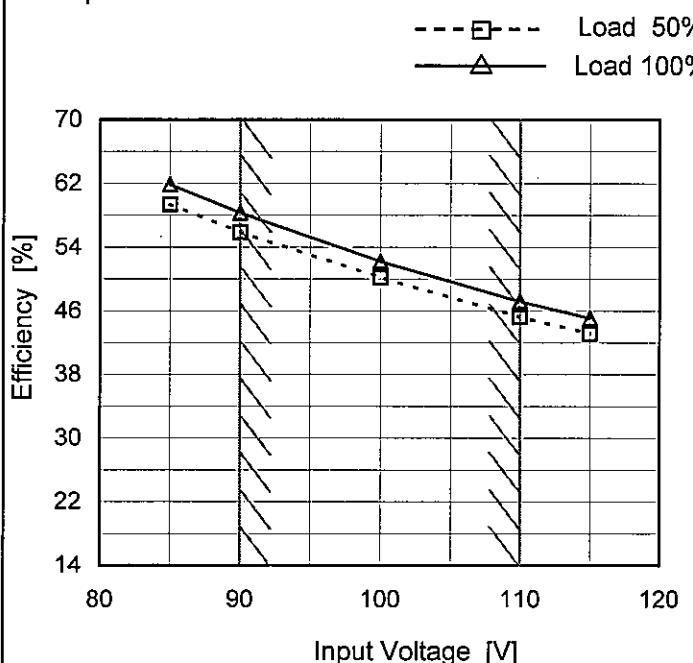
2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
85	59.4	61.9
90	55.9	58.3
100	50.2	52.2
110	45.2	47.2
115	43.1	45.1
---	-	-
---	-	-
---	-	-
---	-	-

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Model	GT2.5-12
Item	Efficiency (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

1.Graph

———△——— Input Volt. 90V
----◻---- Input Volt. 100V
—·—○—·— Input Volt. 110V

Efficiency [%] vs Load Current [A]

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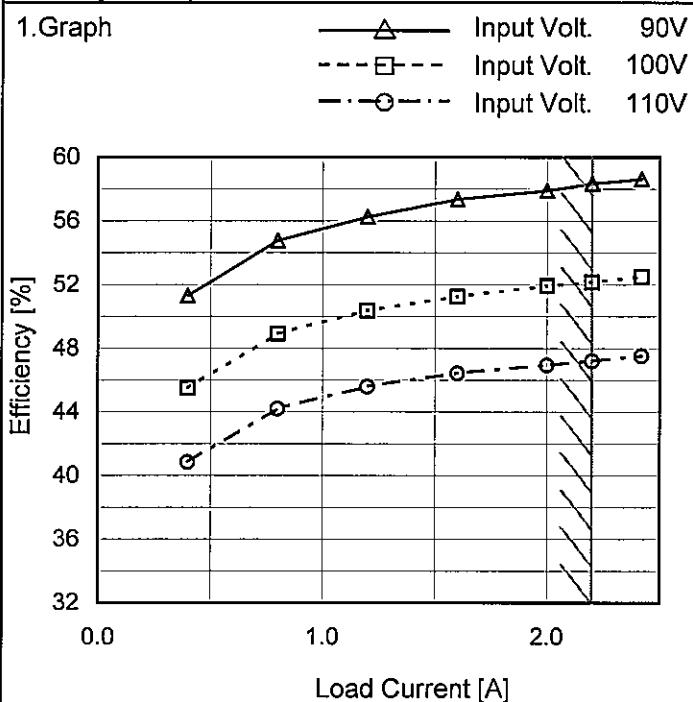
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.40	51.3	45.5	40.9
0.80	54.8	48.9	44.2
1.20	56.3	50.4	45.6
1.60	57.4	51.3	46.4
2.00	57.9	51.9	46.9
2.20	58.4	52.1	47.2
2.42	58.6	52.5	47.5
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Power Factor (by Input Voltage)
Object	————————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

```
---□---   Load  50%
——△——   Load 100%
```

Power Factor vs Input Voltage [V]

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

2.Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.710	0.774
90	0.705	0.767
100	0.693	0.757
110	0.686	0.748
115	0.681	0.743
--	-	-
--	-	-
--	-	-
--	-	-

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Model	GT2.5-12
Item	Power Factor (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

⎯△⎯   Input Volt.   90V
- - -⊟- - -   Input Volt.   100V
—·-⊙—·-   Input Volt.   110V

Power Factor vs Load Current [A]

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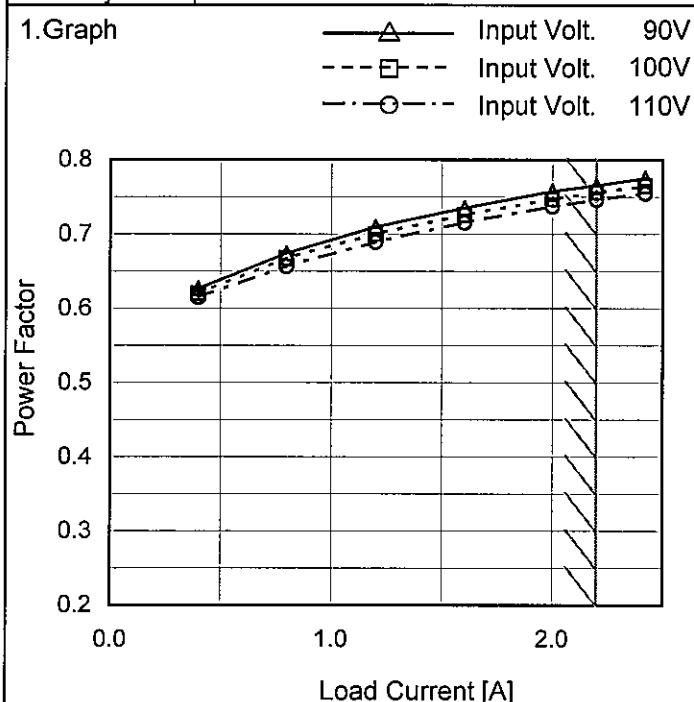
2.Values

Load Current [A]	Power Factor		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.40	0.627	0.620	0.615
0.80	0.674	0.668	0.657
1.20	0.710	0.700	0.689
1.60	0.735	0.726	0.716
2.00	0.758	0.747	0.737
2.20	0.766	0.756	0.746
2.42	0.775	0.764	0.755
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Inrush Current
Object	————

Temperature   25°C
Testing Circuitry   Figure A

Input Current [10A/div]

Input Voltage [100V/div]

Time   [10ms/div]

Input Voltage	100 V
Frequency	60 Hz
Load	100 %
Primary inrush current	10.0A

Primary inrush current

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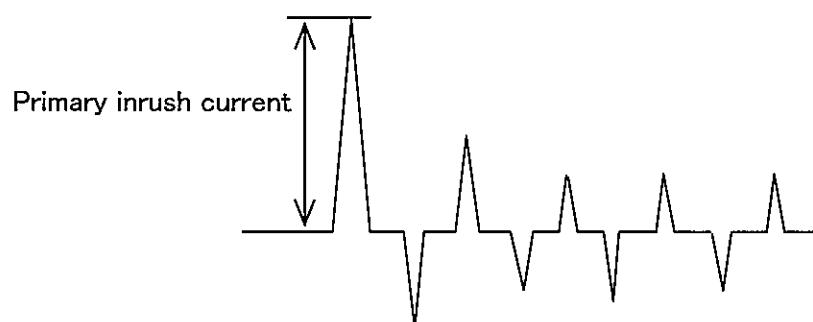
Model	GT2.5-12
Item	Line Regulation
Object	+12V2.2A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

--- ⊡ --- Load 50%
—— △ —— Load 100%

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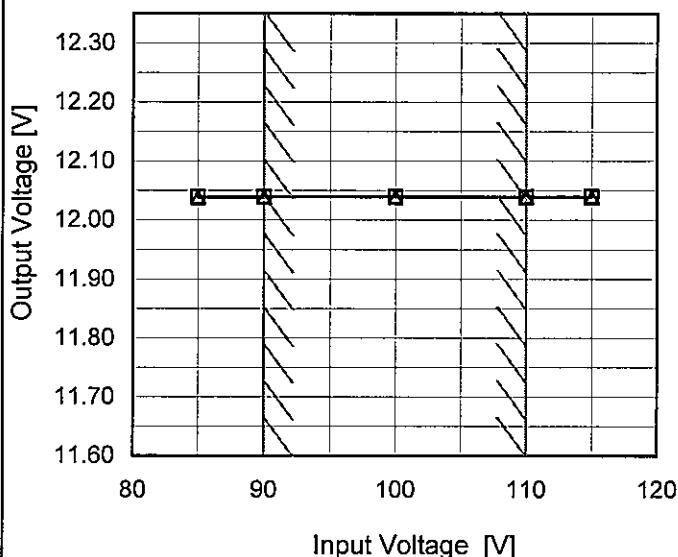
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	12.039	12.039
90	12.039	12.039
100	12.040	12.039
110	12.040	12.040
115	12.040	12.040
--	-	-
--	-	-
--	-	-
--	-	-

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Model	GT2.5-12
Item	Load Regulation
Object	+12V2.2A
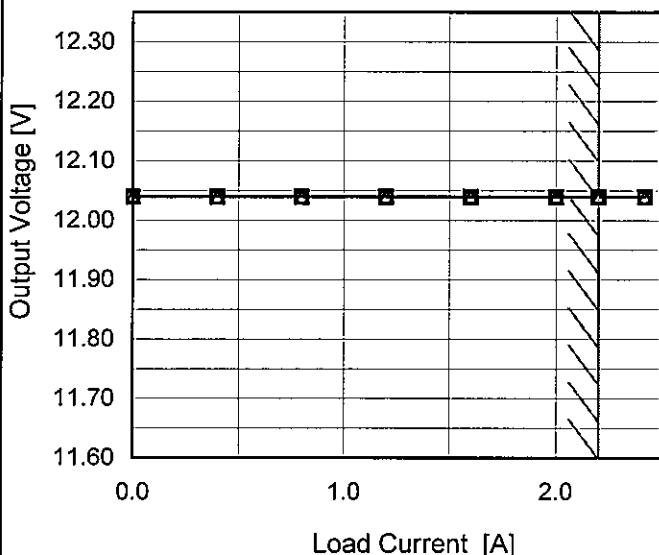
Temperature   25°C
Testing Circuitry   Figure A

1.Graph

      ———△——— Input Volt.   90V
      - - -◻- - - Input Volt.   100V
      —·-○—·- Input Volt.   110V

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

2.Values

Load Current	Output Voltage [V]		
	Input Volt.	Input Volt.	Input Volt.
[A]	90[V]	100[V]	110[V]
0.00	12.040	12.040	12.040
0.40	12.040	12.040	12.040
0.80	12.040	12.040	12.040
1.20	12.040	12.040	12.040
1.60	12.040	12.040	12.040
2.00	12.039	12.040	12.040
2.20	12.040	12.040	12.040
2.42	12.040	12.040	12.039
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Dynamic Load Response
Object	+12V2.2A

Temperature	25°C
Testing Circuitry	Figure A

Input Volt.   100 V

Cycle   1000 ms

Load Current

Min. Load (0A) ⟵⟶
   Load 100% (2.2A)

100 mV/div

100 µs/div   100 µs/div

Load 50% (1.1A) ⟵⟶
   Load 100% (2.2A)

100 mV/div

100 µs/div   100 µs/div

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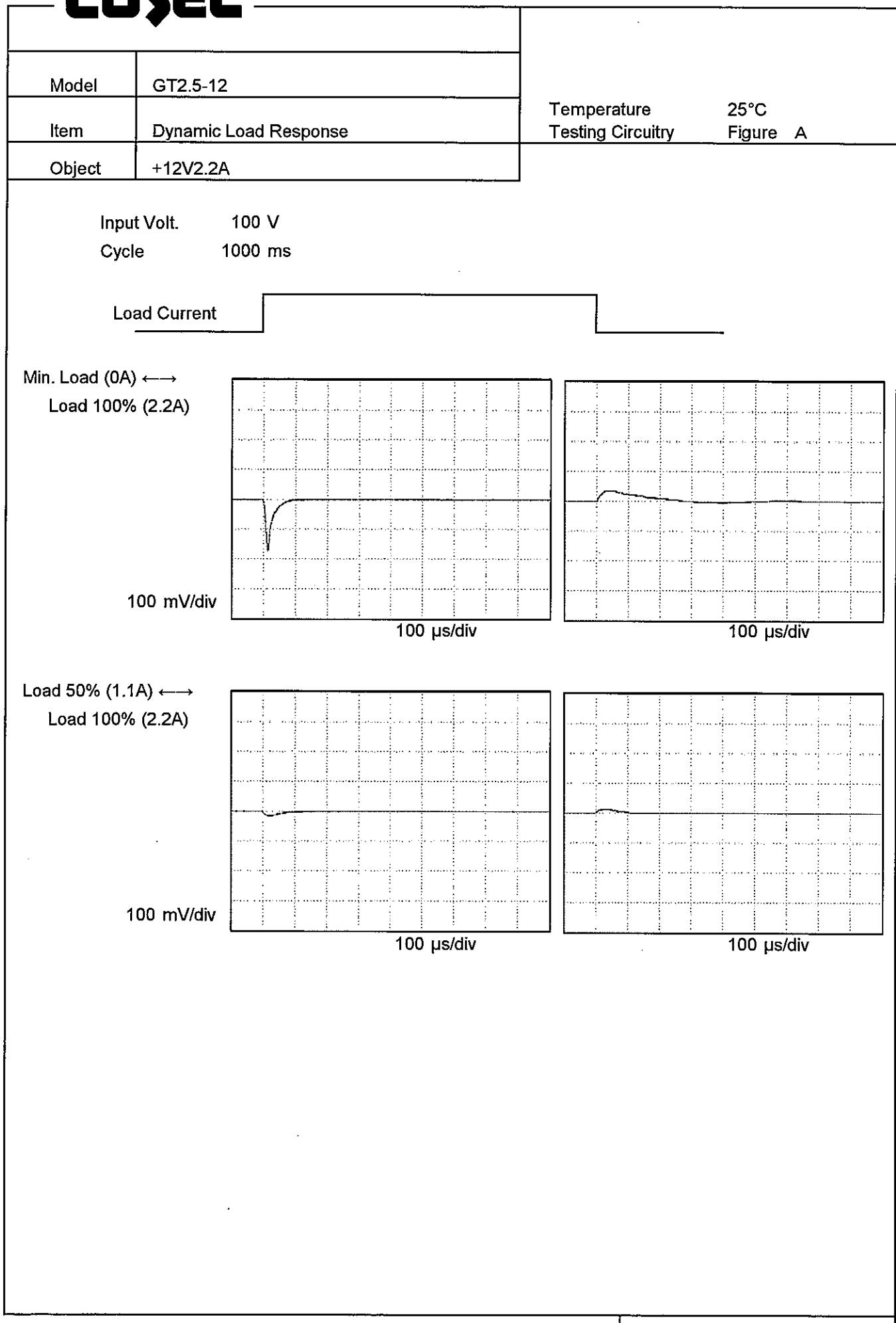
Model	GT2.5-12
Item	Ripple Voltage (by Load Current)
Object	+12V2.2A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   90V
—·-○—·- Input Volt.   110V

Ripple Voltage [mV] vs Load Current [A]

Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated
        load current.
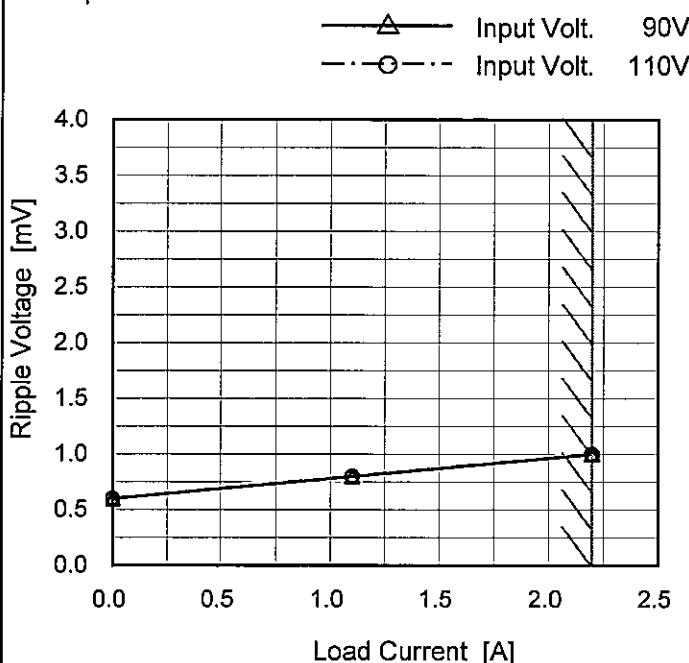
2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 90 [V]	Input Volt. 110 [V]
0.0	0.6	0.6
1.1	0.8	0.8
2.2	1.0	1.0
---	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
---	-	-
--	-	--

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Model	GT2.5-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V2.2A
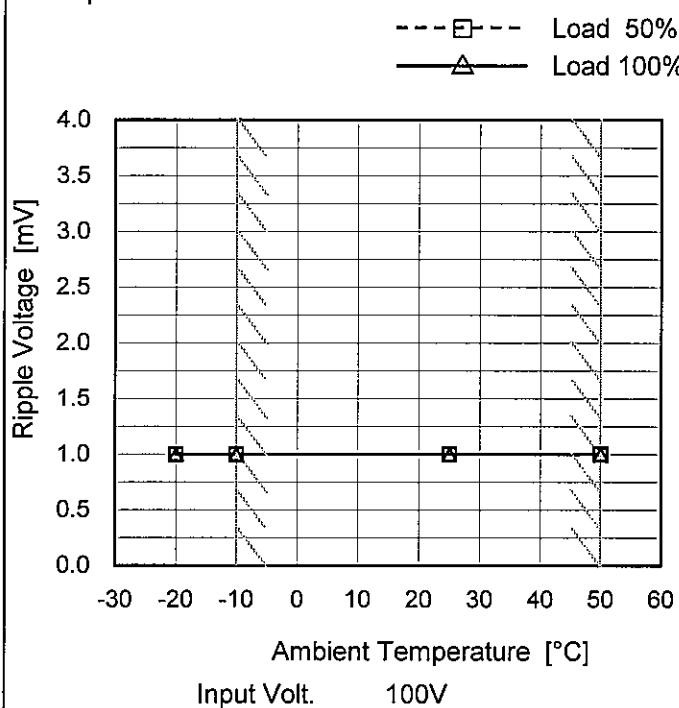
Testing Circuitry   Figure A

1.Graph

```
--- ⊟ ---   Load  50%
─── △ ───   Load 100%
```

Ripple Voltage [mV] vs Ambient Temperature [°C]

Input Volt.   100V

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%
-20	1.0	1.0
-10	1.0	1.0
25	1.0	1.0
50	1.0	1.0
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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Model	GT2.5-12
Item	Ambient Temperature Drift
Object	+12V2.2A
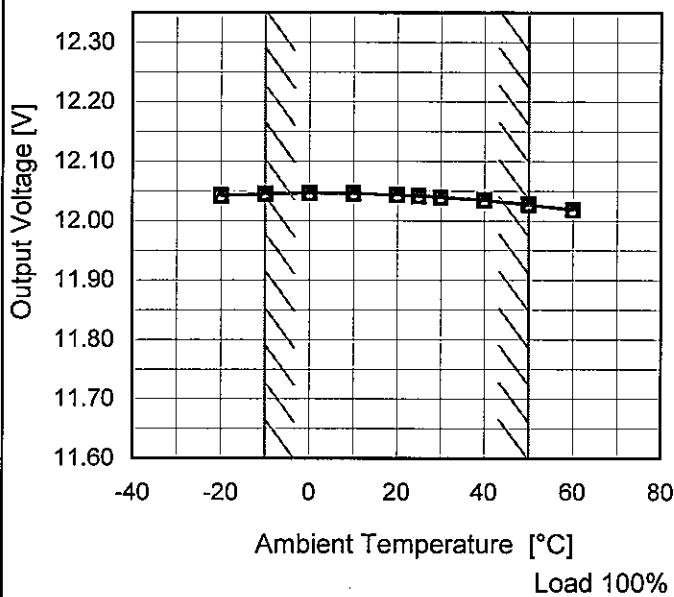
Testing Circuitry   Figure A

1.Graph

———△——— Input Volt.   90V
- - -⊟- - - Input Volt.   100V
—··—⊖—··— Input Volt.   110V

Ambient Temperature [°C]

Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
-20	12.043	12.043	12.043
-10	12.045	12.045	12.046
0	12.047	12.047	12.047
10	12.046	12.046	12.046
20	12.044	12.044	12.044
25	12.042	12.042	12.042
30	12.040	12.040	12.040
40	12.035	12.035	12.035
50	12.028	12.028	12.028
60	12.019	12.019	12.019
--	-	-	-

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Model	GT2.5-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V2.2A	

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   : -10 - 50°C

Input Voltage : 90 - 110V
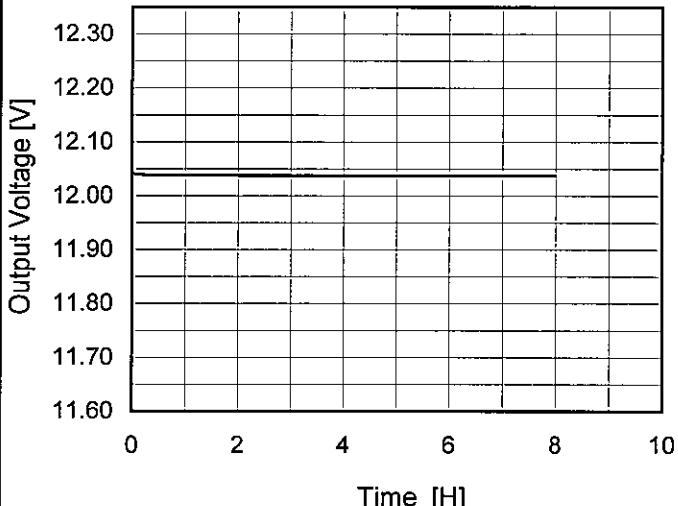
Load Current   : 0 - 2.2A

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

* Output Voltage Accuracy (Ration) = $\dfrac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}}$ × 100

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	110	0	12.047	±10	±0.1
Minimum Voltage	50	90	2.2	12.028		

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Model	GT2.5-12
Item	Time Lapse Drift
Object	+12V2.2A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Input Volt.   100V
Load   100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.043
0.5	12.039
1.0	12.038
2.0	12.038
3.0	12.038
4.0	12.038
5.0	12.038
6.0	12.038
7.0	12.038
8.0	12.038

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Model	GT2.5-12
Item	Rise and Fall Time
Object	+12V2.2A

Temperature　25°C
Testing Circuitry　Figure A

1.Graph

Input Volt.　100 V

Load 50%

Output
Volt.

[2V/div]

0

Load 100%

Output
Volt.

[2V/div]

0

Input
Volt.

0

[100V/div]　　　Time　　　[50ms/div]　　　Time　　　[100ms/div]
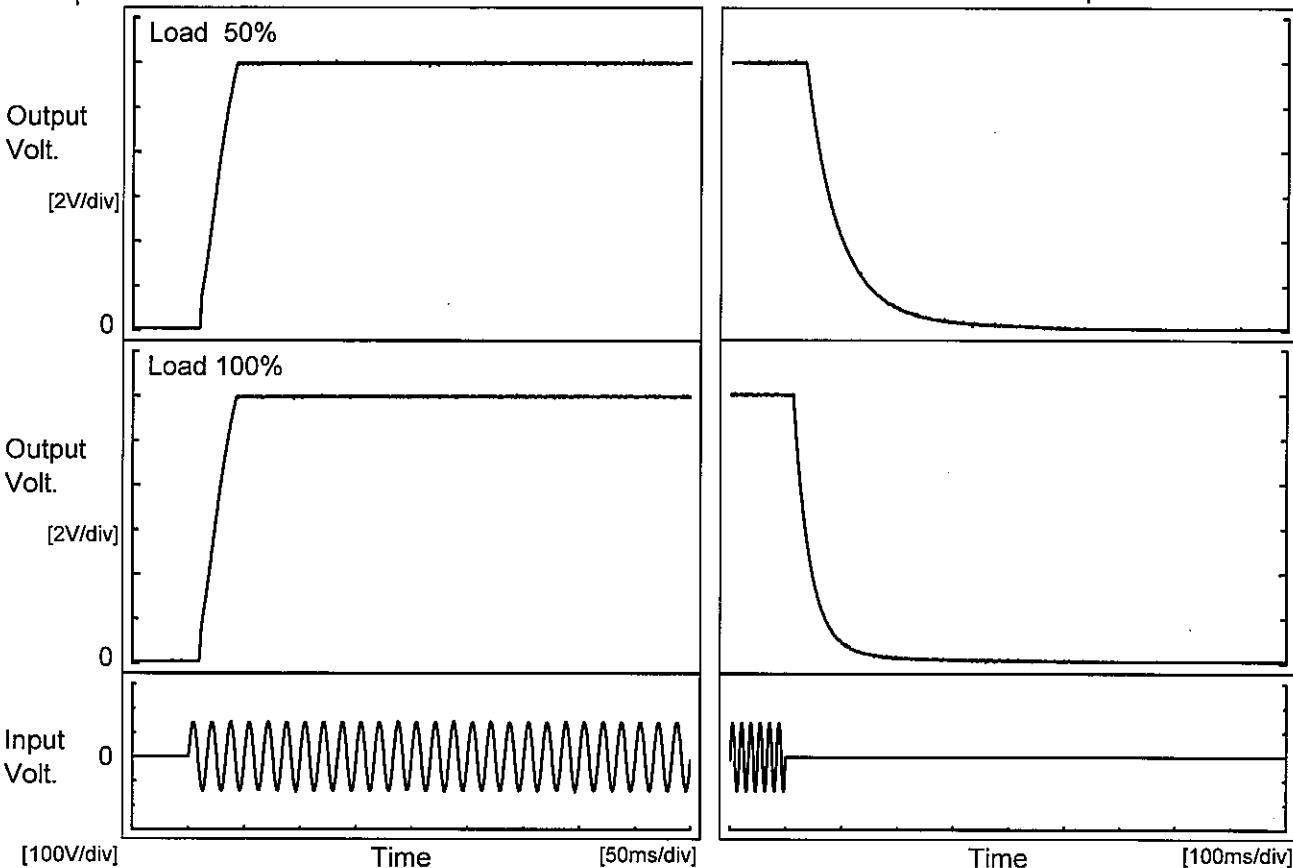
2.Values

[ms]

Load ⟍ Time	Td	Tr	Ts	Th	Tf
50 %	10.8	27.3	38.1	39.5	139.5
100 %	11.3	26.8	38.1	16.5	71.0

Output
Volt.

90%

10%

Input
Volt.

Td　Tr

Th　Tf

Ts

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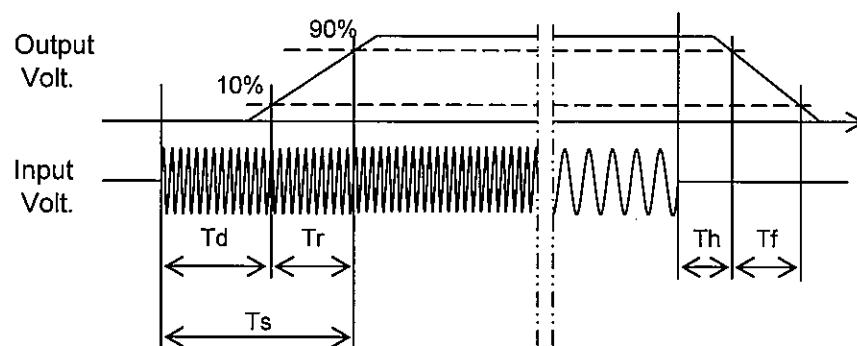
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Model	GT2.5-12
Item	Hold-Up Time
Object	+12V2.2A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

--- ⊡ --- Load 50%
——△——   Load 100%

Hold-Up Time [ms] vs Input Voltage [V]

This duration covers from Shut-off of input
voltage to the moment when output voltage
descends to the rated range of voltage accuracy.
Note: Slanted line shows the range of the rated
       input voltage.
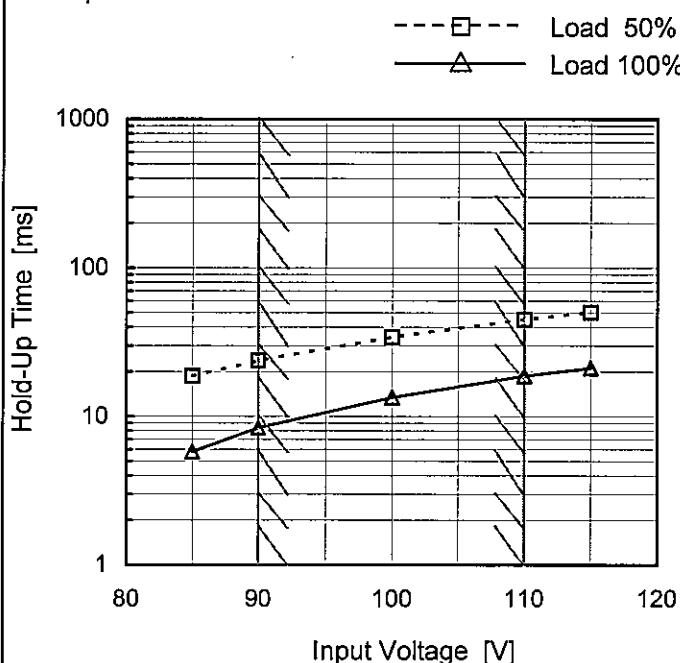
2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	19	6
90	24	8
100	34	14
110	45	19
115	50	21
--	-	-
--	-	-
--	-	-
--	-	-

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Model	GT2.5-12
Item	Instantaneous Interruption Compensation
Object	+12V2.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——△—— Input Volt. 90V
---⊟--- Input Volt. 100V
—·—○—·— Input Volt. 110V

Load Current [A]

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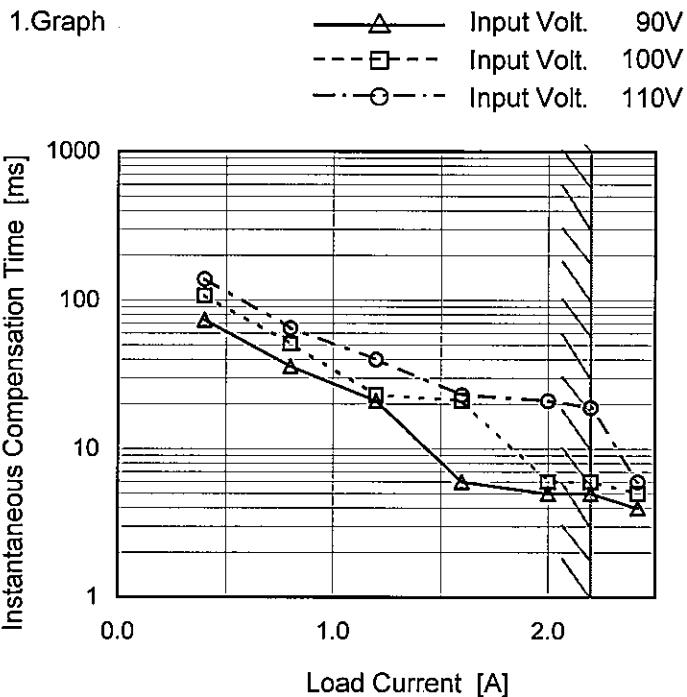
2.Values

Load Current [A]	Time [ms]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
0.00	-	-	-
0.40	74	107	139
0.80	36	51	65
1.20	21	23	40
1.60	6	21	23
2.00	5	6	21
2.20	5	6	19
2.42	4	5	6
--	-	-	-
--	-	-	-
--	-	-	-

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Model	GT2.5-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V2.2A
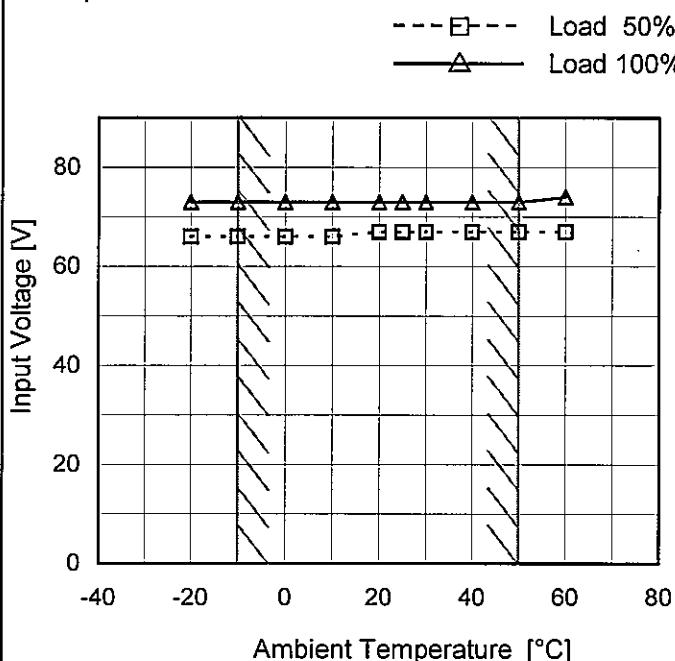
Testing Circuitry   Figure A

1.Graph

--- ⊟ --- Load 50%

—— △ —— Load 100%

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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	66	73
-10	66	73
0	66	73
10	66	73
20	67	73
25	67	73
30	67	73
40	67	73
50	67	73
60	67	74
--	-	-

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Model	GT2.5-12
Item	Overcurrent Protection
Object	+12V2.2A
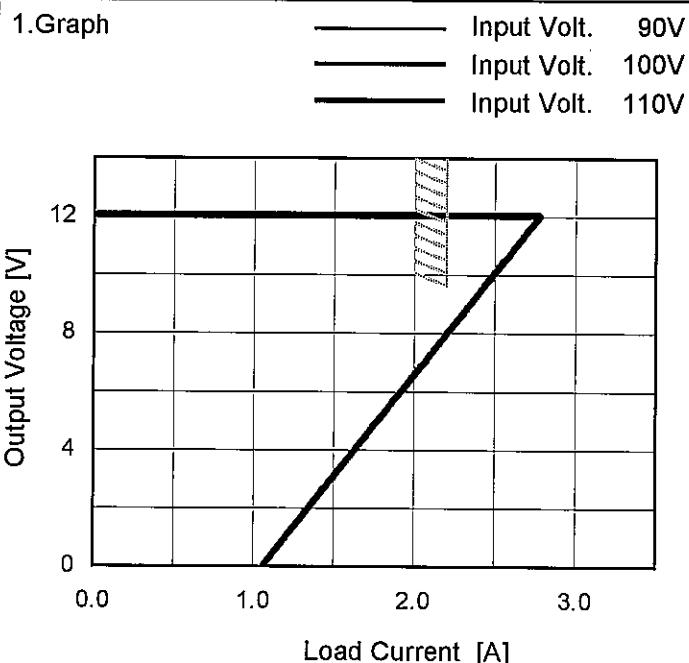
Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——————— Input Volt.   90V
——————— Input Volt.   100V
——————— Input Volt.   110V

Load Current [A]

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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 90[V]	Input Volt. 100[V]	Input Volt. 110[V]
12.0	2.78	2.78	2.77
11.4	2.71	2.70	2.70
10.8	2.64	2.63	2.62
9.6	2.44	2.43	2.43
8.4	2.29	2.29	2.28
7.2	2.10	2.09	2.09
6.0	1.93	1.93	1.93
4.8	1.76	1.76	1.76
3.6	1.58	1.58	1.59
2.4	1.42	1.41	1.41
1.2	1.24	1.24	1.24
0.0	1.06	1.06	1.06

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Figure A

BC-10192