COSEL

TEST DATA OF STMGFS15243R3

Regulated DC Power Supply
January 28, 2013

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COSEL CO.,LTD.

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CONTENTS

(Final Page 17)

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Model	STMGFS15243R3
Item	Input Current (by Input Voltage)
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△—— Load 100%
---⊟--- Load 50%
—·—○—·· Load 0%

Input Current [A] vs 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	0.000	0.000	0.000
2.0	0.001	0.001	0.001
4.0	0.001	0.001	0.001
6.0	0.002	0.002	0.002
7.0	0.003	0.002	0.002
8.0	0.002	0.002	0.003
8.1	0.002	0.003	0.002
8.3	0.075	0.938	0.193
8.5	0.074	0.913	1.877
9.0	0.071	0.870	1.766
12.0	0.059	0.643	1.294
18.0	0.046	0.427	0.847
24.0	0.039	0.322	0.632
36.0	0.032	0.220	0.424
40.0	0.030	0.199	0.384
--	-	-	-
--	-	-	-
--	-	-	-

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Model	STMGFS15243R3
Item	Input Current (by Load Current)
Object	———————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△——	Input Volt.	9V
---◻---	Input Volt.	12V
—··✳·—·	Input Volt.	18V
—·—◯—··	Input Volt.	24V
——◇——	Input Volt.	36V

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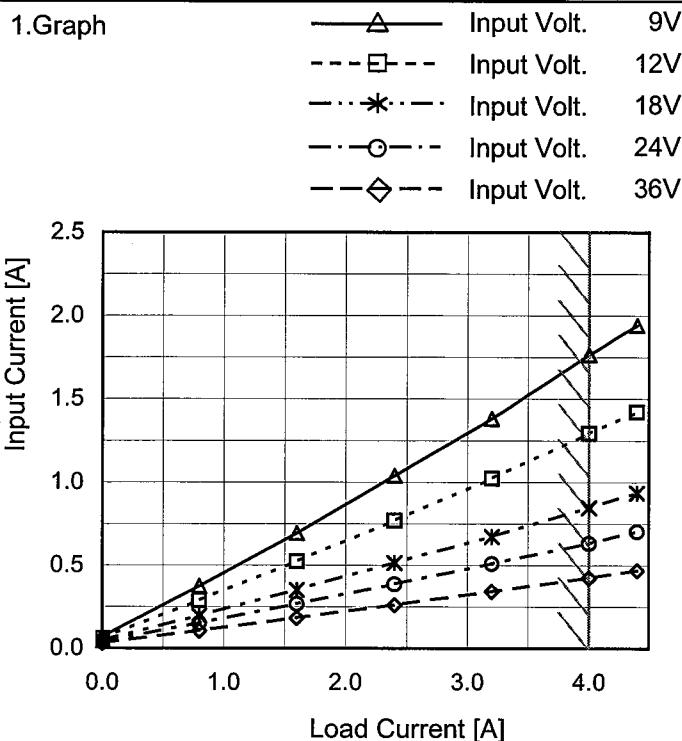
2.Values

Load Current [A]	Input Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.071	0.059	0.046	0.039	0.032
0.8	0.375	0.287	0.197	0.151	0.106
1.6	0.693	0.523	0.351	0.267	0.183
2.4	1.039	0.768	0.516	0.385	0.261
3.2	1.381	1.023	0.673	0.509	0.342
4.0	1.766	1.294	0.847	0.632	0.425
4.4	1.942	1.422	0.936	0.702	0.469
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

- 2 -

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Model	STMGFS15243R3
Item	Input Power (by Load Current)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

————△———— Input Volt.   9V
- - -□- - - Input Volt.   12V
—··—✱—··— Input Volt.   18V
—·—○—··— Input Volt.   24V
——◇—— Input Volt.   36V

Input Power [W] vs Load Current [A]

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

2.Values

Load Current [A]	Input Power [W]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	0.64	0.71	0.83	0.94	1.14
0.8	3.37	3.43	3.53	3.62	3.81
1.6	6.26	6.26	6.31	6.38	6.56
2.4	9.36	9.23	9.21	9.23	9.39
3.2	12.49	12.28	12.13	12.14	12.27
4.0	15.86	15.48	15.24	15.20	15.28
4.4	17.59	17.11	16.81	16.75	16.82
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	STMGFS15243R3
Item	Efficiency (by Input Voltage)
Object	

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Efficiency [%] vs Input Voltage [V]

--- ⊟ ---   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%
8.5	85.0	82.3
9.0	85.1	83.1
12.0	86.0	85.2
15.0	85.9	86.0
18.0	85.7	86.4
24.0	85.1	86.6
30.0	84.3	86.6
36.0	83.7	86.3
40.0	82.9	85.9

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Model	STMGFS15243R3
Item	Efficiency (by Load Current)
Object	————————

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△——	Input Volt.	9V
– – –⊟– – –	Input Volt.	12V
—··✳··—·	Input Volt.	18V
—·—○—·—	Input Volt.	24V
——◇——	Input Volt.	36V
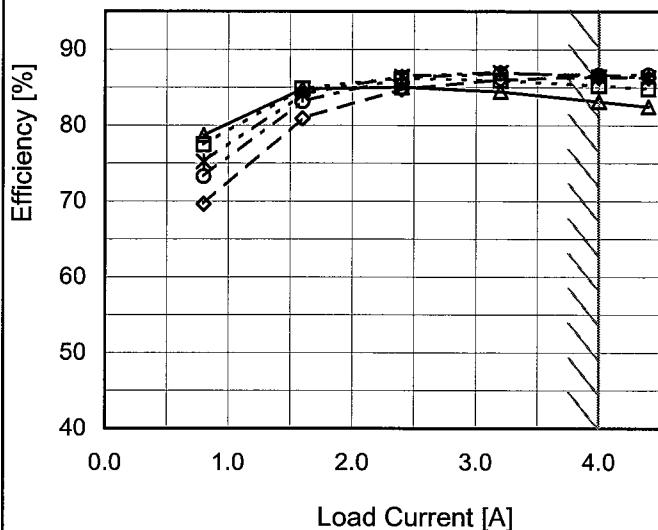
Load Current [A]

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

2.Values

Load Current [A]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-	-	-
0.8	78.7	77.5	75.2	73.3	69.7
1.6	84.8	84.8	84.1	83.2	80.9
2.4	85.0	86.2	86.5	86.2	84.8
3.2	84.5	85.9	87.0	86.9	86.0
4.0	83.1	85.2	86.4	86.6	86.3
4.4	82.5	84.8	86.3	86.6	86.3
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model	STMGFS15243R3
Item	Line Regulation
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

- - -⊟- - -   Load 50%
———△———   Load 100%

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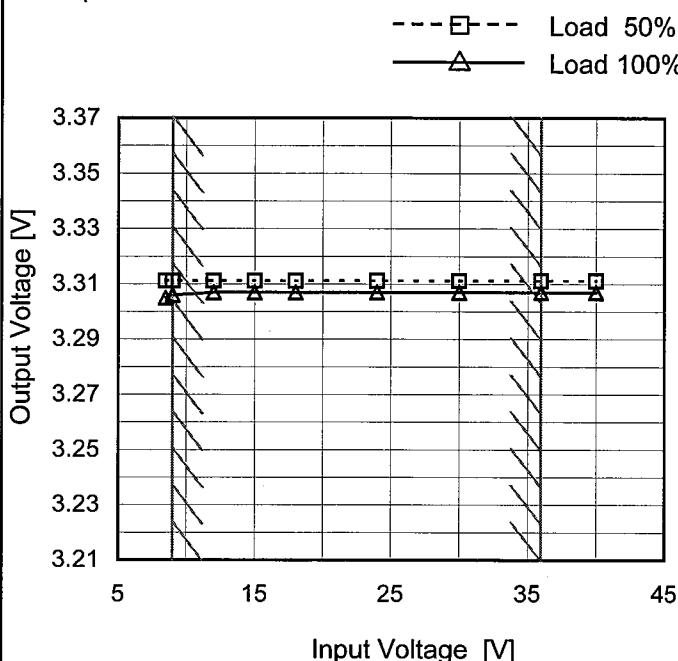
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	3.311	3.305
9.0	3.311	3.306
12.0	3.311	3.307
15.0	3.311	3.307
18.0	3.311	3.307
24.0	3.311	3.307
30.0	3.311	3.307
36.0	3.311	3.307
40.0	3.311	3.307

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Model	STMGFS15243R3
Item	Load Regulation
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

————△——— Input Volt.   9V
– – –⊟– – – Input Volt.   12V
—··—✳··—· Input Volt.   18V
—·—○—··— Input Volt.   24V
——◇——   Input Volt.   36V

Output Voltage [V] vs Load Current [A]

2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	3.317	3.316	3.316	3.316	3.316
0.8	3.315	3.314	3.314	3.314	3.314
1.6	3.312	3.312	3.312	3.312	3.312
2.4	3.310	3.310	3.310	3.310	3.310
3.2	3.308	3.308	3.308	3.308	3.308
4.0	3.306	3.307	3.307	3.307	3.307
4.4	3.304	3.304	3.304	3.305	3.305
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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

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Model	STMGFS15243R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

—△— Input Volt.   9V
— ·—○—·· Input Volt.   36V

Ripple Voltage [mV] vs Load Current [A]
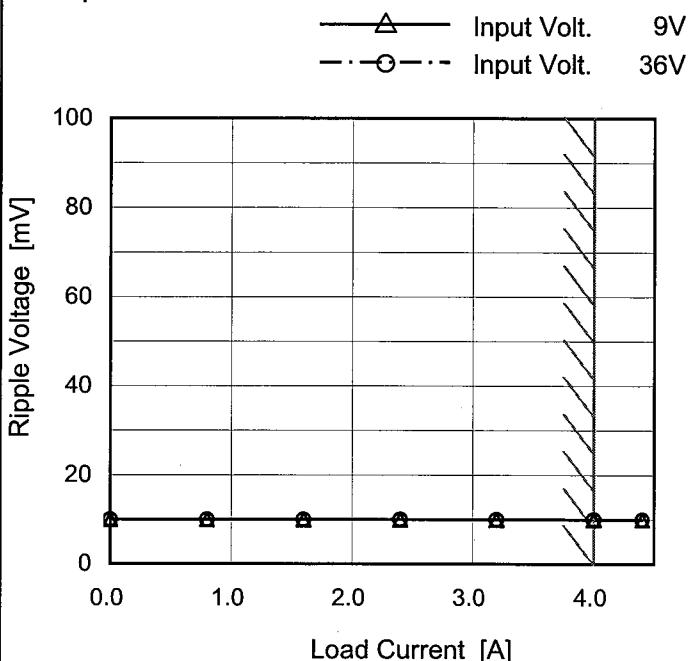
2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	10	10
0.8	10	10
1.6	10	10
2.4	10	10
3.2	10	10
4.0	10	10
4.4	10	10
--	-	-
--	-	-
--	-	-
--	-	-

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.

Ripple [mVp-p]
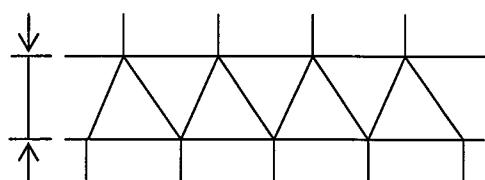
Fig.Complex Ripple Wave Form

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Model	STMGFS15243R3
Item	Ripple-Noise
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

—△— Input Volt.   9V
— ·—○—· · Input Volt.   36V

Load Current [A]

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.
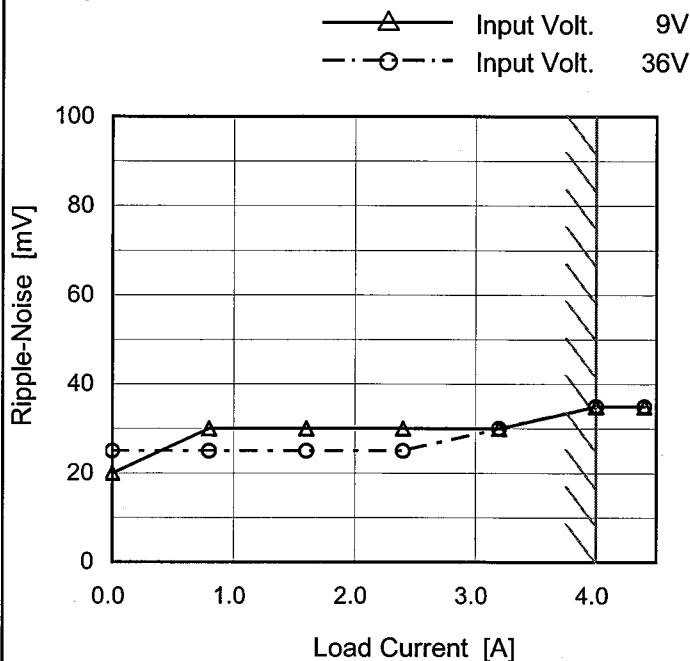
2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 36 [V]
0.0	20	25
0.8	30	25
1.6	30	25
2.4	30	25
3.2	30	30
4.0	35	35
4.4	35	35
--	-	-
--	-	-
--	-	-
--	-	-

Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

BC - 10710
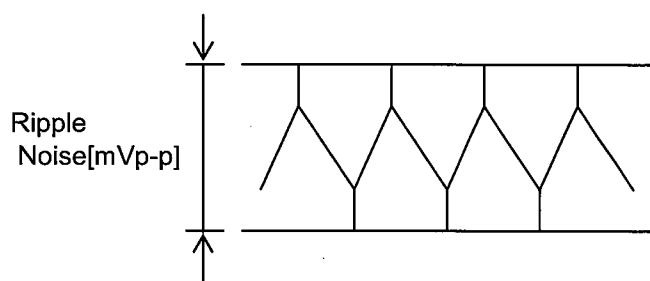
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Model	STMGFS15243R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V4A

Testing Circuitry   Figure B

1.Graph

- - -☐- - - Load 50%
———△——— Load 100%

Ambient Temperature [°C]

Input Volt.   24V
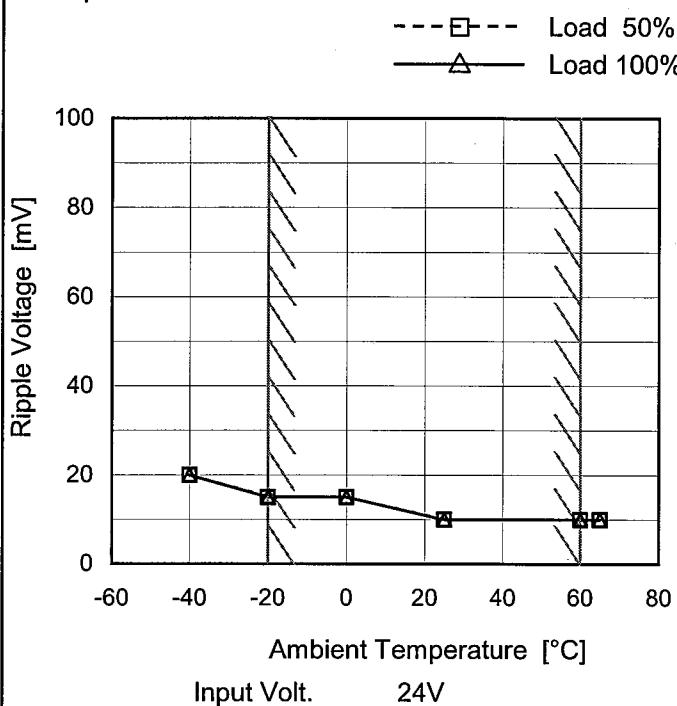
Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated
        ambient temperature.

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	20	20
-20	15	15
0	15	15
25	10	10
60	10	10
65	10	10
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Ripple Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

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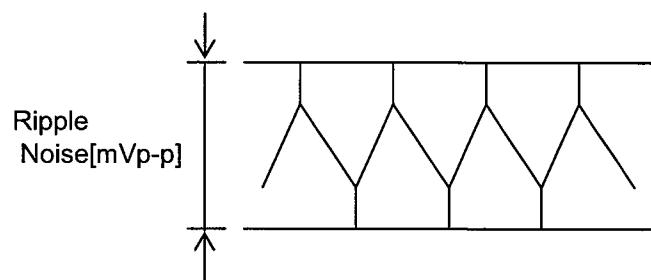
Model	STMGFS15243R3
Item	Ambient Temperature Drift
Object	+3.3V4A
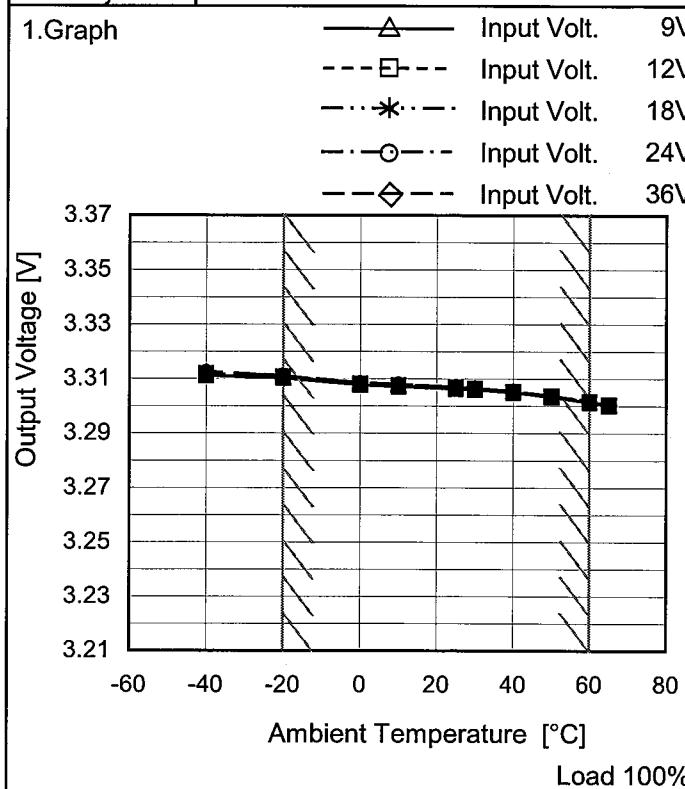
Testing Circuitry   Figure A

1.Graph

——△——	Input Volt.	9V
- - -☐- - -	Input Volt.	12V
—··✳··—·	Input Volt.	18V
—·—○—··	Input Volt.	24V
——◇——	Input Volt.	36V

Output Voltage [V] vs 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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	3.311	3.312	3.312	3.312	3.313
-20	3.310	3.311	3.311	3.311	3.311
0	3.308	3.308	3.308	3.308	3.309
10	3.307	3.308	3.308	3.308	3.308
25	3.306	3.307	3.307	3.307	3.307
30	3.306	3.306	3.307	3.307	3.307
40	3.305	3.305	3.306	3.306	3.306
50	3.304	3.304	3.304	3.304	3.304
60	3.302	3.302	3.302	3.302	3.302
65	3.300	3.301	3.301	3.301	3.300
--	-	-	-	-	-

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Model	STMGFS15243R3
Item	Output Voltage Accuracy
Object	+3.3V4A

Testing Circuitry   Figure A

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 - 60°C

Input Voltage   : 9 - 36V

Load Current   : 0 - 4A

* 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 Current[A]	Output Voltage[V]	Output Voltage Accuracy Value [mV]	Output Voltage Accuracy Ration [%]
Maximum Voltage	-20	9	0	3.321	±10	±0.3
Minimum Voltage	60	9	4	3.302		

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Model	STMGFS15243R3
Item	Time Lapse Drift
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Input Volt.   24V
Load   100%
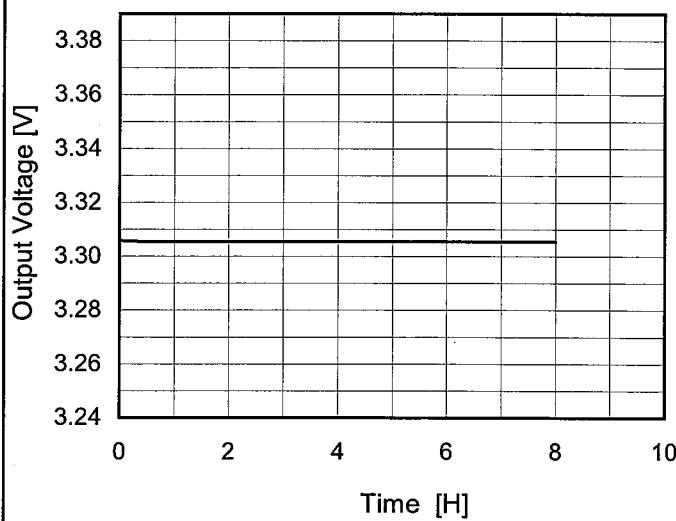
2.Values

Time since start [H]	Output Voltage [V]
0.0	3.306
0.5	3.306
1.0	3.306
2.0	3.306
3.0	3.306
4.0	3.306
5.0	3.306
6.0	3.306
7.0	3.306
8.0	3.306

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Model	STMGFS15243R3
Item	Rise and Fall Time
Object	+3.3V4A

Temperature	25°C
Testing Circuitry	Figure A

1.Graph

Input Volt.   24 V

Load 50%

Output Volt.

[0.5V/div]

0

Load 100%

Output Volt.

[0.5V/div]

0

Input Volt.

0

[10V/div]

Time   [10ms/div]

Time   [2ms/div]

2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.7	0.8	1.5	0.3	0.4
100 %	0.7	0.8	1.5	0.2	0.2

Output Volt.

90%

10%

Input Volt.

Td   Tr   Th   Tf

Ts

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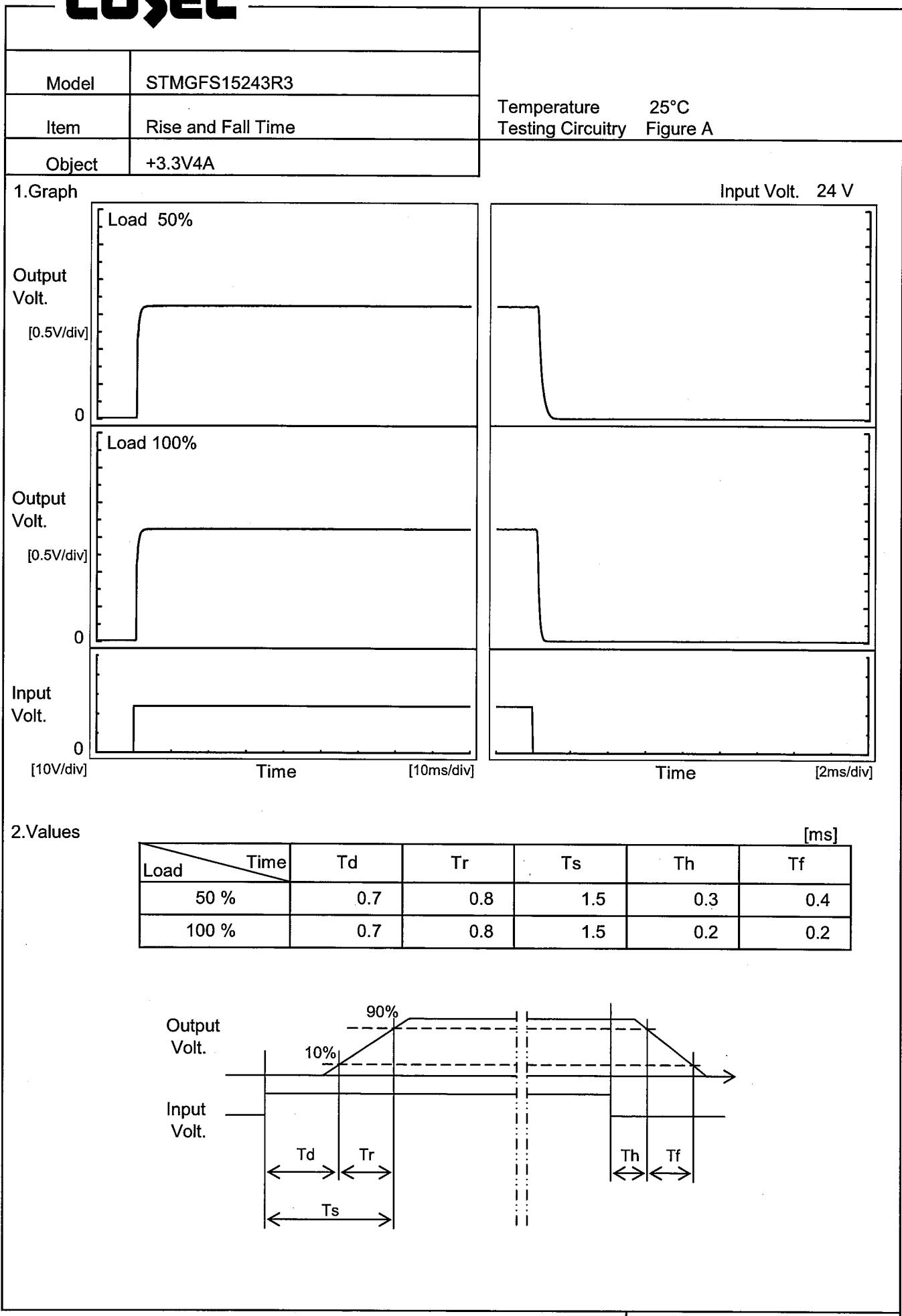
Model	STMGFS15243R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V4A
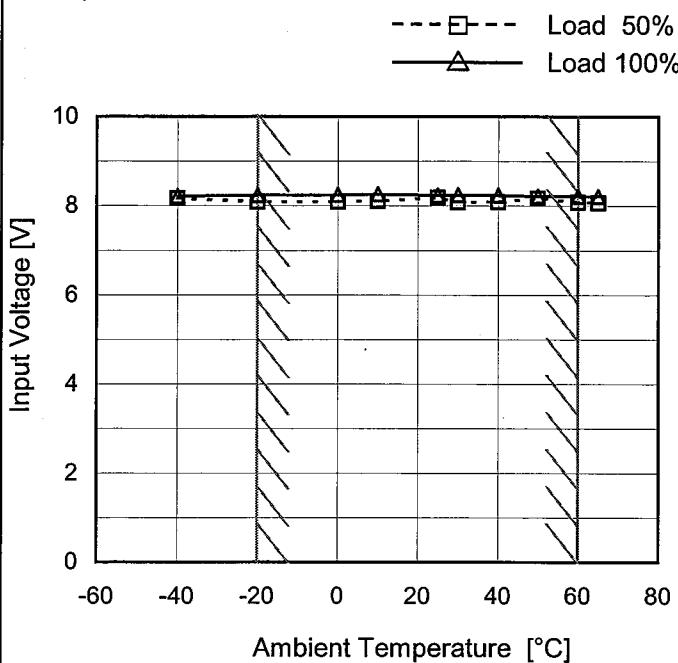
Testing Circuitry   Figure A

1.Graph

--- ⊟ --- Load 50%

—— △ —— Load 100%

Input Voltage [V] vs Ambient Temperature [°C]

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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	8.2	8.3
-20	8.1	8.3
0	8.1	8.3
10	8.1	8.3
25	8.2	8.3
30	8.1	8.3
40	8.1	8.3
50	8.2	8.3
60	8.1	8.3
65	8.1	8.3
--	-	-

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Model	STMGFS15243R3
Item	Overcurrent Protection
Object	+3.3V4A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

————△ Input Volt.   9V
————◻ Input Volt.   12V
————✳ Input Volt.   18V
————◯ Input Volt.   24V
————◇ Input Volt.   36V

Load Current [A]

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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

| Output Voltage [V]	Load Current [A]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
3.30	5.339	5.866	6.251	6.306	5.824
3.14	-	-	-	-	-
2.97	-	-	-	-	-
2.64	-	-	-	-	-
2.31	-	-	-	-	-
1.98	-	-	-	-	-
1.65	-	-	-	-	-
1.32	-	-	-	-	-
0.99	-	-	-	-	-
0.66	-	-	-	-	-
0.33	-	-	-	-	-
0.00	-	-	-	-	-

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Figure A

Figure B (Ripple and Ripple noise Characteristic)

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