

TEST DATA OF SFS30242R5

Regulated DC Power Supply
Dec 28, 2004

Approved by : Isao Yasuda
Isao Yasuda Design Manager

Prepared by : Tatsuya Mano
Tatsuya Mano Design Engineer

COSEL CO.,LTD.

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(Final Page 19)

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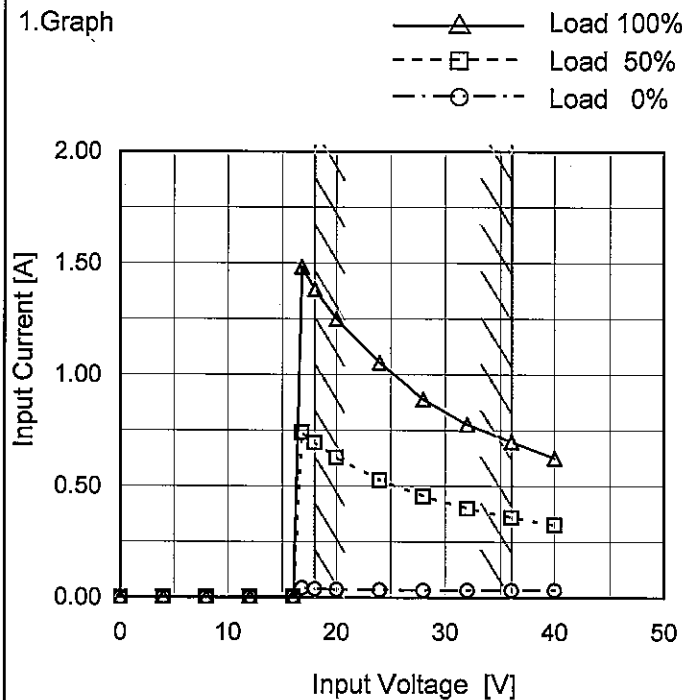
Model SFS30242R5

Item Input Current (by Input Voltage)

Temperature 25°C
Testing Circuitry Figure A

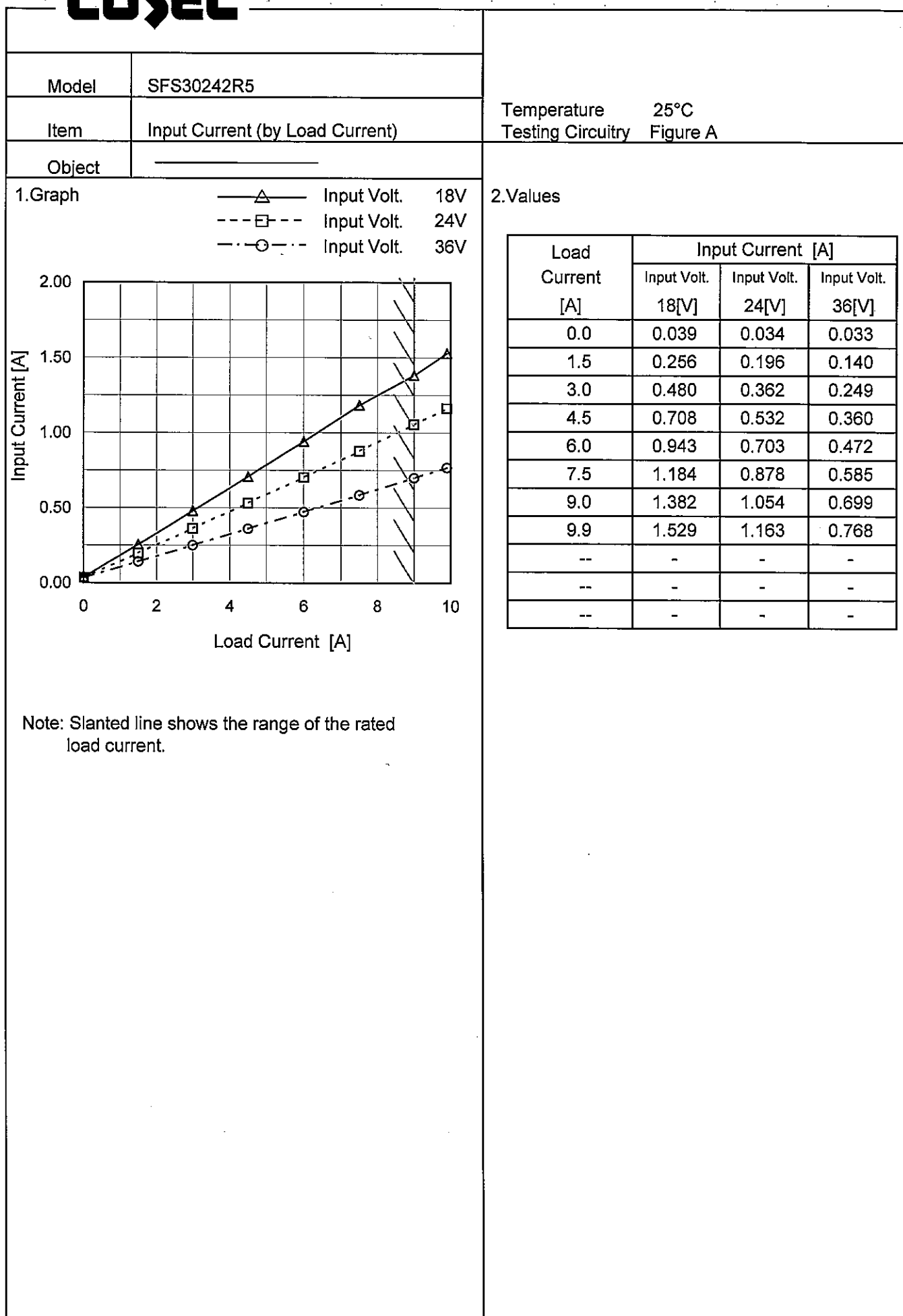
Object

1. Graph

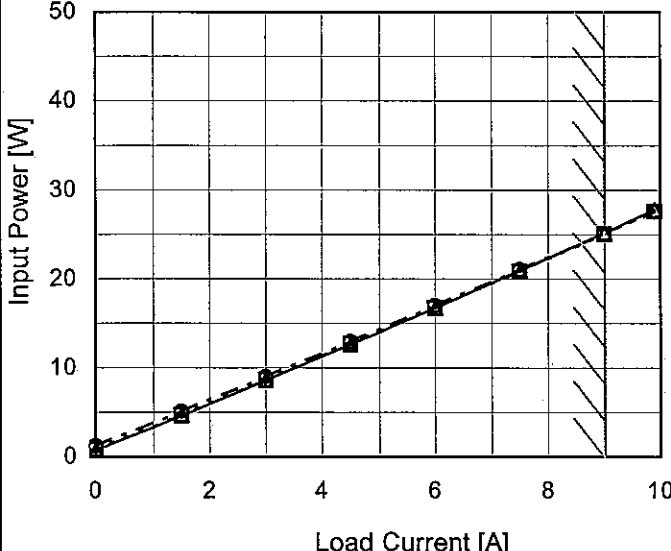


2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
4	0.002	0.002	0.002
8	0.002	0.002	0.002
12	0.003	0.003	0.003
16	0.004	0.004	0.004
17	0.043	0.742	1.483
18	0.039	0.695	1.382
20	0.036	0.628	1.250
24	0.034	0.527	1.054
28	0.033	0.456	0.889
32	0.033	0.401	0.777
36	0.033	0.359	0.699
40	0.034	0.326	0.626
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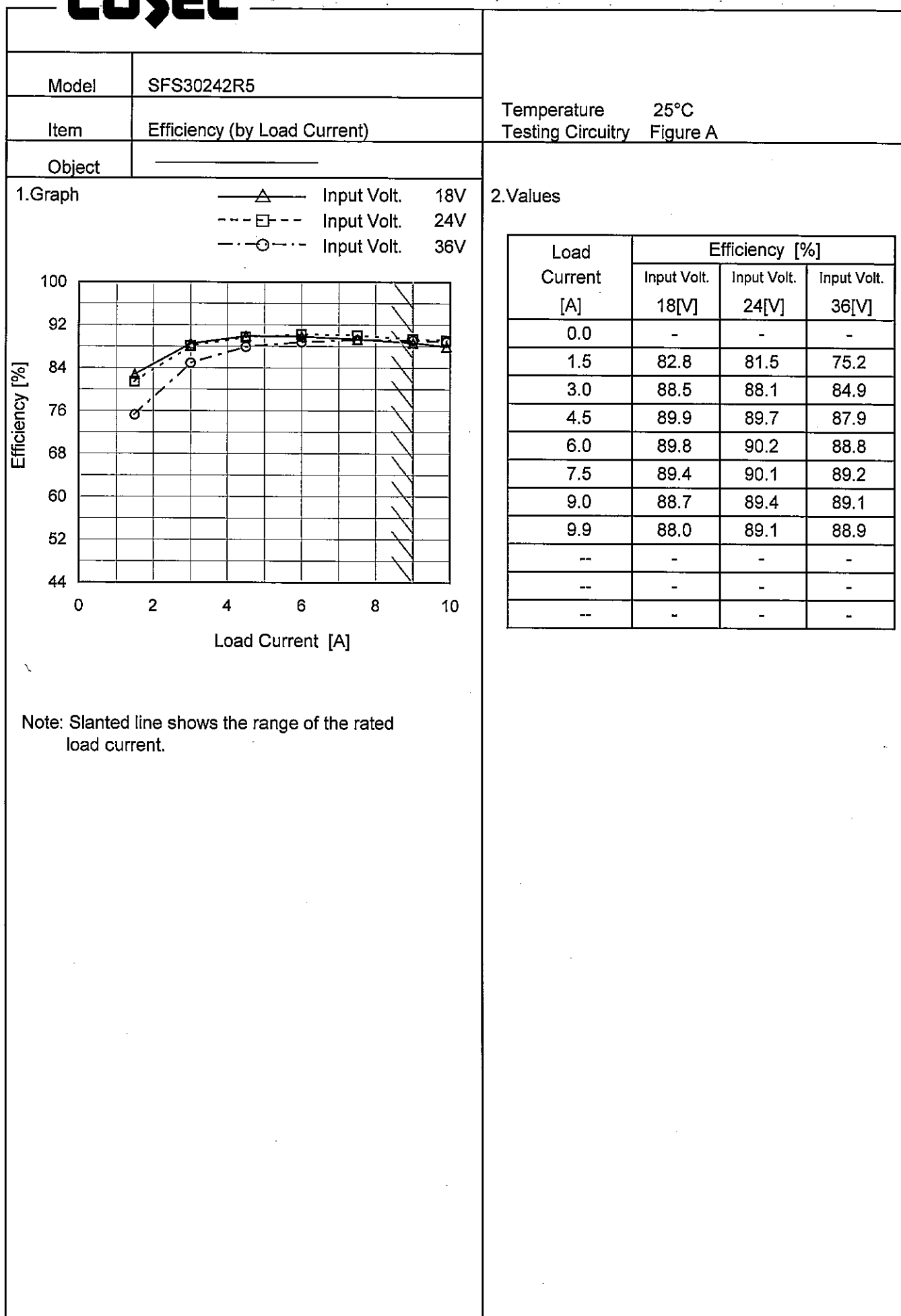
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Model		SFS30242R5		Temperature 25°C																																																		
Item		Input Power (by Load Current)		Testing Circuitry Figure A																																																		
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1.Graph		<div><div>—△—</div><div>---□---</div><div>---○---</div></div> <div><div>Input Volt. 18V</div><div>Input Volt. 24V</div><div>Input Volt. 36V</div></div>		2.Values																																																		
<div><div>Input Power [W]</div><div></div><div>Load Current [A]</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Power [W]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>0.0</td><td>0.73</td><td>0.83</td><td>1.23</td></tr><tr><td>1.5</td><td>4.60</td><td>4.70</td><td>5.09</td></tr><tr><td>3.0</td><td>8.58</td><td>8.67</td><td>9.00</td></tr><tr><td>4.5</td><td>12.61</td><td>12.71</td><td>12.98</td></tr><tr><td>6.0</td><td>16.75</td><td>16.76</td><td>17.04</td></tr><tr><td>7.5</td><td>20.95</td><td>20.88</td><td>21.07</td></tr><tr><td>9.0</td><td>25.18</td><td>25.06</td><td>25.12</td></tr><tr><td>9.9</td><td>27.79</td><td>27.61</td><td>27.60</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Input Power [W]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.0	0.73	0.83	1.23	1.5	4.60	4.70	5.09	3.0	8.58	8.67	9.00	4.5	12.61	12.71	12.98	6.0	16.75	16.76	17.04	7.5	20.95	20.88	21.07	9.0	25.18	25.06	25.12	9.9	27.79	27.61	27.60	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.																																																						

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Model		SFS30242R5	Temperature		25°C																																
Item		Efficiency (by Input Voltage)	Testing Circuitry		Figure A																																
Object																																					
1.Graph			2.Values																																		
<div><div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div><div><div>---</div><div>△</div><div>---</div></div><div>Load 100%</div></div> <div><div><div><div>100</div><div>92</div><div>84</div><div>76</div><div>68</div><div>60</div><div>52</div><div>44</div></div><div><div><div><div>10</div><div>20</div><div>30</div><div>40</div><div>50</div></div><div><div>Input Voltage [V]</div></div></div><div><div><div>Efficiency [%]</div></div></div></div></div></div>			<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>17</td><td>89.7</td><td>88.3</td></tr><tr><td>18</td><td>89.9</td><td>88.7</td></tr><tr><td>20</td><td>90.1</td><td>89.2</td></tr><tr><td>24</td><td>89.7</td><td>89.4</td></tr><tr><td>30</td><td>89.2</td><td>89.5</td></tr><tr><td>36</td><td>88.0</td><td>89.1</td></tr><tr><td>40</td><td>87.0</td><td>88.7</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>			Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	17	89.7	88.3	18	89.9	88.7	20	90.1	89.2	24	89.7	89.4	30	89.2	89.5	36	88.0	89.1	40	87.0	88.7	--	-	-	--	-	-
Input Voltage [V]	Efficiency [%]																																				
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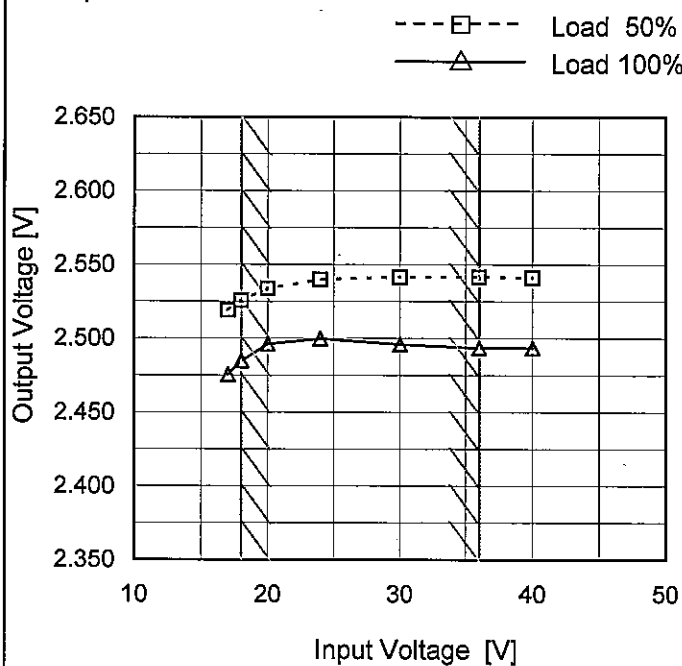
Model SFS30242R5

Item Line Regulation

Object +2.5V9A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

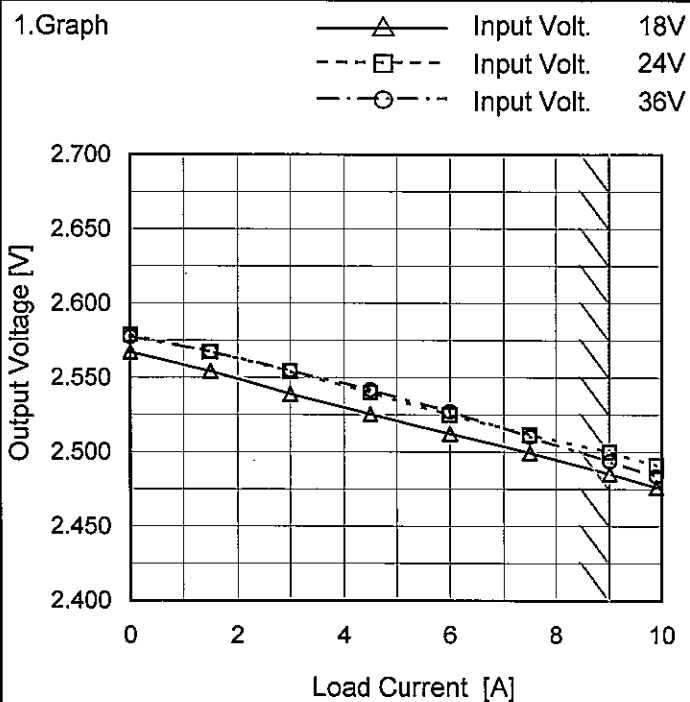
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	2.519	2.476
18	2.526	2.485
20	2.534	2.496
24	2.540	2.500
30	2.542	2.496
36	2.542	2.494
40	2.541	2.494
--	-	-
--	-	-

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Model SFS30242R5

Item Load Regulation

Object +2.5V9A

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	2.567	2.579	2.578
1.5	2.554	2.567	2.567
3.0	2.539	2.554	2.555
4.5	2.526	2.540	2.542
6.0	2.512	2.525	2.527
7.5	2.500	2.512	2.510
9.0	2.485	2.500	2.494
9.9	2.476	2.491	2.484
---	-	-	-
--	-	-	-
--	-	-	-

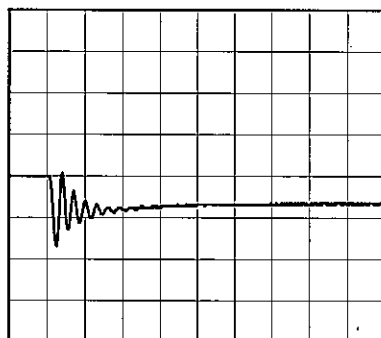
Model	SFS30242R5	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+2.5V9A		

Input Volt. 24 V
Cycle 1000 mS

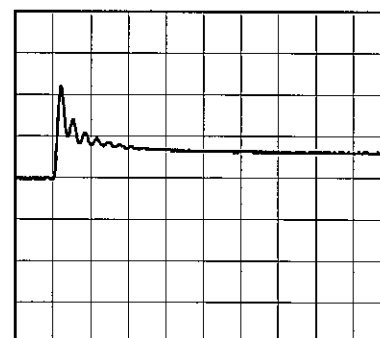
Load Current 9A / 200 μ sec

Min. Load (0A) \longleftrightarrow
Load 100% (9A)

100mV/div



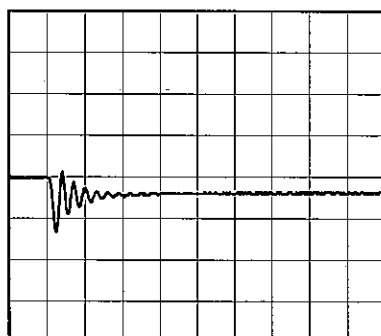
200 μ s/div



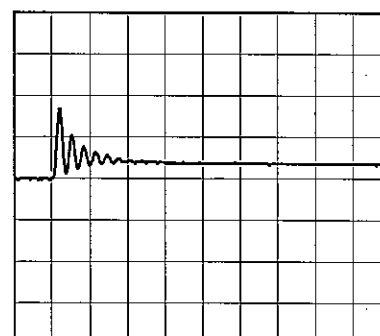
200 μ s/div

Min. Load (0A) \longleftrightarrow
Load 50% (4.5A)

100mV/div



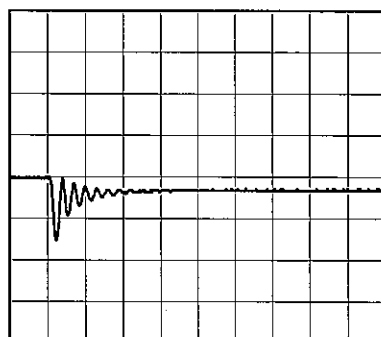
200 μ s/div



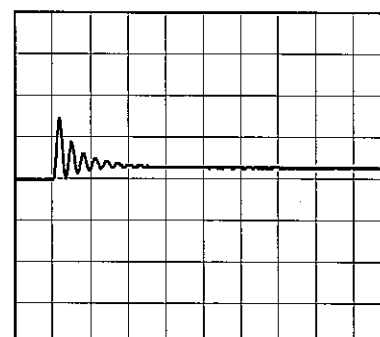
200 μ s/div

Load 50% (4.5A) \longleftrightarrow
Load 100% (9A)

100mV/div



200 μ s/div



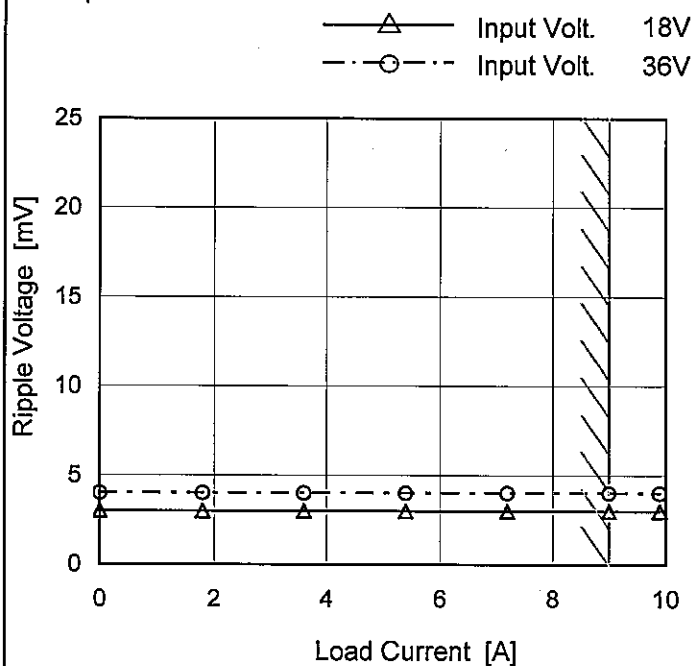
200 μ s/div

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Model	SFS30242R5
Item	Ripple Voltage (by Load Current)
Object	+2.5V9A

Temperature 25°C
Testing Circuitry Figure C

1. Graph



Measured by 100MHz 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]

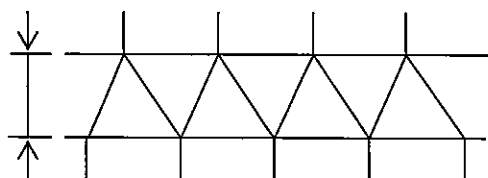


Fig. Complex Ripple Wave Form

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	3	4
1.8	3	4
3.6	3	4
5.4	3	4
7.2	3	4
9.0	3	4
9.9	3	4
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

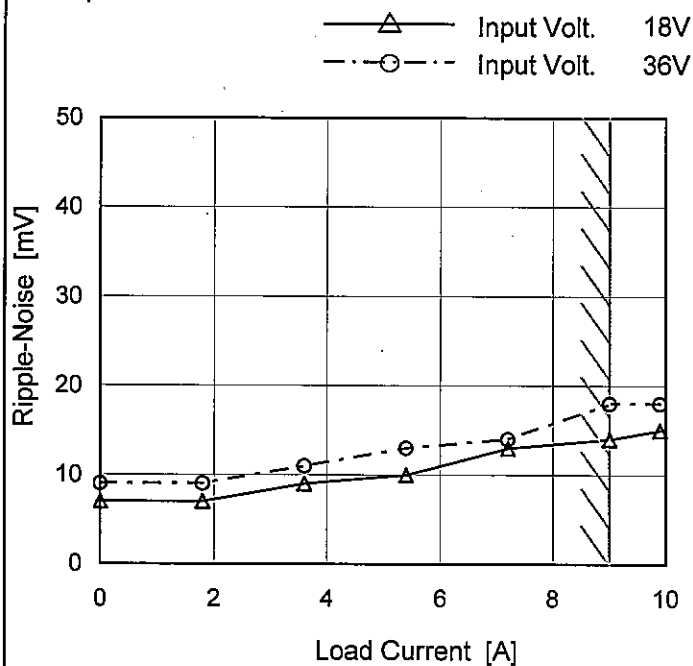
Model SFS30242R5

Item Ripple-Noise

Object +2.5V9A

Temperature 25°C
Testing Circuitry Figure C

1. Graph



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

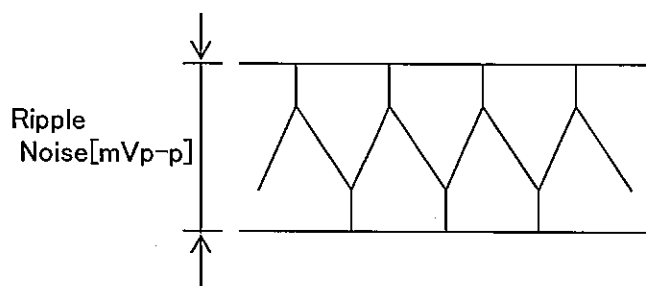


Fig. Complex Ripple Noise Wave Form

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	7	9
1.8	7	9
3.6	9	11
5.4	10	13
7.2	13	14
9.0	14	18
9.9	15	18
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

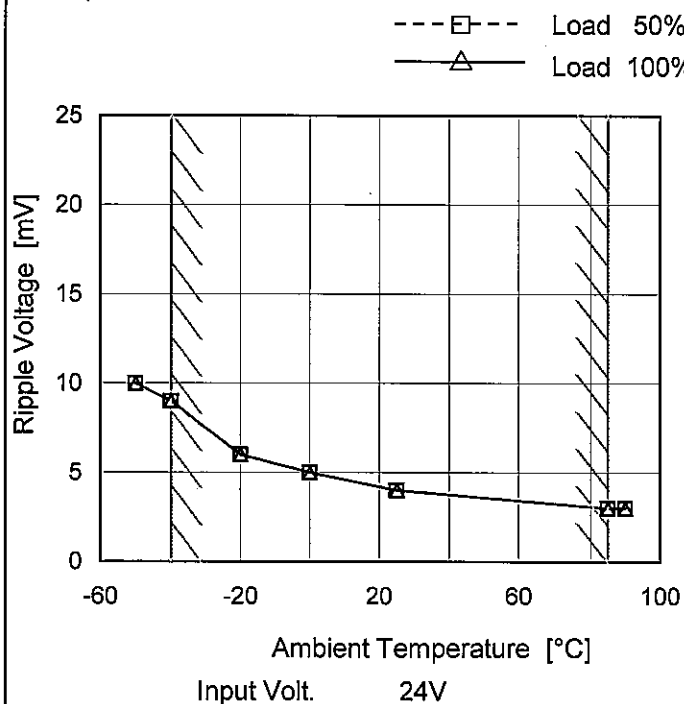
Model SFS30242R5

Item Ripple Voltage (by Ambient Temp.)

Object +2.5V9A

Testing Circuitry Figure C

1. Graph



Measured by 100MHz Oscilloscope.

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

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	10	10
-40	9	9
-20	6	6
0	5	5
25	4	4
85	3	3
90	3	3
--	-	-
--	-	-
--	-	-
--	-	-

Model		SFS30242R5																																																				
Item		Ambient Temperature Drift																																																				
Object		+2.5V9A																																																				
1.Graph		<div><div>—△—</div>Input Volt. 18V</div> <div><div>---□---</div>Input Volt. 24V</div> <div><div>-·-○-·-</div>Input Volt. 36V</div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>																																																				
2.Values		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>-50</td><td>2.489</td><td>2.489</td><td>2.477</td></tr><tr><td>-40</td><td>2.490</td><td>2.490</td><td>2.480</td></tr><tr><td>-20</td><td>2.488</td><td>2.493</td><td>2.485</td></tr><tr><td>0</td><td>2.487</td><td>2.496</td><td>2.489</td></tr><tr><td>25</td><td>2.485</td><td>2.500</td><td>2.494</td></tr><tr><td>40</td><td>2.484</td><td>2.498</td><td>2.493</td></tr><tr><td>55</td><td>2.482</td><td>2.497</td><td>2.492</td></tr><tr><td>70</td><td>2.481</td><td>2.497</td><td>2.490</td></tr><tr><td>85</td><td>2.479</td><td>2.495</td><td>2.488</td></tr><tr><td>90</td><td>2.480</td><td>2.494</td><td>2.487</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-50	2.489	2.489	2.477	-40	2.490	2.490	2.480	-20	2.488	2.493	2.485	0	2.487	2.496	2.489	25	2.485	2.500	2.494	40	2.484	2.498	2.493	55	2.482	2.497	2.492	70	2.481	2.497	2.490	85	2.479	2.495	2.488	90	2.480	2.494	2.487	--	-	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

Model		SFS30242R5	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+2.5V9A	

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 : 18 - 36V

Load Current : 0 - 9A

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

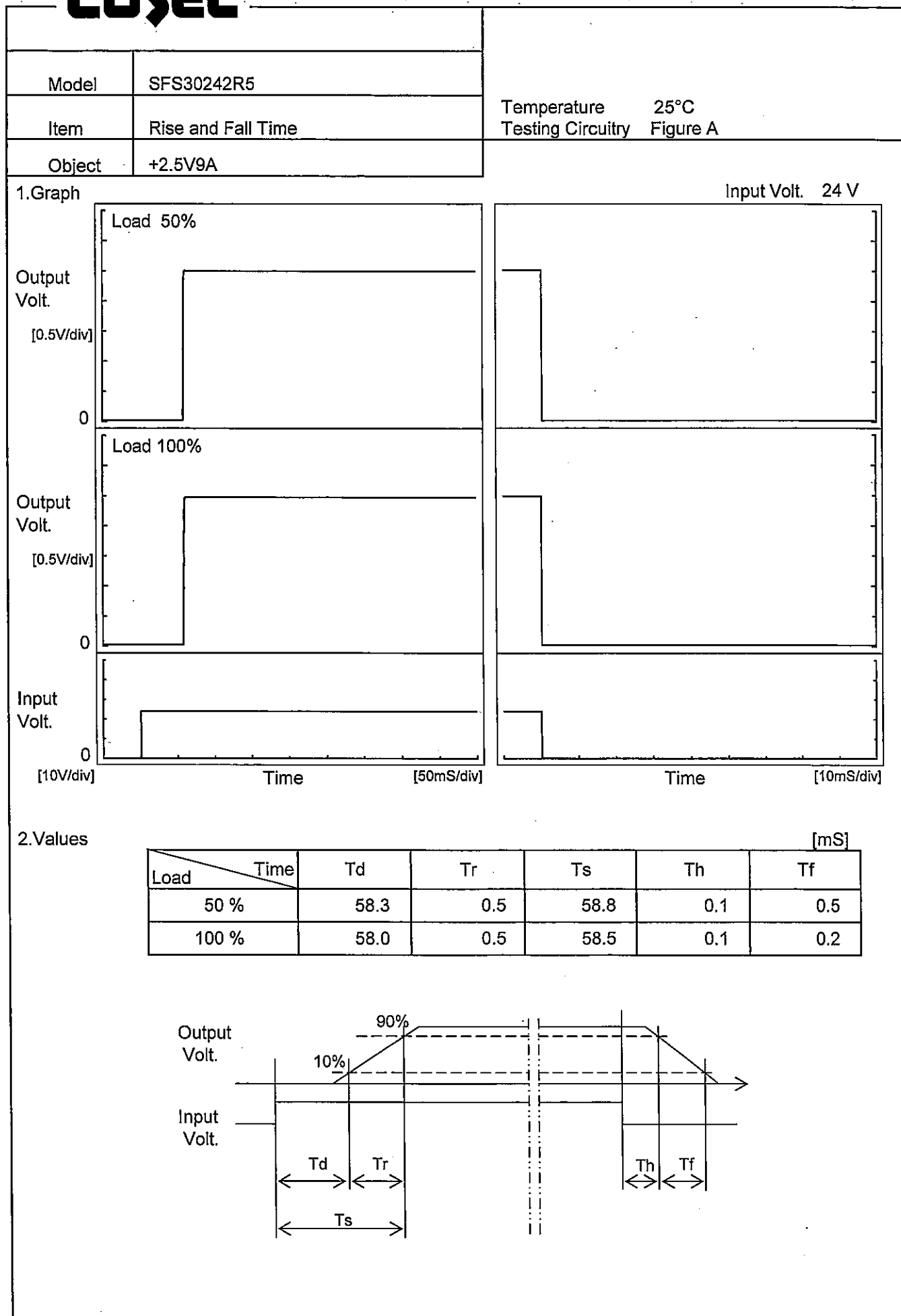
* Output Voltage Accuracy (Ration) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	85	24	0	2.592	±56	±2.2
Minimum Voltage	-40	36	9	2.480		

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Model	SFS30242R5																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+2.5V9A																								
1.Graph		2.Values																							
<div><div><div>2.650</div><div>2.600</div><div>2.550</div><div>2.500</div><div>2.450</div><div>2.400</div><div>2.350</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div></div> <div><div>Input Volt.</div><div>24V</div><div>Load</div><div>100%</div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>2.499</td></tr><tr><td>0.5</td><td>2.500</td></tr><tr><td>1.0</td><td>2.500</td></tr><tr><td>2.0</td><td>2.500</td></tr><tr><td>3.0</td><td>2.500</td></tr><tr><td>4.0</td><td>2.500</td></tr><tr><td>5.0</td><td>2.500</td></tr><tr><td>6.0</td><td>2.500</td></tr><tr><td>7.0</td><td>2.500</td></tr><tr><td>8.0</td><td>2.500</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	2.499	0.5	2.500	1.0	2.500	2.0	2.500	3.0	2.500	4.0	2.500	5.0	2.500	6.0	2.500	7.0	2.500	8.0	2.500
Time since start [H]	Output Voltage [V]																								
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8.0	2.500																								

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Model

SFS30242R5

Item

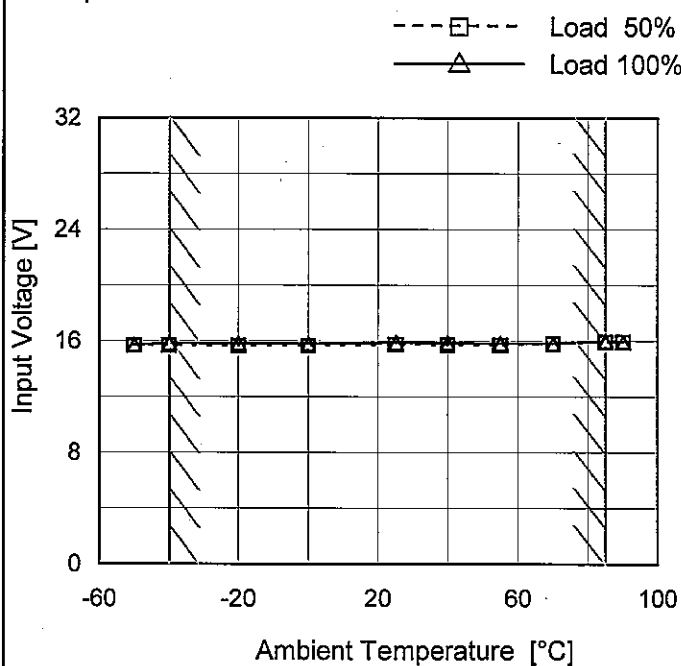
Minimum Input Voltage
for Regulated Output Voltage

Object

+2.5V9A

Testing Circuitry Figure A

1. Graph



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

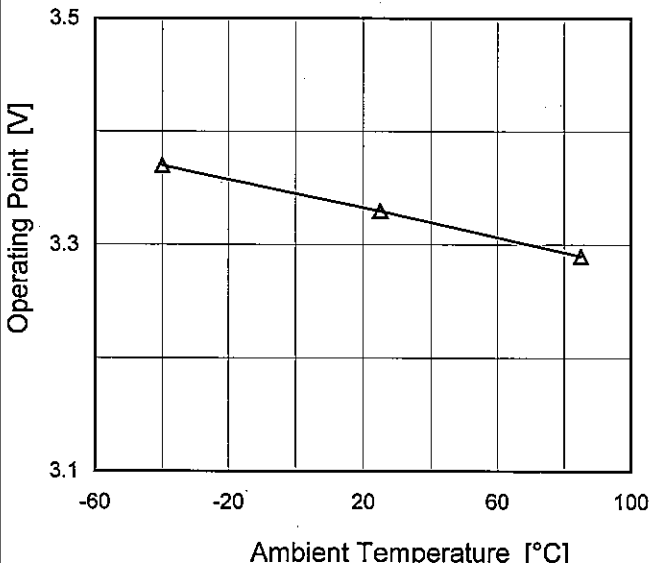
2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	15.7	15.8
-40	15.7	15.9
-20	15.7	15.9
0	15.7	15.9
25	15.8	15.9
40	15.8	15.9
55	15.8	15.9
70	15.9	15.9
85	16.0	16.0
90	16.0	16.0
--	-	-

COSEL

Model	SFS30242R5																																																													
Item	Overcurrent Protection	Temperature	25°C																																																											
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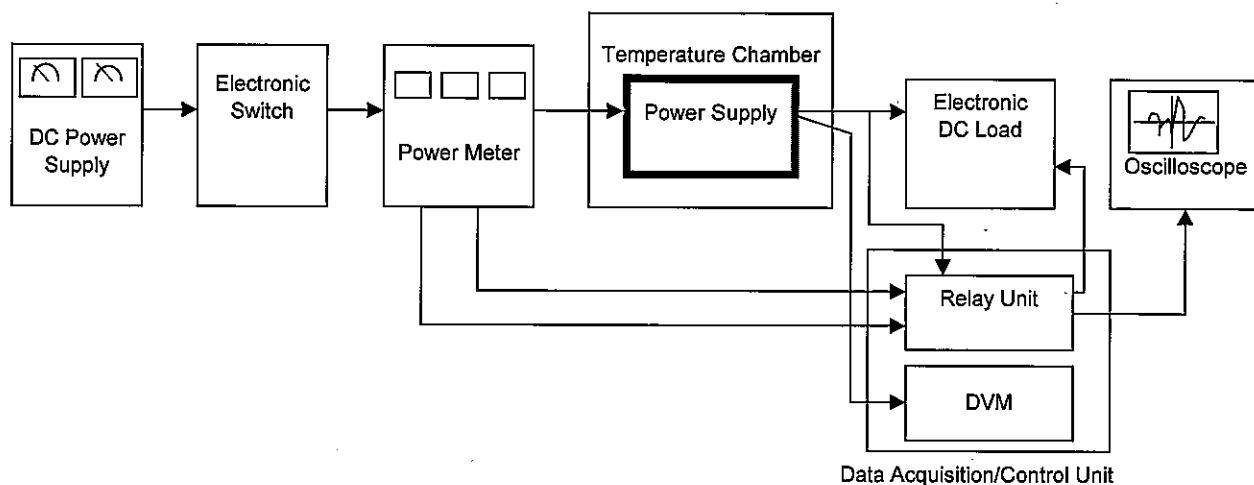


Figure A

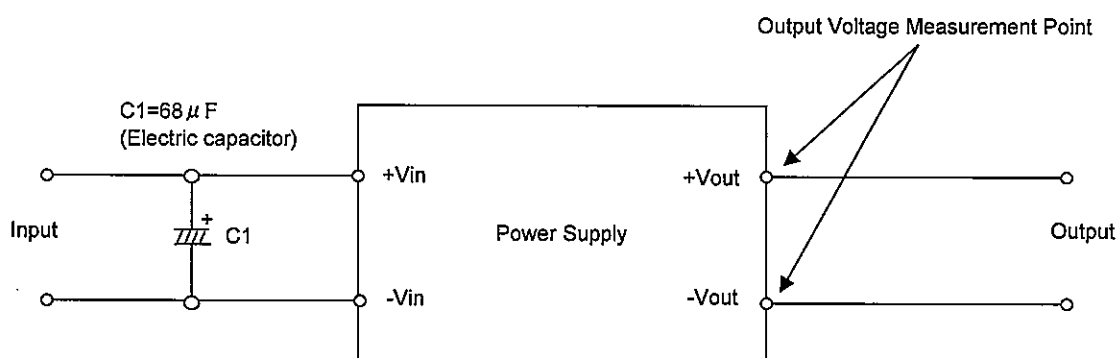


Figure B (General Electric Characteristic)

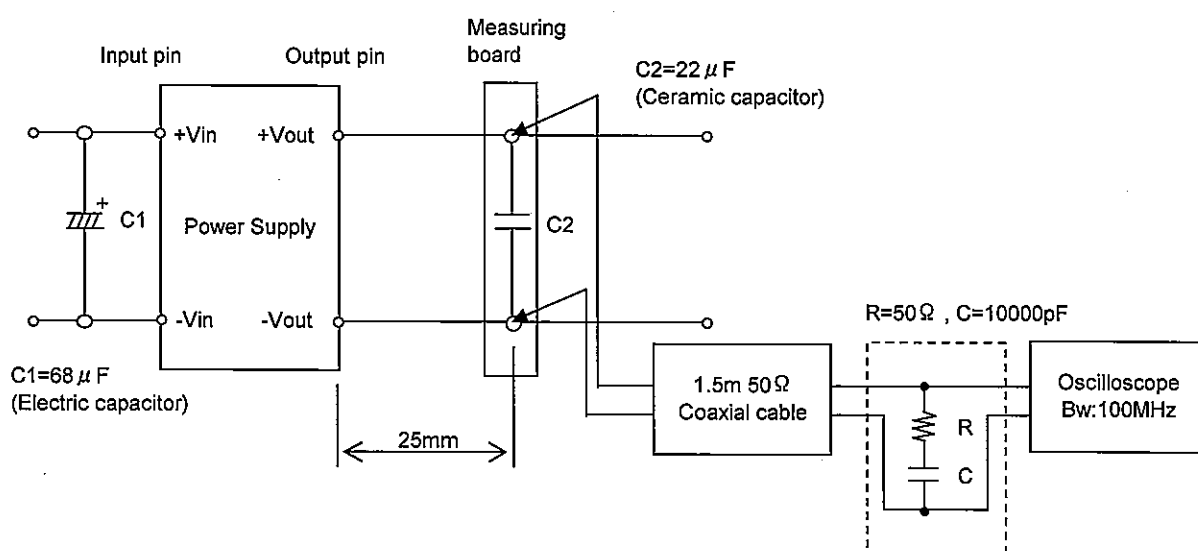


Figure C (Ripple and Ripple noise Characteristic)