



# TEST DATA OF SFS30481R2

Regulated DC Power Supply  
Apr.5. 2004

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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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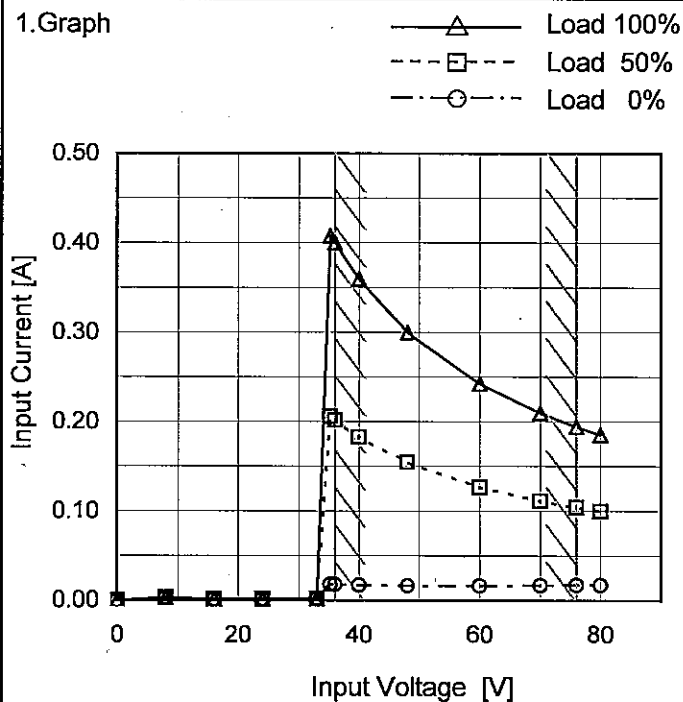
Model SFS30481R2

Item Input Current (by Input Voltage)

Temperature 25°C  
Testing Circuitry Figure A

Object

## 1. Graph

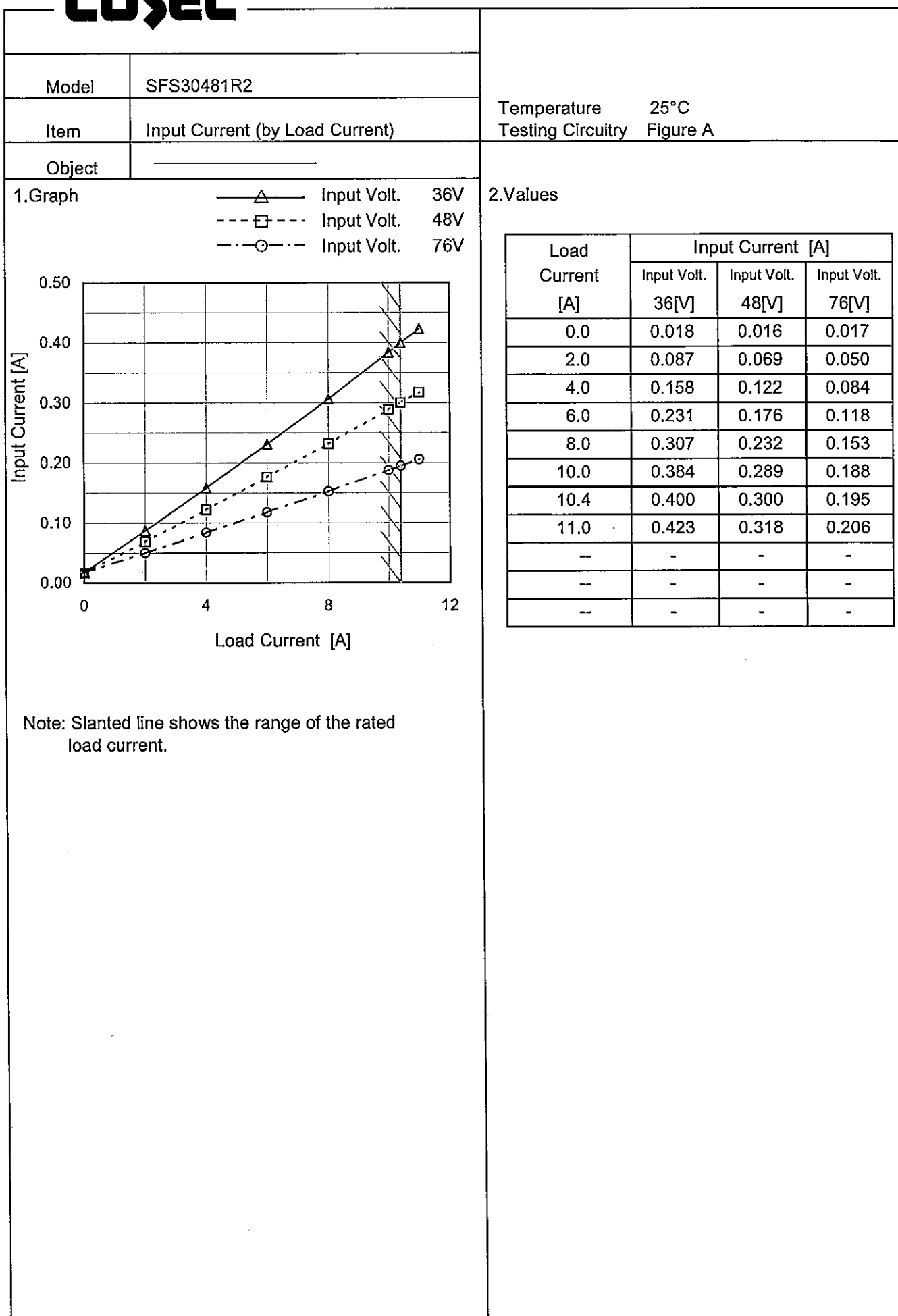


Note: Slanted line shows the range of the rated input voltage.

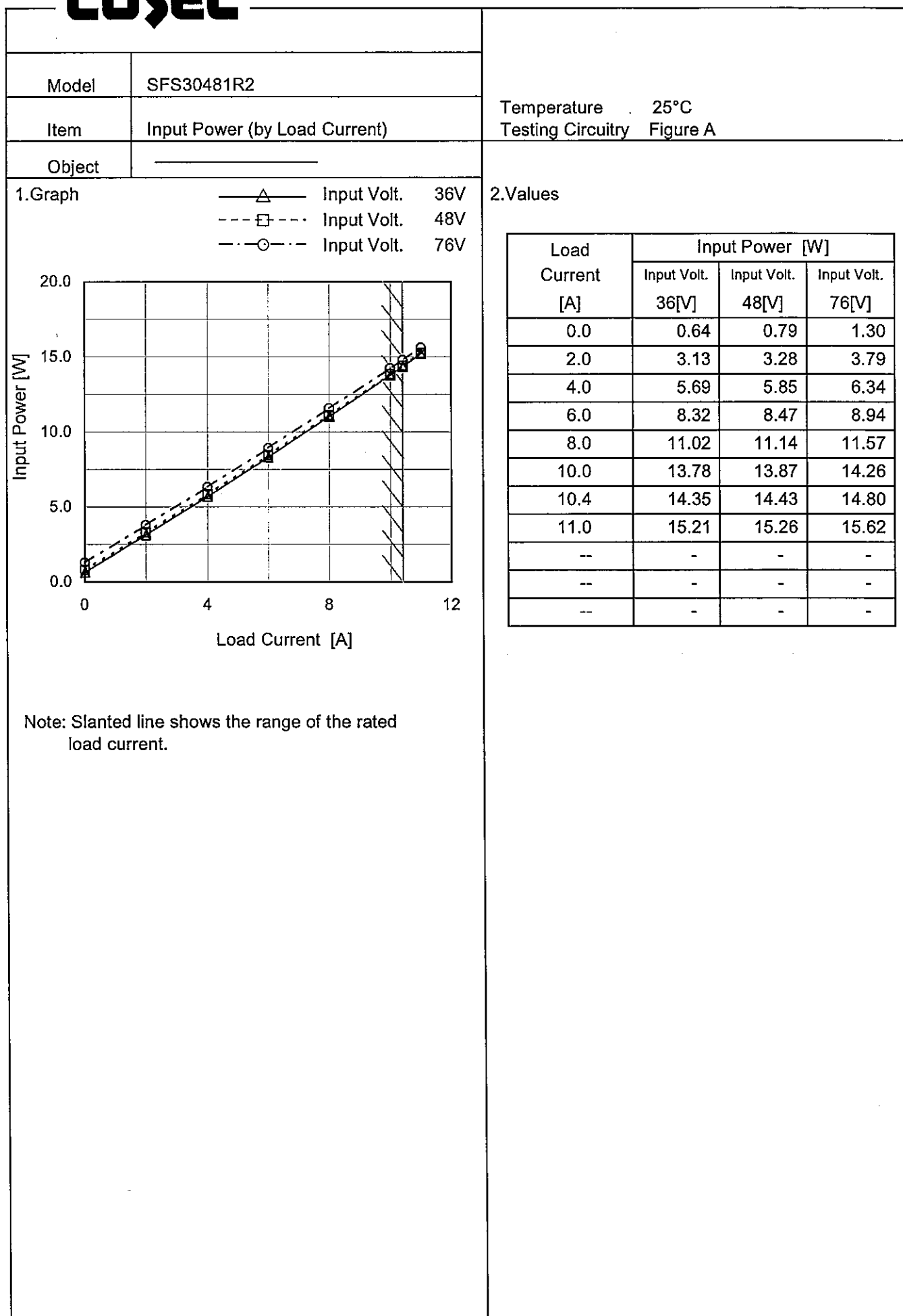
## 2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
8	0.003	0.003	0.003
16	0.002	0.002	0.002
24	0.002	0.002	0.002
33	0.002	0.002	0.002
35	0.018	0.206	0.408
36	0.018	0.202	0.400
40	0.017	0.183	0.360
48	0.017	0.155	0.300
60	0.017	0.127	0.242
70	0.017	0.111	0.210
76	0.017	0.104	0.194
80	0.017	0.100	0.185
--	-	-	-
-	-	-	-
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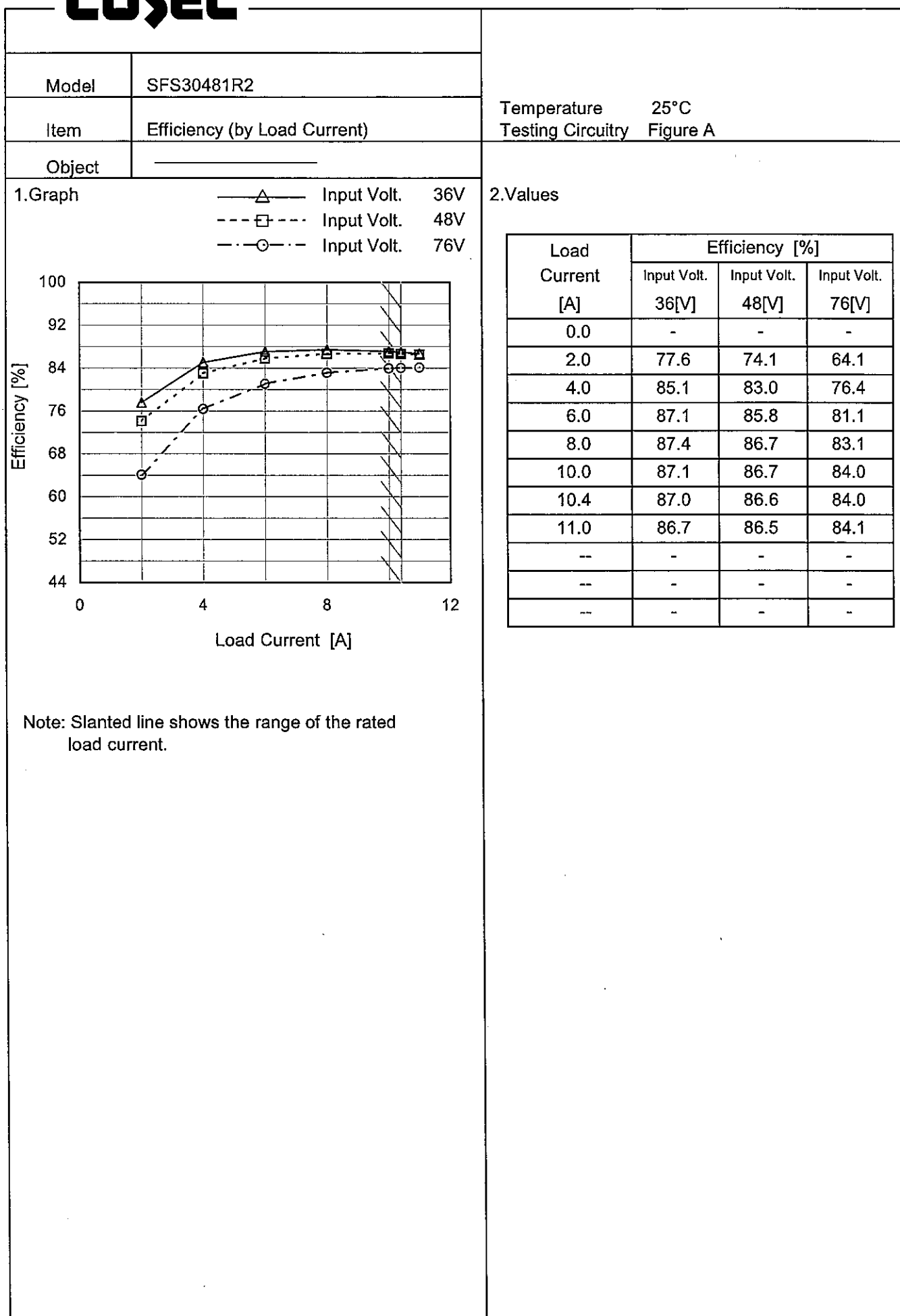
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Model		SFS30481R2	Temperature		25°C																																
Item		Efficiency (by Input Voltage)	Testing Circuitry		Figure A																																
Object																																					
1.Graph			2.Values																																		
<div><div><div><div></div><div></div><div></div></div><div>Load 50%</div></div><div><div><div></div><div></div><div></div></div><div>Load 100%</div></div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>33</td><td>86.5</td><td>86.5</td></tr><tr><td>36</td><td>86.5</td><td>87.0</td></tr><tr><td>40</td><td>86.2</td><td>86.9</td></tr><tr><td>48</td><td>85.1</td><td>86.6</td></tr><tr><td>55</td><td>83.9</td><td>86.1</td></tr><tr><td>60</td><td>83.0</td><td>85.8</td></tr><tr><td>70</td><td>81.0</td><td>84.7</td></tr><tr><td>76</td><td>79.6</td><td>84.0</td></tr><tr><td>80</td><td>78.7</td><td>83.5</td></tr></tbody></table>			Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	33	86.5	86.5	36	86.5	87.0	40	86.2	86.9	48	85.1	86.6	55	83.9	86.1	60	83.0	85.8	70	81.0	84.7	76	79.6	84.0	80	78.7	83.5			
Input Voltage [V]	Efficiency [%]																																				
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Note: Slanted line shows the range of the rated input voltage.																																					

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Model

SFS30481R2

Item

Line Regulation

Object

+1.2V10.4A

1.Graph

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□

---

Load 50%

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△

---

Load 100%

Output Voltage [V]

1.300

1.250

1.200

1.150

1.100

20

40

60

80

Input Voltage [V]

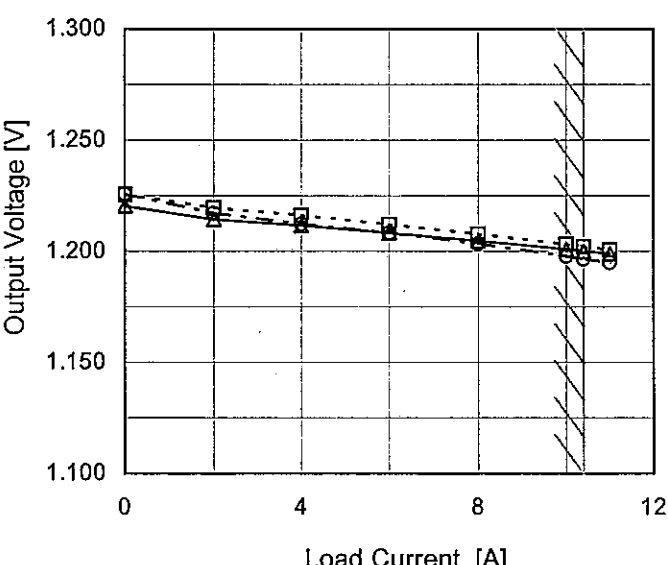
Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	1.207	1.198
36	1.210	1.200
40	1.213	1.202
48	1.214	1.202
55	1.214	1.201
60	1.213	1.200
70	1.212	1.198
76	1.210	1.196
80	1.209	1.195



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Model		SFS30481R2																																																				
Item		Load Regulation																																																				
Object		+1.2V10.4A																																																				
1.Graph		<div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt. 36V</div><div>Input Volt. 48V</div><div>Input Volt. 76V</div></div></div> 																																																				
2.Values		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>0.0</td><td>1.220</td><td>1.226</td><td>1.226</td></tr><tr><td>2.0</td><td>1.214</td><td>1.220</td><td>1.217</td></tr><tr><td>4.0</td><td>1.212</td><td>1.216</td><td>1.212</td></tr><tr><td>6.0</td><td>1.208</td><td>1.212</td><td>1.208</td></tr><tr><td>8.0</td><td>1.205</td><td>1.208</td><td>1.203</td></tr><tr><td>10.0</td><td>1.201</td><td>1.203</td><td>1.198</td></tr><tr><td>10.4</td><td>1.200</td><td>1.202</td><td>1.197</td></tr><tr><td>11.0</td><td>1.199</td><td>1.201</td><td>1.195</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]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.0	1.220	1.226	1.226	2.0	1.214	1.220	1.217	4.0	1.212	1.216	1.212	6.0	1.208	1.212	1.208	8.0	1.205	1.208	1.203	10.0	1.201	1.203	1.198	10.4	1.200	1.202	1.197	11.0	1.199	1.201	1.195	--	-	-	-	--	-	-	-	--	-	-	-
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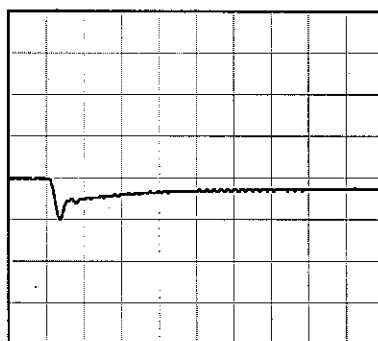
Model	SFS30481R2	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+1.2V10.4A		

Input Volt. 48 V  
Cycle 1000 ms

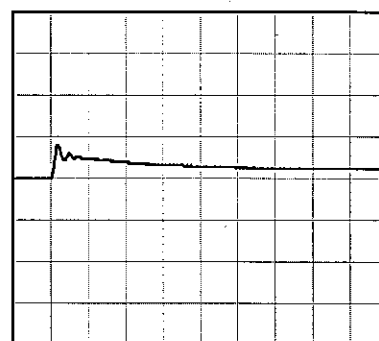
Load Current 10.4A / 200  $\mu$ s

Min. Load (0A)  $\longleftrightarrow$   
Load 100% (10.4A)

200mV/div



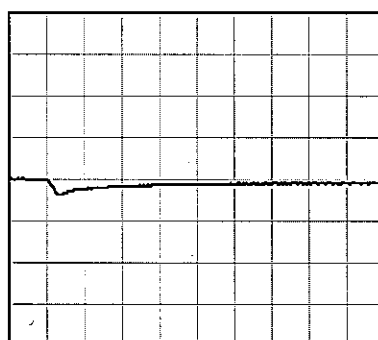
200  $\mu$ s/div



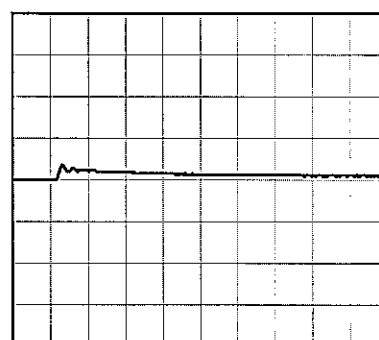
200  $\mu$ s/div

Min. Load (0A)  $\longleftrightarrow$   
Load 50% (5.2A)

200mV/div



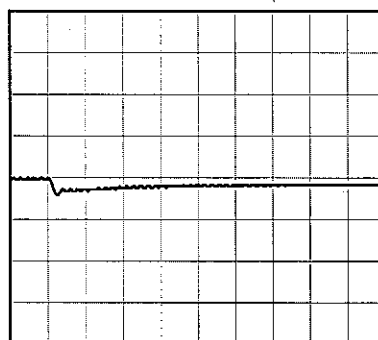
200  $\mu$ s/div



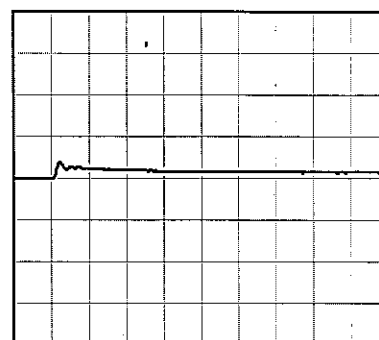
200  $\mu$ s/div

Load 50% (5.2A)  $\longleftrightarrow$   
Load 100% (10.4A)

200mV/div



200  $\mu$ s/div



200  $\mu$ s/div

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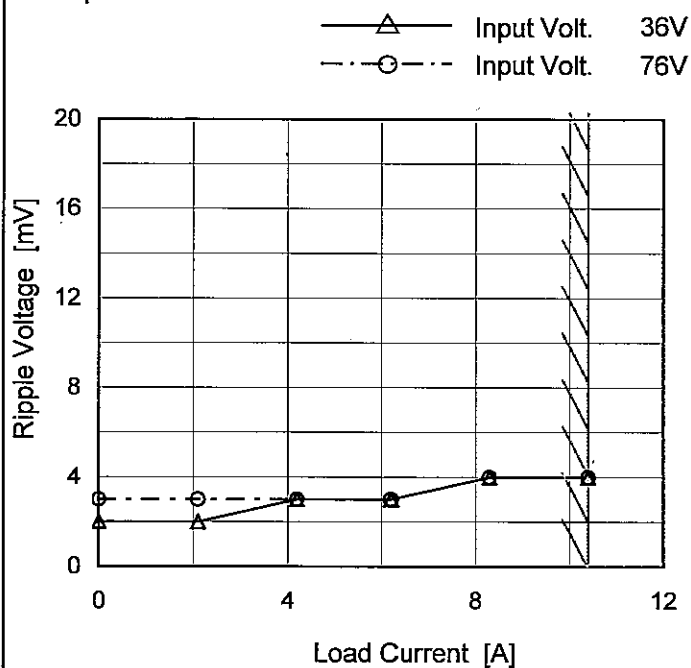
Model SFS30481R2

Item Ripple Voltage (by Load Current)

Object +1.2V10.4A

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]

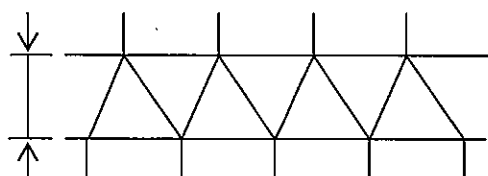
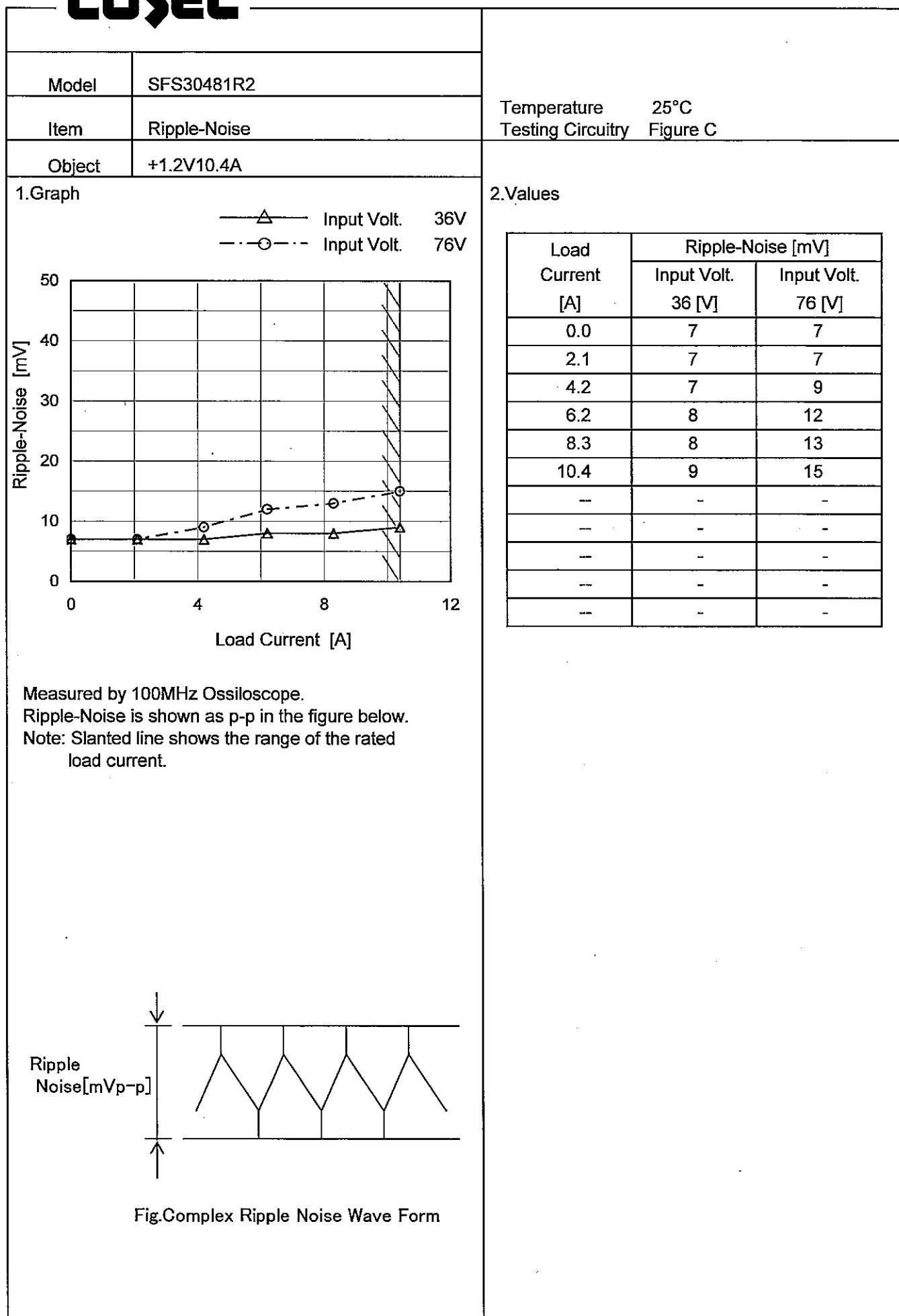


Fig. Complex Ripple Wave Form

## 2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	2	3
2.1	2	3
4.2	3	3
6.2	3	3
8.3	4	4
10.4	4	4
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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Model		SFS30481R2
Item		Ripple Voltage (by Ambient Temp.)
Object		+1.2V10.4A
1.Graph		2.Values

-----□----- Load 100%

Ripple Voltage [mV]

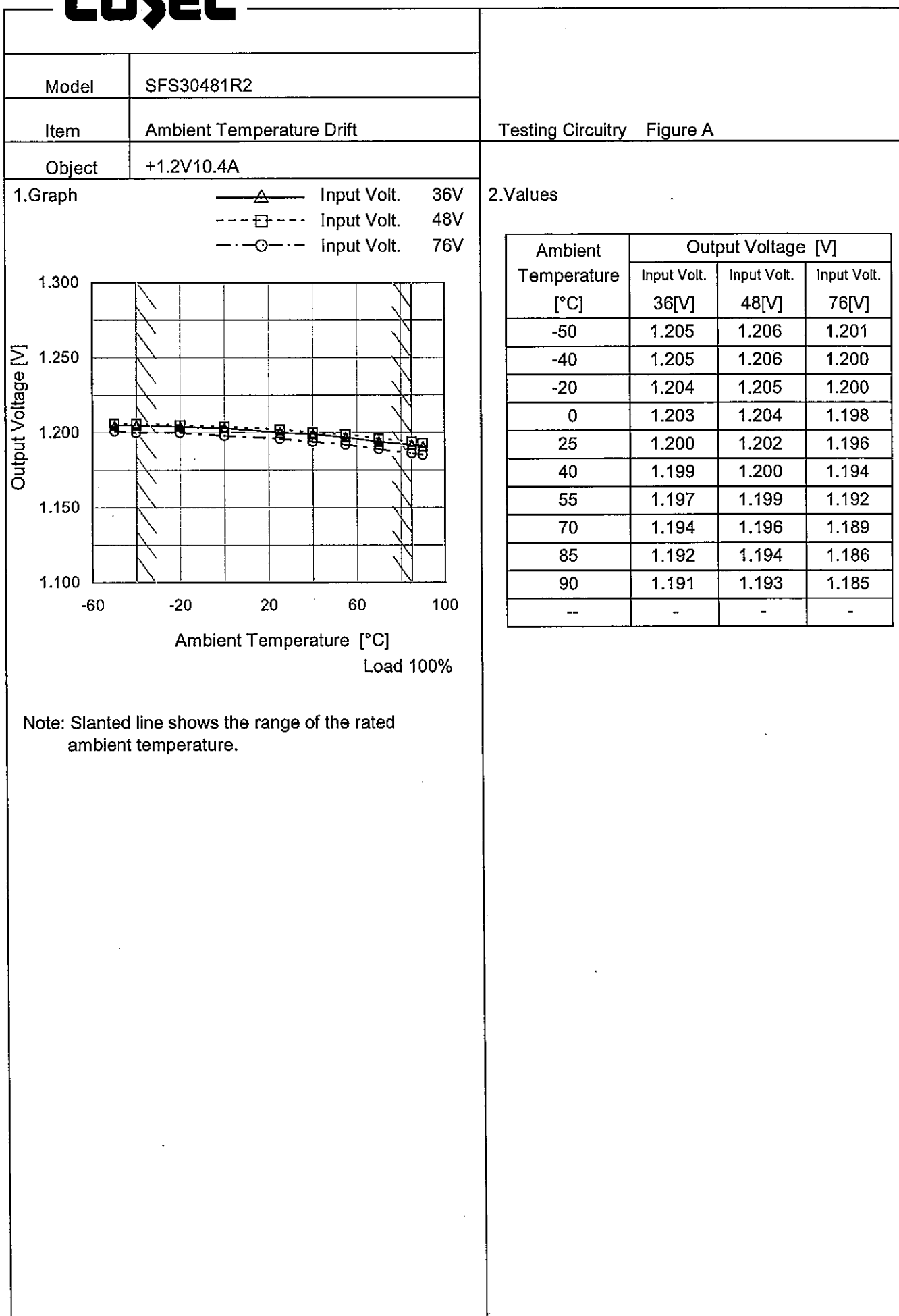
Ambient Temperature [°C]

Input Volt. 48V

Measured by 100MHz Ossilloscope.  
Note: Slanted line shows the range of the rated ambient temperature.

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-45	5	6
-40	5	6
0	3	4
25	3	4
85	2	4
90	2	4
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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		Testing Circuitry Figure A
Model	SFS30481R2	
Item	Output Voltage Accuracy	
Object	+1.2V10.4A	

## 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 - 10.4A

\* 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	76	0	1.229	±22	±1.8
Minimum Voltage	85	76	10.4	1.186		

Model	SFS30481R2		
Item	Time Lapse Drift	Temperature	25°C
Object	+1.2V10.4A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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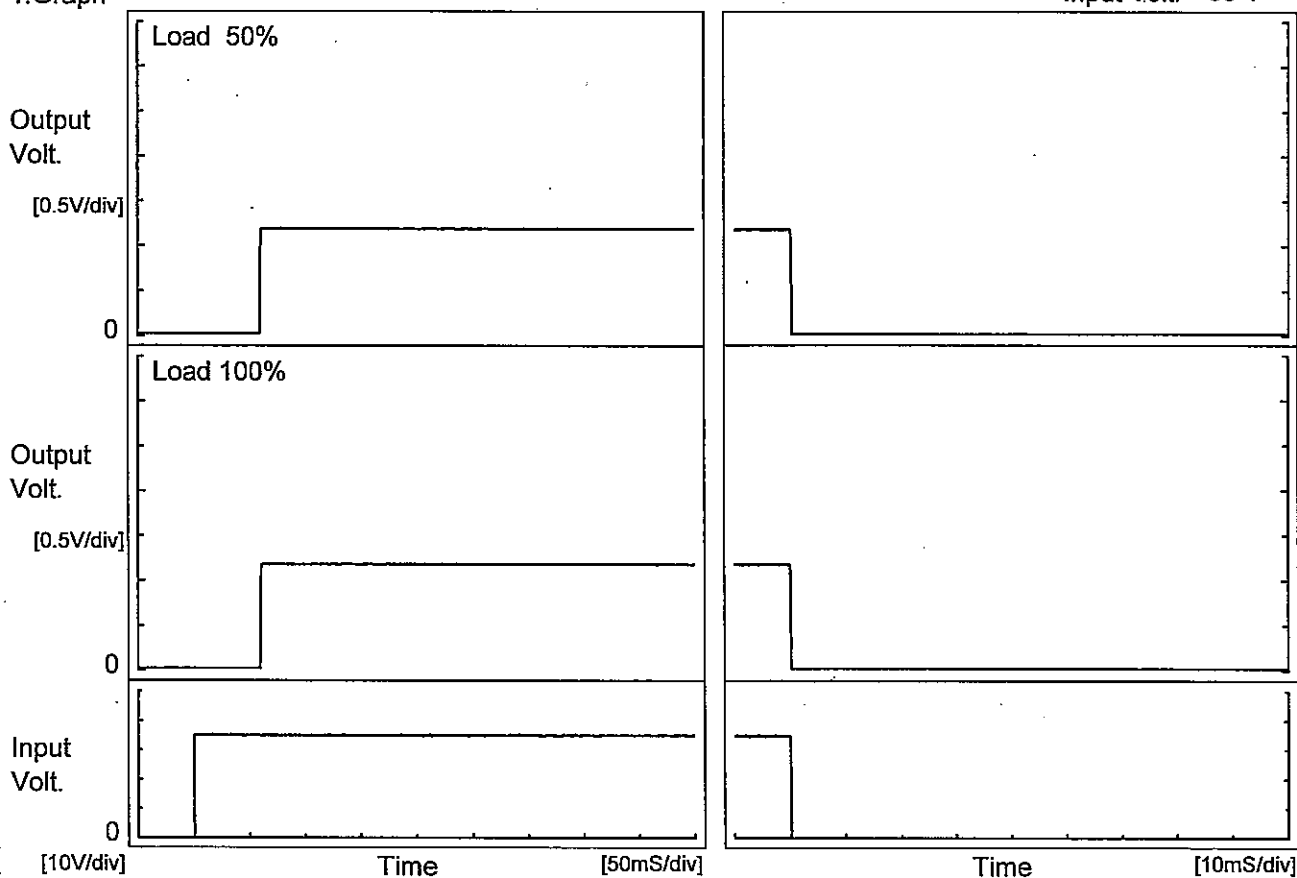


# COSEL

Model	SFS30481R2	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+1.2V10.4A		

## 1. Graph

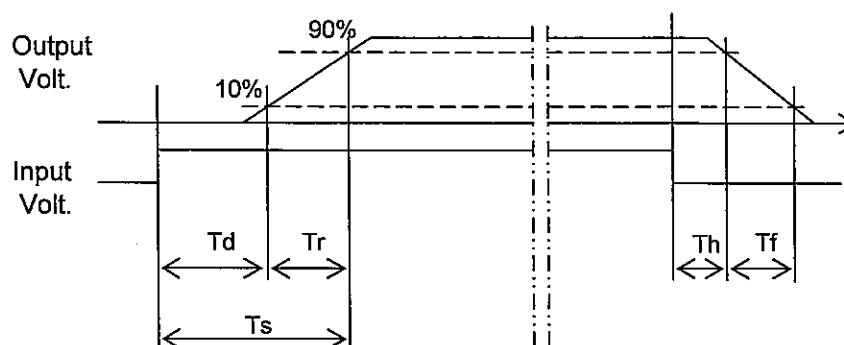
Input Volt. 36 V



## 2. Values

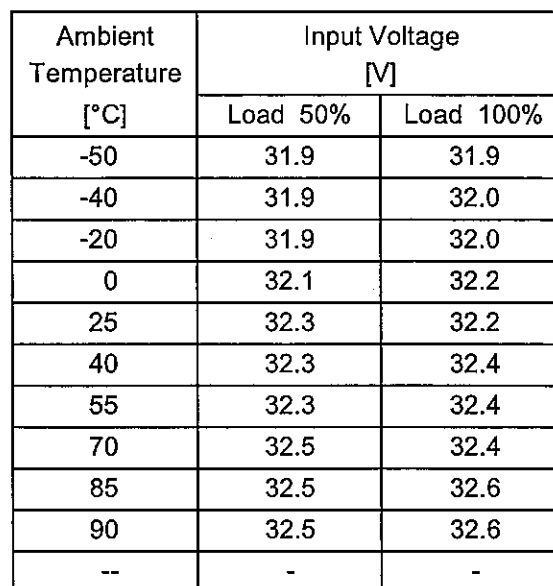
[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	59.8	0.6	60.4	0.2	0.2
100 %	59.8	0.7	60.5	0.1	0.2



Testing Circuitry Figure A

## 2.Values



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

**COSEL**

Model	SFS30481R2																																																													
Item	Overcurrent Protection	Temperature	25°C																																																											
Object	+1.2V10.4A	Testing Circuitry	Figure A																																																											
1.Graph		2.Values																																																												
<div><div><div></div><div></div><div></div></div><div><div>Input Volt.</div><div>Input Volt.</div><div>Input Volt.</div></div><div><div>36V</div><div>48V</div><div>76V</div></div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>When the output voltage fell to less than 1.08V ,the unit shuts off the output by operating low voltage protection.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>1.20</td><td>11.47</td><td>11.53</td><td>11.47</td></tr><tr><td>1.14</td><td>11.47</td><td>11.55</td><td>11.76</td></tr><tr><td>1.08</td><td>11.45</td><td>11.55</td><td>11.77</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><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><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><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	1.20	11.47	11.53	11.47	1.14	11.47	11.55	11.76	1.08	11.45	11.55	11.77	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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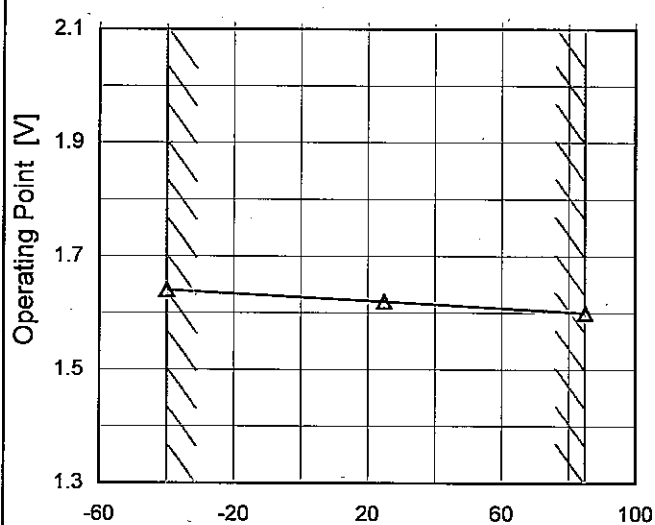
Model SFS30481R2

Item Overvoltage Protection

Object +1.2V10.4A

Testing Circuitry Figure A

1.Graph —△— Input Volt. 48V



Ambient Temperature [°C]

Load 0%

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

2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 48[V]	Input Volt.	Input Volt.
-40	1.64	-	-
25	1.62	-	-
85	1.60	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

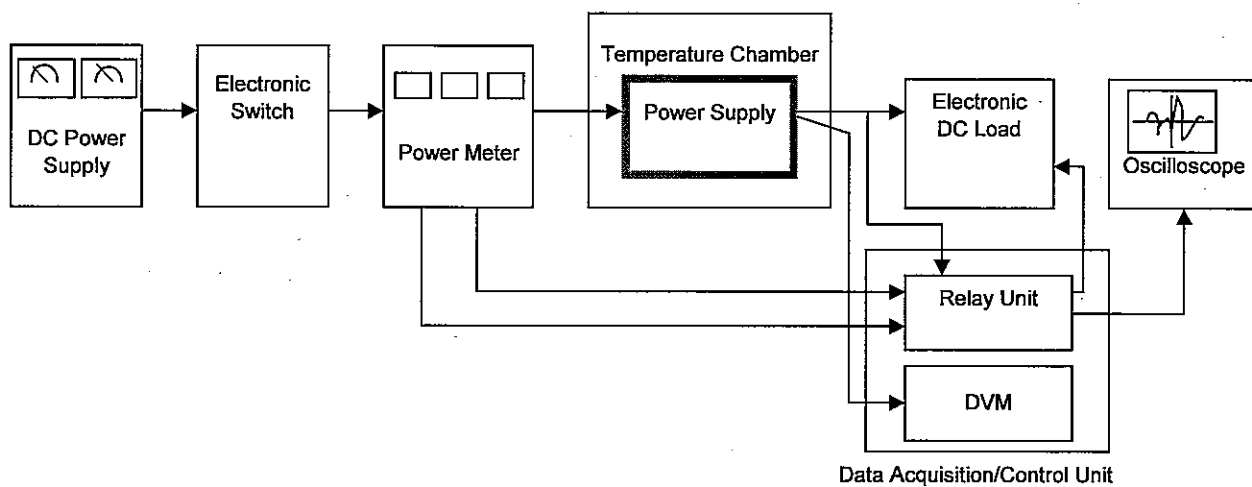


Figure A

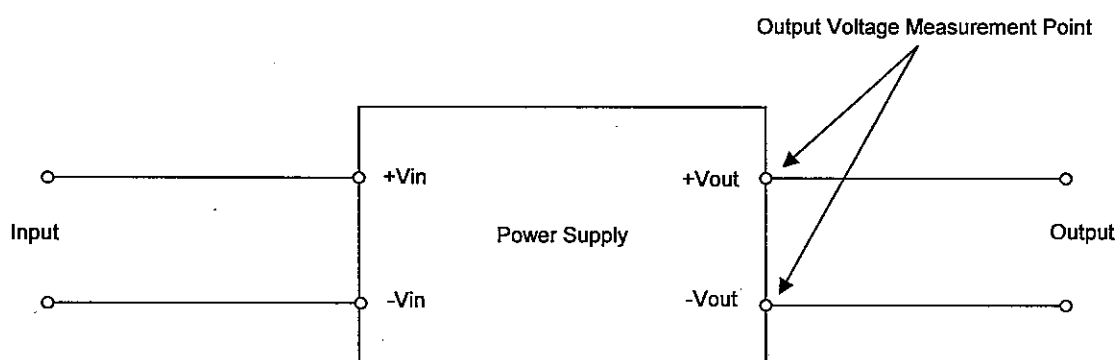


Figure B (General Electric Characteristic)

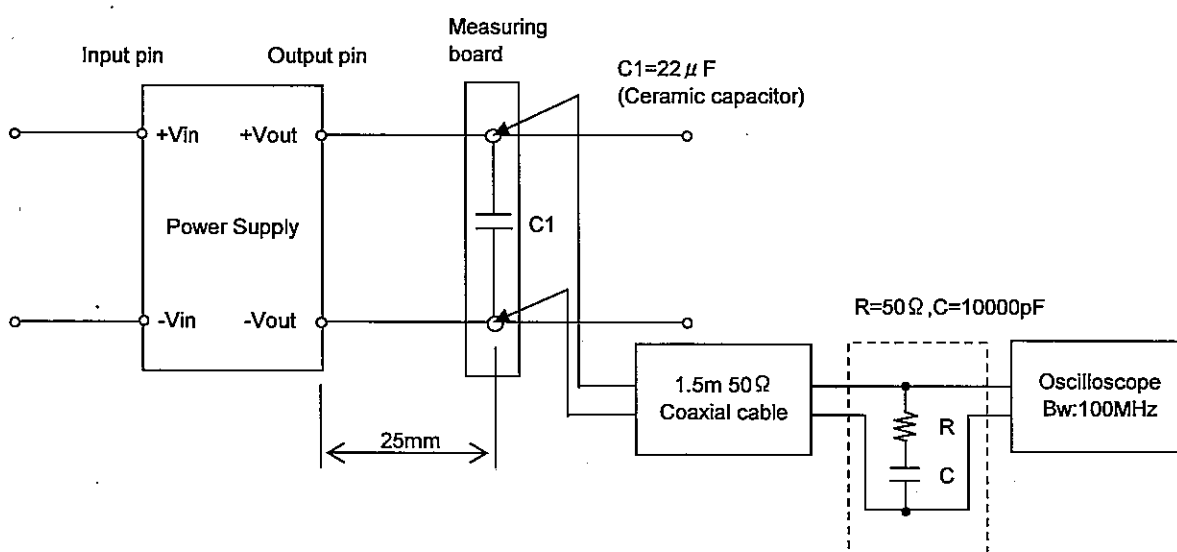


Figure C (Ripple and Ripple noise Characteristic)