



TEST DATA OF MHFS32415

Regulated DC Power Supply
May 27, 2020

Approved by : Kenichi Tsukada
Kenichi Tsukada Design Manager

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COSEL CO.,LTD.

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Model		MHFS32415		Temperature		25°C																																																																												
Item		Input Current (by Load Current)		Testing Circuitry		Figure A																																																																												
Object																																																																																		
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>9V</div></div><div><div>---□---</div><div>Input Volt.</div><div>12V</div></div><div><div>---*---</div><div>Input Volt.</div><div>18V</div></div><div><div>---○---</div><div>Input Volt.</div><div>24V</div></div><div><div>---◇---</div><div>Input Volt.</div><div>36V</div></div></div>		2.Values																																																																														
<div><div><div>0.60</div><div>0.45</div><div>0.30</div><div>0.15</div><div>0.00</div></div><div>Input Current [A]</div><div><div>0.00</div><div>0.05</div><div>0.10</div><div>0.15</div><div>0.20</div><div>0.25</div></div><div>Load Current [A]</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="5">Input Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>0.00</td><td>0.028</td><td>0.023</td><td>0.018</td><td>0.015</td><td>0.005</td></tr><tr><td>0.04</td><td>0.100</td><td>0.078</td><td>0.055</td><td>0.043</td><td>0.031</td></tr><tr><td>0.08</td><td>0.172</td><td>0.132</td><td>0.090</td><td>0.070</td><td>0.049</td></tr><tr><td>0.12</td><td>0.247</td><td>0.185</td><td>0.128</td><td>0.098</td><td>0.068</td></tr><tr><td>0.16</td><td>0.320</td><td>0.243</td><td>0.164</td><td>0.125</td><td>0.086</td></tr><tr><td>0.18</td><td>0.360</td><td>0.271</td><td>0.182</td><td>0.139</td><td>0.095</td></tr><tr><td>0.20</td><td>0.398</td><td>0.299</td><td>0.201</td><td>0.153</td><td>0.105</td></tr><tr><td>0.22</td><td>0.437</td><td>0.325</td><td>0.220</td><td>0.167</td><td>0.114</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>				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]	0.00	0.028	0.023	0.018	0.015	0.005	0.04	0.100	0.078	0.055	0.043	0.031	0.08	0.172	0.132	0.090	0.070	0.049	0.12	0.247	0.185	0.128	0.098	0.068	0.16	0.320	0.243	0.164	0.125	0.086	0.18	0.360	0.271	0.182	0.139	0.095	0.20	0.398	0.299	0.201	0.153	0.105	0.22	0.437	0.325	0.220	0.167	0.114	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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Model

MHFS32415

Item

Efficiency (by Load Current)

Object

1.Graph

—△—

Input Volt.

9V

---□---

Input Volt.

12V

-·-·*-·-

Input Volt.

18V

-·-○-·-

Input Volt.

24V

---◇---

Input Volt.

36V

Efficiency [%]

90

80

70

60

50

0.00

0.05

0.10

0.15

0.20

0.25

Load Current [A]

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

2.Values

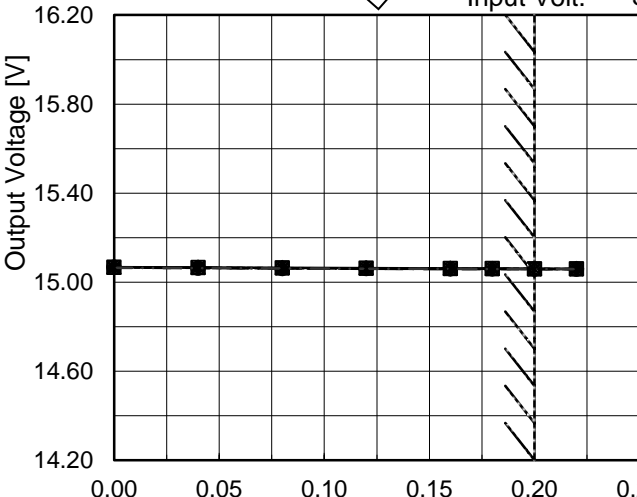
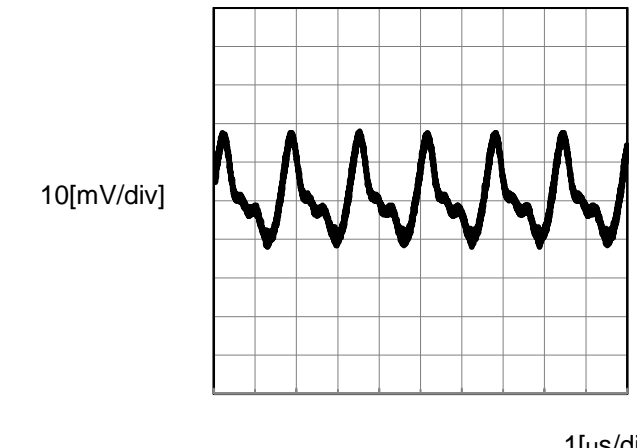
Load Current [A]	Efficiency [%]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-	-	-	-	-
0.04	66.1	63.8	60.3	58.1	54.4
0.08	76.5	75.3	73.5	71.3	67.4
0.12	80.6	80.3	78.1	76.2	73.4
0.16	82.7	82.1	81.2	80.1	77.3
0.18	83.1	82.9	81.9	81.1	78.8
0.20	83.6	83.5	82.6	81.7	79.7
0.22	83.8	84.0	83.2	82.3	80.4
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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Model		MHFS32415	Temperature		25°C																																
Item		Line Regulation	Testing Circuitry		Figure A																																
Object		+15V0.2A																																			
1.Graph			2.Values																																		
<div><div><div><div><div></div><div></div></div><div></div></div><div><div></div><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><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>8.6</td><td>15.056</td><td>15.059</td></tr><tr><td>9.0</td><td>15.057</td><td>15.059</td></tr><tr><td>12.0</td><td>15.056</td><td>15.059</td></tr><tr><td>15.0</td><td>15.057</td><td>15.059</td></tr><tr><td>18.0</td><td>15.057</td><td>15.059</td></tr><tr><td>24.0</td><td>15.058</td><td>15.059</td></tr><tr><td>30.0</td><td>15.058</td><td>15.060</td></tr><tr><td>36.0</td><td>15.058</td><td>15.060</td></tr><tr><td>40.0</td><td>15.059</td><td>15.060</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>			Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	8.6	15.056	15.059	9.0	15.057	15.059	12.0	15.056	15.059	15.0	15.057	15.059	18.0	15.057	15.059	24.0	15.058	15.059	30.0	15.058	15.060	36.0	15.058	15.060	40.0	15.059	15.060			
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Item		Ripple-Noise		Temperature 25°C																																																																														
Object		+15V0.2A		Testing Circuitry Figure B																																																																														
1.Graph		<div><div>Input Voltage 24V</div><div>Load 100%</div><div></div></div>																																																																																

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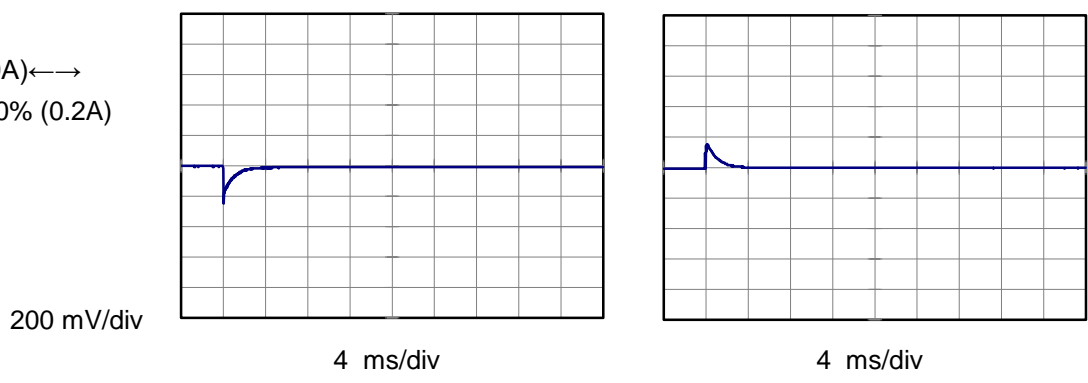


Model	MHFS32415	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+15V0.2A	

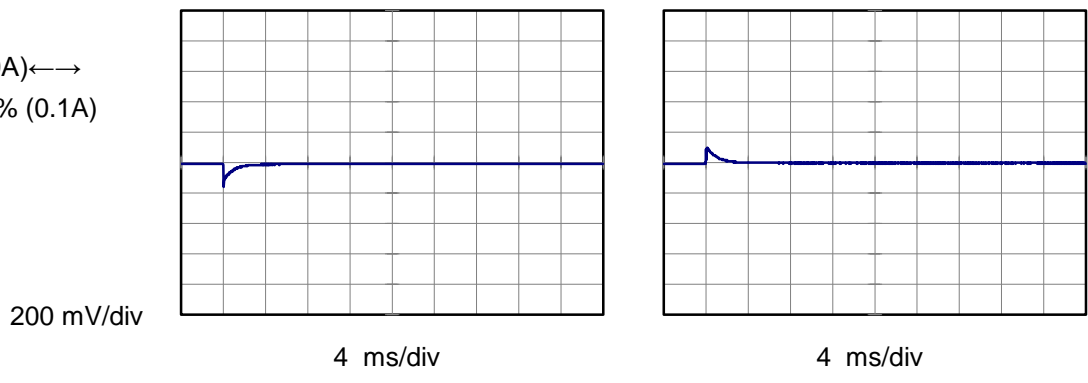
Input Volt. 24 V
Cycle 100 ms



Min.Load (0A) ←→
Load 100% (0.2A)



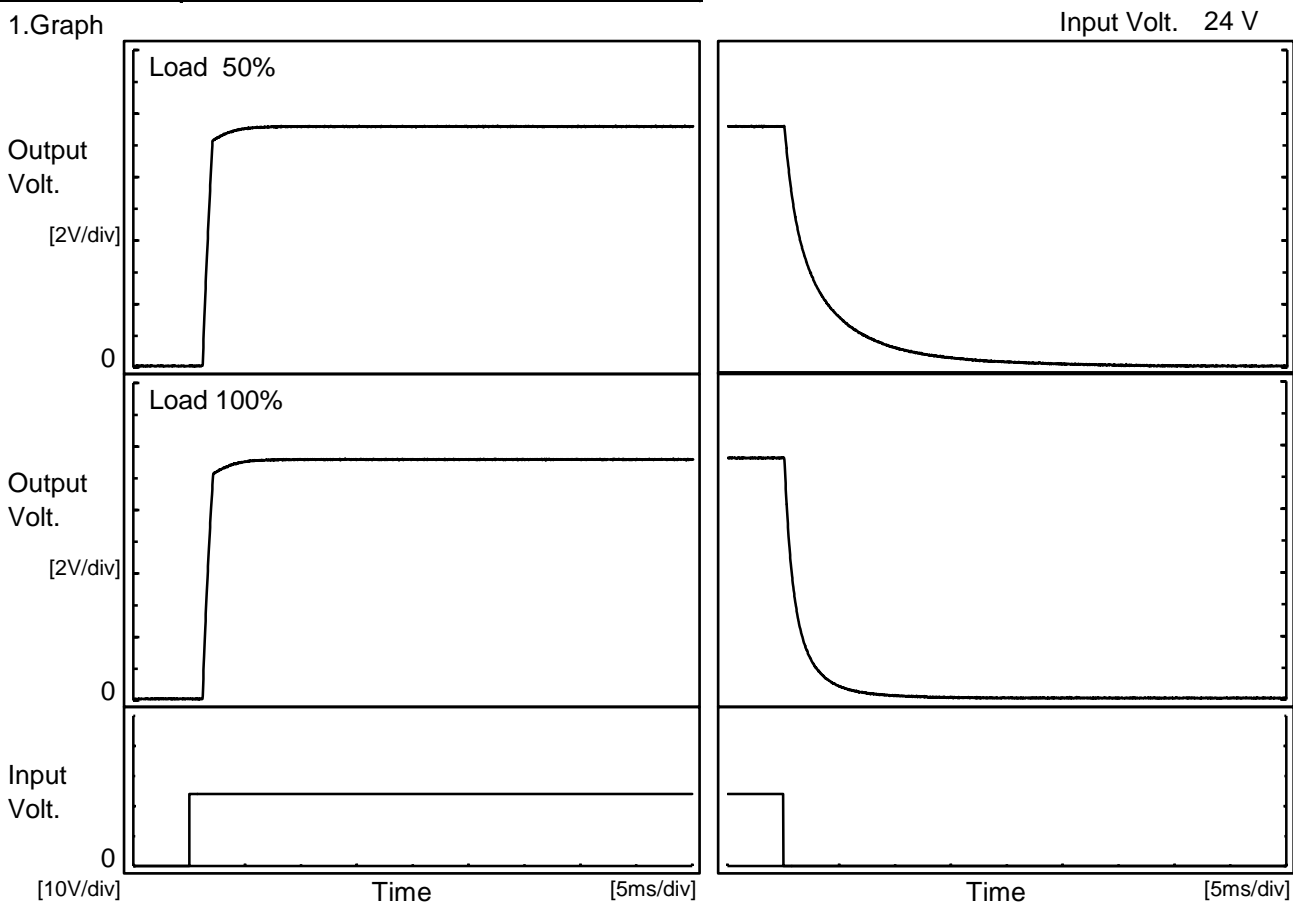
Min.Load (0A) ←→
Load 50% (0.1A)





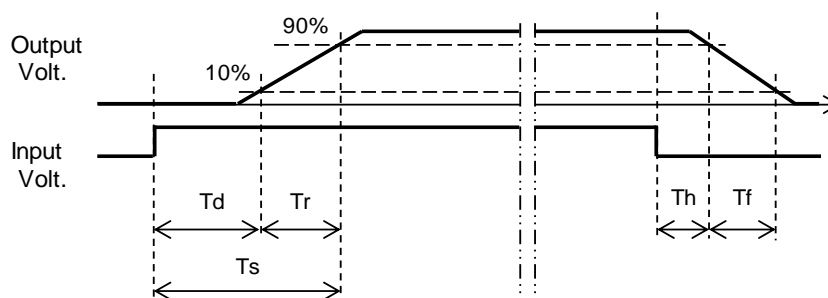
Model	MHFS32415	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.2A		

1.Graph



2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.3	0.8	2.1	0.3	8.5
100 %	1.3	0.8	2.1	0.2	3.2





Model		MHFS32415	Temperature 25°C Testing Circuitry Figure A																																																																																				
Item		Overcurrent Protection																																																																																					
Object		+15V0.2A																																																																																					
1.Graph		<div><div><div></div>Input Volt. 9V</div><div><div></div>Input Volt. 12V</div><div><div></div>Input Volt. 18V</div><div><div></div>Input Volt. 24V</div><div><div></div>Input Volt. 36V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>	2.Values																																																																																				
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COSEL

		Testing Circuitry Figure A
Model	MHFS32415	
Item	Ambient Temperature Drift	
Object	+15V0.2A	

1.Values

Ambient Temperature[°C]	Output Voltage [V]				
	Input Volt. 9V	Input Volt. 12V	Input Volt. 18V	Input Volt. 24V	Input Volt. 36V
-40	14.947	14.948	14.949	14.950	14.951
25	15.056	15.056	15.056	15.057	15.057
75	15.088	15.089	15.089	15.089	15.090

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+15V0.2A	

1.Values

Ambient Temperature[°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	7.2	7.3
25	7.2	7.2
75	7.0	6.9

Model		MHFS32415		Temperature 25°C	
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A	
Object		+15V0.2A			
1.Graph		<div><div>—△—</div>Input Volt. 9V</div>		2.Values	
		<div>---□---</div> Input Volt. 12V			
		<div>-·-·*-·-</div> Input Volt. 18V			
		<div>-·-○-</div> Input Volt. 24V			
		<div>---◇---</div> Input Volt. 36V			
<div>Switching Frequency [kHz]</div> <div><div><div>10000</div><div>1000</div><div>100</div></div><div><div>0.00</div><div>0.05</div><div>0.10</div><div>0.15</div><div>0.20</div><div>0.25</div></div></div>					
		<div>Load Current [A]</div>			
Note: Slanted line shows the range of the rated load current.					
When load current is low, MH operates intermittently, so switching frequency would not become constant.					

Load Current [A]	Switching Frequency [kHz]				
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	727	818	925	999	995
0.04	606	713	810	927	943
0.08	506	616	722	833	909
0.12	452	545	643	767	850
0.16	383	480	581	701	783
0.18	361	451	551	671	757
0.20	334	431	530	640	729
0.22	295	382	506	589	674
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

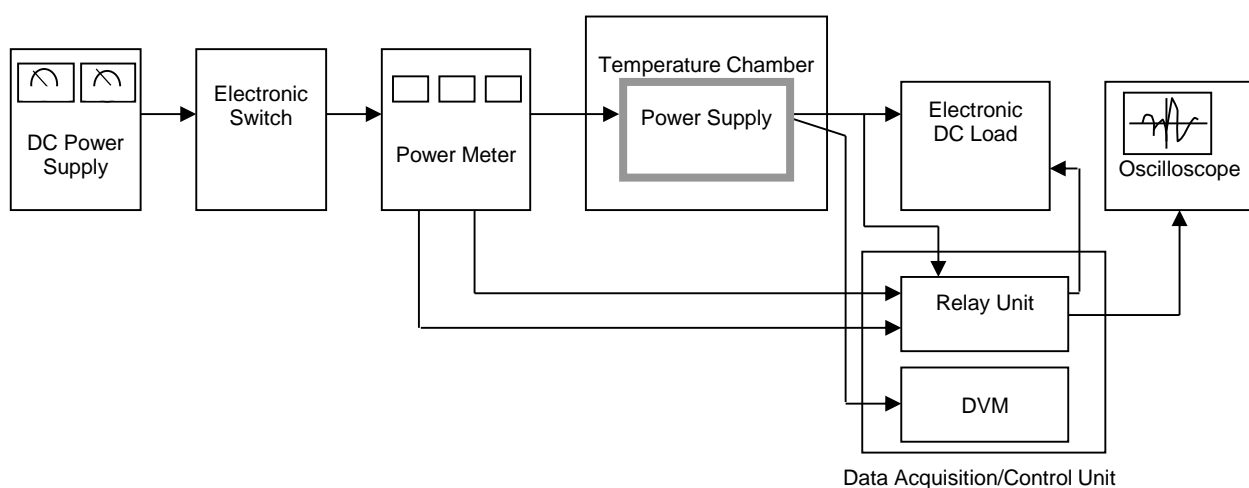


Figure A

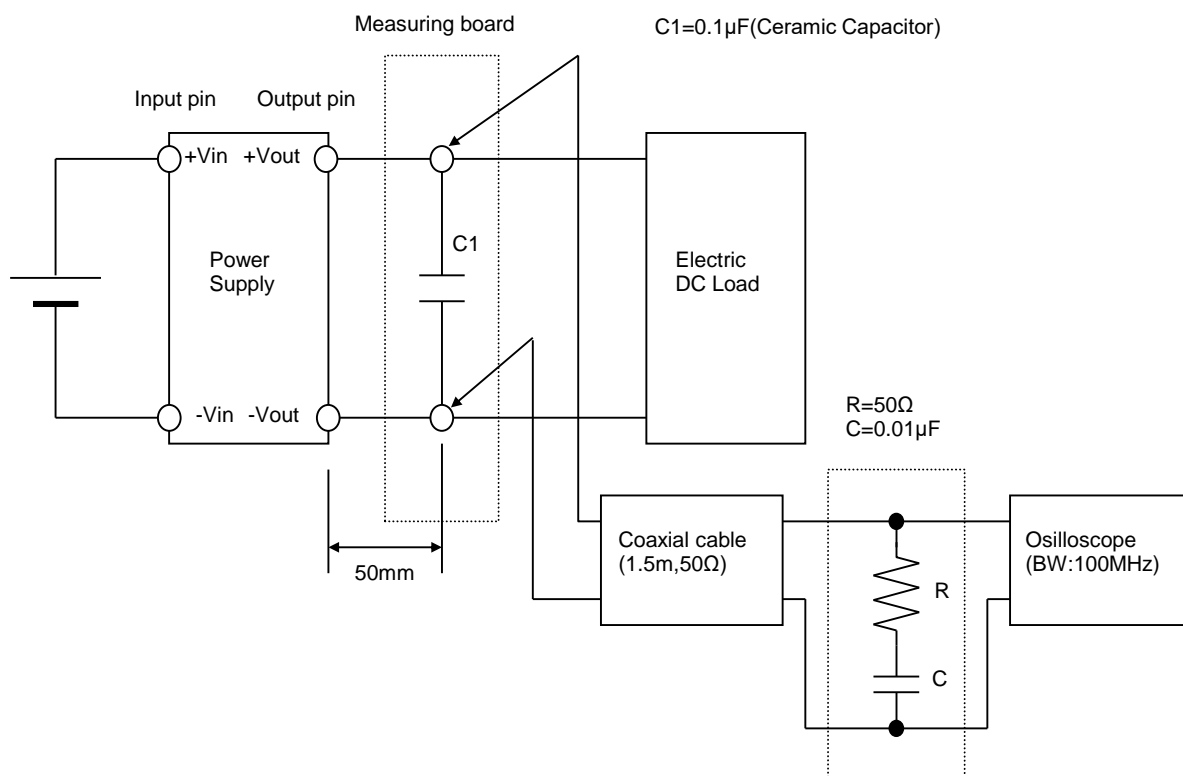


Figure B