

TEST DATA OF MGFW104812

Regulated DC Power Supply
December 26, 2016

Approved by : Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi Design Engineer

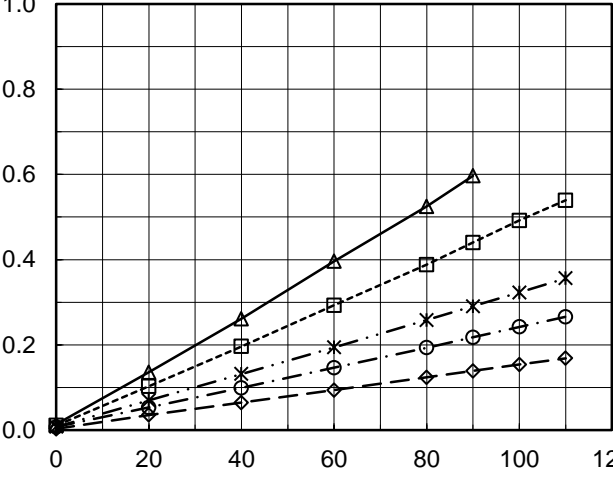
COSEL CO.,LTD.

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Model		MGFW104812		Temperature 25°C																																																																																
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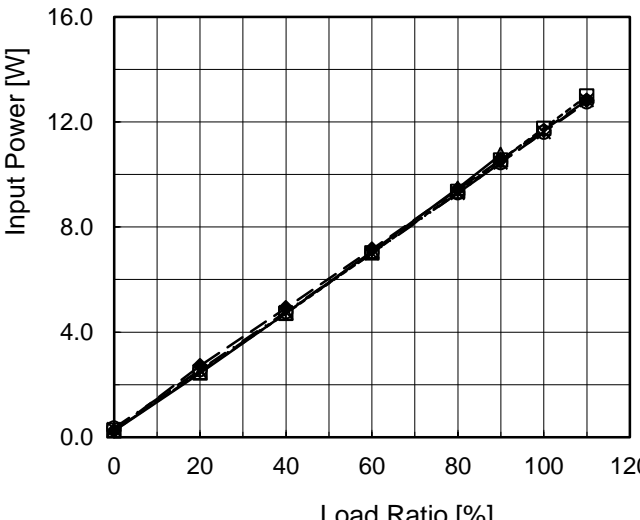
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Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
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30	12.154	12.058																															
36	12.151	12.059																															
48	12.147	12.058																															
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Note: Slanted line shows the range of the rated input voltage.		※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.																															

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COSEL

Model		MGFW104812		Temperature 25°C	
Item		Load Regulation		Testing Circuitry Figure A	
Object		+12V0.42A		2.Values	
1.Graph		<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><div>-·-○-·-</div><div>Input Volt.</div><div>48V</div></div><div><div>--◇--</div><div>Input Volt.</div><div>76V</div></div></div> <div></div>			
Object		-12V0.42A		2.Values	
1.Graph		<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><div>-·-○-·-</div><div>Input Volt.</div><div>48V</div></div><div><div>--◇--</div><div>Input Volt.</div><div>76V</div></div></div> <div></div>			
Note: Slanted line shows the range of the rated load current.				※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.	

Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	12.413	12.384	12.352	12.339	12.326
0.084	12.262	12.249	12.235	12.227	12.219
0.168	12.196	12.187	12.177	12.172	12.167
0.252	12.145	12.140	12.133	12.130	12.126
0.336	12.098	12.097	12.094	12.093	12.090
0.378	12.074	12.077	12.077	12.075	12.074
0.420	- ※	12.057	12.059	12.058	12.058
0.462	- ※	12.035	12.040	12.041	12.040
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--	-	-	-	-	-
--	-	-	-	-	-

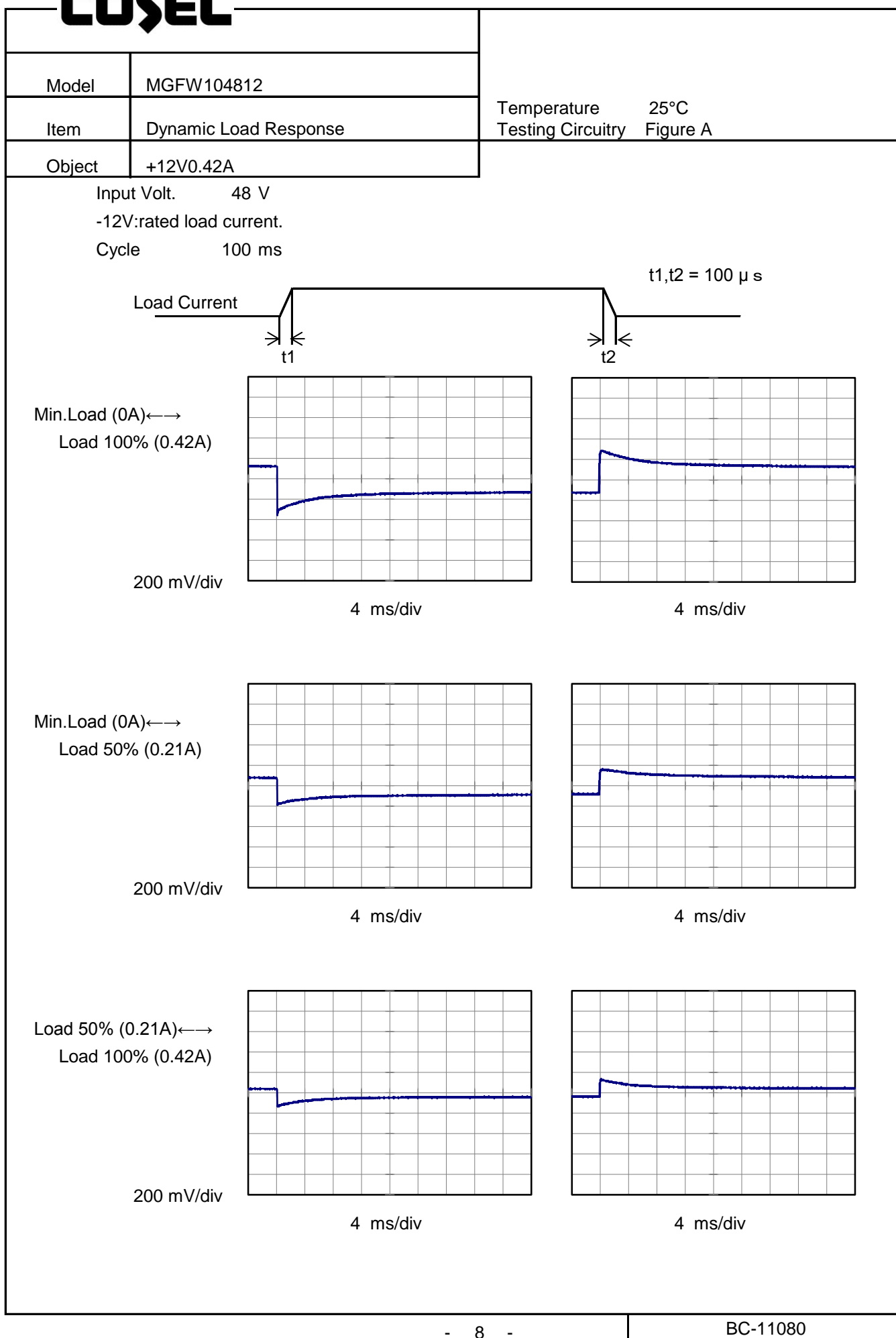
-12V: Rated Load Current

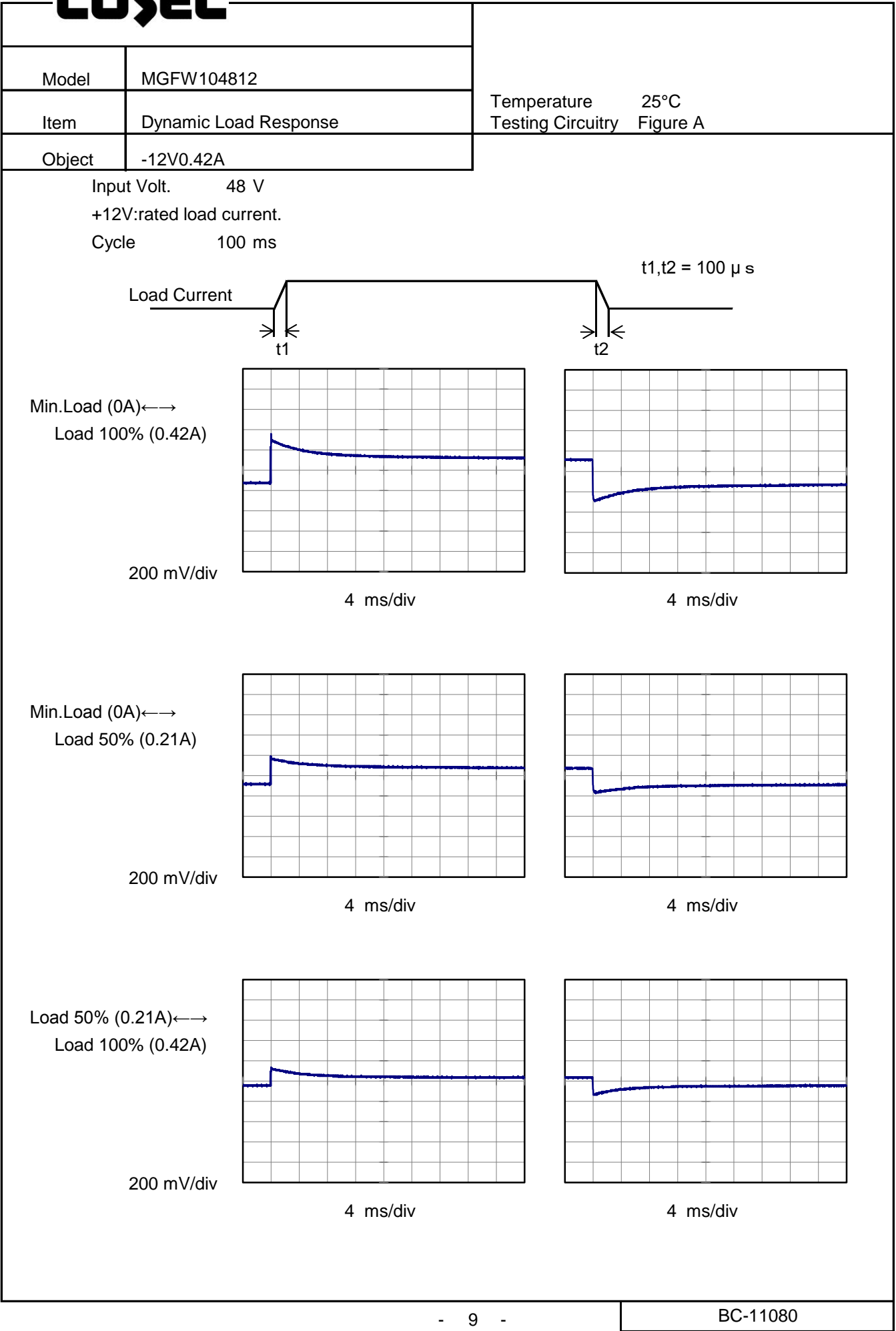
Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-12.462	-12.426	-12.389	-12.376	-12.365
0.084	-12.300	-12.285	-12.267	-12.260	-12.254
0.168	-12.225	-12.215	-12.204	-12.199	-12.196
0.252	-12.171	-12.163	-12.156	-12.152	-12.150
0.336	-12.124	-12.120	-12.115	-12.113	-12.112
0.378	-12.100	-12.100	-12.097	-12.096	-12.096
0.420	- ※	-12.080	-12.079	-12.079	-12.079
0.462	- ※	-12.058	-12.060	-12.060	-12.062
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--	-	-	-	-	-

+12V: Rated Load Current

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COSEL





Model		MGFW104812		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+12V0.42A																																									
1.Graph				2.Values																																							
<div><div><div>—△— Input Volt. 24V</div><div>- -○- - Input Volt. 76V</div></div><div>Ripple Voltage [mV]</div><div>Load Current [A]</div></div>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 24 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.000</td><td>5</td><td>5</td></tr><tr><td>0.084</td><td>5</td><td>5</td></tr><tr><td>0.168</td><td>5</td><td>5</td></tr><tr><td>0.252</td><td>10</td><td>5</td></tr><tr><td>0.336</td><td>15</td><td>5</td></tr><tr><td>0.378</td><td>20</td><td>5</td></tr><tr><td>0.420</td><td>20</td><td>5</td></tr><tr><td>0.462</td><td>20</td><td>5</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table> <div>-12V: Rated Load Current</div>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 24 [V]	Input Volt. 76 [V]	0.000	5	5	0.084	5	5	0.168	5	5	0.252	10	5	0.336	15	5	0.378	20	5	0.420	20	5	0.462	20	5	--	-	-	--	-	-	--	-	-
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Model	MGFW104812																																								
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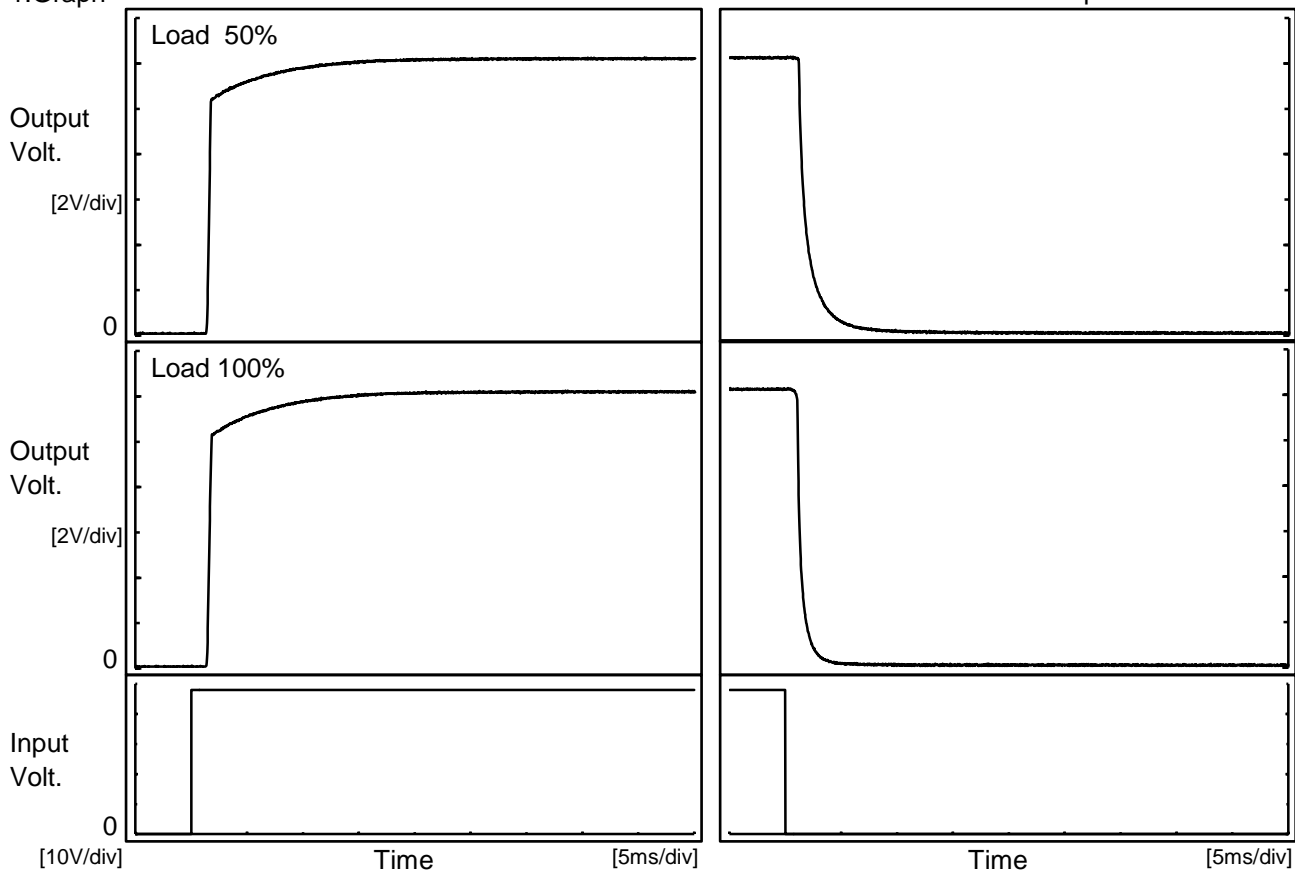
COSEL

Model		MGFW104812		Temperature Testing Circuitry	25°C Figure A
Item		Time Lapse Drift			
Object		+12V0.42A			
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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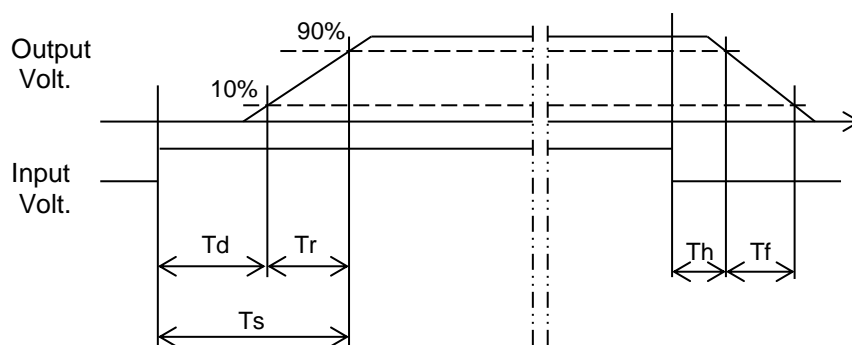
Model	MGFW104812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.42A		

1.Graph



2.Values

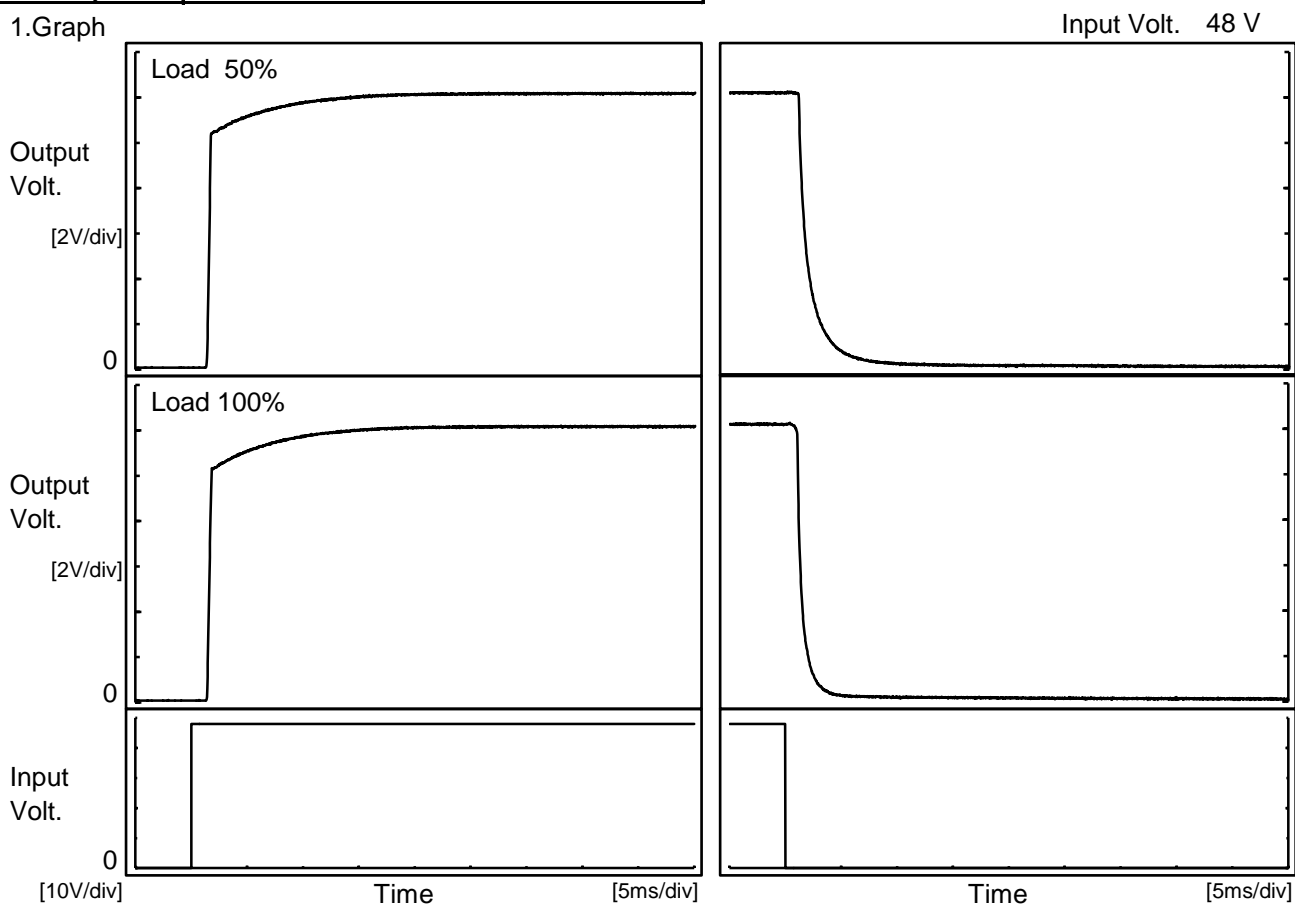
		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.5	1.9	3.4	1.2	2.3
100 %		1.5	2.4	3.9	1.1	1.1



COSEL

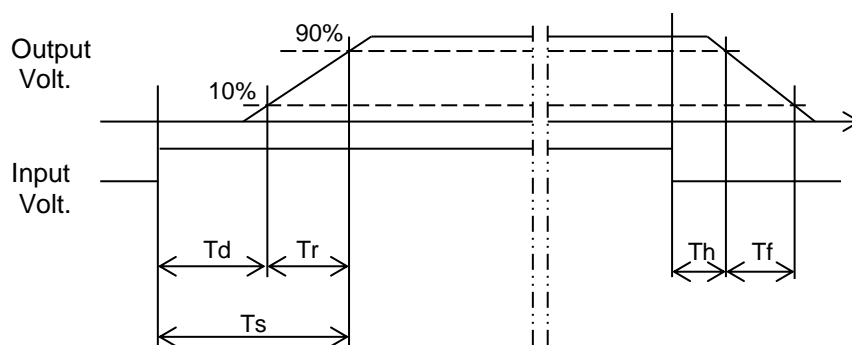
Model	MGFW104812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-12V0.42A		

1.Graph



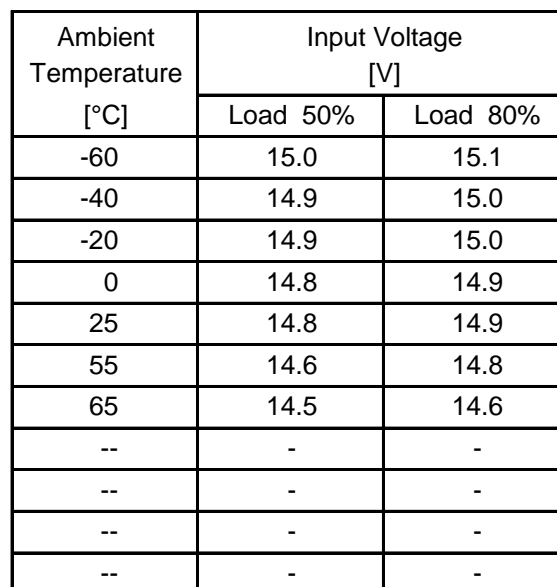
2.Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.5	2.2	3.7	1.3	2.8
100 %		1.5	2.6	4.1	1.1	1.3

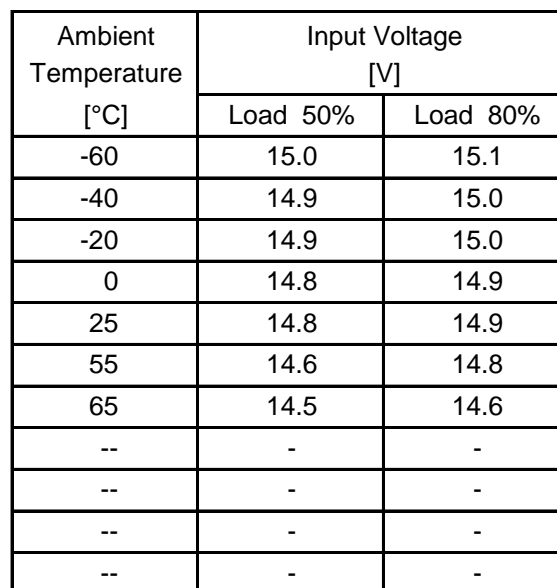


Testing Circuitry Figure A

2.Values

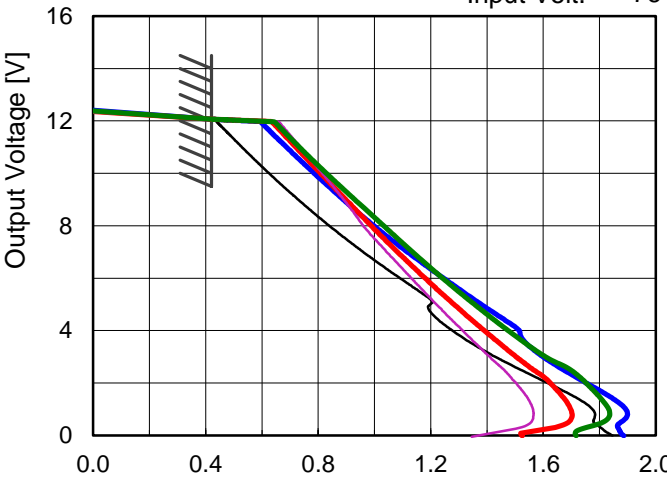
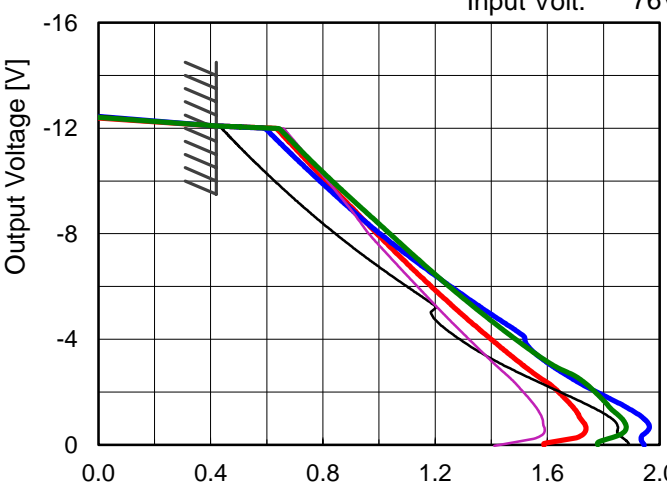


2.Values



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COSEL

Model		MGFW104812		Temperature 25°C																																																																																				
Item		Overcurrent Protection		Testing Circuitry Figure A																																																																																				
Object		+12V0.42A		2.Values																																																																																				
1.Graph		<div><div><div></div>Input Volt. 18V</div><div><div></div>Input Volt. 24V</div><div><div></div>Input Volt. 36V</div><div><div></div>Input Volt. 48V</div><div><div></div>Input Volt. 76V</div></div> 																																																																																						
Object		-12V0.42A		2.Values																																																																																				
1.Graph		<div><div><div></div>Input Volt. 18V</div><div><div></div>Input Volt. 24V</div><div><div></div>Input Volt. 36V</div><div><div></div>Input Volt. 48V</div><div><div></div>Input Volt. 76V</div></div> 																																																																																						
		Note: Slanted line shows the range of the rated load current.		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>11.4</td><td>0.491</td><td>0.648</td><td>0.696</td><td>0.685</td><td>0.704</td></tr><tr><td>10.8</td><td>0.547</td><td>0.704</td><td>0.751</td><td>0.735</td><td>0.752</td></tr><tr><td>9.6</td><td>0.664</td><td>0.825</td><td>0.868</td><td>0.842</td><td>0.843</td></tr><tr><td>8.4</td><td>0.793</td><td>0.952</td><td>0.989</td><td>0.952</td><td>0.933</td></tr><tr><td>7.2</td><td>0.931</td><td>1.089</td><td>1.112</td><td>1.062</td><td>1.025</td></tr><tr><td>6.0</td><td>1.089</td><td>1.243</td><td>1.242</td><td>1.178</td><td>1.127</td></tr><tr><td>4.8</td><td>1.193</td><td>1.406</td><td>1.377</td><td>1.301</td><td>1.238</td></tr><tr><td>3.6</td><td>1.332</td><td>1.531</td><td>1.523</td><td>1.434</td><td>1.349</td></tr><tr><td>2.4</td><td>1.539</td><td>1.685</td><td>1.709</td><td>1.578</td><td>1.468</td></tr><tr><td>1.2</td><td>1.752</td><td>1.873</td><td>1.819</td><td>1.688</td><td>1.556</td></tr><tr><td>0.0</td><td>1.847</td><td>1.886</td><td>1.717</td><td>1.525</td><td>1.346</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table> <div>-12V: Rated Load Current</div>		Output Voltage [V]	Load Current [A]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	11.4	0.491	0.648	0.696	0.685	0.704	10.8	0.547	0.704	0.751	0.735	0.752	9.6	0.664	0.825	0.868	0.842	0.843	8.4	0.793	0.952	0.989	0.952	0.933	7.2	0.931	1.089	1.112	1.062	1.025	6.0	1.089	1.243	1.242	1.178	1.127	4.8	1.193	1.406	1.377	1.301	1.238	3.6	1.332	1.531	1.523	1.434	1.349	2.4	1.539	1.685	1.709	1.578	1.468	1.2	1.752	1.873	1.819	1.688	1.556	0.0	1.847	1.886	1.717	1.525	1.346	--	-	-	-	-	-
Output Voltage [V]	Load Current [A]																																																																																							
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0.0	1.847	1.886	1.717	1.525	1.346																																																																																			
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				<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>-11.4</td><td>0.493</td><td>0.651</td><td>0.698</td><td>0.687</td><td>0.708</td></tr><tr><td>-10.8</td><td>0.548</td><td>0.708</td><td>0.754</td><td>0.737</td><td>0.753</td></tr><tr><td>-9.6</td><td>0.666</td><td>0.829</td><td>0.872</td><td>0.845</td><td>0.845</td></tr><tr><td>-8.4</td><td>0.797</td><td>0.956</td><td>0.993</td><td>0.956</td><td>0.933</td></tr><tr><td>-7.2</td><td>0.940</td><td>1.099</td><td>1.118</td><td>1.067</td><td>1.029</td></tr><tr><td>-6.0</td><td>1.096</td><td>1.251</td><td>1.249</td><td>1.185</td><td>1.137</td></tr><tr><td>-4.8</td><td>1.195</td><td>1.417</td><td>1.385</td><td>1.309</td><td>1.244</td></tr><tr><td>-3.6</td><td>1.343</td><td>1.541</td><td>1.537</td><td>1.444</td><td>1.357</td></tr><tr><td>-2.4</td><td>1.562</td><td>1.705</td><td>1.725</td><td>1.591</td><td>1.479</td></tr><tr><td>-1.2</td><td>1.799</td><td>1.913</td><td>1.844</td><td>1.707</td><td>1.572</td></tr><tr><td>0.0</td><td>1.890</td><td>1.946</td><td>1.780</td><td>1.588</td><td>1.411</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table> <div>+12V: Rated Load Current</div> <div>Maximum output current at minimum input Voltage is 80% of rated load current.</div> <div>Refer to instruction manuals for details of input derating.</div>		Output Voltage [V]	Load Current [A]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-11.4	0.493	0.651	0.698	0.687	0.708	-10.8	0.548	0.708	0.754	0.737	0.753	-9.6	0.666	0.829	0.872	0.845	0.845	-8.4	0.797	0.956	0.993	0.956	0.933	-7.2	0.940	1.099	1.118	1.067	1.029	-6.0	1.096	1.251	1.249	1.185	1.137	-4.8	1.195	1.417	1.385	1.309	1.244	-3.6	1.343	1.541	1.537	1.444	1.357	-2.4	1.562	1.705	1.725	1.591	1.479	-1.2	1.799	1.913	1.844	1.707	1.572	0.0	1.890	1.946	1.780	1.588	1.411	--	-	-	-	-	-
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BC-11080

Model		MGFW104812		Temperature 25°C	
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A	
Object		+/-12V0.42A			
1.Graph		<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><div>-·-·○-·-</div><div>Input Volt.</div><div>48V</div></div><div><div>---◇---</div><div>Input Volt.</div><div>76V</div></div></div> <div><div><div>Switching Frequency [kHz]</div><div>10000</div><div>1000</div><div>100</div></div><div><div>0.0</div><div>0.1</div><div>0.2</div><div>0.3</div><div>0.4</div><div>0.5</div></div><div><div>Load Current [A]</div></div></div>			
Note: Slanted line shows the range of the rated load current.		When load current is low, MG operates intermittently, so switching frequency would not become constant.			
2.Values					

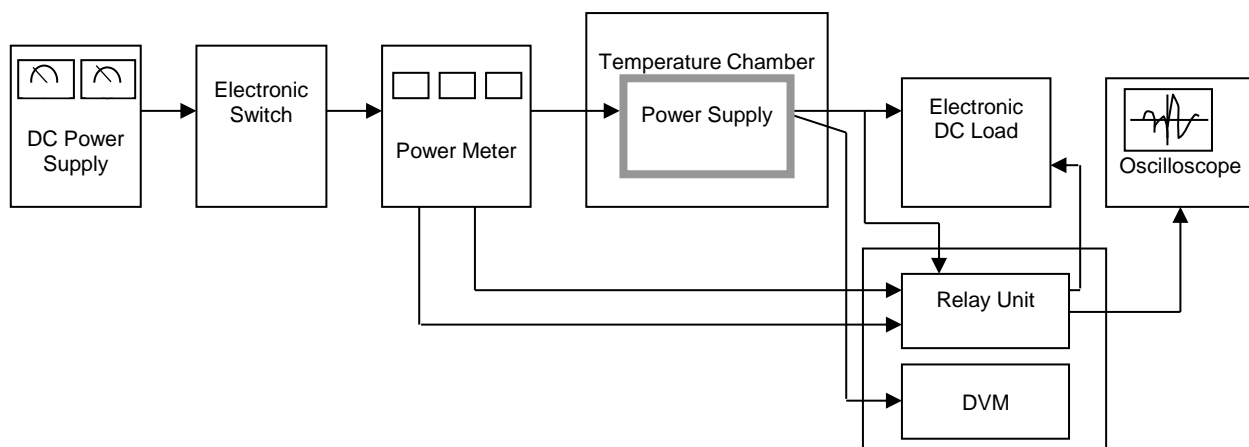


Figure A

Data Acquisition/Control Unit

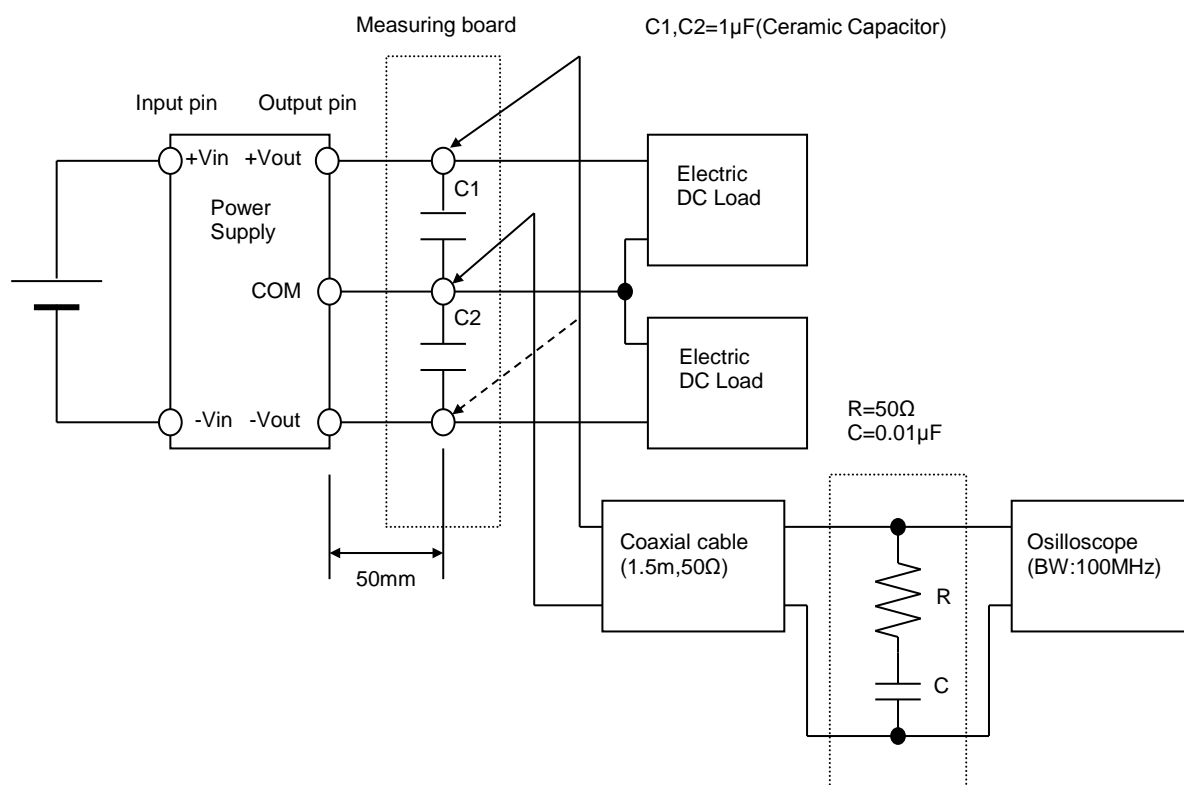


Figure B (Ripple and Ripple noise Characteristic)