

TEST DATA OF SUTS102415

Regulated DC Power Supply
February 13, 2009

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Sho Saito
Sho Saito Design Engineer

COSEL CO.,LTD.

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Model	SUTS102415																																																																																	
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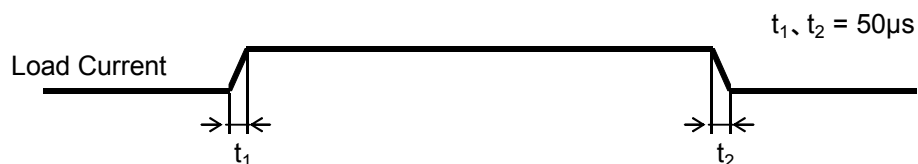
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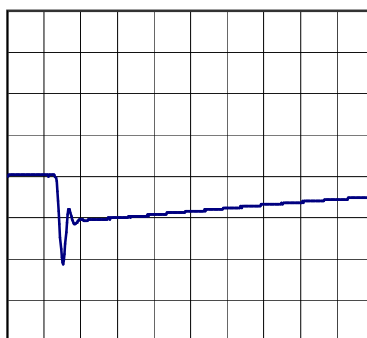
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Input Volt. 24 V
Cycle 100 mS

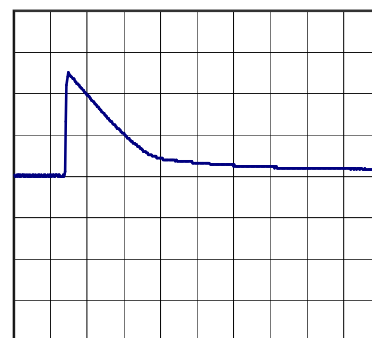


Min. Load (0A) \longleftrightarrow
Load 100% (0.8A)

200mV/div



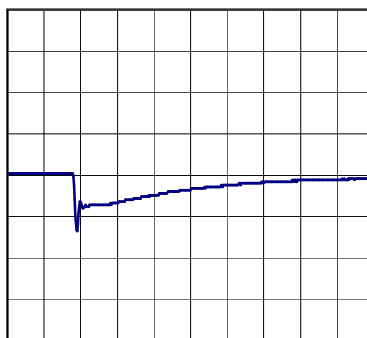
200µs/div



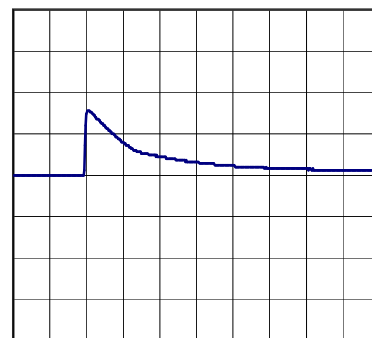
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.4A)

200mV/div



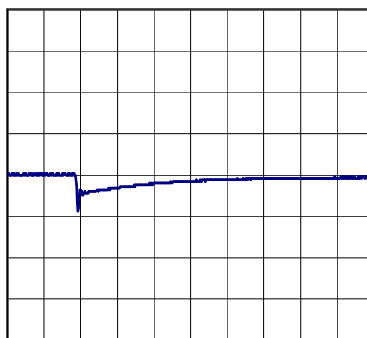
500µs/div



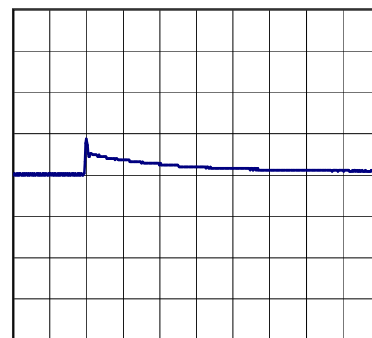
500µs/div

Load 50% (0.4A) \longleftrightarrow
Load 100% (0.8A)

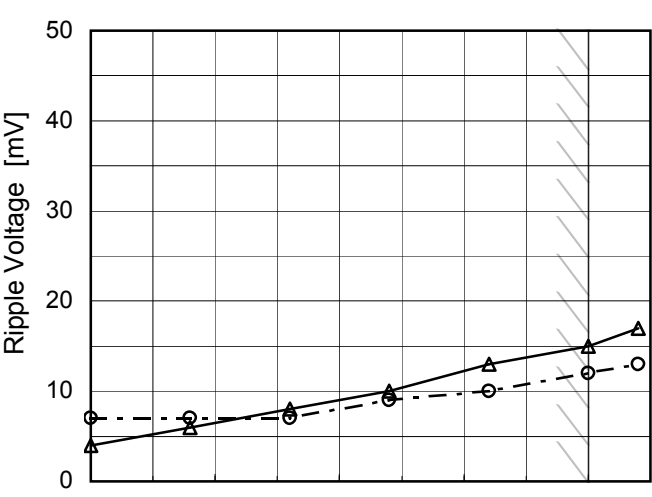
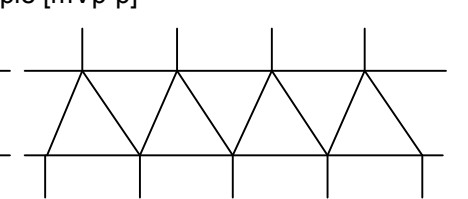
200mV/div



500µs/div



500µs/div

Model	SUTS102415																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+15V0.8A																																								
1.Graph		2.Values																																							
<div><div><div><div></div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div></div><div>- -○ - -</div><div>Input Volt.</div><div>36V</div></div></div><div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 36 [V]</th></tr><tr><td>0.00</td><td>4</td><td>7</td></tr><tr><td>0.16</td><td>6</td><td>7</td></tr><tr><td>0.32</td><td>8</td><td>7</td></tr><tr><td>0.48</td><td>10</td><td>9</td></tr><tr><td>0.64</td><td>13</td><td>10</td></tr><tr><td>0.80</td><td>15</td><td>12</td></tr><tr><td>0.88</td><td>17</td><td>13</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><tr><td>--</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.00	4	7	0.16	6	7	0.32	8	7	0.48	10	9	0.64	13	10	0.80	15	12	0.88	17	13	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
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<p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p>																																									
<div><div><div>Ripple [mVp-p]</div><div></div></div><div>Fig.Complex Ripple Wave Form</div></div>																																									

Model	SUTS102415																																								
Item	Ripple-Noise	Temperature	25°C																																						
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Object	+15V0.8A																																								
1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>36V</div></div></div> <p>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.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 36 [V]</th></tr><tr><td>0.00</td><td>5</td><td>9</td></tr><tr><td>0.16</td><td>9</td><td>10</td></tr><tr><td>0.32</td><td>13</td><td>15</td></tr><tr><td>0.48</td><td>17</td><td>16</td></tr><tr><td>0.64</td><td>22</td><td>20</td></tr><tr><td>0.80</td><td>28</td><td>24</td></tr><tr><td>0.88</td><td>33</td><td>25</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><tr><td>--</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.00	5	9	0.16	9	10	0.32	13	15	0.48	17	16	0.64	22	20	0.80	28	24	0.88	33	25	--	-	-	--	-	-	--	-	-	--	-	-
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Model	SUTS102415																																								
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																							
Object	+15V0.8A																																								
1.Graph		2.Values																																							
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Input Volt. 24V</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-60</td><td>10</td><td>16</td></tr><tr><td>-40</td><td>9</td><td>16</td></tr><tr><td>-20</td><td>9</td><td>15</td></tr><tr><td>0</td><td>9</td><td>-</td></tr><tr><td>25</td><td>7</td><td>11</td></tr><tr><td>55</td><td>6</td><td>10</td></tr><tr><td>60</td><td>6</td><td>10</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><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	10	16	-40	9	16	-20	9	15	0	9	-	25	7	11	55	6	10	60	6	10	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																								
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Model	SUTS102415																																																						
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																					
Object	+15V0.8A																																																						
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<div><div>—△— Input Volt. 18V</div><div>---□--- Input Volt. 24V</div><div>-·-○-·- Input Volt. 36V</div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>		<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>-60</td><td>15.048</td><td>15.053</td><td>15.054</td></tr><tr><td>-40</td><td>15.073</td><td>15.077</td><td>15.077</td></tr><tr><td>-20</td><td>15.094</td><td>15.097</td><td>15.096</td></tr><tr><td>0</td><td>15.109</td><td>15.111</td><td>15.110</td></tr><tr><td>25</td><td>15.121</td><td>15.122</td><td>15.120</td></tr><tr><td>55</td><td>15.127</td><td>15.127</td><td>15.125</td></tr><tr><td>60</td><td>15.127</td><td>15.127</td><td>15.125</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>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-60	15.048	15.053	15.054	-40	15.073	15.077	15.077	-20	15.094	15.097	15.096	0	15.109	15.111	15.110	25	15.121	15.122	15.120	55	15.127	15.127	15.125	60	15.127	15.127	15.125	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																																							



Model		SUTS102415	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+15V0.8A	

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 - 55°C

Input Voltage : 18 - 36V

Load Current : 0 - 0.8A

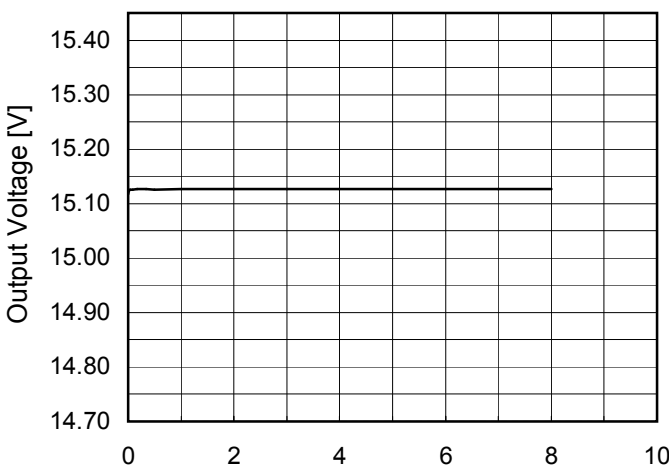
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

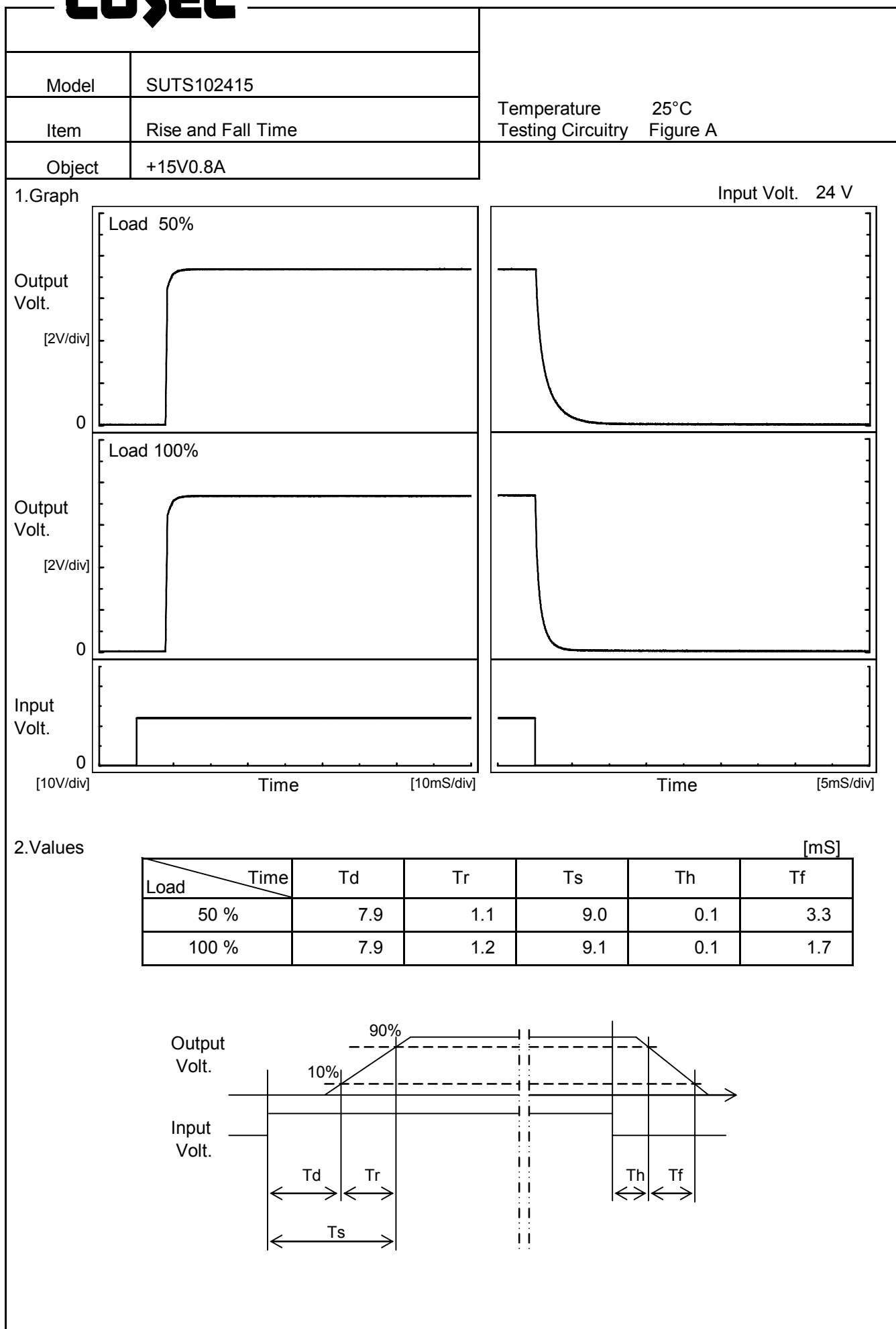
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

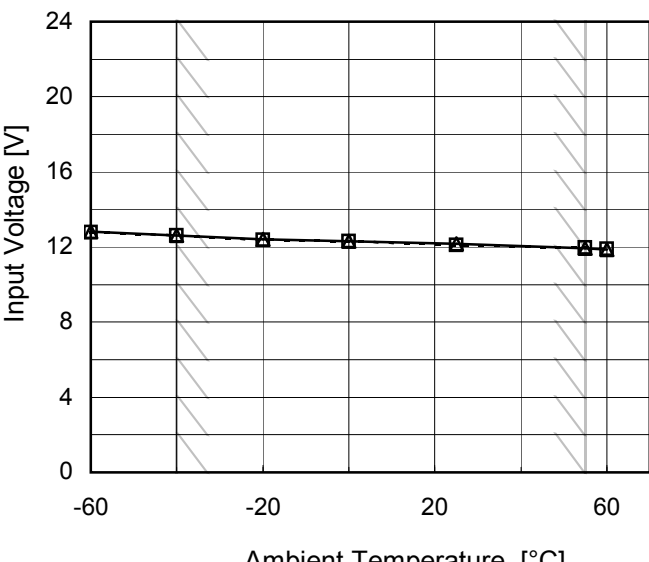
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	55	18	0	15.144	±36	±0.2
Minimum Voltage	-40	18	0.8	15.073		



Model	SUTS102415																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+15V0.8A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 24V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>15.118</td></tr><tr><td>0.5</td><td>15.126</td></tr><tr><td>1.0</td><td>15.126</td></tr><tr><td>2.0</td><td>15.127</td></tr><tr><td>3.0</td><td>15.127</td></tr><tr><td>4.0</td><td>15.127</td></tr><tr><td>5.0</td><td>15.127</td></tr><tr><td>6.0</td><td>15.126</td></tr><tr><td>7.0</td><td>15.127</td></tr><tr><td>8.0</td><td>15.127</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	15.118	0.5	15.126	1.0	15.126	2.0	15.127	3.0	15.127	4.0	15.127	5.0	15.127	6.0	15.126	7.0	15.127	8.0	15.127
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		Testing Circuitry Figure A																																						
Model	SUTS102415																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																							
Object	+15V0.8A																																							
1.Graph		2.Values																																						
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		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Input Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-60</td><td>12.8</td><td>12.9</td></tr><tr><td>-40</td><td>12.6</td><td>12.6</td></tr><tr><td>-20</td><td>12.4</td><td>12.5</td></tr><tr><td>0</td><td>12.3</td><td>12.3</td></tr><tr><td>25</td><td>12.2</td><td>12.2</td></tr><tr><td>55</td><td>12.0</td><td>12.0</td></tr><tr><td>60</td><td>11.9</td><td>11.9</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><tr><td>--</td><td>-</td><td>-</td></tr></table>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	12.8	12.9	-40	12.6	12.6	-20	12.4	12.5	0	12.3	12.3	25	12.2	12.2	55	12.0	12.0	60	11.9	11.9	--	-	-	--	-	-	--	-	-	--	-	-
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Model	SUTS102415																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
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Figure A

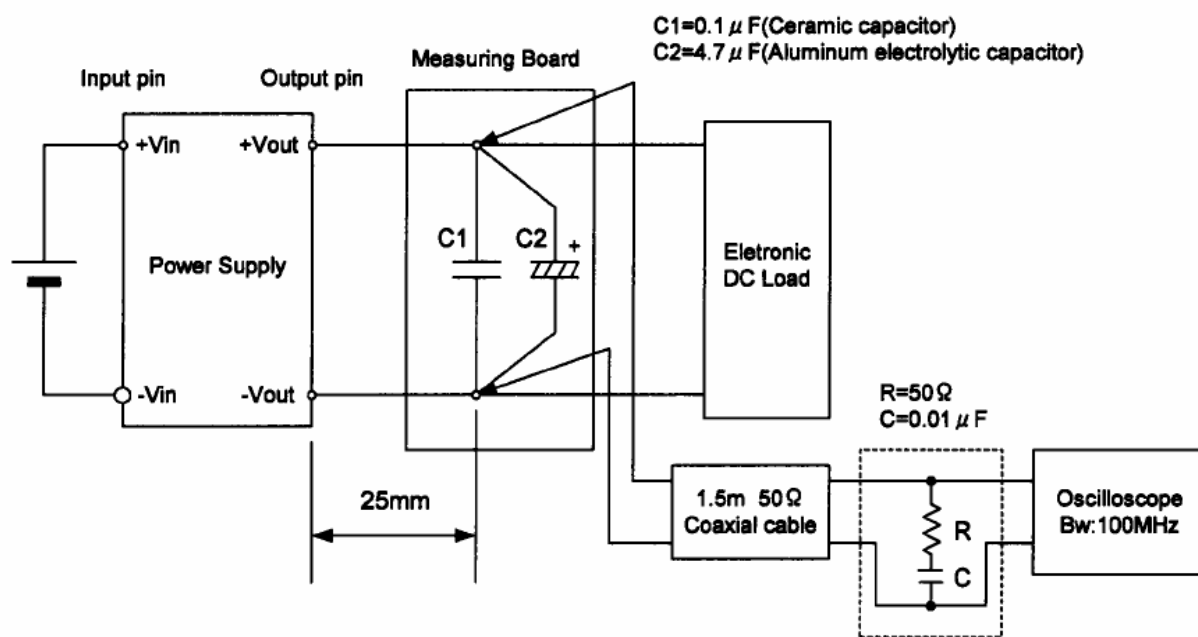


Figure B (Ripple and Ripple noise Characteristic)