

# TEST DATA OF SUTS3243R3

Regulated DC Power Supply  
February 18, 2009

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**COSEL CO.,LTD.**

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<div><div><div>—△—</div><div>Load 100%</div></div><div><div>---□---</div><div>Load 50%</div></div><div><div>-·-○-·-</div><div>Load 0%</div></div></div> <div><div><div>0.50</div><div>0.40</div><div>0.30</div><div>0.20</div><div>0.10</div><div>0.00</div></div><div><div>0</div><div>10</div><div>20</div><div>30</div><div>40</div><div>50</div></div><div><div>Input Current [A]</div><div>Input Voltage [V]</div></div></div> <div>Note: Slanted line shows the range of the rated input voltage.</div>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Load 0%</th><th>Load 50%</th><th>Load 100%</th></tr><tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>4.0</td><td>0.007</td><td>0.007</td><td>0.007</td></tr><tr><td>8.0</td><td>0.007</td><td>0.007</td><td>0.007</td></tr><tr><td>8.4</td><td>0.007</td><td>0.007</td><td>0.007</td></tr><tr><td>8.8</td><td>0.015</td><td>0.007</td><td>0.007</td></tr><tr><td>12.0</td><td>0.014</td><td>0.115</td><td>0.228</td></tr><tr><td>16.0</td><td>0.012</td><td>0.087</td><td>0.167</td></tr><tr><td>18.0</td><td>0.012</td><td>0.078</td><td>0.148</td></tr><tr><td>20.0</td><td>0.012</td><td>0.071</td><td>0.133</td></tr><tr><td>24.0</td><td>0.012</td><td>0.060</td><td>0.111</td></tr><tr><td>28.0</td><td>0.012</td><td>0.053</td><td>0.096</td></tr><tr><td>32.0</td><td>0.013</td><td>0.049</td><td>0.086</td></tr><tr><td>36.0</td><td>0.015</td><td>0.045</td><td>0.078</td></tr><tr><td>40.0</td><td>0.016</td><td>0.043</td><td>0.072</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>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	4.0	0.007	0.007	0.007	8.0	0.007	0.007	0.007	8.4	0.007	0.007	0.007	8.8	0.015	0.007	0.007	12.0	0.014	0.115	0.228	16.0	0.012	0.087	0.167	18.0	0.012	0.078	0.148	20.0	0.012	0.071	0.133	24.0	0.012	0.060	0.111	28.0	0.012	0.053	0.096	32.0	0.013	0.049	0.086	36.0	0.015	0.045	0.078	40.0	0.016	0.043	0.072	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Input Voltage [V]	Efficiency [%]																																		
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Model	SUTS3243R3																																																					
Item	Efficiency (by Load Current)	Temperature	25°C																																																			
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<div><div>—△— Input Volt. 18V</div><div>---□--- Input Volt. 24V</div><div>-·-○-·- Input Volt. 36V</div></div> <p>Efficiency [%]</p> <p>Load Current [A]</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.12</td><td>59.5</td><td>54.3</td><td>42.2</td></tr><tr><td>0.24</td><td>69.2</td><td>66.0</td><td>56.8</td></tr><tr><td>0.36</td><td>72.5</td><td>70.8</td><td>64.0</td></tr><tr><td>0.48</td><td>74.0</td><td>73.0</td><td>68.2</td></tr><tr><td>0.60</td><td>74.5</td><td>74.2</td><td>70.6</td></tr><tr><td>0.66</td><td>74.6</td><td>74.5</td><td>71.5</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>		Load Current [A]	Efficiency [%]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.00	-	-	-	0.12	59.5	54.3	42.2	0.24	69.2	66.0	56.8	0.36	72.5	70.8	64.0	0.48	74.0	73.0	68.2	0.60	74.5	74.2	70.6	0.66	74.6	74.5	71.5	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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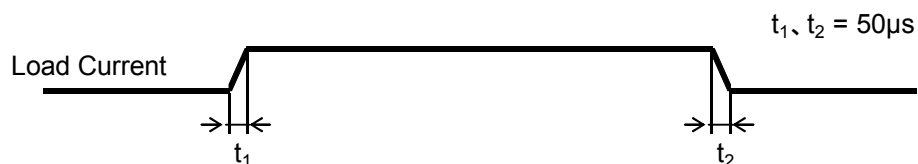
Model	SUTS3243R3																																		
Item	Line Regulation	Temperature	25°C																																
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Input Voltage [V]	Output Voltage [V]																																		
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<div><div>—△— Input Volt. 18V</div><div>---□--- Input Volt. 24V</div><div>-·-○-·- Input Volt. 36V</div></div> <table><thead><tr><th rowspan="2">Load Current [A]</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></thead><tbody><tr><td>0.00</td><td>3.294</td><td>3.295</td><td>3.295</td></tr><tr><td>0.12</td><td>3.293</td><td>3.294</td><td>3.294</td></tr><tr><td>0.24</td><td>3.293</td><td>3.293</td><td>3.293</td></tr><tr><td>0.36</td><td>3.292</td><td>3.292</td><td>3.292</td></tr><tr><td>0.48</td><td>3.291</td><td>3.291</td><td>3.291</td></tr><tr><td>0.60</td><td>3.290</td><td>3.290</td><td>3.290</td></tr><tr><td>0.66</td><td>3.289</td><td>3.290</td><td>3.290</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></tbody></table>		Load Current [A]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.00	3.294	3.295	3.295	0.12	3.293	3.294	3.294	0.24	3.293	3.293	3.293	0.36	3.292	3.292	3.292	0.48	3.291	3.291	3.291	0.60	3.290	3.290	3.290	0.66	3.289	3.290	3.290	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Output Voltage [V]																																																					
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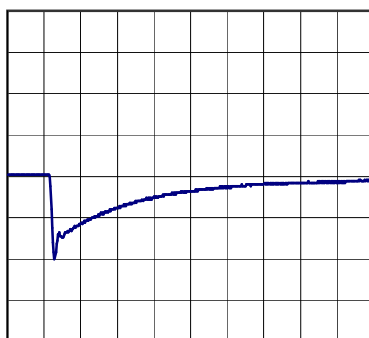
Model	SUTS3243R3	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+3.3V0.6A	

Input Volt. 12 V  
Cycle 100 mS

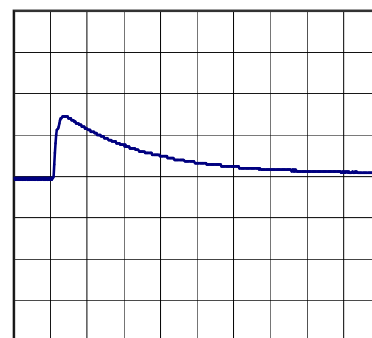


Min. Load (0A)  $\longleftrightarrow$   
Load 100% (0.6A)

100mV/div



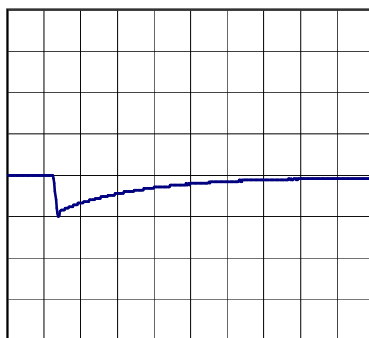
200µs/div



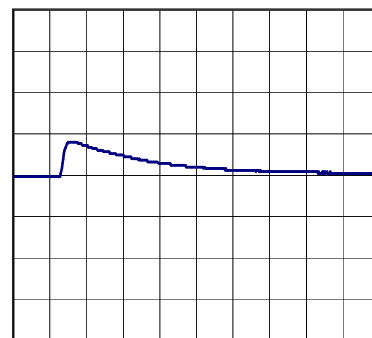
200µs/div

Min. Load (0A)  $\longleftrightarrow$   
Load 50% (0.3A)

100mV/div



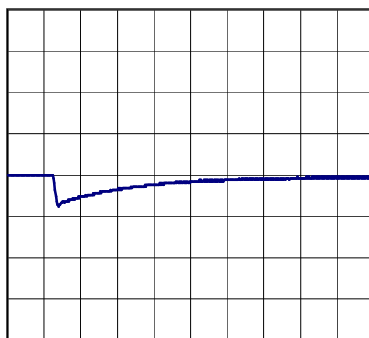
200µs/div



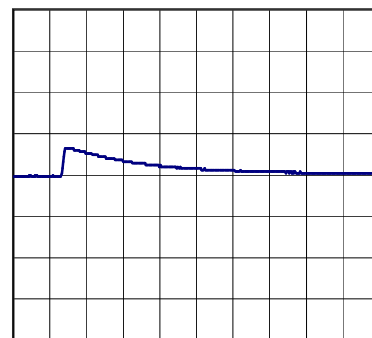
200µs/div

Load 50% (0.3A)  $\longleftrightarrow$   
Load 100% (0.6A)

100mV/div



200µs/div



200µs/div


Model	SUTS3243R3																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+3.3V0.6A																																								
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>Ripple Voltage 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 Voltage [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>4</td></tr><tr><td>0.12</td><td>5</td><td>4</td></tr><tr><td>0.24</td><td>5</td><td>5</td></tr><tr><td>0.36</td><td>8</td><td>7</td></tr><tr><td>0.48</td><td>14</td><td>8</td></tr><tr><td>0.60</td><td>19</td><td>9</td></tr><tr><td>0.66</td><td>20</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>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.00	5	4	0.12	5	4	0.24	5	5	0.36	8	7	0.48	14	8	0.60	19	9	0.66	20	10	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
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<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																									

Model	SUTS3243R3																																								
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		Testing Circuitry	Figure B																																						
Object	+3.3V0.6A																																								
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Model	SUTS3243R3																																																					
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																				
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<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> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</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>3.252</td><td>3.253</td><td>3.254</td></tr><tr><td>-40</td><td>3.265</td><td>3.266</td><td>3.266</td></tr><tr><td>-20</td><td>3.275</td><td>3.276</td><td>3.276</td></tr><tr><td>0</td><td>3.283</td><td>3.284</td><td>3.284</td></tr><tr><td>25</td><td>3.290</td><td>3.290</td><td>3.290</td></tr><tr><td>55</td><td>3.293</td><td>3.293</td><td>3.294</td></tr><tr><td>60</td><td>3.294</td><td>3.294</td><td>3.294</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	3.252	3.253	3.254	-40	3.265	3.266	3.266	-20	3.275	3.276	3.276	0	3.283	3.284	3.284	25	3.290	3.290	3.290	55	3.293	3.293	3.294	60	3.294	3.294	3.294	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model	SUTS3243R3	
Item	Output Voltage Accuracy	
Object	+3.3V0.6A	

### 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 - 0.6A

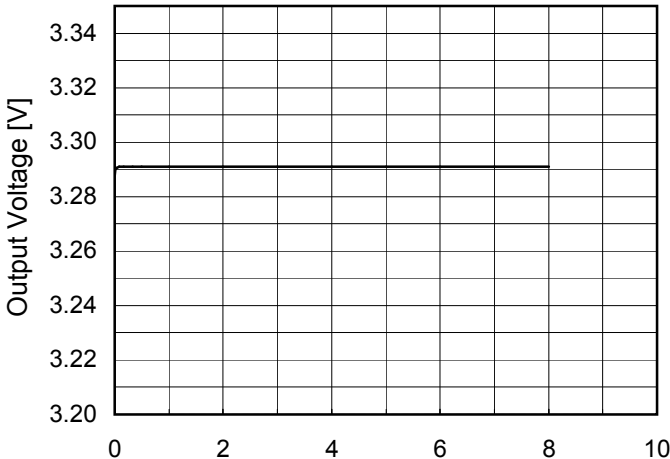
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

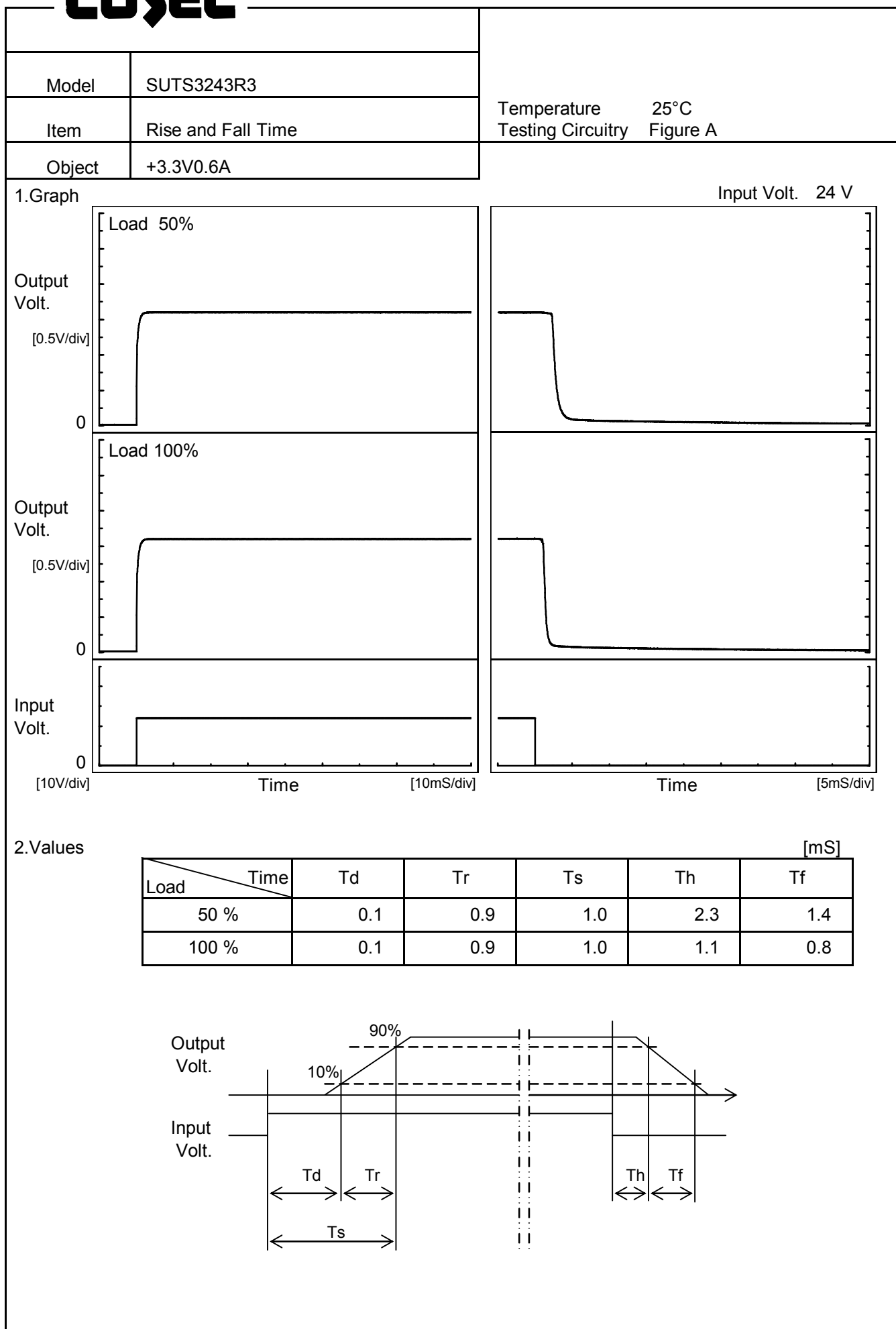
\* Output Voltage Accuracy (Ratio) =  $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	55	36	0	3.299	±17	±0.5
Minimum Voltage	-40	18	0.6	3.265		



Model	SUTS3243R3																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+3.3V0.6A																								
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>3.288</td></tr><tr><td>0.5</td><td>3.291</td></tr><tr><td>1.0</td><td>3.291</td></tr><tr><td>2.0</td><td>3.291</td></tr><tr><td>3.0</td><td>3.291</td></tr><tr><td>4.0</td><td>3.291</td></tr><tr><td>5.0</td><td>3.291</td></tr><tr><td>6.0</td><td>3.291</td></tr><tr><td>7.0</td><td>3.291</td></tr><tr><td>8.0</td><td>3.291</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	3.288	0.5	3.291	1.0	3.291	2.0	3.291	3.0	3.291	4.0	3.291	5.0	3.291	6.0	3.291	7.0	3.291	8.0	3.291
Time since start [H]	Output Voltage [V]																								
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4.0	3.291																								
5.0	3.291																								
6.0	3.291																								
7.0	3.291																								
8.0	3.291																								



Model

SUTS3243R3

Item

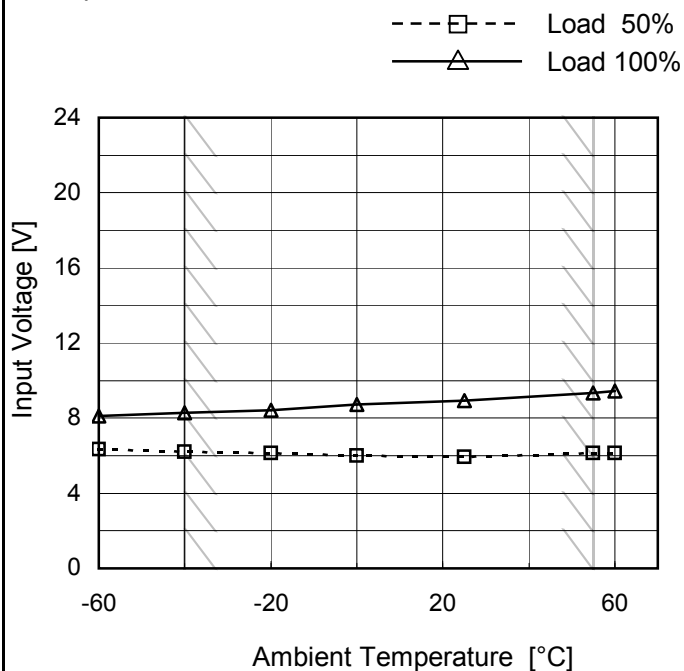
Minimum Input Voltage  
for Regulated Output Voltage

Object

+3.3V0.6A

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%
-60	6.4	8.1
-40	6.3	8.3
-20	6.2	8.5
0	6.1	8.8
25	6.0	9.0
55	6.2	9.4
60	6.2	9.5
--	-	-
--	-	-
--	-	-
--	-	-

BC-10250

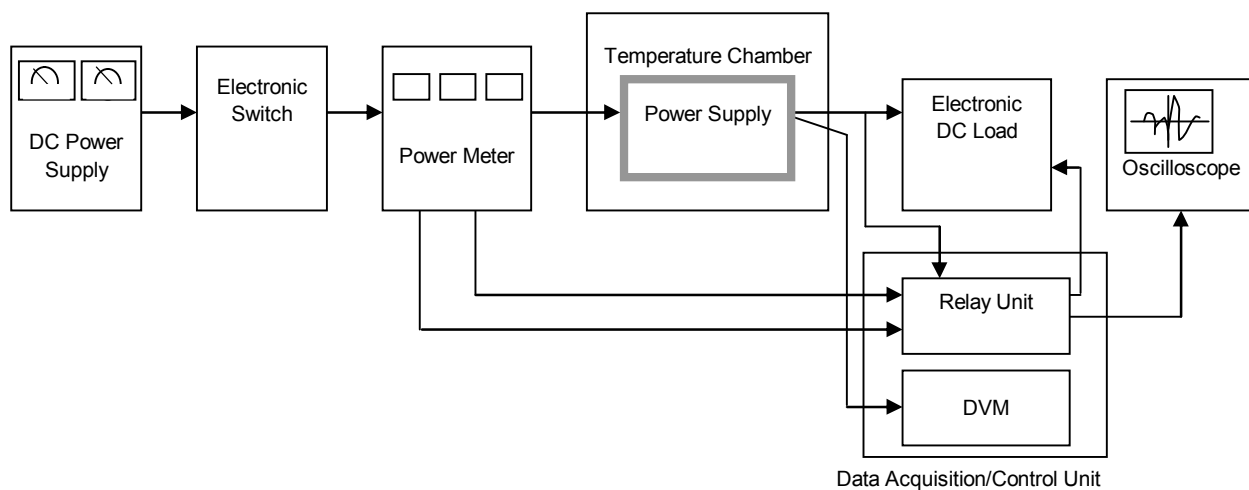


Figure A

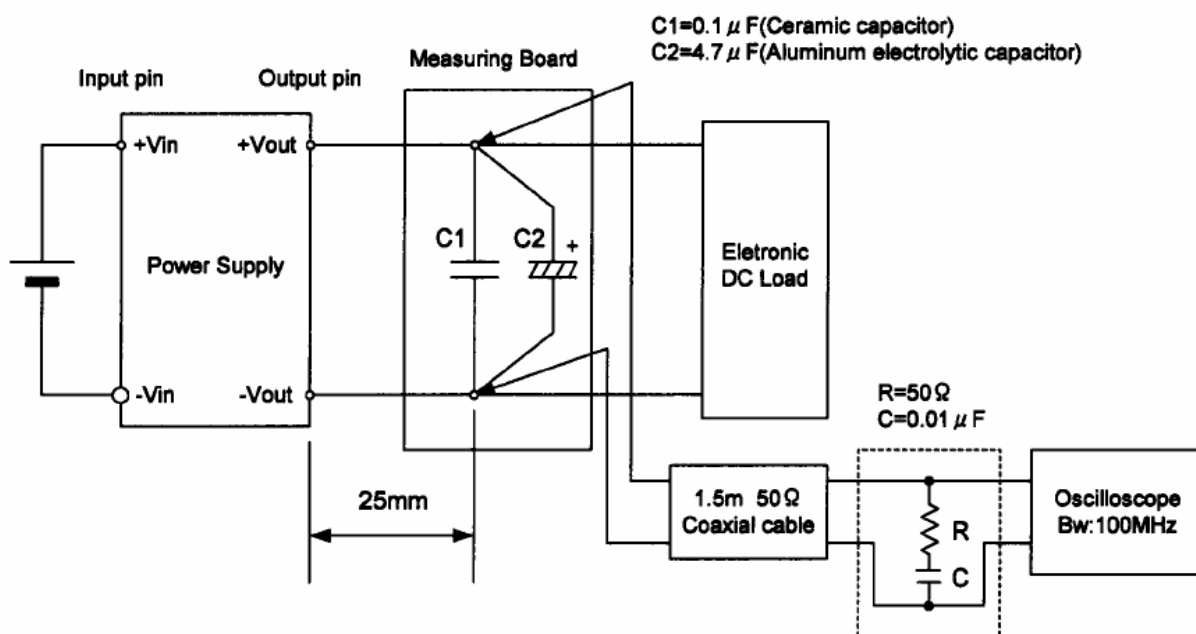


Figure B (Ripple and Ripple noise Characteristic)