



# TEST DATA OF SUCS32405

Regulated DC Power Supply  
Mar 23, 2005

Approved by : Tetsuo Sugimori  
Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo  
Hayato Nakatsubo Design Engineer

**COSEL CO.,LTD.**

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# COSEL

Model		SUCS32405	
Item		Input Current (by Input Voltage)	
Object			

1.Graph

—△—

Load 100%

---□---

Load 50%

-·-○-·-

Load 0%

1.0

0.8

0.6

0.4

0.2

0.0

0

10

20

30

40

50

Input Current [A]

Input Voltage [V]

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

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
8.4	0.000	0.000	0.000
9.2	0.014	0.229	0.511
12.0	0.012	0.168	0.348
16.0	0.011	0.125	0.248
18.0	0.011	0.111	0.218
20.0	0.011	0.100	0.196
24.0	0.011	0.085	0.162
28.0	0.012	0.074	0.140
32.0	0.013	0.067	0.123
36.0	0.014	0.061	0.111
40.0	0.016	0.058	0.101
42.4	0.017	0.056	0.097
44.0	0.017	0.055	0.094
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2.Values

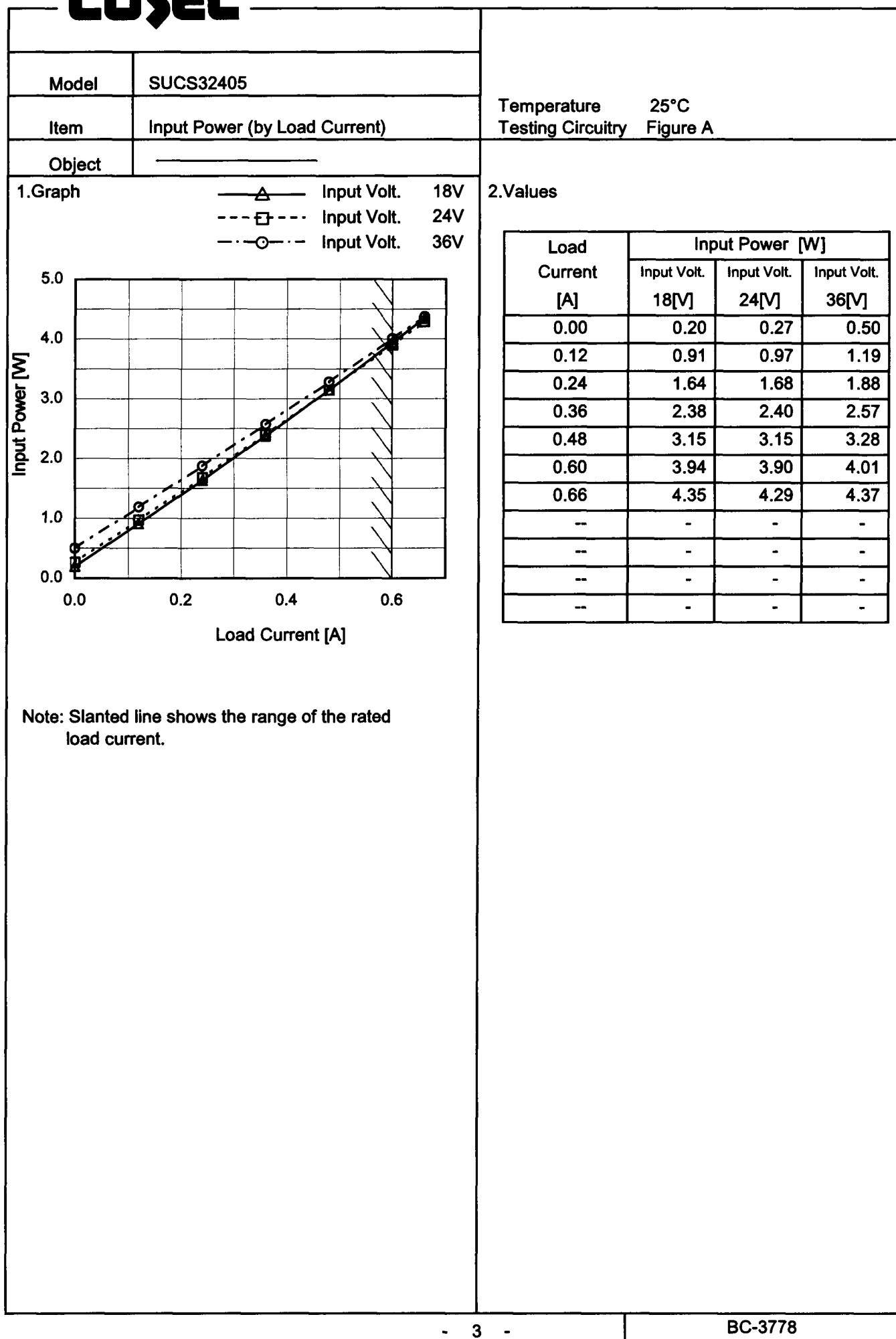
# COSEL

Model		SUCS32405																																																				
Item		Input Current (by Load Current)																																																				
Object																																																						
1.Graph		2.Values																																																				
<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>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>0.0</div><div>0.2</div><div>0.4</div><div>0.6</div></div></div> <div><div>Input Current [A]</div><div>Load Current [A]</div></div> <div><div>Note: Slanted line shows the range of the rated load current.</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</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>0.011</td><td>0.011</td><td>0.014</td></tr><tr><td>0.12</td><td>0.051</td><td>0.040</td><td>0.033</td></tr><tr><td>0.24</td><td>0.091</td><td>0.070</td><td>0.052</td></tr><tr><td>0.36</td><td>0.133</td><td>0.100</td><td>0.071</td></tr><tr><td>0.48</td><td>0.176</td><td>0.131</td><td>0.091</td></tr><tr><td>0.60</td><td>0.220</td><td>0.162</td><td>0.111</td></tr><tr><td>0.66</td><td>0.243</td><td>0.178</td><td>0.121</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]	Input Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.00	0.011	0.011	0.014	0.12	0.051	0.040	0.033	0.24	0.091	0.070	0.052	0.36	0.133	0.100	0.071	0.48	0.176	0.131	0.091	0.60	0.220	0.162	0.111	0.66	0.243	0.178	0.121	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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# COSEL

Model

SUCS32405

Item

Efficiency (by Input Voltage)

Object

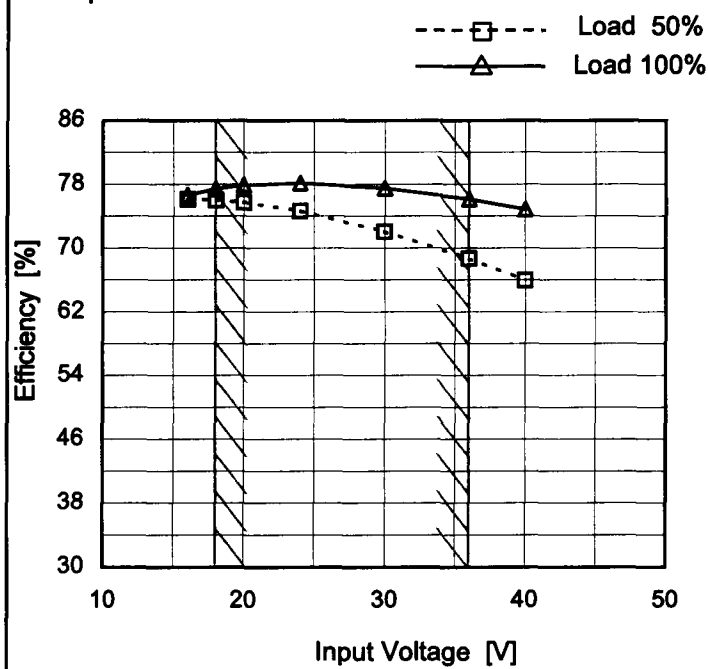
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph

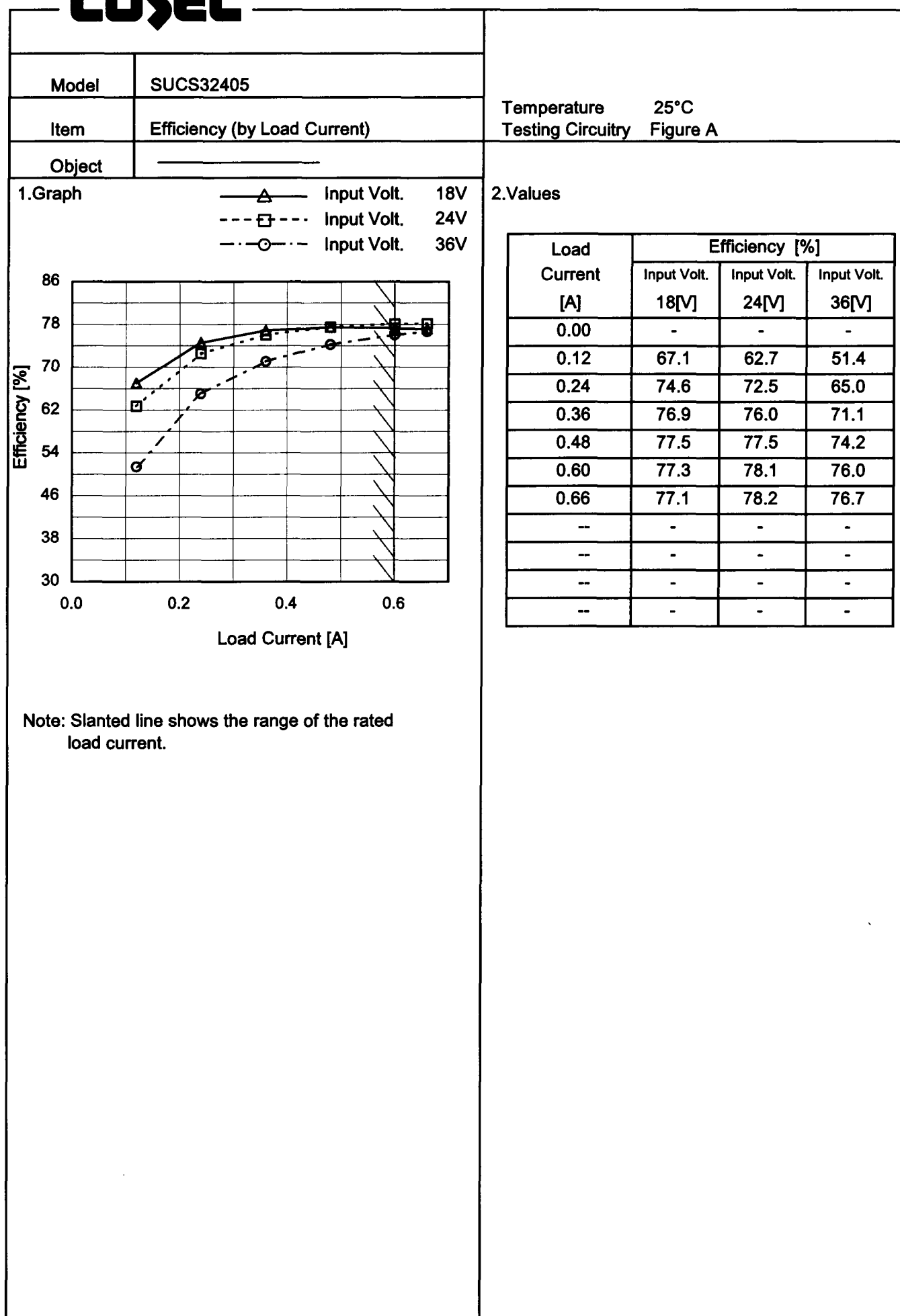


Note: Slanted line shows the range of the rated input voltage.

## 2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	76.1	76.7
18	76.0	77.4
20	75.7	77.9
24	74.6	78.2
30	72.1	77.5
36	68.7	76.1
40	66.0	74.9
--	-	-
--	-	-

# COSEL

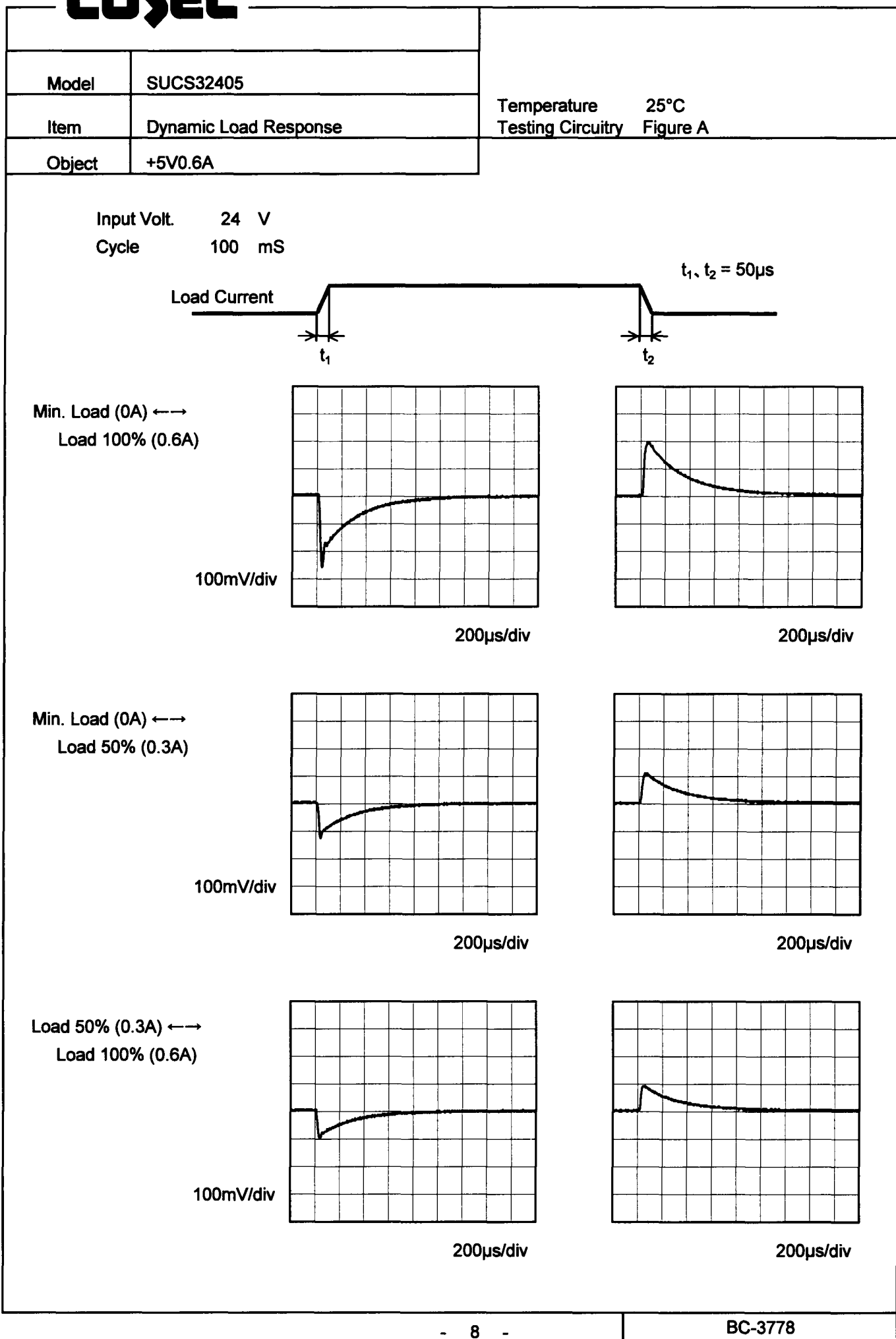


# COSEL

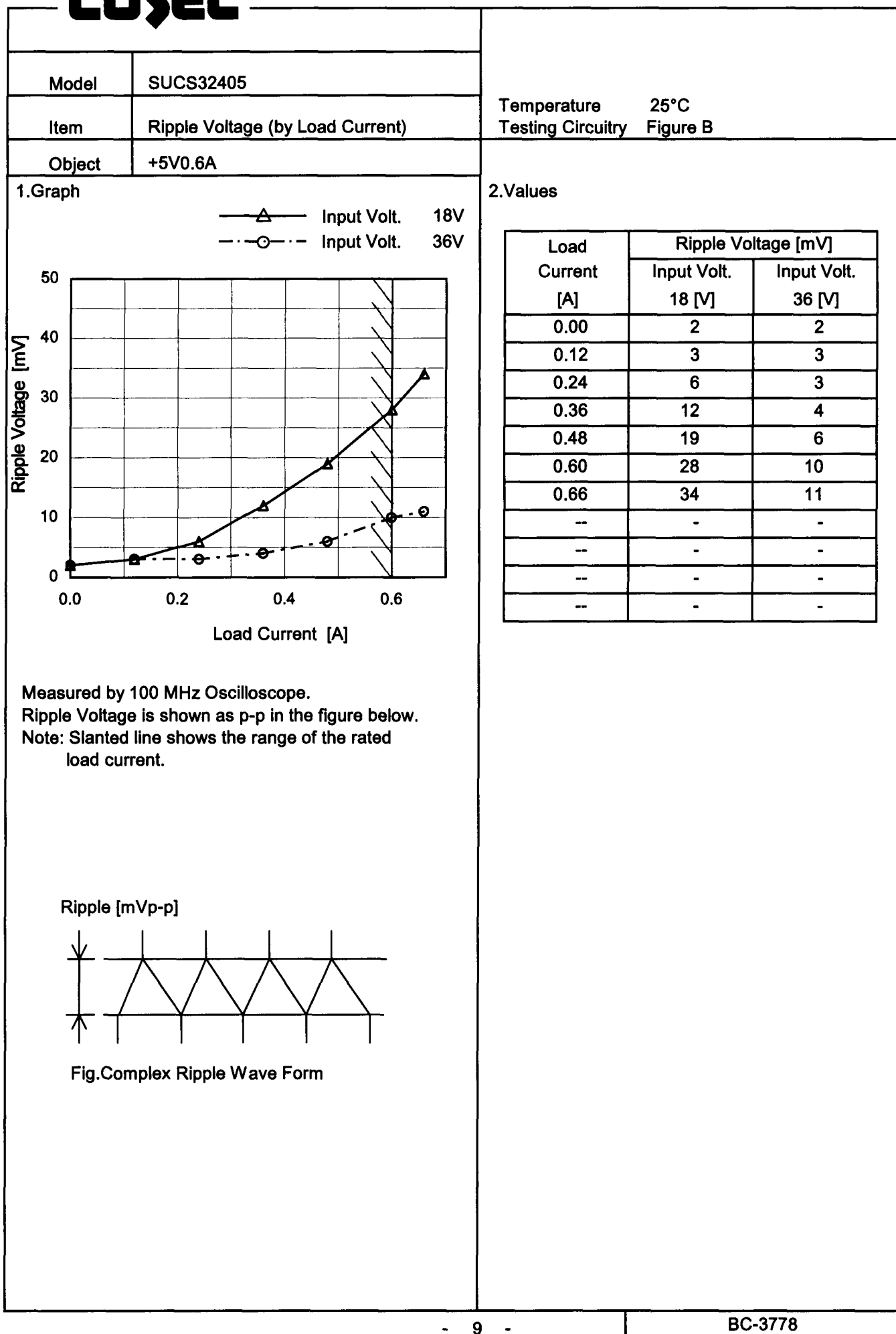
Model	SUCS32405	Temperature 25°C Testing Circuitry Figure A																																	
Item	Line Regulation																																		
Object	+5V0.6A																																		
1.Graph		2.Values																																	
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></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>16</td><td>5.076</td><td>5.074</td></tr><tr><td>18</td><td>5.076</td><td>5.074</td></tr><tr><td>20</td><td>5.076</td><td>5.075</td></tr><tr><td>24</td><td>5.076</td><td>5.075</td></tr><tr><td>30</td><td>5.076</td><td>5.075</td></tr><tr><td>36</td><td>5.076</td><td>5.075</td></tr><tr><td>40</td><td>5.076</td><td>5.075</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</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%	16	5.076	5.074	18	5.076	5.074	20	5.076	5.075	24	5.076	5.075	30	5.076	5.075	36	5.076	5.075	40	5.076	5.075	--	-	-	--	-	-		
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
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30	5.076	5.075																																	
36	5.076	5.075																																	
40	5.076	5.075																																	
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**BC-3778**

**COSEL**

# COSEL



# COSEL

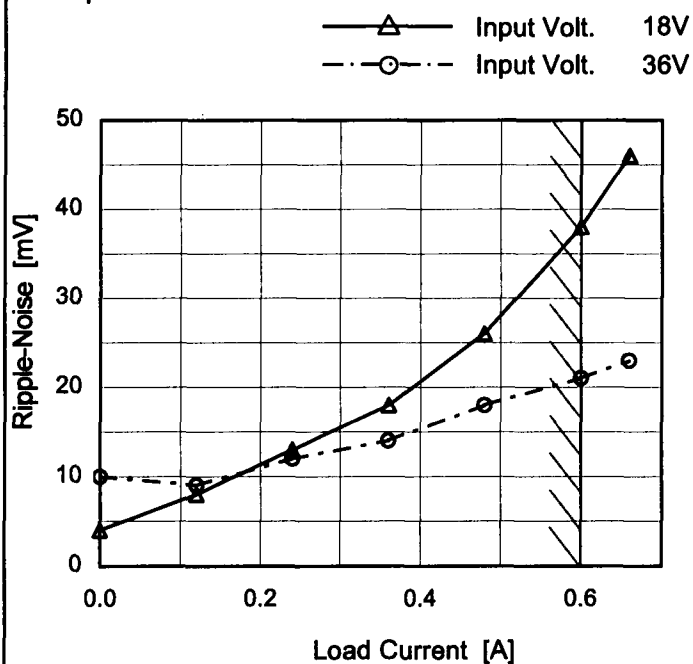
**Model** SUCS32405

**Item** Ripple-Noise

**Object** +5V0.6A

**Temperature** 25°C  
**Testing Circuitry** Figure B

## 1. Graph



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.

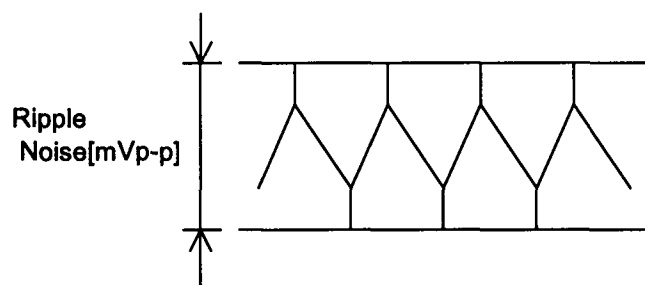


Fig.Complex Ripple Noise Wave Form

## 2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	4	10
0.12	8	9
0.24	13	12
0.36	18	14
0.48	26	18
0.60	38	21
0.66	46	23
--	-	-
--	-	-
--	-	-
--	-	-

**COSEL**

Model

SUCS32405

Item

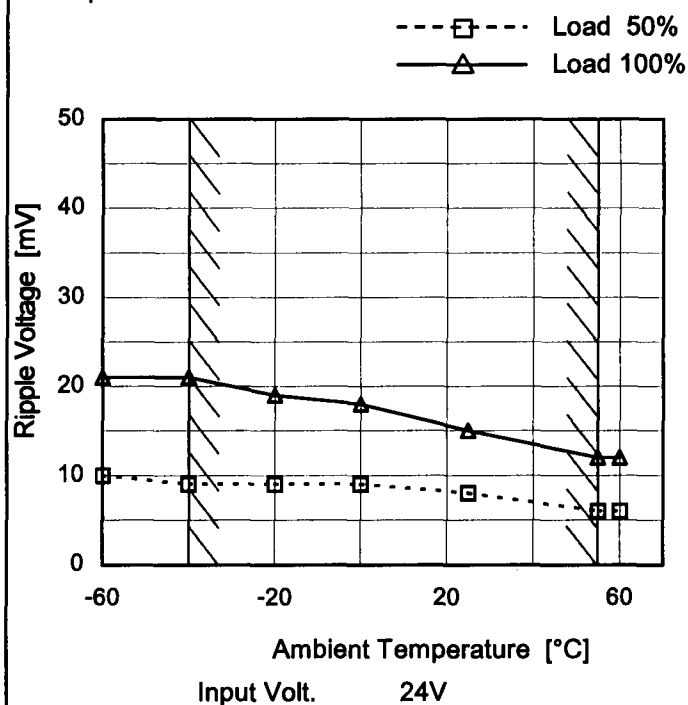
Ripple Voltage (by Ambient Temp.)

Object

+5V0.6A

Testing Circuitry Figure B

## 1. Graph



Measured by 100 MHz Oscilloscope.

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

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	21
-40	9	21
-20	9	19
0	9	18
25	8	15
55	6	12
60	6	12
--	-	-
--	-	-
--	-	-
--	-	-

# COSEL

Model		SUCS32405																																																				
Item		Ambient Temperature Drift																																																				
Object		+5V0.6A																																																				
1.Graph		2.Values																																																				
<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><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div>		<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>5.030</td><td>5.032</td><td>5.033</td></tr><tr><td>-40</td><td>5.045</td><td>5.046</td><td>5.047</td></tr><tr><td>-20</td><td>5.057</td><td>5.057</td><td>5.059</td></tr><tr><td>0</td><td>5.066</td><td>5.067</td><td>5.067</td></tr><tr><td>25</td><td>5.074</td><td>5.074</td><td>5.074</td></tr><tr><td>55</td><td>5.078</td><td>5.078</td><td>5.078</td></tr><tr><td>60</td><td>5.078</td><td>5.078</td><td>5.078</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	5.030	5.032	5.033	-40	5.045	5.046	5.047	-20	5.057	5.057	5.059	0	5.066	5.067	5.067	25	5.074	5.074	5.074	55	5.078	5.078	5.078	60	5.078	5.078	5.078	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
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-40	5.045	5.046	5.047																																																			
-20	5.057	5.057	5.059																																																			
0	5.066	5.067	5.067																																																			
25	5.074	5.074	5.074																																																			
55	5.078	5.078	5.078																																																			
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

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		Testing Circuitry Figure A
Model	SUCS32405	
Item	Output Voltage Accuracy	
Object	+5V0.6A	

### 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 (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	55	18	0	5.082	±19	±0.4
Minimum Voltage	-40	18	0.6	5.045		

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Model		SUCS32405																							
Item		Time Lapse Drift																							
Object		+5V0.6A																							
1.Graph		2.Values																							
<div><div><div><div><div>5.14</div><div>5.12</div><div>5.10</div><div>5.08</div><div>5.06</div><div>5.04</div><div>5.02</div><div>5.00</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div><div><div>Input Volt.24V</div><div>Load100%</div></div></div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.073</td></tr><tr><td>0.5</td><td>5.076</td></tr><tr><td>1.0</td><td>5.076</td></tr><tr><td>2.0</td><td>5.076</td></tr><tr><td>3.0</td><td>5.076</td></tr><tr><td>4.0</td><td>5.076</td></tr><tr><td>5.0</td><td>5.076</td></tr><tr><td>6.0</td><td>5.076</td></tr><tr><td>7.0</td><td>5.076</td></tr><tr><td>8.0</td><td>5.076</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.073	0.5	5.076	1.0	5.076	2.0	5.076	3.0	5.076	4.0	5.076	5.0	5.076	6.0	5.076	7.0	5.076	8.0	5.076
Time since start [H]	Output Voltage [V]																								
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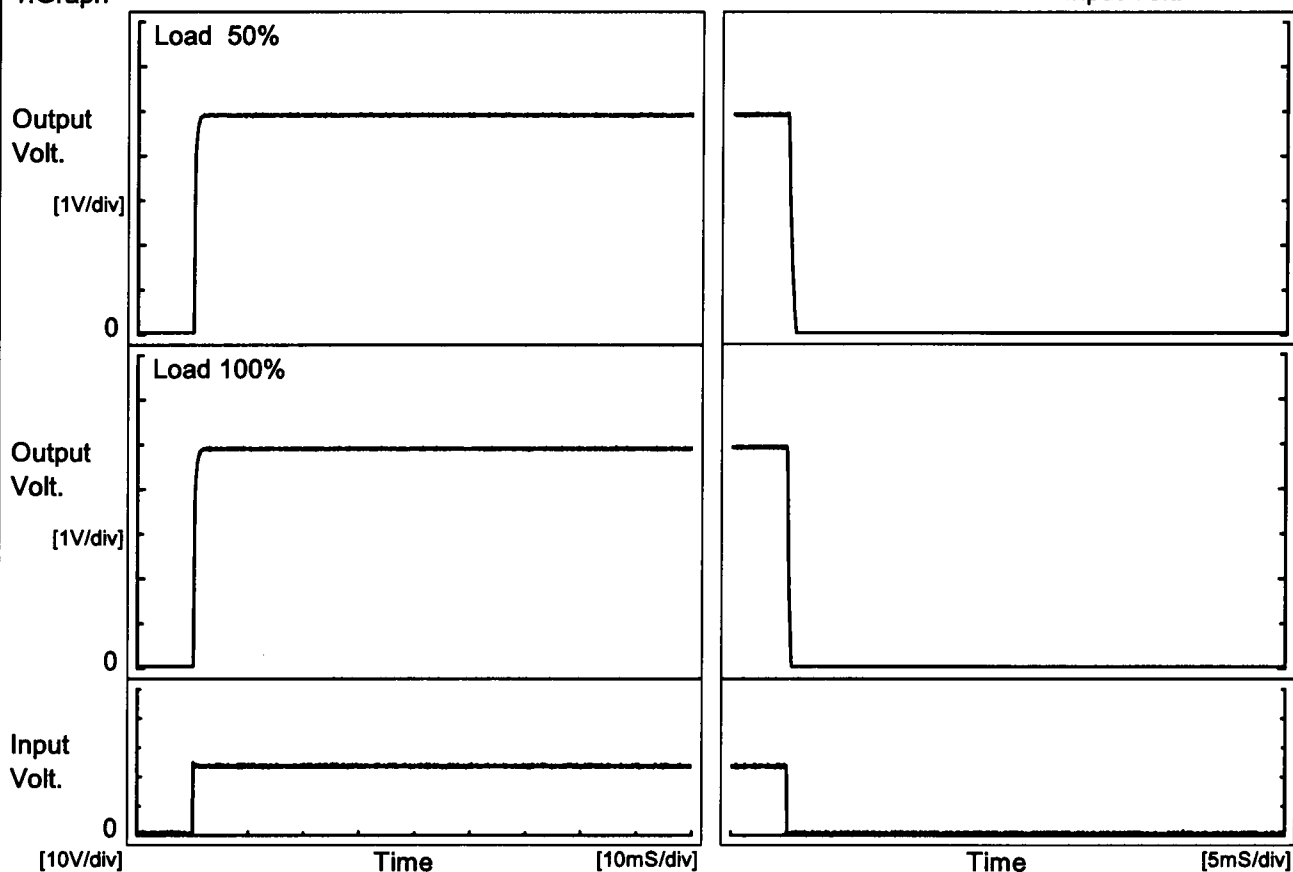


# COSEL

Model	SUCS32405	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V0.6A		

## 1.Graph

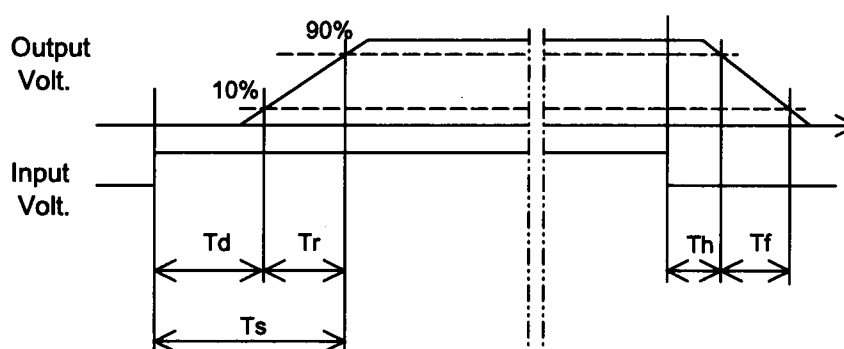
Input Volt. 24 V



## 2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.1	0.6	0.7	0.1	0.6
100 %	0.1	0.7	0.8	0.1	0.3



# COSEL

Model

SUCS32405

Item

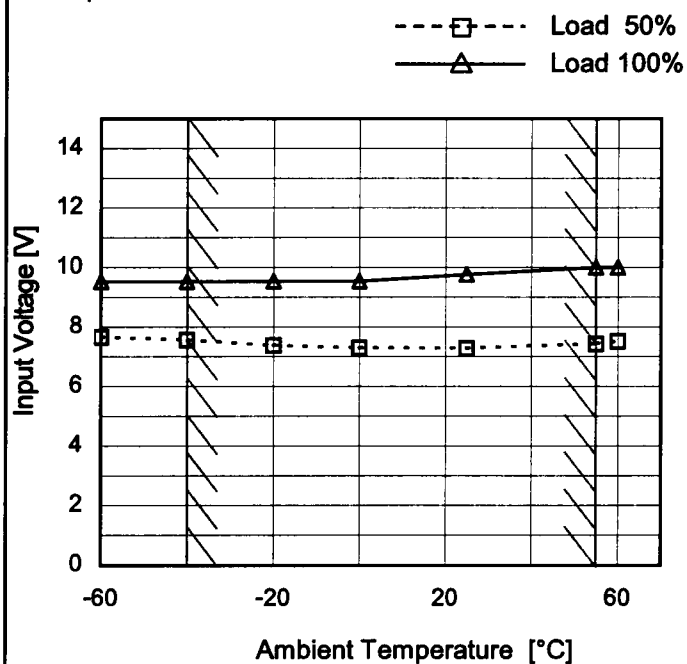
Minimum Input Voltage  
for Regulated Output Voltage

Object

+5V0.6A

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	7.7	9.6
-40	7.6	9.6
-20	7.4	9.6
0	7.3	9.6
25	7.3	9.8
55	7.5	10.0
60	7.6	10.0
--	-	-
--	-	-
--	-	-
--	-	-

# COSEL

Model	SUCS32405																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+5V0.6A	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>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>5.00</td><td>0.60</td><td>0.60</td><td>0.60</td></tr><tr><td>4.75</td><td>1.11</td><td>1.16</td><td>1.16</td></tr><tr><td>4.50</td><td>1.14</td><td>1.18</td><td>1.17</td></tr><tr><td>4.00</td><td>1.19</td><td>1.21</td><td>1.19</td></tr><tr><td>3.50</td><td>1.24</td><td>1.24</td><td>1.20</td></tr><tr><td>3.00</td><td>1.30</td><td>1.27</td><td>1.21</td></tr><tr><td>2.50</td><td>1.34</td><td>1.29</td><td>1.20</td></tr><tr><td>2.00</td><td>1.39</td><td>1.30</td><td>1.18</td></tr><tr><td>1.50</td><td>1.42</td><td>1.28</td><td>1.14</td></tr><tr><td>1.00</td><td>1.40</td><td>1.21</td><td>1.06</td></tr><tr><td>0.50</td><td>1.30</td><td>1.08</td><td>0.92</td></tr><tr><td>0.00</td><td>1.82</td><td>1.24</td><td>1.01</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	5.00	0.60	0.60	0.60	4.75	1.11	1.16	1.16	4.50	1.14	1.18	1.17	4.00	1.19	1.21	1.19	3.50	1.24	1.24	1.20	3.00	1.30	1.27	1.21	2.50	1.34	1.29	1.20	2.00	1.39	1.30	1.18	1.50	1.42	1.28	1.14	1.00	1.40	1.21	1.06	0.50	1.30	1.08	0.92	0.00	1.82	1.24	1.01
Output Voltage [V]	Load Current [A]																																																									
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4.00	1.19	1.21	1.19																																																							
3.50	1.24	1.24	1.20																																																							
3.00	1.30	1.27	1.21																																																							
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0.50	1.30	1.08	0.92																																																							
0.00	1.82	1.24	1.01																																																							

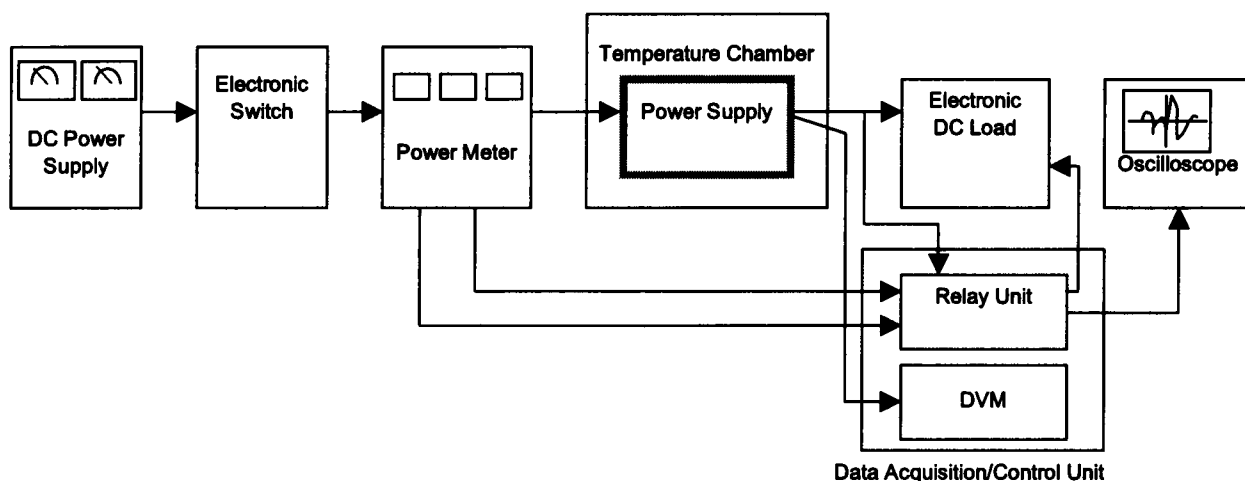


Figure A

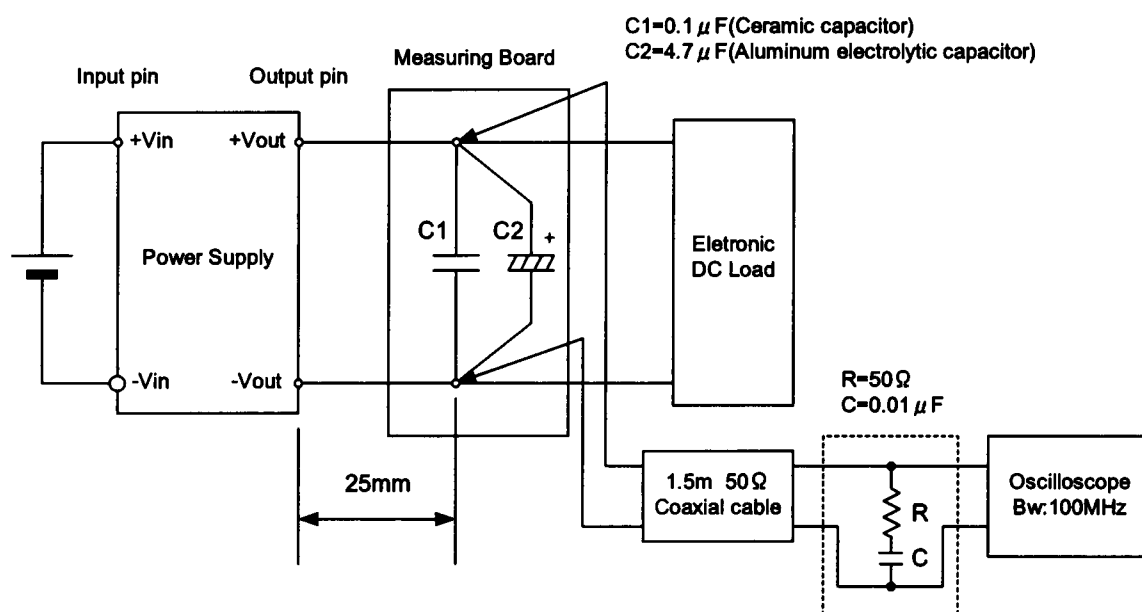


Figure B (Ripple and Ripple noise Characteristic)