



TEST DATA OF PBA30F-48

Regulated DC Power Supply
Sep 29, 2005

Approved by : Kuniaki Nagahara Design Manager

Prepared by : Akito Joboji Design Engineer

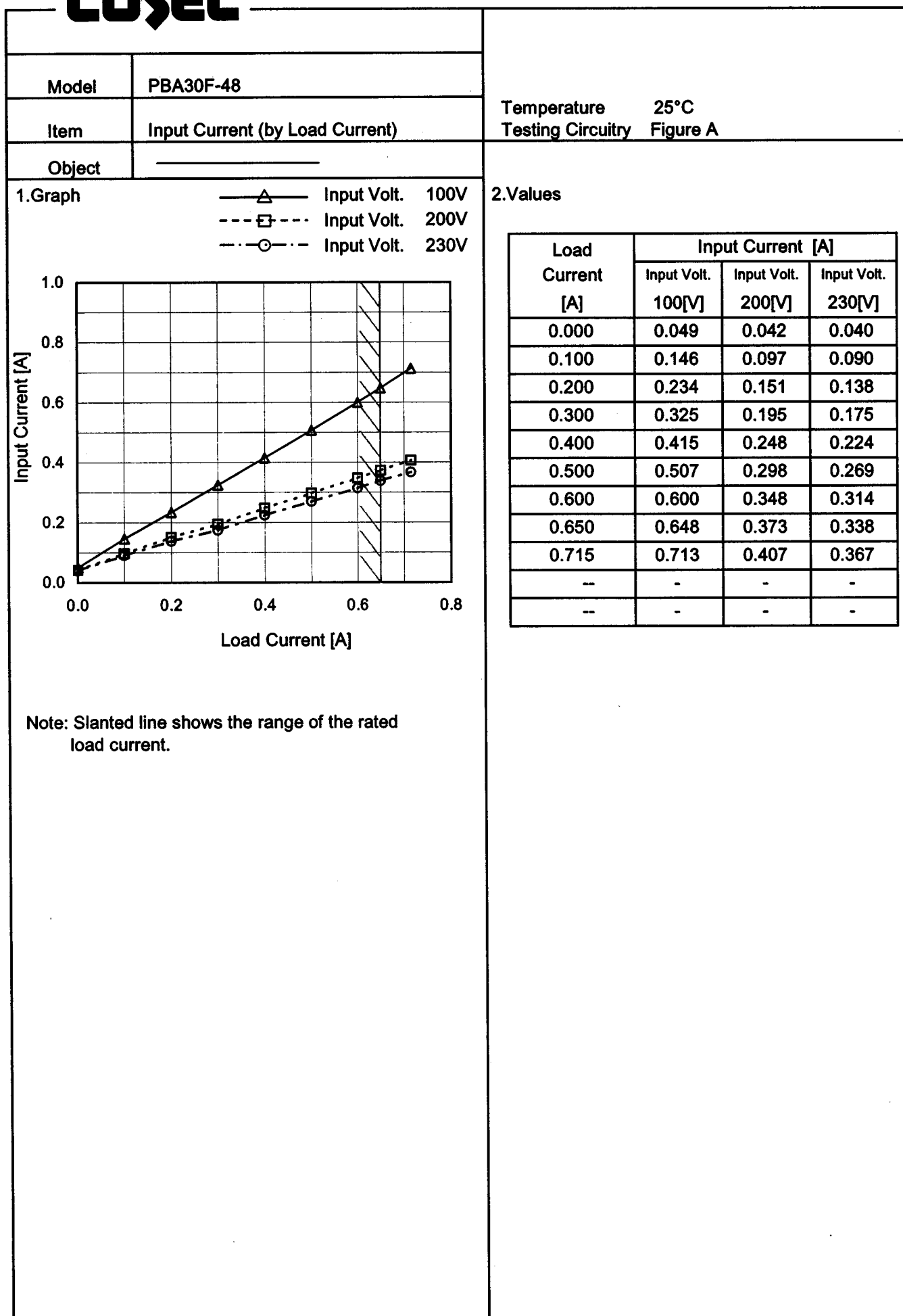
COSEL CO.,LTD.

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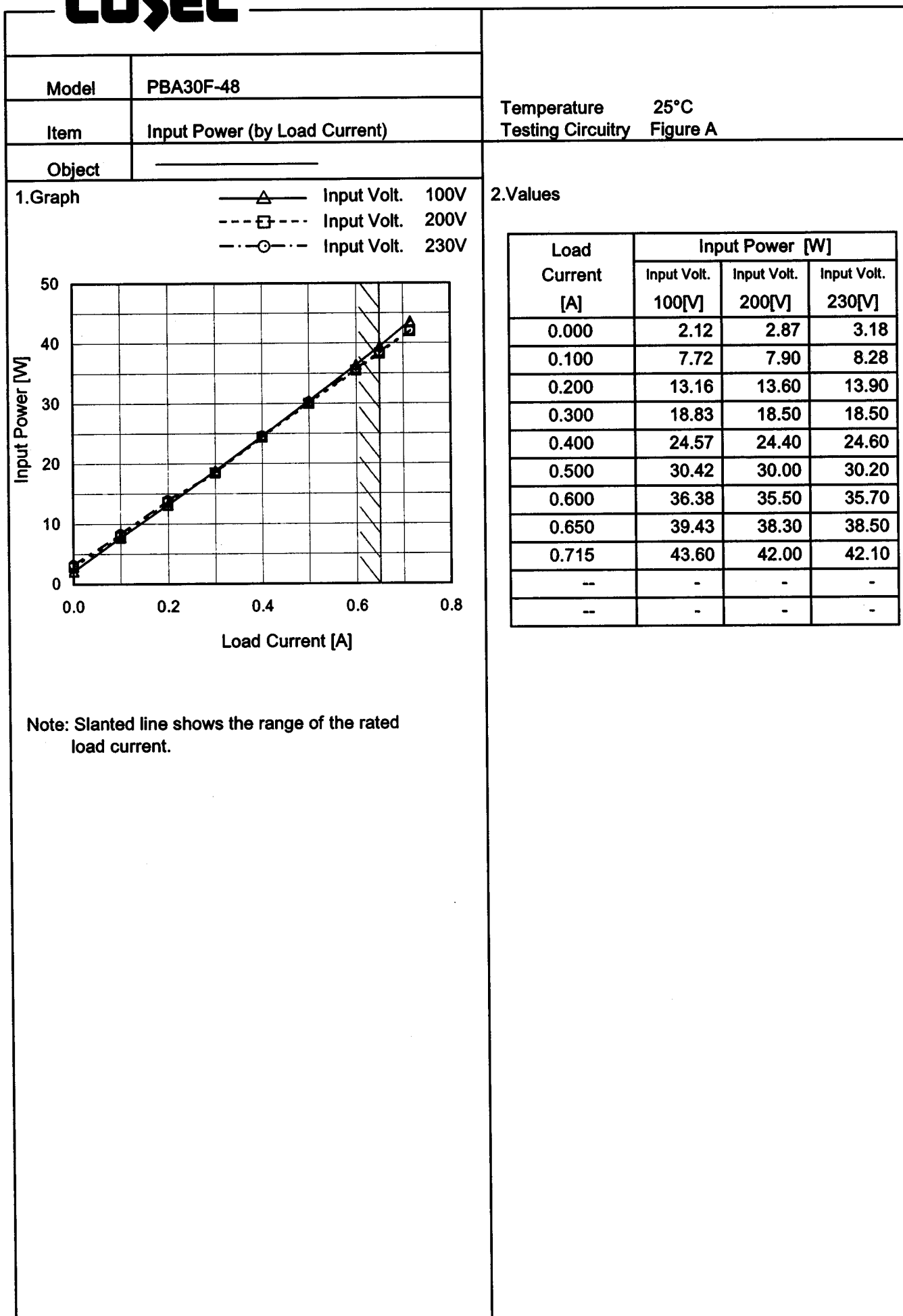
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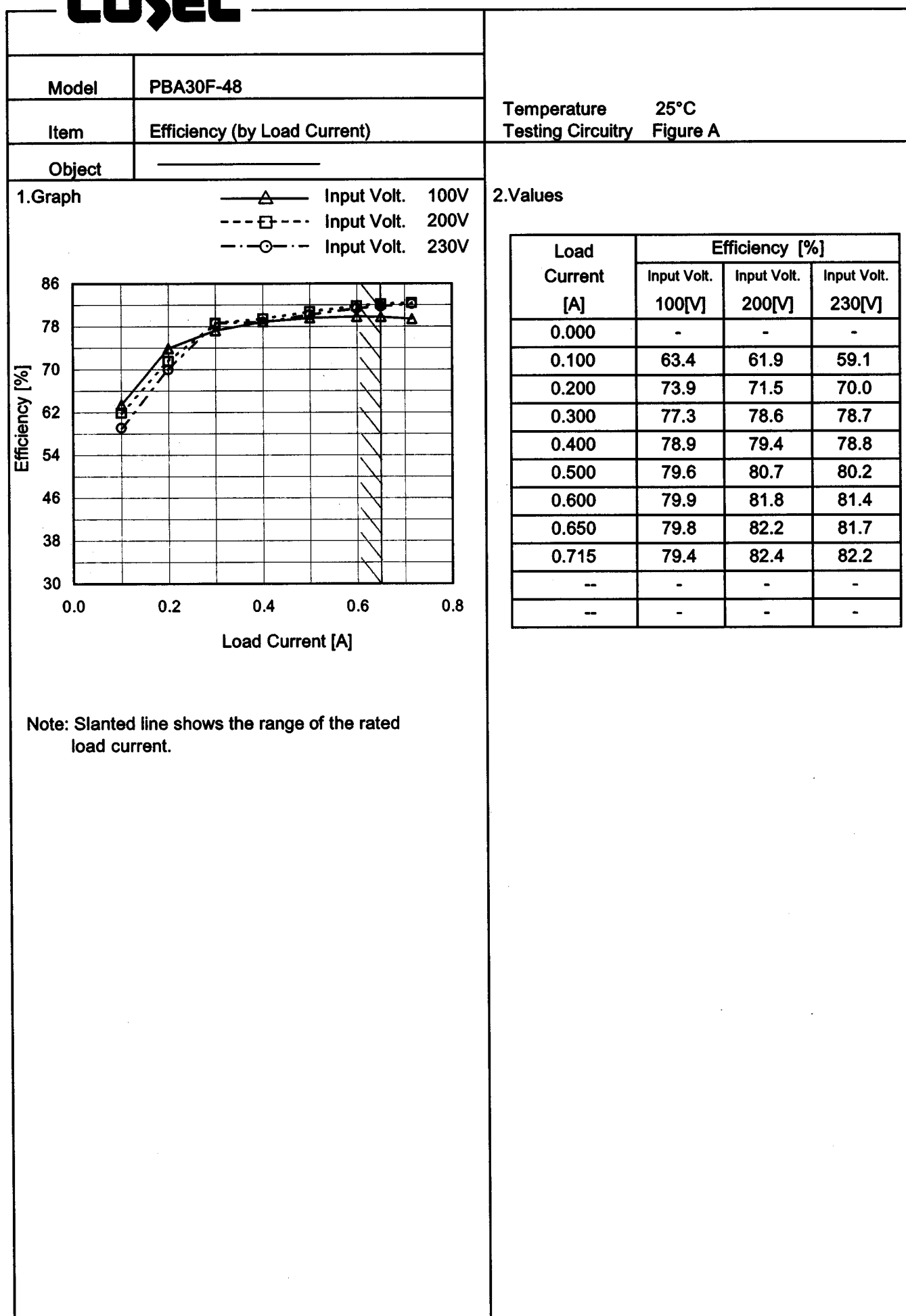


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| Model | PBA30F-48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------------------------|--------------------------|-------------------------|--------------------------|----|------|------|----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|----|---|---|--|--|
| Item | Efficiency (by Input Voltage) | Temperature | 25°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | Testing Circuitry | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div> <div><div>---</div><div>△</div><div>---</div></div> <div>Load 100%</div> <table><thead><tr><th>Input Voltage [V]</th><th>Load 50% Efficiency [%]</th><th>Load 100% Efficiency [%]</th></tr></thead><tbody><tr><td>75</td><td>76.1</td><td>75.8</td></tr><tr><td>85</td><td>77.2</td><td>77.9</td></tr><tr><td>100</td><td>77.9</td><td>79.9</td></tr><tr><td>120</td><td>78.4</td><td>81.1</td></tr><tr><td>200</td><td>78.3</td><td>82.4</td></tr><tr><td>230</td><td>78.8</td><td>81.9</td></tr><tr><td>264</td><td>78.7</td><td>81.3</td></tr><tr><td>280</td><td>78.4</td><td>80.9</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> | | Input Voltage [V] | Load 50% Efficiency [%] | Load 100% Efficiency [%] | 75 | 76.1 | 75.8 | 85 | 77.2 | 77.9 | 100 | 77.9 | 79.9 | 120 | 78.4 | 81.1 | 200 | 78.3 | 82.4 | 230 | 78.8 | 81.9 | 264 | 78.7 | 81.3 | 280 | 78.4 | 80.9 | -- | - | - | | |
| Input Voltage [V] | Load 50% Efficiency [%] | Load 100% Efficiency [%] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 76.1 | 75.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 77.2 | 77.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | 77.9 | 79.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120 | 78.4 | 81.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 78.3 | 82.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 230 | 78.8 | 81.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 264 | 78.7 | 81.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 280 | 78.4 | 80.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated input voltage. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--------|--|---------------------------------|--|
| Model | | PBA30F-48 | |
| Item | | Power Factor (by Input Voltage) | |
| Object | | | |

1.Graph

□

Load 50%

△

Load 100%

Power Factor

0.8

0.7

0.6

0.5

0.4

0.3

0.2

50

100

150

200

250

300

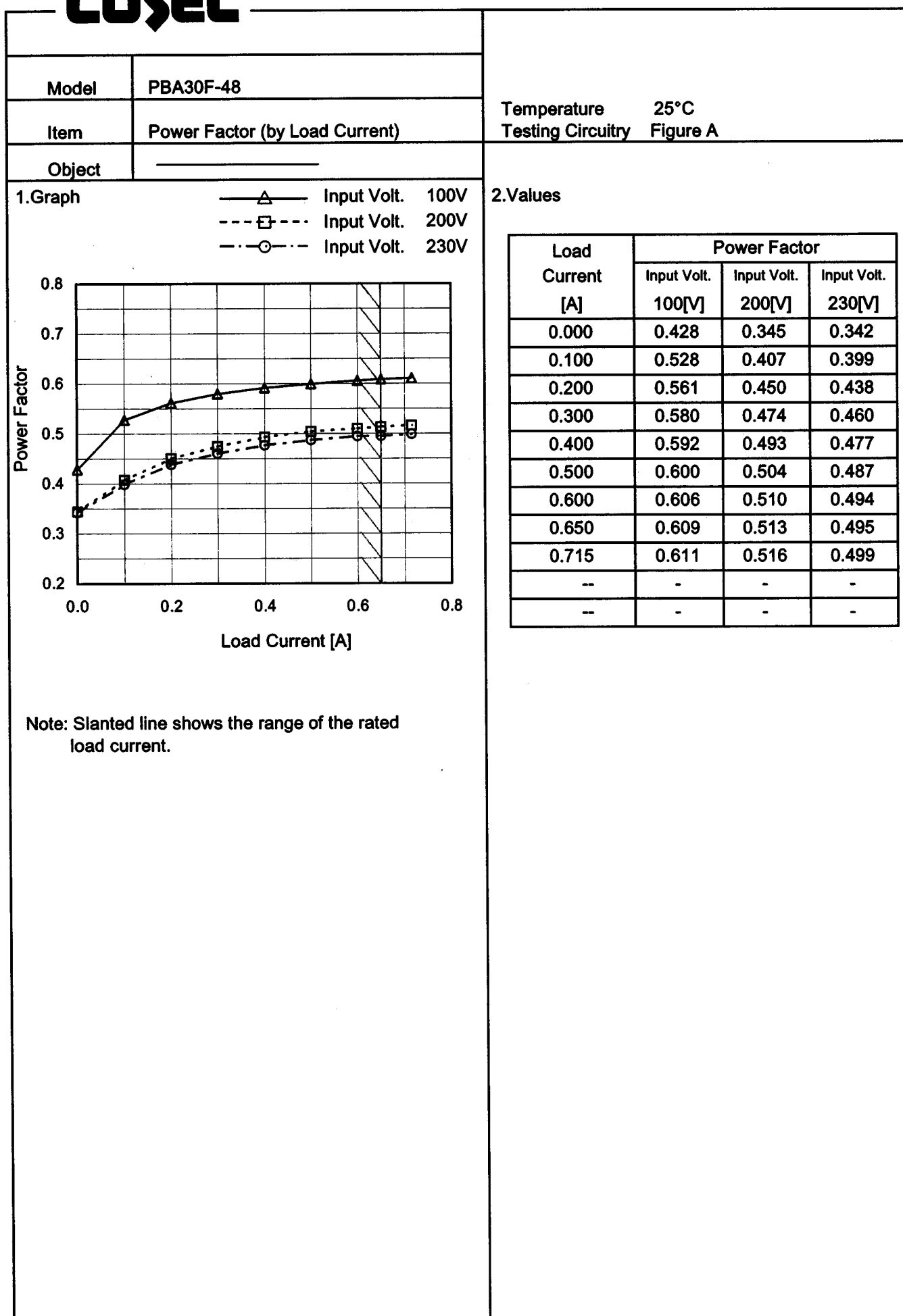
Input Voltage [V]

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

2.Values

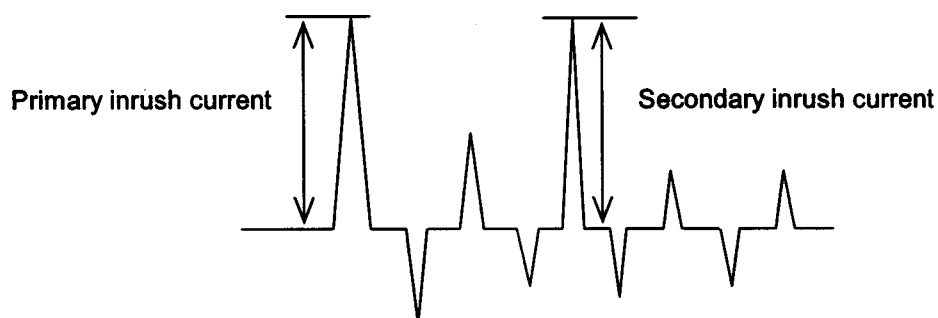
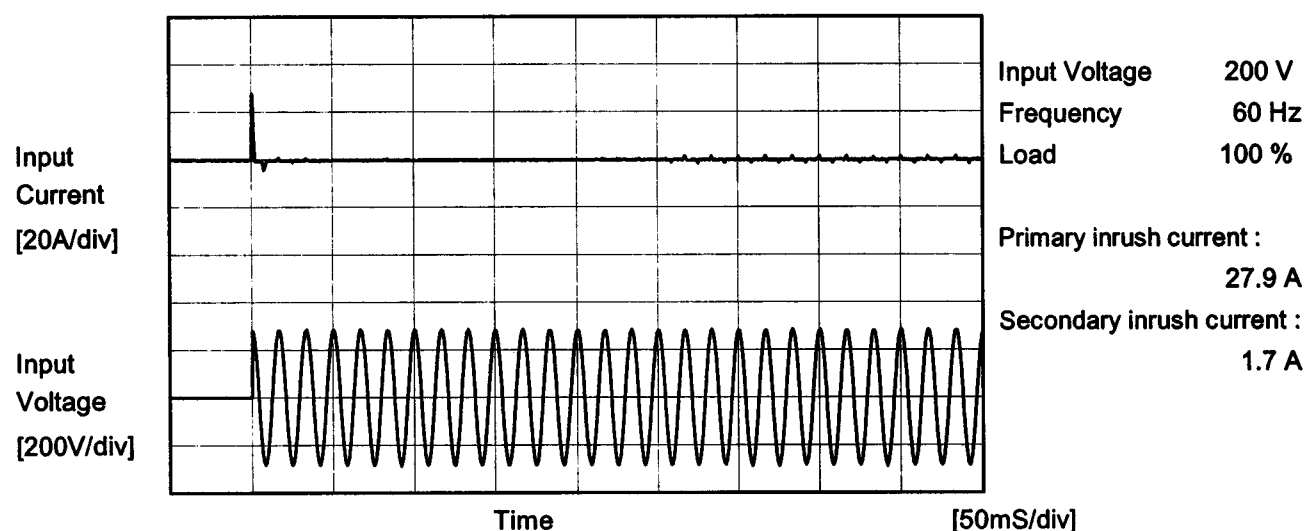
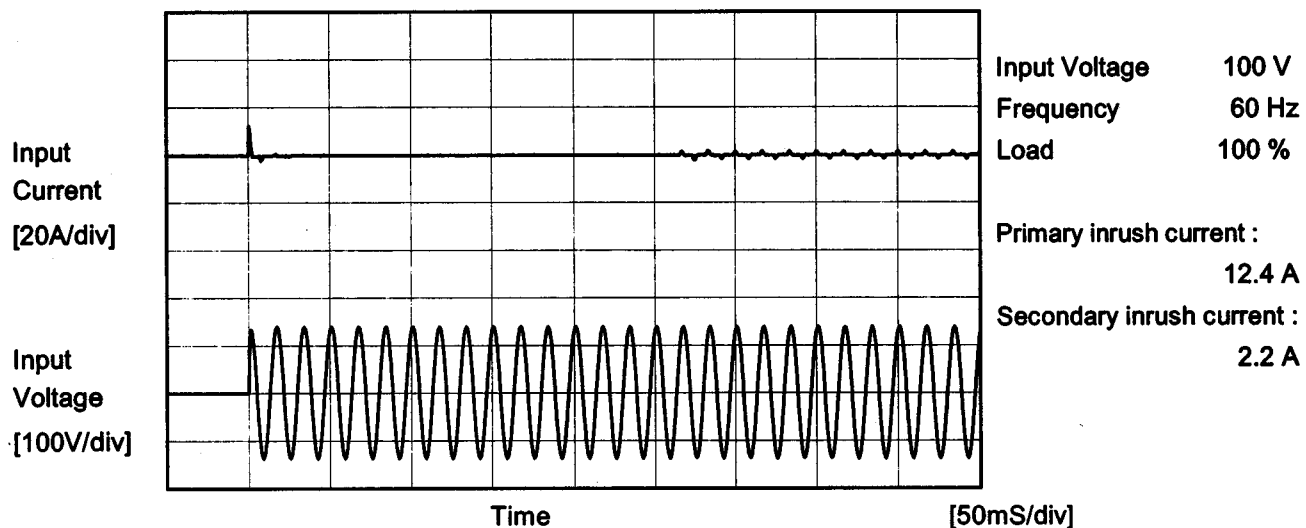
| Input Voltage [V] | Power Factor | |
|-------------------|--------------|-----------|
| | Load 50% | Load 100% |
| 75 | 0.625 | 0.651 |
| 85 | 0.604 | 0.629 |
| 100 | 0.579 | 0.607 |
| 120 | 0.551 | 0.580 |
| 200 | 0.473 | 0.499 |
| 230 | 0.456 | 0.486 |
| 264 | 0.439 | 0.469 |
| 280 | 0.433 | 0.463 |
| -- | - | - |

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|--------|----------------|-------------------|----------|
| Model | PBA30F-48 | Temperature | 25°C |
| Item | Inrush Current | Testing Circuitry | Figure A |
| Object | _____ | | |



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|--------|-----------------|--|
| | | Temperature 25°C Testing Circuitry Figure B |
| Model | PBA30F-48 | |
| Item | Leakage Current | |
| Object | | |

1.Results

[mA]

| Standards | | Input Volt. | | | Note |
|-----------|--------------|-------------|---------|---------|-----------|
| | | 100 [V] | 200 [V] | 240 [V] | |
| DEN-AN | Both phases | 0.15 | 0.32 | 0.39 | Operation |
| | One of phase | 0.30 | 0.64 | 0.79 | stand by |
| IEC60950 | Both phases | 0.19 | 0.44 | 0.52 | Operation |
| | One of phase | 0.29 | 0.64 | 0.79 | stand by |

The value for "One of phase" is the reference value only.

2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

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|--------|--|-----------------|--|
| Model | | PBA30F-48 | |
| Item | | Line Regulation | |
| Object | | +48V0.65A | |

1.Graph

---□---

Load 50%

—△—

Load 100%

Output Voltage [V]

48.60

48.50

48.40

48.30

48.20

48.10

48.00

47.90

50

100

150

200

250

300

Input Voltage [V]

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

2.Values

| Input Voltage [V] | Output Voltage [V] | |
|-------------------|--------------------|-----------|
| | Load 50% | Load 100% |
| 75 | 48.295 | 48.292 |
| 85 | 48.296 | 48.294 |
| 100 | 48.298 | 48.297 |
| 120 | 48.300 | 48.299 |
| 200 | 48.305 | 48.304 |
| 230 | 48.306 | 48.305 |
| 264 | 48.308 | 48.306 |
| 280 | 48.308 | 48.306 |
| -- | - | - |

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| Model | PBA30F-48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|----|---|---|---|----|---|---|---|--|--|
| Item | Load Regulation | Temperature | 25°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +48V0.65A | Testing Circuitry | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>---□---</div><div>-·-○-·-</div></div><div>Input Volt. 100V</div><div>Input Volt. 200V</div><div>Input Volt. 230V</div></div> <table><thead><tr><th>Load Current [A]</th><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr></thead><tbody><tr><td>0.000</td><td>48.311</td><td>48.316</td><td>48.315</td></tr><tr><td>0.100</td><td>48.305</td><td>48.312</td><td>48.312</td></tr><tr><td>0.200</td><td>48.300</td><td>48.309</td><td>48.310</td></tr><tr><td>0.300</td><td>48.300</td><td>48.307</td><td>48.308</td></tr><tr><td>0.400</td><td>48.299</td><td>48.306</td><td>48.307</td></tr><tr><td>0.500</td><td>48.299</td><td>48.306</td><td>48.307</td></tr><tr><td>0.600</td><td>48.298</td><td>48.305</td><td>48.307</td></tr><tr><td>0.650</td><td>48.298</td><td>48.305</td><td>48.306</td></tr><tr><td>0.715</td><td>48.298</td><td>48.305</td><td>48.306</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] | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | 0.000 | 48.311 | 48.316 | 48.315 | 0.100 | 48.305 | 48.312 | 48.312 | 0.200 | 48.300 | 48.309 | 48.310 | 0.300 | 48.300 | 48.307 | 48.308 | 0.400 | 48.299 | 48.306 | 48.307 | 0.500 | 48.299 | 48.306 | 48.307 | 0.600 | 48.298 | 48.305 | 48.307 | 0.650 | 48.298 | 48.305 | 48.306 | 0.715 | 48.298 | 48.305 | 48.306 | -- | - | - | - | -- | - | - | - | | |
| Load Current [A] | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.000 | 48.311 | 48.316 | 48.315 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.100 | 48.305 | 48.312 | 48.312 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.200 | 48.300 | 48.309 | 48.310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.300 | 48.300 | 48.307 | 48.308 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.400 | 48.299 | 48.306 | 48.307 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.500 | 48.299 | 48.306 | 48.307 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.600 | 48.298 | 48.305 | 48.307 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.650 | 48.298 | 48.305 | 48.306 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.715 | 48.298 | 48.305 | 48.306 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: Slanted line shows the range of the rated load current. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--------|-----------------------|-------------------|----------|
| Model | PBA30F-48 | Temperature | 25°C |
| Item | Dynamic Load Response | Testing Circuitry | Figure A |
| Object | +48V0.65A | | |

Input Volt. 100 V

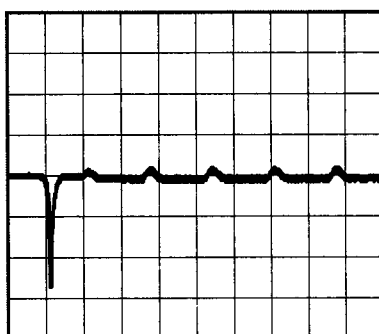
Cycle 1000 ms

Load Current

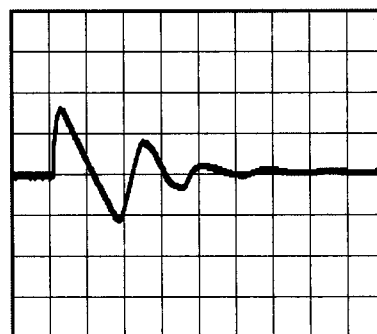
Min. Load (0A) ←→

Load 100% (0.65A)

200 mV/div



5 ms/div

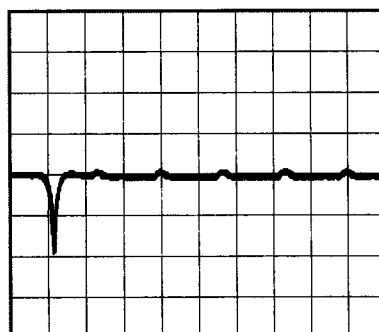


5 ms/div

Min. Load (0A) ←→

Load 50% (0.325A)

200 mV/div



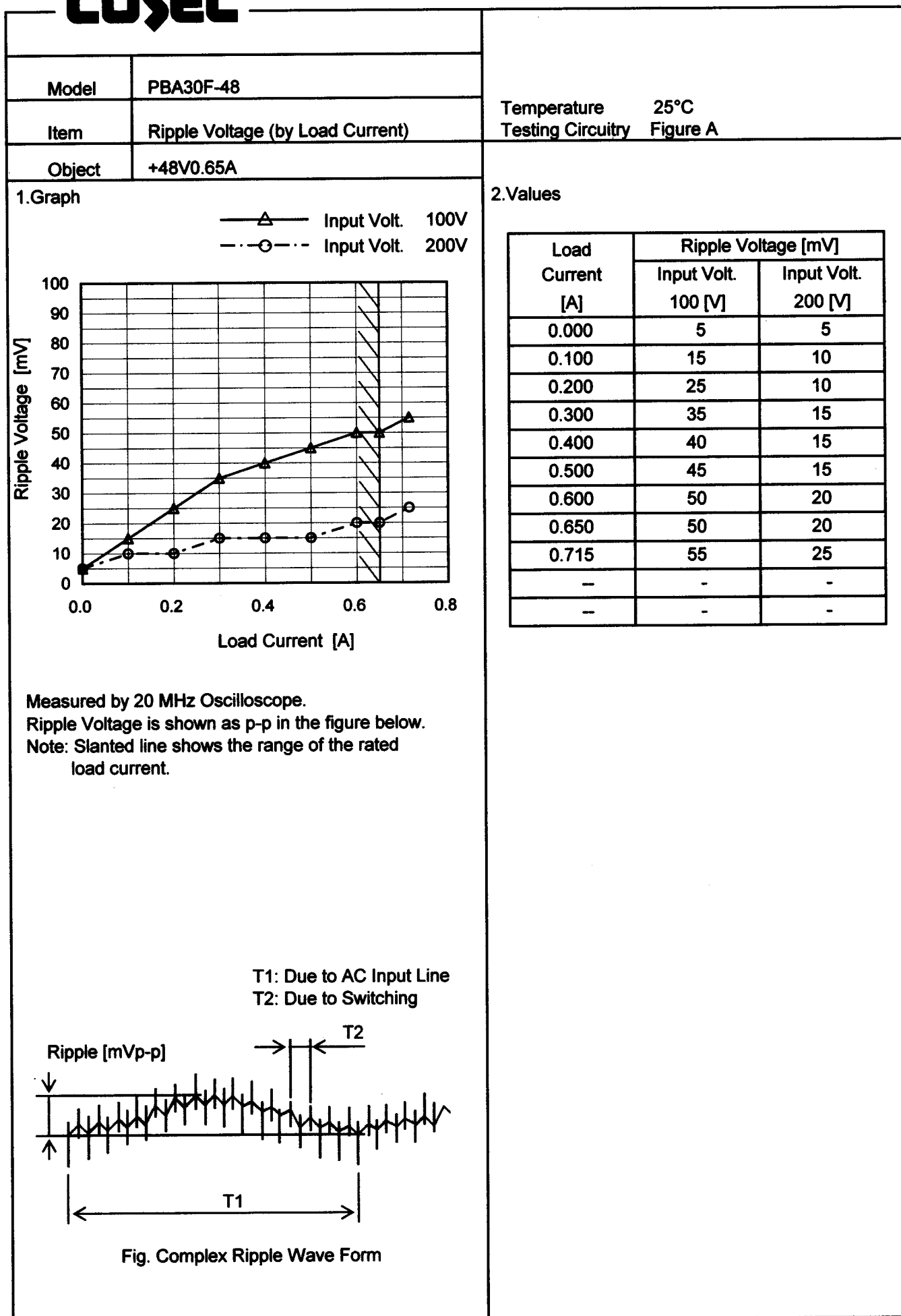
5 ms/div

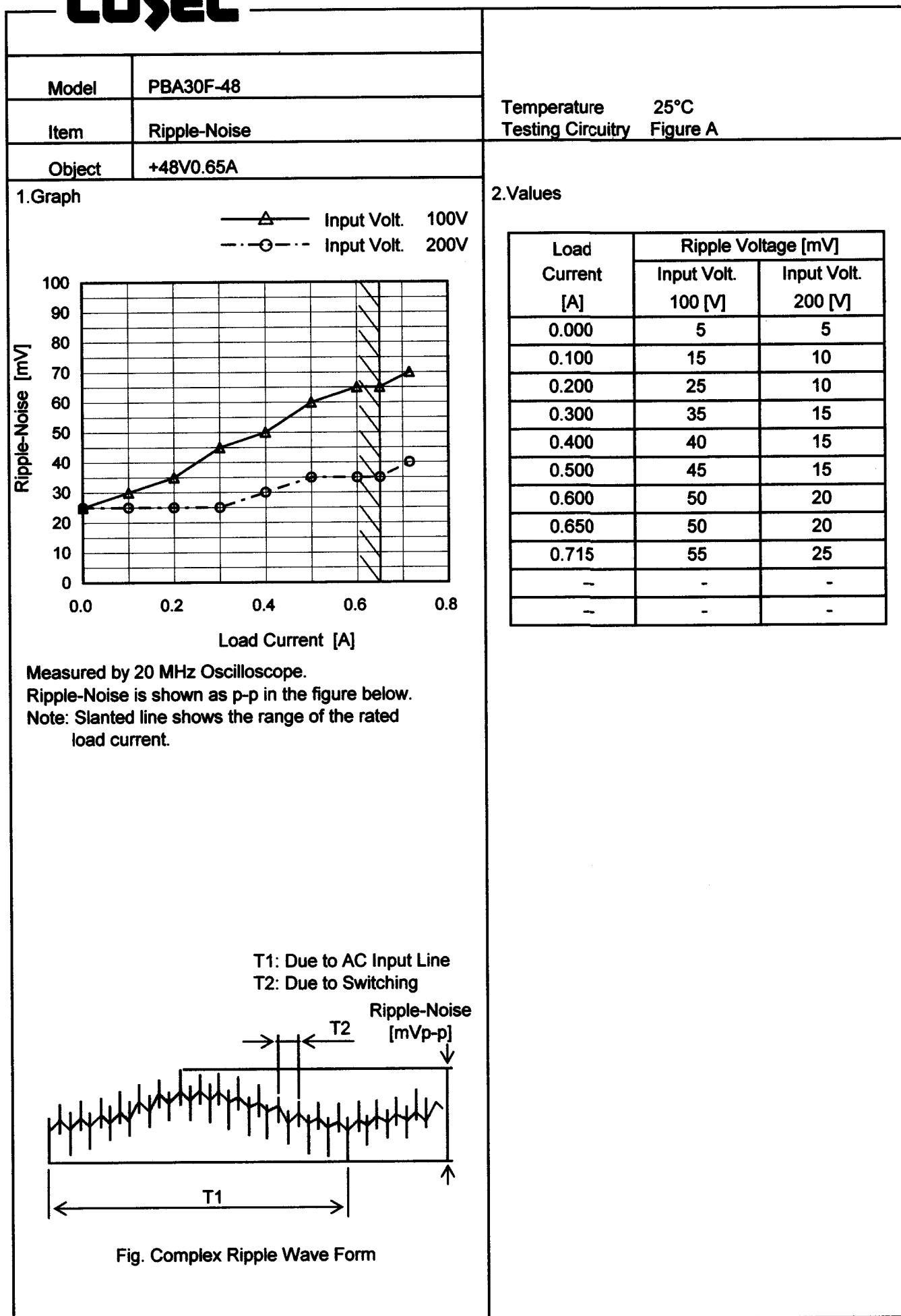


5 ms/div

* The characteristic of AC200V is equal.

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| Model | PBA30F-48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------------------|-------------------------------|------------------------|------------------------|-----|-----|-----|-----|-----|----|---|----|----|----|----|----|----|----|----|----|---|---|--|--|--------------------------|---------------------|--|---------------------|---------------------|-----|-----|-----|-----|-----|----|---|----|----|----|----|----|----|----|----|----|---|---|----|---|---|----|---|---|----|---|---|----|---|---|----|---|---|----|---|---|
| Item | Ripple Voltage (by Ambient Temp.) | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +48V0.65A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>---□---</div><div>Input Volt. 100V</div></div><div><div>—△—</div><div>Input Volt. 200V</div></div></div> <table border="1"><caption>Graph Data (Estimated)</caption><thead><tr><th>Ambient Temperature [°C]</th><th>100V Input Ripple [mV]</th><th>200V Input Ripple [mV]</th></tr></thead><tbody><tr><td>-30</td><td>620</td><td>460</td></tr><tr><td>-10</td><td>140</td><td>90</td></tr><tr><td>0</td><td>90</td><td>45</td></tr><tr><td>25</td><td>50</td><td>20</td></tr><tr><td>50</td><td>35</td><td>15</td></tr><tr><td>60</td><td>-</td><td>-</td></tr></tbody></table> <p>Load 100 %</p> | | Ambient Temperature [°C] | 100V Input Ripple [mV] | 200V Input Ripple [mV] | -30 | 620 | 460 | -10 | 140 | 90 | 0 | 90 | 45 | 25 | 50 | 20 | 50 | 35 | 15 | 60 | - | - | <table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 200 [V]</th></tr><tr><td>-30</td><td>620</td><td>460</td></tr><tr><td>-10</td><td>140</td><td>90</td></tr><tr><td>0</td><td>90</td><td>45</td></tr><tr><td>25</td><td>50</td><td>20</td></tr><tr><td>50</td><td>35</td><td>15</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><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] | | Input Volt. 100 [V] | Input Volt. 200 [V] | -30 | 620 | 460 | -10 | 140 | 90 | 0 | 90 | 45 | 25 | 50 | 20 | 50 | 35 | 15 | -- | - | - | -- | - | - | -- | - | - | -- | - | - | -- | - | - | -- | - | - | -- | - | - |
| Ambient Temperature [°C] | 100V Input Ripple [mV] | 200V Input Ripple [mV] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | 620 | 460 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 140 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 90 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 50 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 35 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature [°C] | Ripple Voltage [mV] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Volt. 100 [V] | Input Volt. 200 [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -30 | 620 | 460 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 140 | 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 90 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 50 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 35 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Measured by 20 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| Model | PBA30F-48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|---|-------------------------------|--------------------|--|--------------------------|--------------------|--|--|--------------------|--------------------|--------------------|-----|--------|--------|--------|-----|--------|--------|--------|---|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|--------|--------|--------|----|---|---|---|
| Item | Ambient Temperature Drift | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +48V0.65A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | <div><div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 230V</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> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.Values | <table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>-20</td><td>48.318</td><td>48.332</td><td>48.334</td></tr><tr><td>-10</td><td>48.324</td><td>48.336</td><td>48.338</td></tr><tr><td>0</td><td>48.314</td><td>48.325</td><td>48.328</td></tr><tr><td>10</td><td>48.340</td><td>48.351</td><td>48.353</td></tr><tr><td>20</td><td>48.348</td><td>48.359</td><td>48.361</td></tr><tr><td>25</td><td>48.348</td><td>48.358</td><td>48.360</td></tr><tr><td>30</td><td>48.339</td><td>48.348</td><td>48.351</td></tr><tr><td>40</td><td>48.323</td><td>48.333</td><td>48.335</td></tr><tr><td>50</td><td>48.307</td><td>48.316</td><td>48.318</td></tr><tr><td>60</td><td>48.281</td><td>48.291</td><td>48.293</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table> | | | | Ambient Temperature [°C] | Output Voltage [V] | | | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | -20 | 48.318 | 48.332 | 48.334 | -10 | 48.324 | 48.336 | 48.338 | 0 | 48.314 | 48.325 | 48.328 | 10 | 48.340 | 48.351 | 48.353 | 20 | 48.348 | 48.359 | 48.361 | 25 | 48.348 | 48.358 | 48.360 | 30 | 48.339 | 48.348 | 48.351 | 40 | 48.323 | 48.333 | 48.335 | 50 | 48.307 | 48.316 | 48.318 | 60 | 48.281 | 48.291 | 48.293 | -- | - | - | - |
| Ambient Temperature [°C] | Output Voltage [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 48.318 | 48.332 | 48.334 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 48.324 | 48.336 | 48.338 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 48.314 | 48.325 | 48.328 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 48.340 | 48.351 | 48.353 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 48.348 | 48.359 | 48.361 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 48.348 | 48.358 | 48.360 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 48.339 | 48.348 | 48.351 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 48.323 | 48.333 | 48.335 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 48.307 | 48.316 | 48.318 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 48.281 | 48.291 | 48.293 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| | | |
|--------|-------------------------|----------------------------|
| | | Testing Circuitry Figure A |
| Model | PBA30F-48 | |
| Item | Output Voltage Accuracy | |
| Object | +48V0.65A | |

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 : -10 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 0.65A

* 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 | 20 | 264 | 0 | 48.368 | ±31 | ±0.1 |
| Minimum Voltage | 50 | 85 | 0.65 | 48.307 | | |

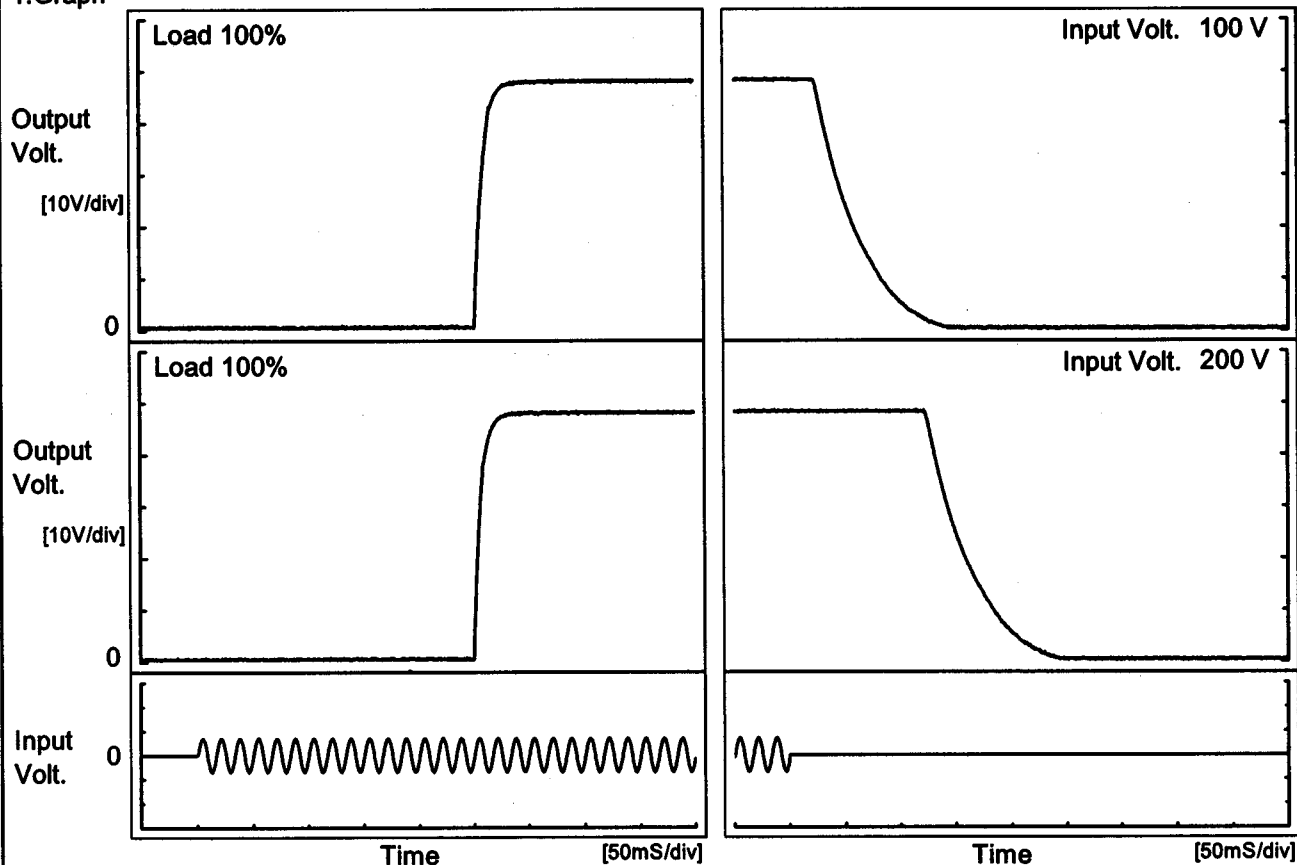
COSEL

| | | | |
|--|------------------|-------------------|----------|
| | | | |
| Model | PBA30F-48 | | |
| Item | Time Lapse Drift | Temperature | 25°C |
| Object | +48V0.65A | Testing Circuitry | Figure A |
| 1.Graph | | 2.Values | |
| <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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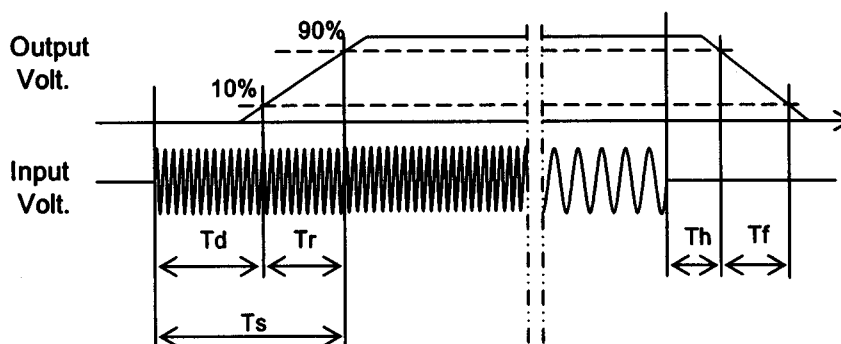
| | | | |
|--------|--------------------|-------------------|----------|
| Model | PBA30F-48 | Temperature | 25°C |
| Item | Rise and Fall Time | Testing Circuitry | Figure A |
| Object | +48V0.65A | | |

1. Graph



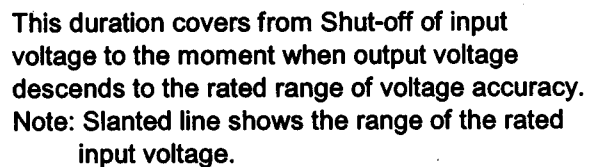
2. Values

| Input Volt. \ Time | Td | Tr | Ts | Th | Tf |
|--------------------|-------|------|-------|-------|------|
| 100 V | 252.0 | 15.3 | 267.3 | 27.0 | 73.8 |
| 200 V | 250.8 | 13.8 | 264.6 | 127.0 | 76.3 |



Temperature 25°C
Testing Circuitry Figure A

2.Values



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| Model | | PBA30F-48 | | Temperature 25°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------|---|--------------------|---|--|------------------|-----------|--|--|--------------------|--------------------|--------------------|-------|---|---|---|-------|-----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|-------|----|-----|-----|----|---|---|---|----|---|---|---|
| Item | | Instantaneous Interruption Compensation | | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | | +48V0.65A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | | | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 230V</div></div></div> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> | | | | <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.000</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.100</td><td>144</td><td>651</td><td>844</td></tr><tr><td>0.200</td><td>81</td><td>382</td><td>515</td></tr><tr><td>0.300</td><td>56</td><td>273</td><td>365</td></tr><tr><td>0.400</td><td>45</td><td>207</td><td>281</td></tr><tr><td>0.500</td><td>35</td><td>165</td><td>225</td></tr><tr><td>0.600</td><td>29</td><td>140</td><td>189</td></tr><tr><td>0.650</td><td>23</td><td>129</td><td>172</td></tr><tr><td>0.715</td><td>22</td><td>115</td><td>157</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] | Time [ms] | | | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | 0.000 | - | - | - | 0.100 | 144 | 651 | 844 | 0.200 | 81 | 382 | 515 | 0.300 | 56 | 273 | 365 | 0.400 | 45 | 207 | 281 | 0.500 | 35 | 165 | 225 | 0.600 | 29 | 140 | 189 | 0.650 | 23 | 129 | 172 | 0.715 | 22 | 115 | 157 | -- | - | - | - | -- | - | - | - |
| Load Current [A] | Time [ms] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Volt. 100[V] | Input Volt. 200[V] | Input Volt. 230[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.000 | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.100 | 144 | 651 | 844 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.200 | 81 | 382 | 515 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.300 | 56 | 273 | 365 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.400 | 45 | 207 | 281 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.500 | 35 | 165 | 225 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.600 | 29 | 140 | 189 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.650 | 23 | 129 | 172 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.715 | 22 | 115 | 157 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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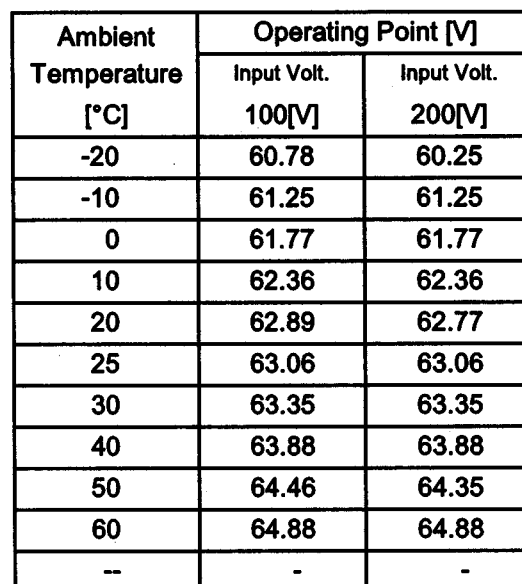
| Model | PBA30F-48 | Testing Circuitry Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|--------------------------|-------------------|--|----------|-----------|-----|----|----|-----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|
| Item | Minimum Input Voltage for Regulated Output Voltage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +48V0.65A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1.Graph</p> <div data-bbox="177 450 853 1104"> <p>---□--- Load 50% —△— Load 100%</p> <p>Input Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p> </div> | | <p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>-20</td><td>45</td><td>55</td></tr> <tr><td>-10</td><td>45</td><td>55</td></tr> <tr><td>0</td><td>45</td><td>55</td></tr> <tr><td>10</td><td>45</td><td>56</td></tr> <tr><td>20</td><td>45</td><td>56</td></tr> <tr><td>25</td><td>45</td><td>56</td></tr> <tr><td>30</td><td>45</td><td>57</td></tr> <tr><td>40</td><td>45</td><td>57</td></tr> <tr><td>50</td><td>45</td><td>58</td></tr> <tr><td>60</td><td>45</td><td>59</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table> | Ambient Temperature [°C] | Input Voltage [V] | | Load 50% | Load 100% | -20 | 45 | 55 | -10 | 45 | 55 | 0 | 45 | 55 | 10 | 45 | 56 | 20 | 45 | 56 | 25 | 45 | 56 | 30 | 45 | 57 | 40 | 45 | 57 | 50 | 45 | 58 | 60 | 45 | 59 | -- | - | - |
| Ambient Temperature [°C] | Input Voltage [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Load 50% | Load 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -20 | 45 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -10 | 45 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 45 | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 45 | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 45 | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 45 | 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | 45 | 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 45 | 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 45 | 58 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 45 | 59 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -- | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

COSEL

| Model | PBA30F-48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------------|--|----------|--------------------|------------------|--|--------------------|--------------------|------|------|------|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|------|---|---|-----|---|---|-----|---|---|-----|---|---|
| Item | Overcurrent Protection | Temperature | 25°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Object | +48V0.65A | Testing Circuitry | Figure A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.Graph | | 2.Values | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div><div><div>△</div><div>Input Volt. 100V</div></div><div><div>○</div><div>Input Volt. 200V</div></div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is less than rated output voltage.</p> | | <table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th></tr><tr><td>48.0</td><td>1.25</td><td>1.63</td></tr><tr><td>45.6</td><td>-</td><td>-</td></tr><tr><td>43.2</td><td>-</td><td>-</td></tr><tr><td>38.4</td><td>-</td><td>-</td></tr><tr><td>33.6</td><td>-</td><td>-</td></tr><tr><td>28.8</td><td>-</td><td>-</td></tr><tr><td>24.0</td><td>-</td><td>-</td></tr><tr><td>19.2</td><td>-</td><td>-</td></tr><tr><td>14.4</td><td>-</td><td>-</td></tr><tr><td>9.6</td><td>-</td><td>-</td></tr><tr><td>4.8</td><td>-</td><td>-</td></tr><tr><td>0.0</td><td>-</td><td>-</td></tr></table> | | Output Voltage [V] | Load Current [A] | | Input Volt. 100[V] | Input Volt. 200[V] | 48.0 | 1.25 | 1.63 | 45.6 | - | - | 43.2 | - | - | 38.4 | - | - | 33.6 | - | - | 28.8 | - | - | 24.0 | - | - | 19.2 | - | - | 14.4 | - | - | 9.6 | - | - | 4.8 | - | - | 0.0 | - | - |
| Output Voltage [V] | Load Current [A] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Input Volt. 100[V] | Input Volt. 200[V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48.0 | 1.25 | 1.63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45.6 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43.2 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38.4 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33.6 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28.8 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24.0 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19.2 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14.4 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.6 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.8 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.0 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Testing Circuitry Figure A

2.Values



- 23 -

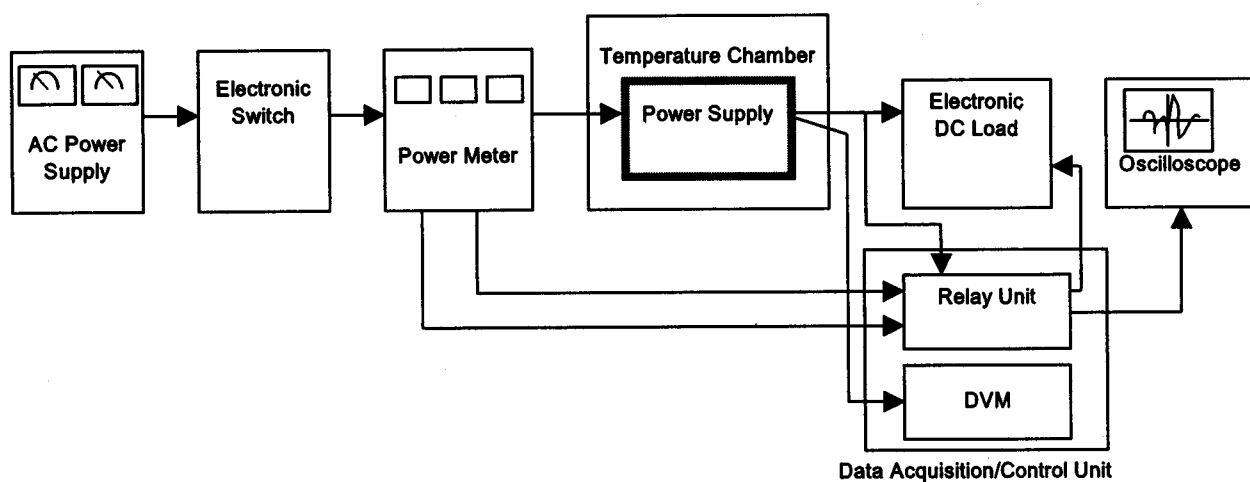


Figure A

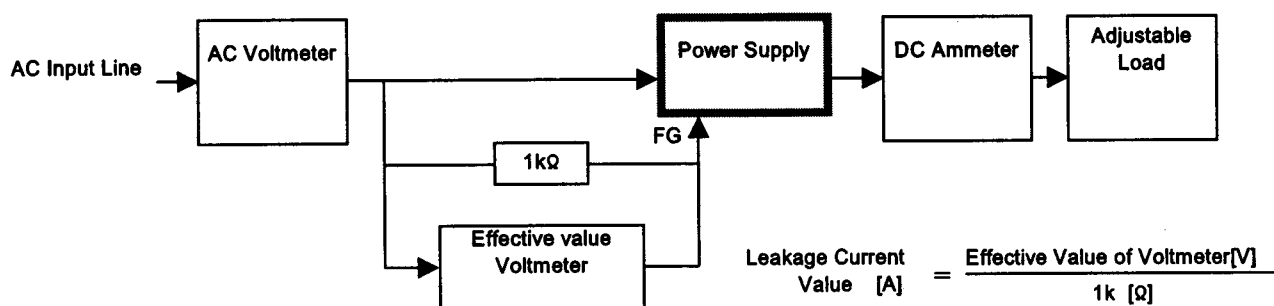


Figure B (DEN-AN)

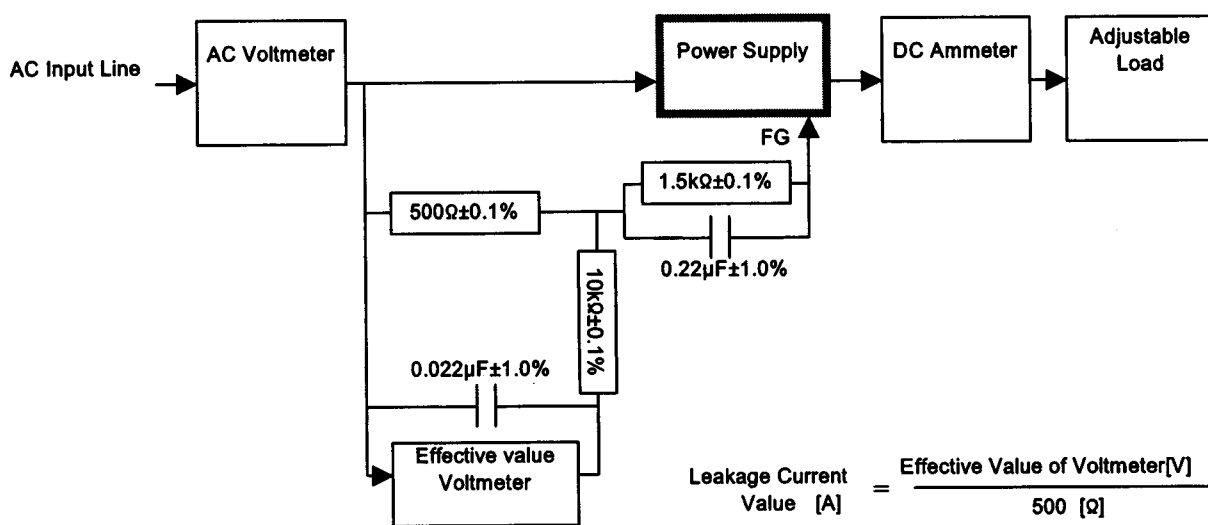


Figure B (IEC60950)