COSEL

参考資料

TEST DATA OF FETA2500BA-48

Regulated DC Power Supply
October 26, 2016

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COSEL CO.,LTD.

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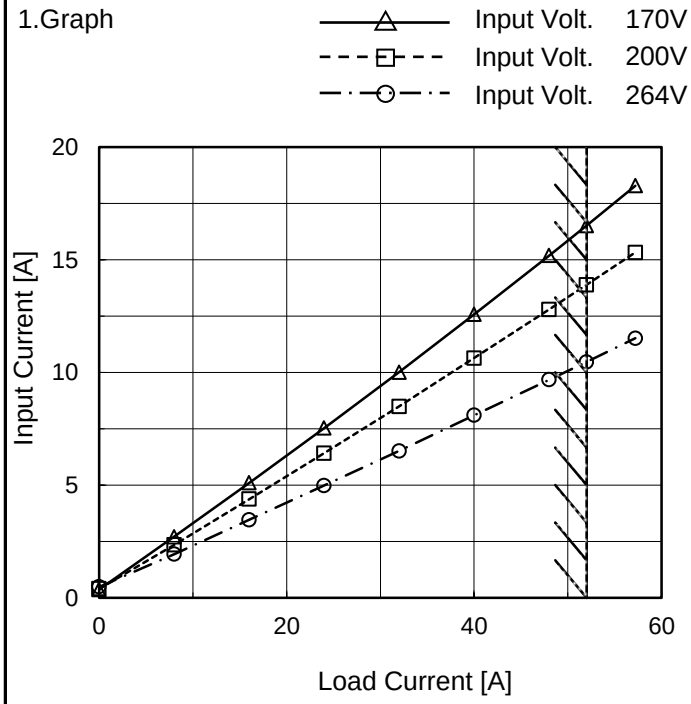
Model	FETA2500BA-48
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	0.366	0.401	0.481
8.0	2.708	2.345	1.936
16.0	5.100	4.380	3.462
24.0	7.530	6.420	4.980
32.0	10.010	8.490	6.520
40.0	12.580	10.640	8.100
48.0	15.190	12.800	9.680
52.0	16.520	13.890	10.470
57.2	18.290	15.330	11.520
--	-	-	-
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BC-11149

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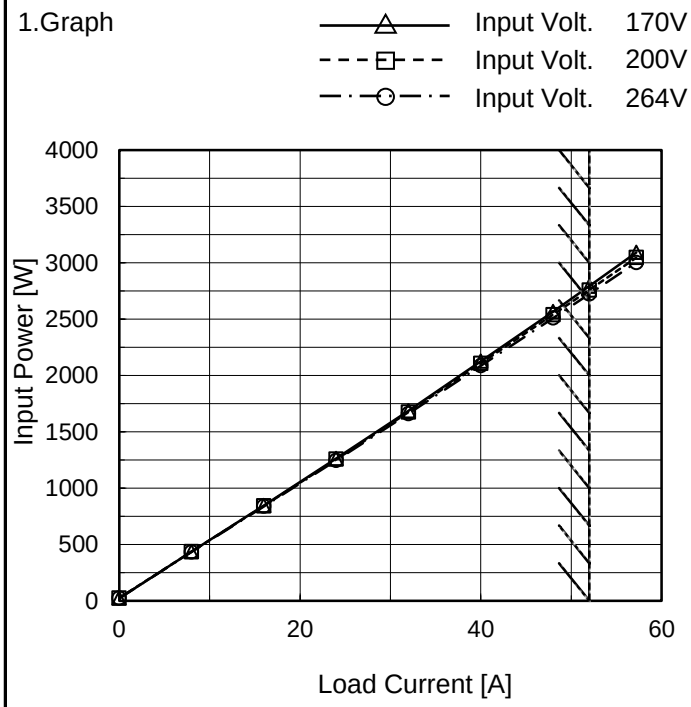
Model	FETA2500BA-48
Item	Input Power (by Load Current)
Object	―――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

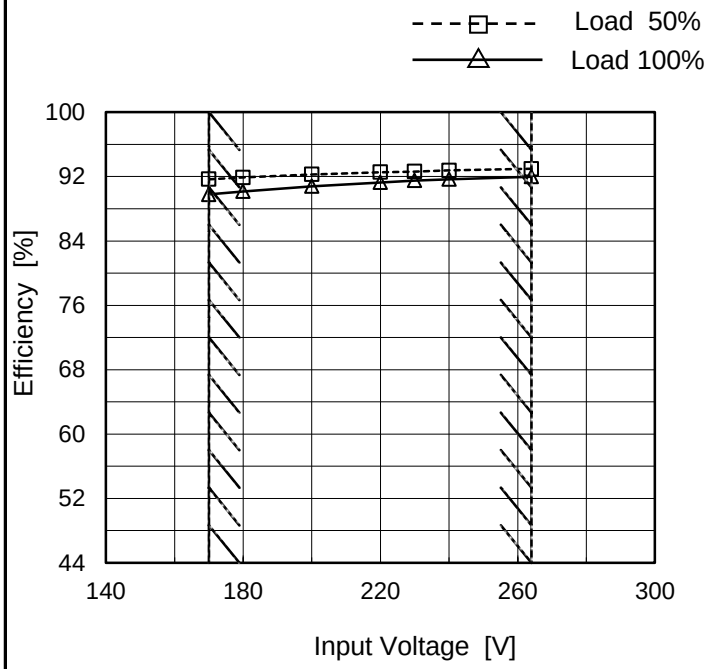
Load Current [A]	Input Power [W]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	23	24	23
8.0	437	436	434
16.0	846	843	838
24.0	1263	1256	1247
32.0	1687	1675	1661
40.0	2126	2108	2086
48.0	2567	2540	2510
52.0	2793	2759	2723
57.2	3093	3047	3003
--	-	-	-
--	-	-	-

COSEL

Model	FETA2500BA-48
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%
170	91.7	89.8
180	91.9	90.2
200	92.3	90.8
220	92.6	91.3
230	92.6	91.5
240	92.8	91.7
264	93.0	92.0
--	-	-
--	-	-

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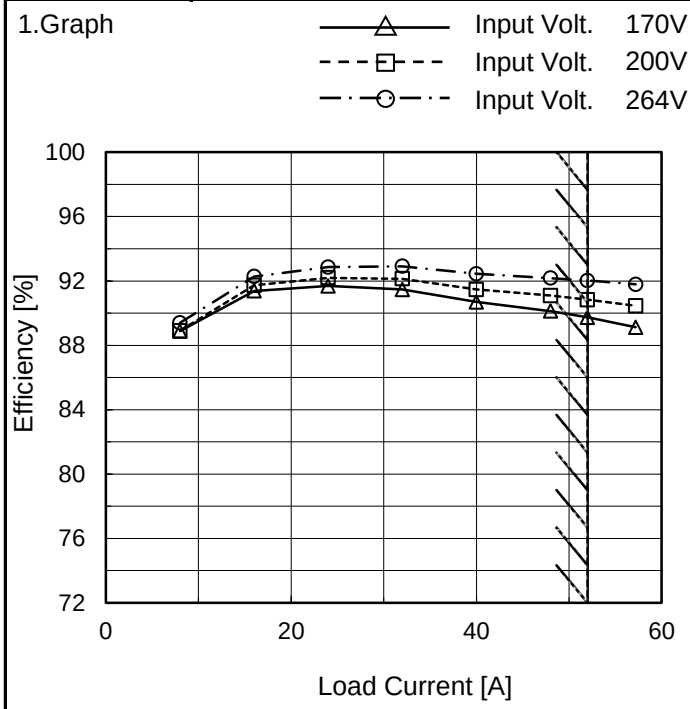
Model	FETA2500BA-48
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	-	-	-
8.0	88.9	88.9	89.4
16.0	91.4	91.7	92.3
24.0	91.7	92.2	92.9
32.0	91.5	92.1	92.9
40.0	90.7	91.5	92.4
48.0	90.1	91.1	92.2
52.0	89.7	90.8	92.0
57.2	89.1	90.5	91.8
--	-	-	-
--	-	-	-

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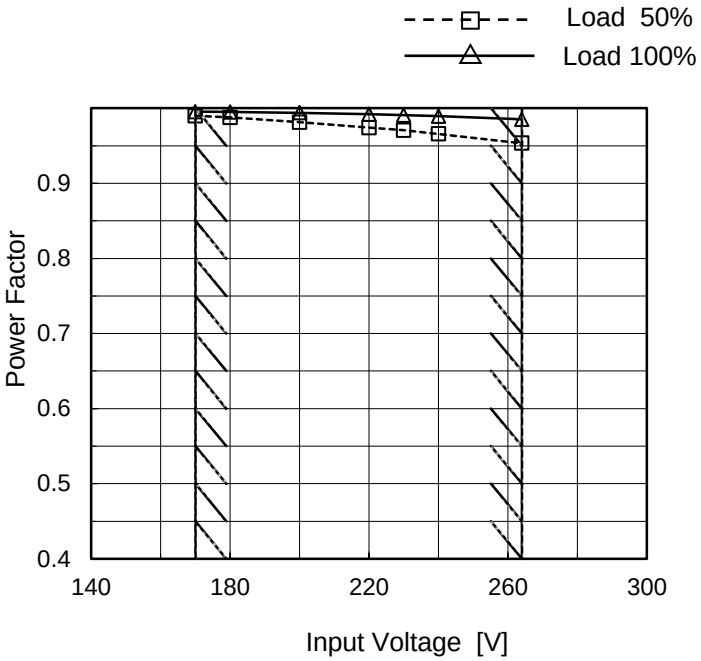
Model	FETA2500BA-48
Item	Power Factor (by Input Voltage)
Object	————————

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]	Power Factor	
	Load 50%	Load 100%
170	0.990	0.995
180	0.988	0.995
200	0.981	0.994
220	0.974	0.992
230	0.971	0.991
240	0.966	0.990
264	0.953	0.985
--	-	-
--	-	-

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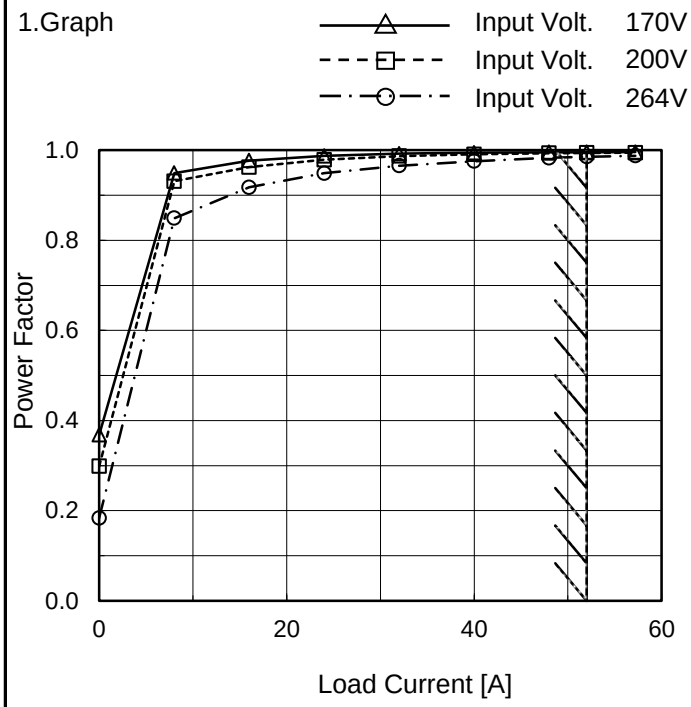
Model	FETA2500BA-48
Item	Power Factor (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Power Factor		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	0.368	0.298	0.184
8.0	0.949	0.931	0.849
16.0	0.977	0.962	0.918
24.0	0.987	0.979	0.949
32.0	0.992	0.987	0.966
40.0	0.994	0.991	0.976
48.0	0.995	0.993	0.983
52.0	0.995	0.994	0.986
57.2	0.996	0.994	0.988
--	-	-	-
--	-	-	-

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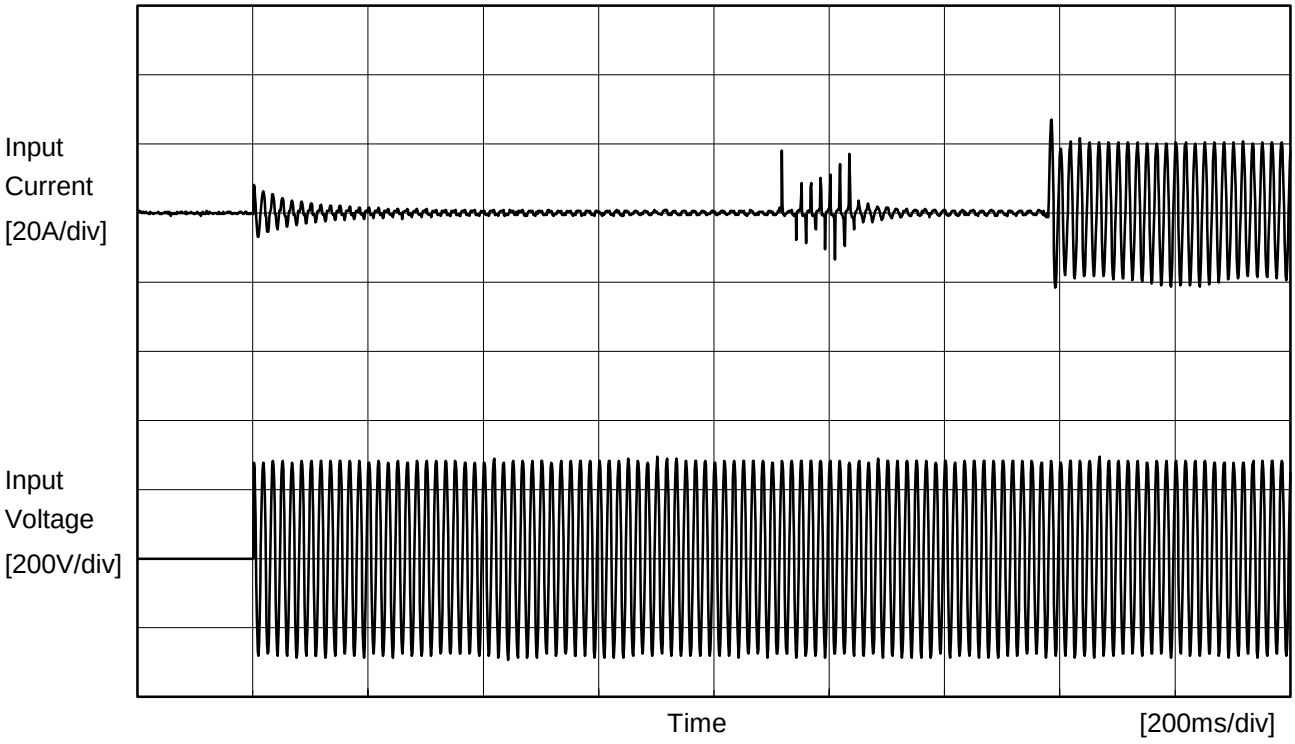
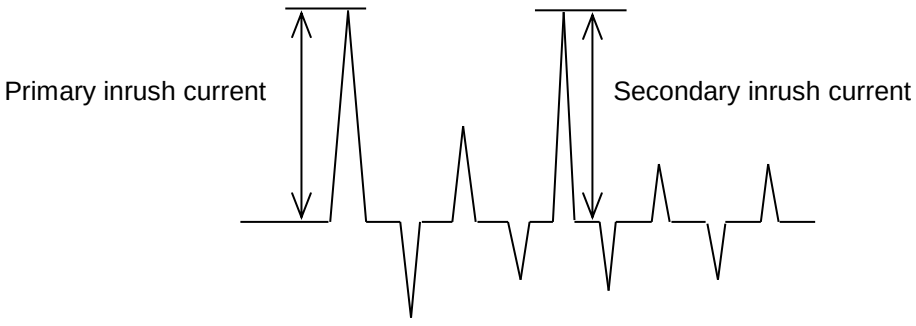
Model	FETA2500BA-48
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	200 V
Frequency	60 Hz
Load	100 %
Primary inrush current	8.1 A
Secondary inrush current	27.0 A



Model	FETA2500BA-48	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	――――――――――――	

1.Results

[mA]

Standards		Input Volt.			Note
		200 [V]	240 [V]	264 [V]	
DEN-AN	Both phases	-	-	-	Operation
	One of phases	-	-	-	Stand by
IEC60950-1	Both phases	0.61	0.73	0.81	Operation
	One of phases	1.06	1.30	1.43	Stand by

The value for "One of phases" 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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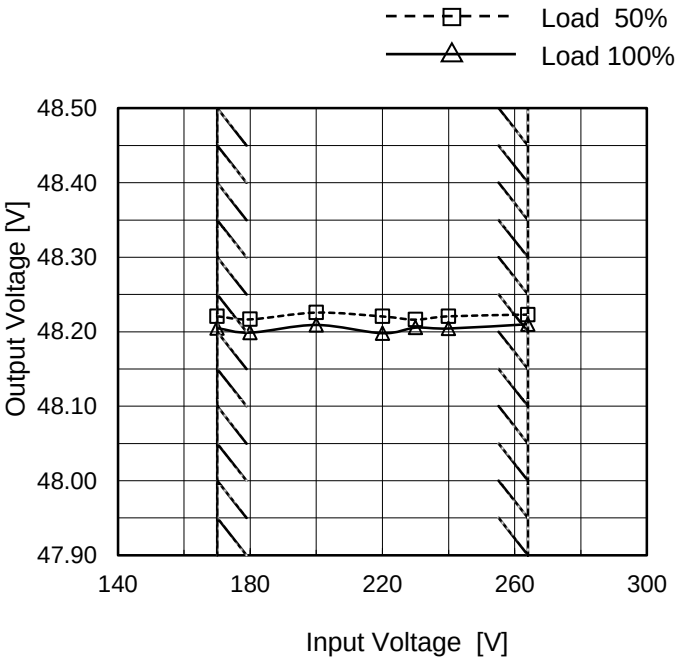
Model	FETA2500BA-48
Item	Line Regulation
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

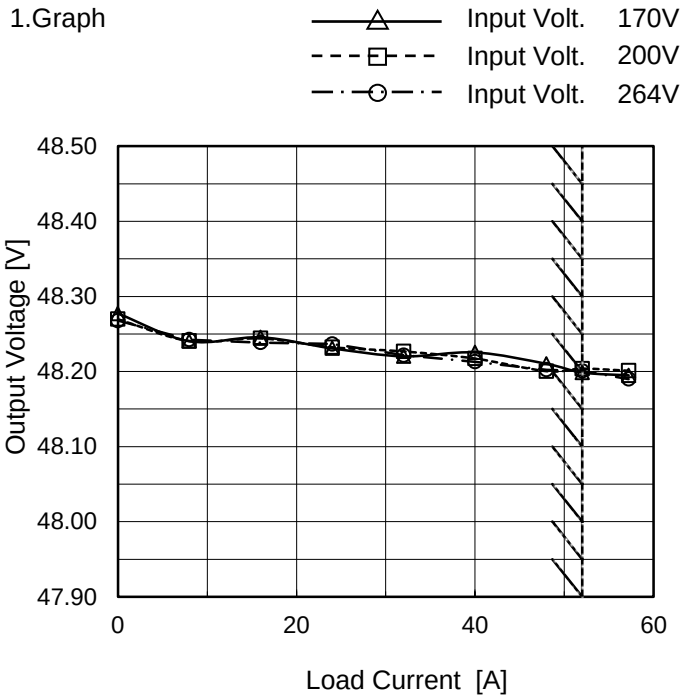
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	48.221	48.205
180	48.217	48.199
200	48.226	48.209
220	48.221	48.198
230	48.216	48.206
240	48.221	48.204
264	48.223	48.210
--	-	-
--	-	-

COSEL

Model	FETA2500BA-48
Item	Load Regulation
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

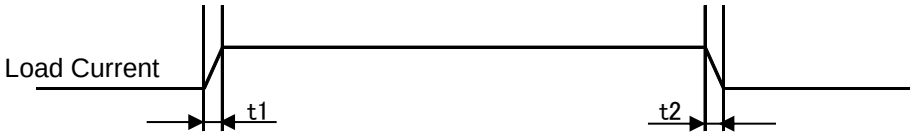
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	48.277	48.270	48.268
8.0	48.240	48.241	48.242
16.0	48.246	48.244	48.239
24.0	48.231	48.232	48.237
32.0	48.220	48.227	48.222
40.0	48.225	48.217	48.213
48.0	48.210	48.200	48.202
52.0	48.199	48.204	48.201
57.2	48.195	48.201	48.190
--	-	-	-
--	-	-	-

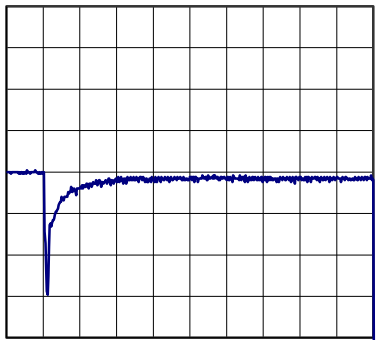
Model	FETA2500BA-48	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+48V52A	

Input Volt. 230 V
Cycle 1000 ms

Response. t1=t2=50μs. Typ

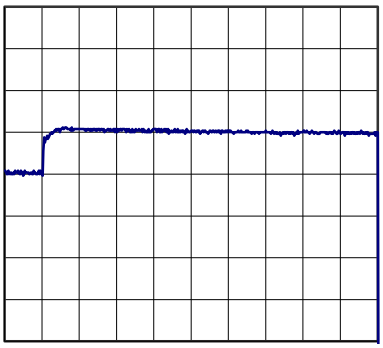


Min. Load (0A) ⟷
Load 100% (52A)



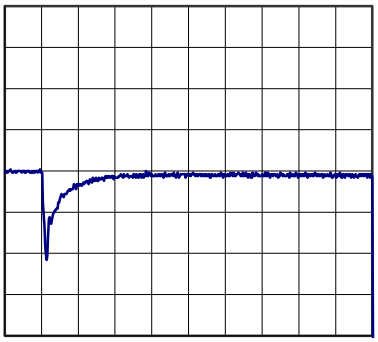
1V/div

1ms/div



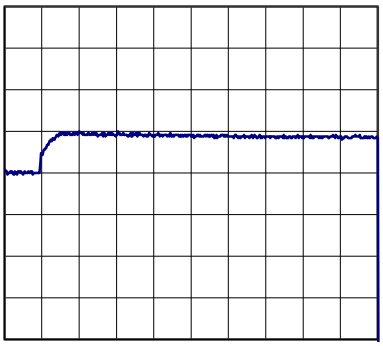
1ms/div

Min. Load (0A) ⟷
Load 50% (26A)



1V/div

1ms/div



1ms/div

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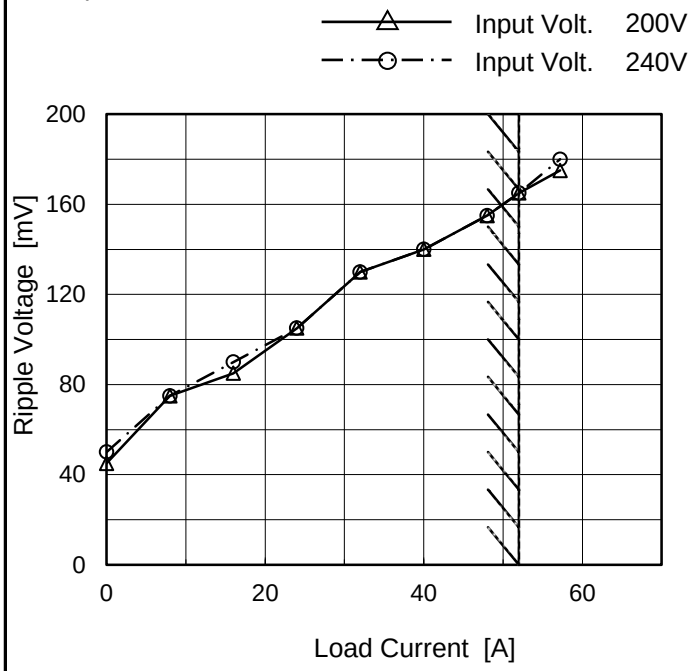
Model	FETA2500BA-48
Item	Ripple Voltage (by Load Current)
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 500 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

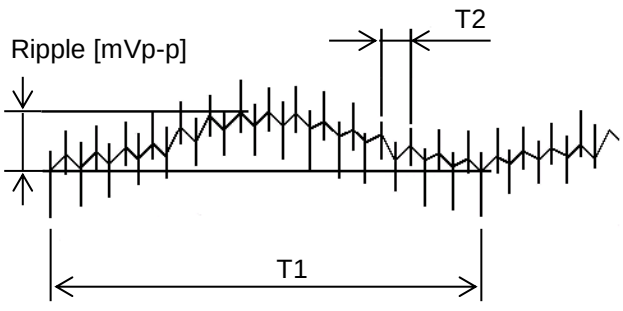


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 200 [V]	Ripple Voltage [mV] Input Volt. 240 [V]
0.0	45	50
8.0	75	75
16.0	85	90
24.0	105	105
32.0	130	130
40.0	140	140
48.0	155	155
52.0	165	165
57.2	175	180
--	-	-
--	-	-

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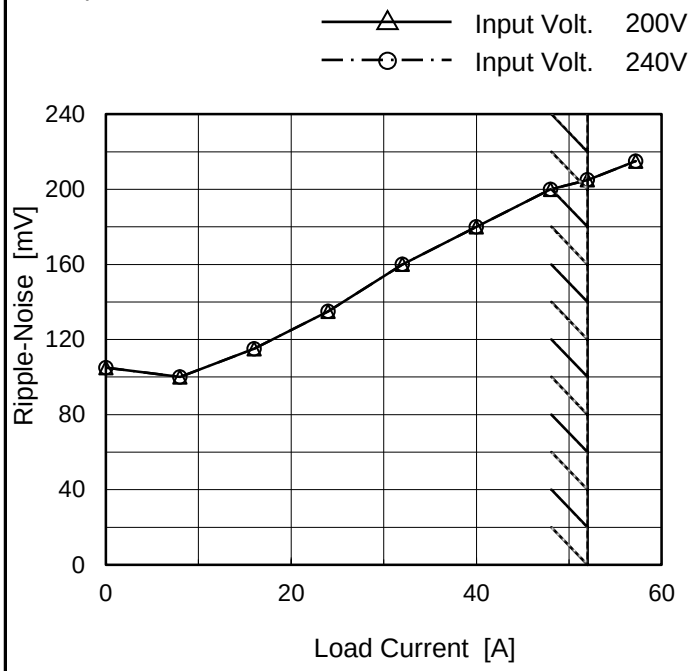
Model	FETA2500BA-48
Item	Ripple-Noise
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 500 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

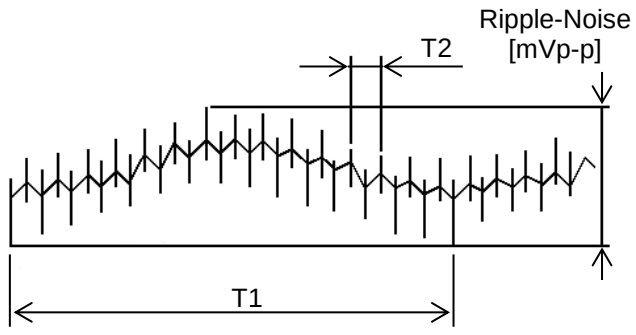


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 240 [V]
0.0	105	105
8.0	100	100
16.0	115	115
24.0	135	135
32.0	160	160
40.0	180	180
48.0	200	200
52.0	205	205
57.2	215	215
--	-	-
--	-	-

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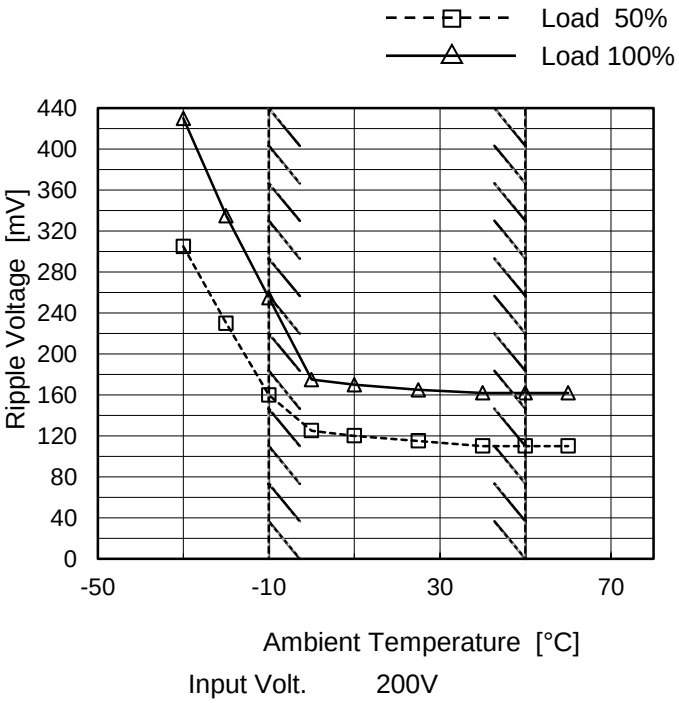
Model	FETA2500BA-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V52A

Testing Circuitry Figure C

1.Graph



Input Volt. 200V

Measured by 500 MHz Oscilloscope.

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

2.Values

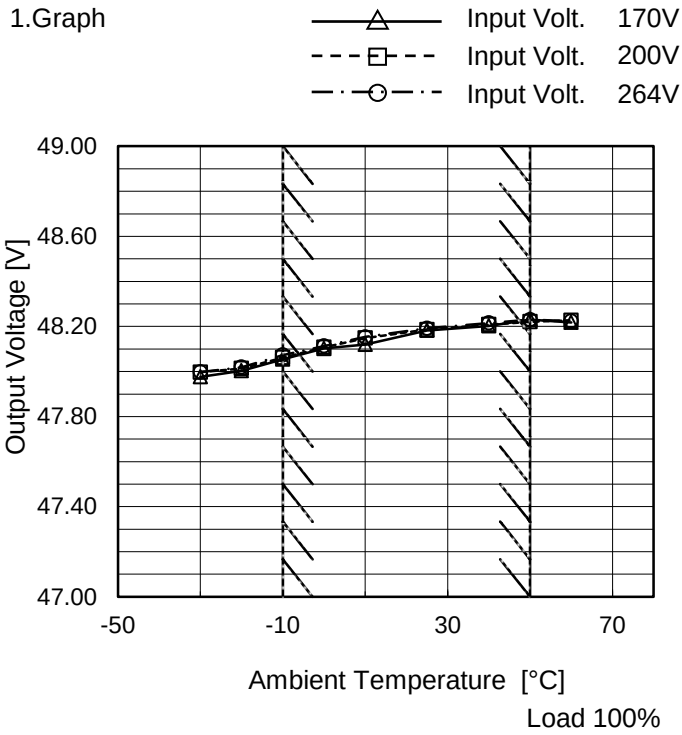
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-30	305	430
-20	230	335
-10	160	255
0	125	175
10	120	170
25	115	165
40	110	162
50	110	162
60	110	162
--	-	-
--	-	-

COSEL

Model	FETA2500BA-48
Item	Ambient Temperature Drift
Object	+48V52A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-30	47.976	47.997	47.998
-20	48.004	48.014	48.019
-10	48.055	48.062	48.073
0	48.102	48.107	48.113
10	48.120	48.148	48.154
25	48.182	48.186	48.191
40	48.202	48.208	48.215
50	48.231	48.221	48.230
60	48.218	48.228	48.224
--	-	-	-
--	-	-	-

Model	FETA2500BA-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V52A	

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 : 170 - 264V
Load Current : 0 - 52A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	50	170	0	48.297	±121	±0.3
Minimum Voltage	-10	170	52	48.055		

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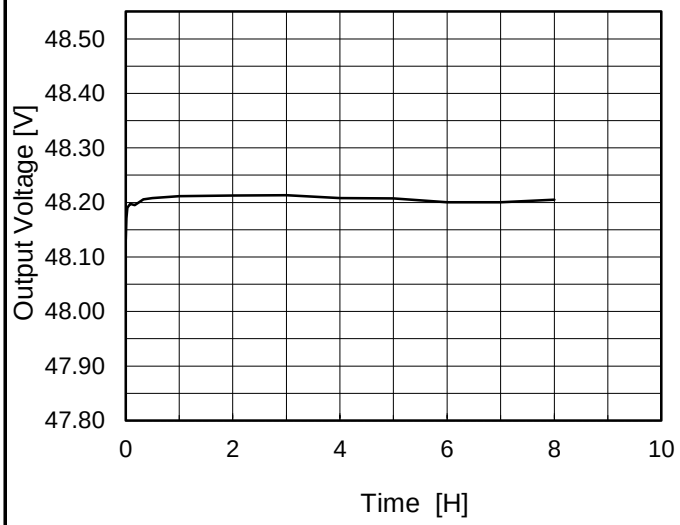
Model	FETA2500BA-48
Item	Time Lapse Drift
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 200V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	48.132
0.5	48.208
1.0	48.211
2.0	48.212
3.0	48.213
4.0	48.208
5.0	48.208
6.0	48.200
7.0	48.200
8.0	48.205

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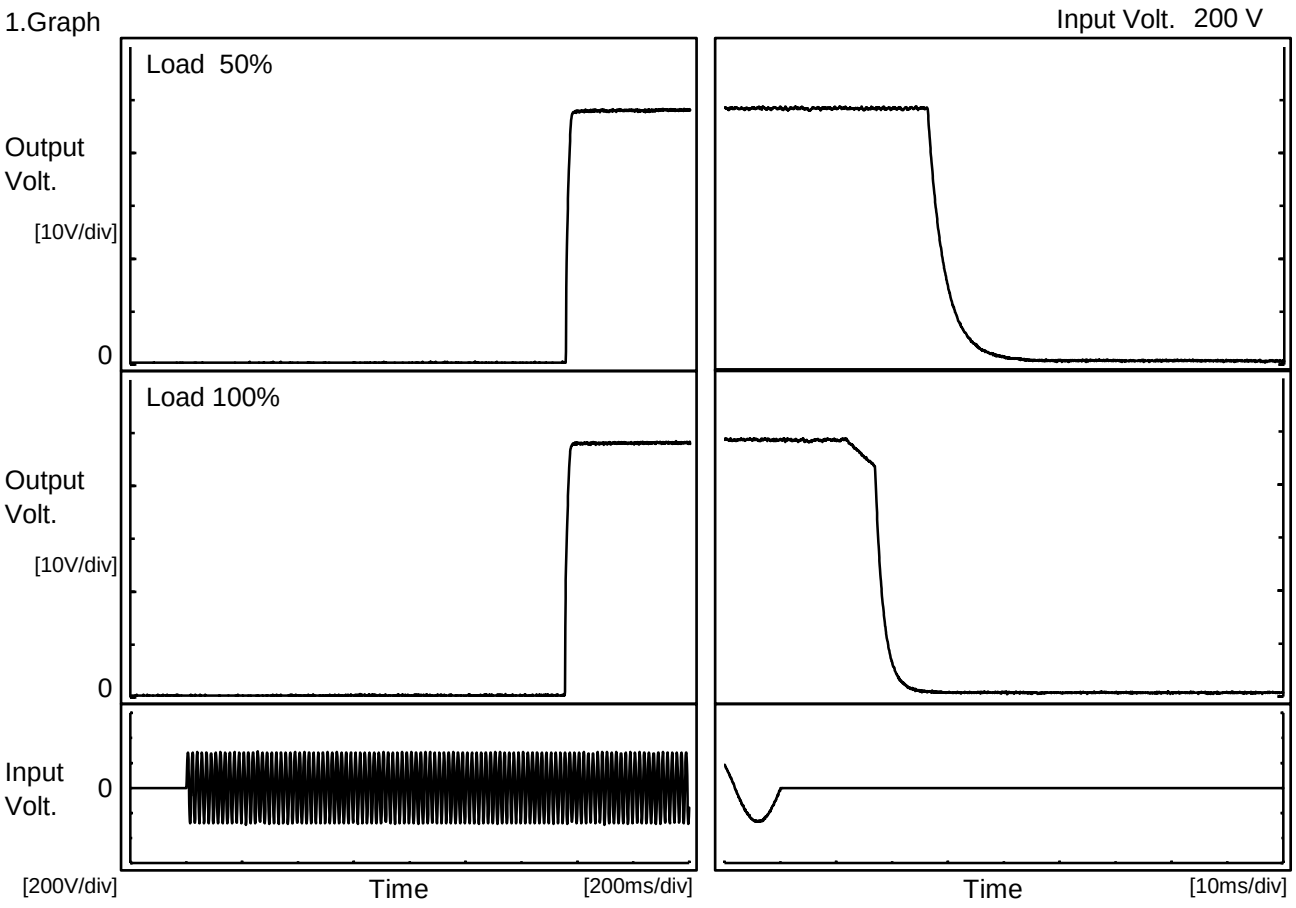
Model	FETA2500BA-48	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+48V52A	

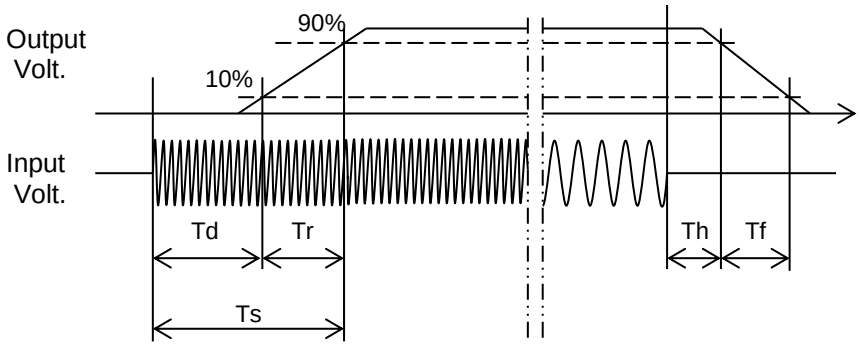
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1358.0	15.0	1373.0	26.6	6.9
100 %	1354.0	15.0	1369.0	16.7	3.7



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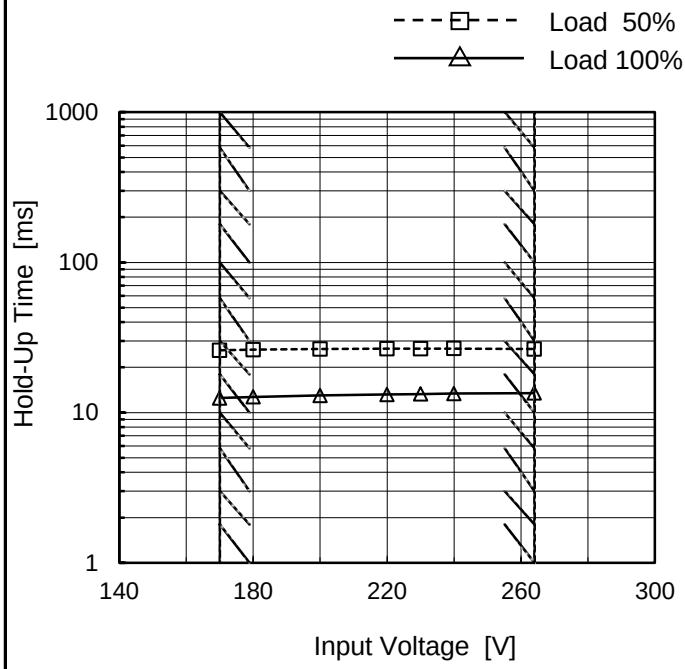
Model	FETA2500BA-48
Item	Hold-Up Time
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.
Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
170	26	13
180	26	13
200	27	13
220	27	13
230	27	13
240	27	13
264	27	14
--	-	-
--	-	-

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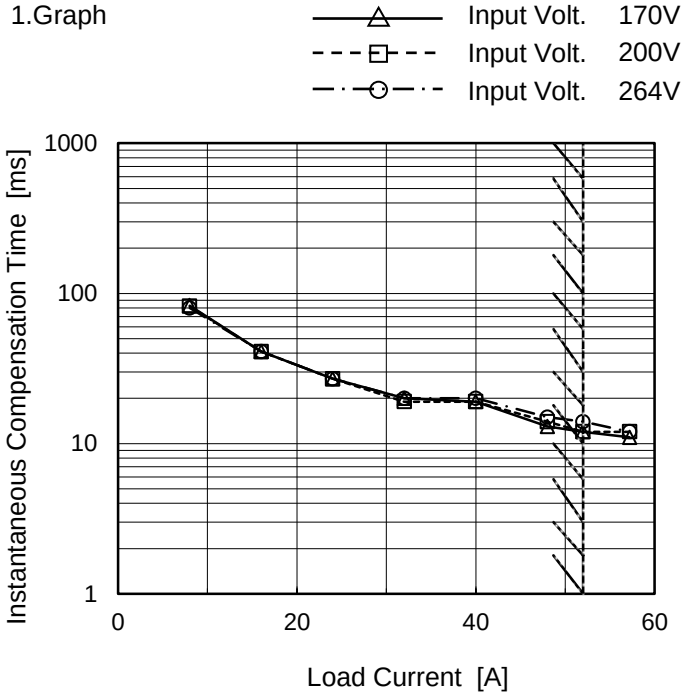
Model	FETA2500BA-48
Item	Instantaneous Interruption Compensation
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Time [ms]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	-	-	-
8.0	83	82	80
16.0	41	41	41
24.0	27	27	27
32.0	20	19	20
40.0	19	19	20
48.0	13	14	15
52.0	12	12	14
57.2	11	12	12
--	-	-	-
--	-	-	-

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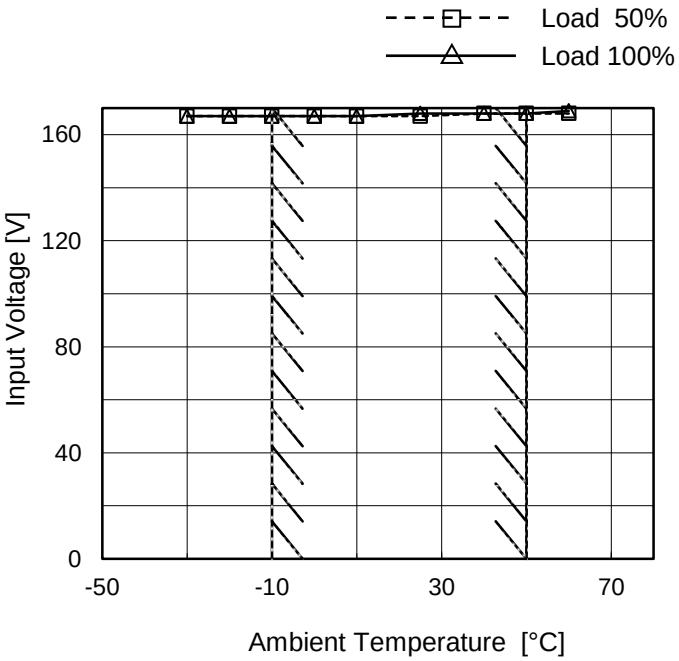
Model	FETA2500BA-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V52A

Testing Circuitry Figure A

1.Graph



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

2.Values

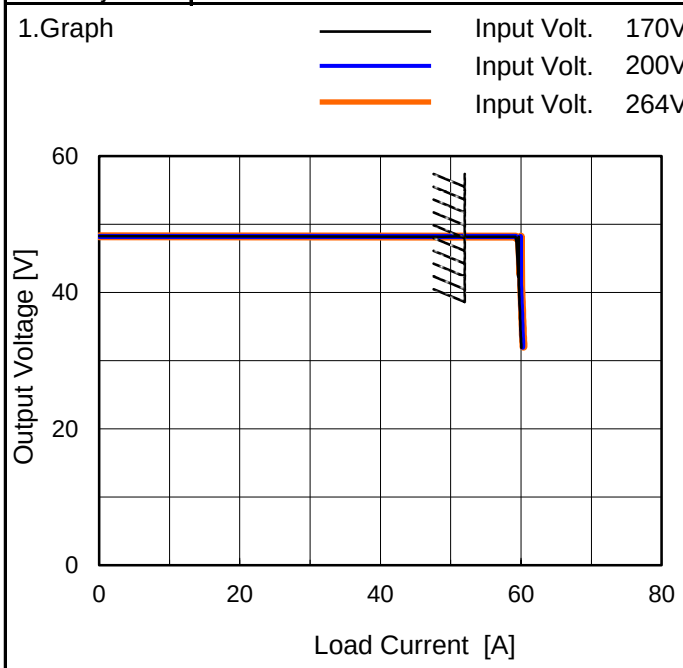
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	167	167
-20	167	167
-10	167	167
0	167	167
10	167	167
25	167	168
40	168	168
50	168	168
60	168	169
--	-	-
--	-	-

COSEL

Model	FETA2500BA-48
Item	Overcurrent Protection
Object	+48V52A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

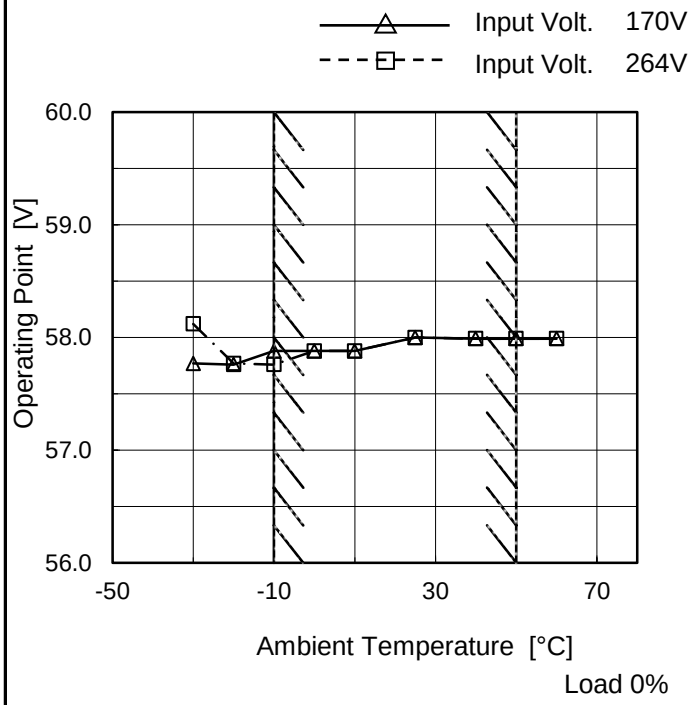
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
45.6	59.47	59.71	59.79
43.2	59.55	59.82	59.90
38.4	59.80	60.02	60.10
33.6	59.97	60.18	60.28
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	FETA2500BA-48
Item	Overvoltage Protection
Object	+48V52A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 170[V]	Input Volt. 264[V]
-30	57.77	58.12
-20	57.76	57.77
-10	57.88	57.76
0	57.88	57.88
10	57.88	57.88
25	58.00	58.00
40	57.99	57.99
50	57.99	57.99
60	57.99	57.99
--	-	-
--	-	-

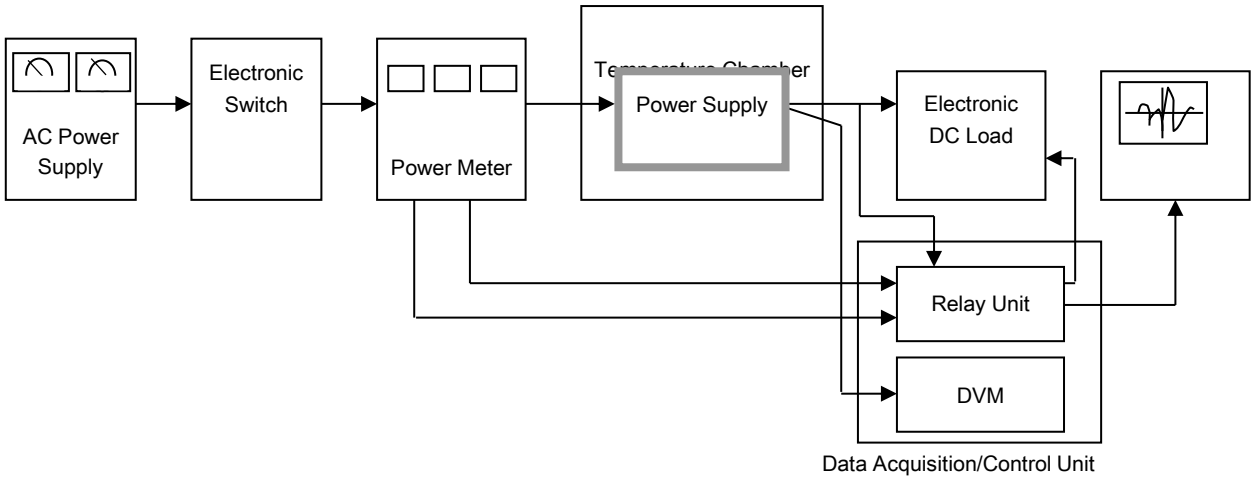


Figure A

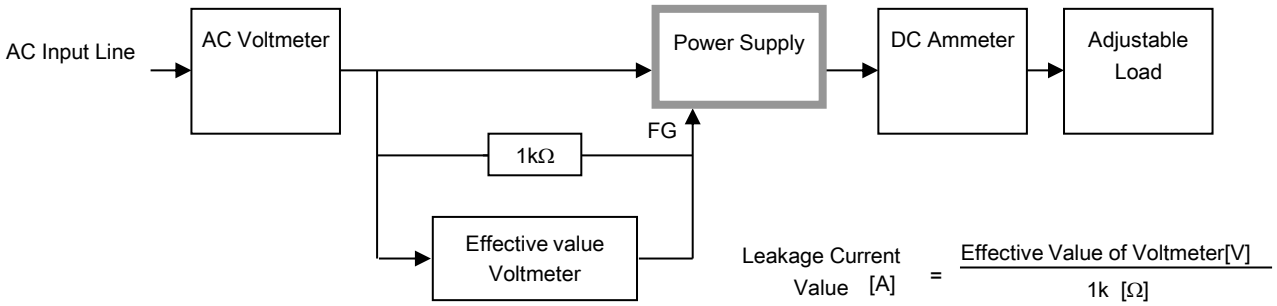


Figure B (DEN-AN)

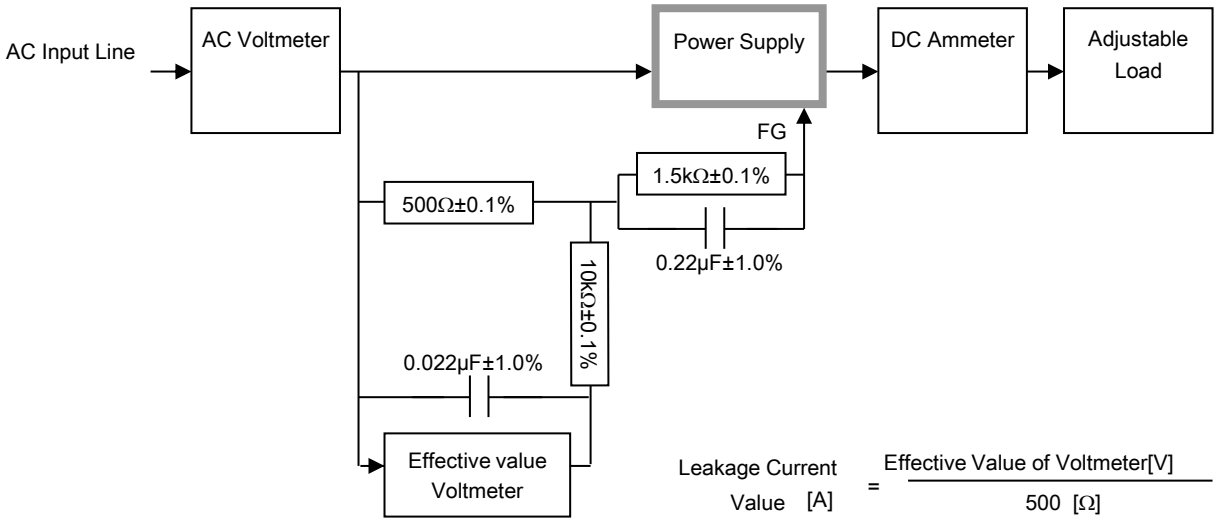


Figure B (IEC60950-1)