Nipron

Test Data

PCSM-100-X2S

(AC90～264V)

DC POWER SUPPLY

Approved by : K. Imai

Prepared by : A. Takeda

INPUT	:	AC 90V ～ 264V		
OUTPUT	:	V1: 3.3V	6A	
		V2: 5V	10A	(Peak 12A)
		V3: 12V	1.5A	(Peak 4.8A)
		V4: -12V	0.2A	
		V5: 5Vs	0.72A	(Peak 1.2A)

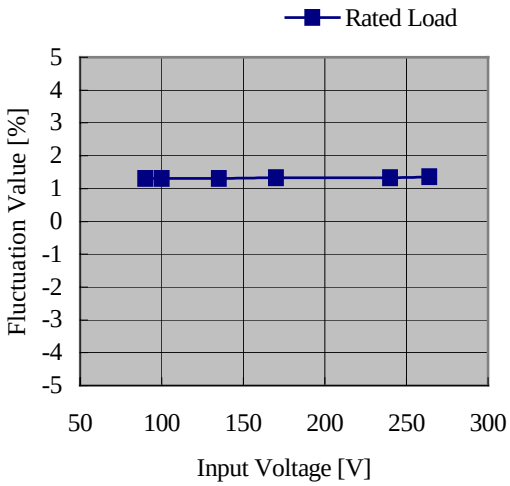
株式会社 ニプロン
Nipron.Co.,Ltd.

CONTENTS

Model	PCSM-100-X2S
Item	Line Regulation

V1：3.3V 6A

at AC Input

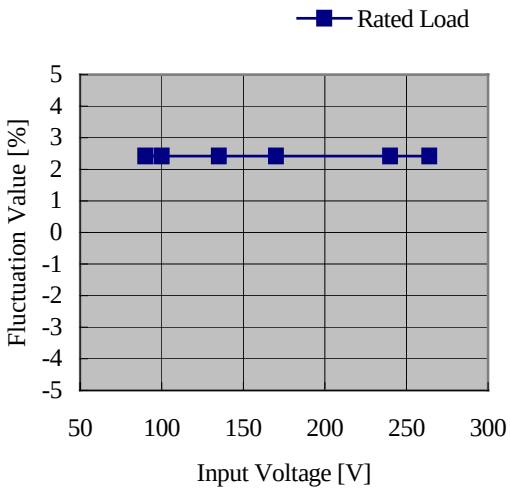


at AC Input

Input Voltage [V]	Output Voltage [V]	Fluctuation Value [%]
AC 90	3.343	1.30
100	3.343	1.30
240	3.344	1.33
264	3.345	1.36

V2：5V 10A

at AC Input



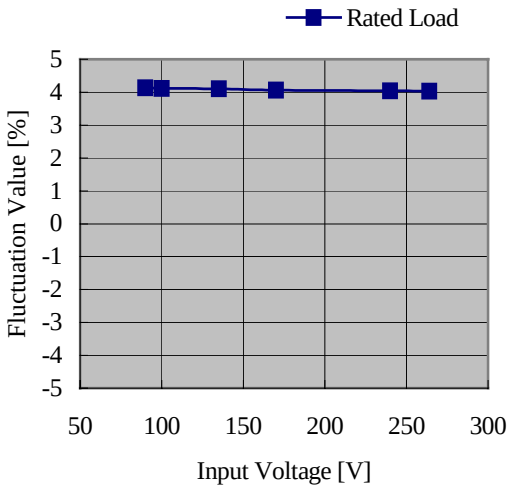
at AC Input

Input Voltage [V]	Output Voltage [V]	Fluctuation Value [%]
AC 90	5.121	2.42
100	5.121	2.42
240	5.121	2.42
264	5.121	2.42

Model	PCSM-100-X2S
Item	Line Regulation

V3：12V 1.5A

at AC Input

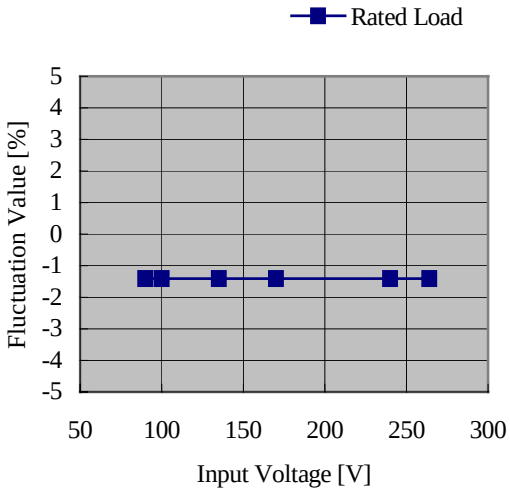


at AC Input

Input Voltage [V]	Output Voltage [V]	Fluctuation Value [%]
AC 90	12.496	4.13
100	12.494	4.12
240	12.485	4.04
264	12.484	4.03

V4：-12V 0.2A

at AC Input



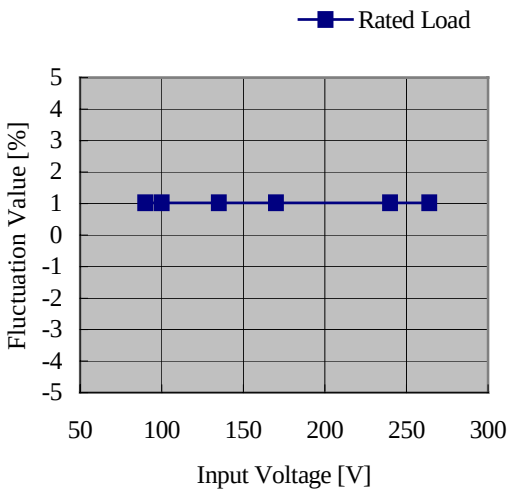
at AC Input

Input Voltage [V]	Output Voltage [V]	Fluctuation Value [%]
AC 90	-11.831	-1.41
100	-11.831	-1.41
240	-11.831	-1.41
264	-11.831	-1.41

Model	PCSM-100-X2S
Item	Line Regulation

V5：5Vs 0.72A

at AC Input

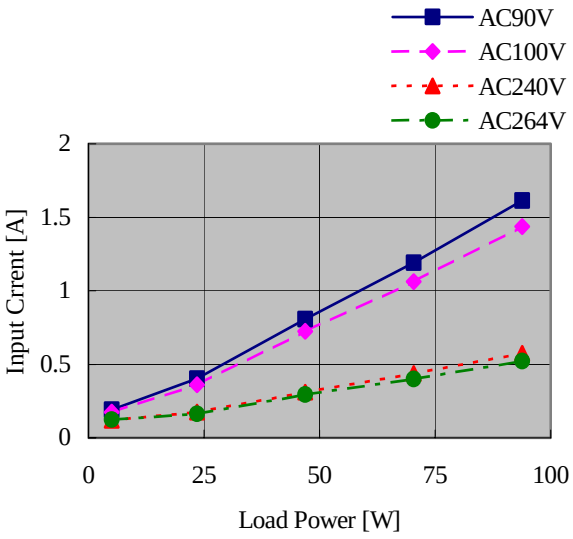


at AC Input

Input Voltage [V]	Output Voltage [V]	Fluctuation Value [%]
AC 90	5.051	1.02
100	5.051	1.02
240	5.051	1.02
264	5.051	1.02

Model	PCSM-100-X2S
Item	Input Current (by Load Power)

at AC Input

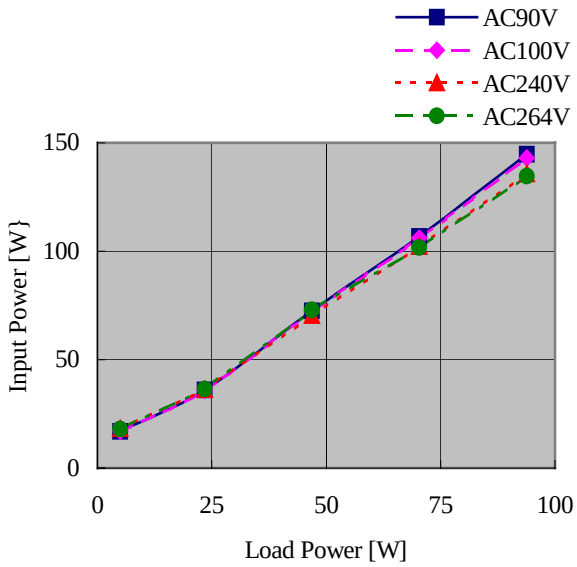


at AC Input

Load Power [W]	Input Current [A rms]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	0.19	0.17	0.12	0.12
23.45	0.40	0.36	0.17	0.16
46.9	0.81	0.72	0.31	0.29
70.35	1.19	1.06	0.44	0.40
93.8	1.61	1.44	0.57	0.52

Model	PCSM-100-X2S
Item	Input Power (by Load Power)

at AC Input

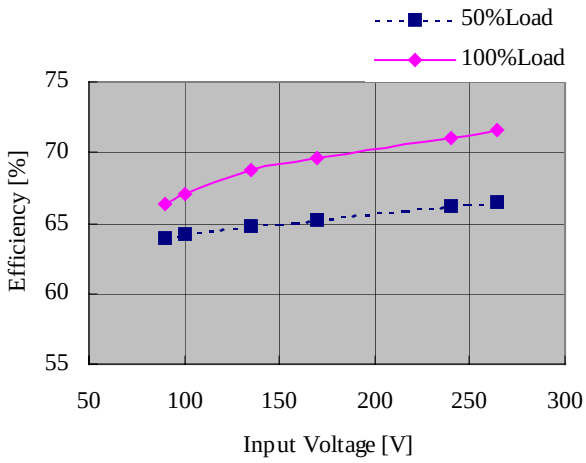


at AC Input

Load Power [W]	Input Power [W]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	16.90	16.94	18.19	18.00
23.45	36.08	35.93	36.15	36.55
46.9	72.57	72.15	70.38	72.98
70.35	106.88	105.99	102.23	101.75
93.8	144.74	143.02	135.77	134.61

Model	PCSM-100-X2S
Item	Efficiency(by Input Voltage)

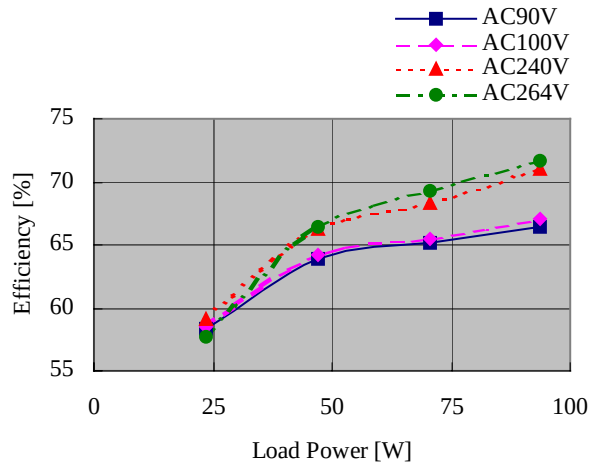
at AC Input



at AC Input

Input Voltage [V]	Efficiency [%]	
	50% Load	100% Load
90	63.87	66.42
100	64.23	67.12
240	66.25	70.96
264	66.49	71.63

at AC Input

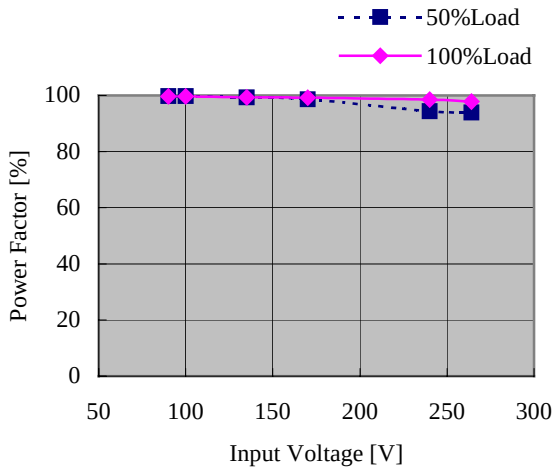


at AC Input

Load Power [W]	Efficiency [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
23.45	58.26	58.56	59.13	57.79
46.9	63.87	64.23	66.25	66.49
70.35	65.10	65.51	68.37	69.24
93.8	66.42	67.12	70.96	71.63

Model	PCSM-100-X2S
Item	Power Factor

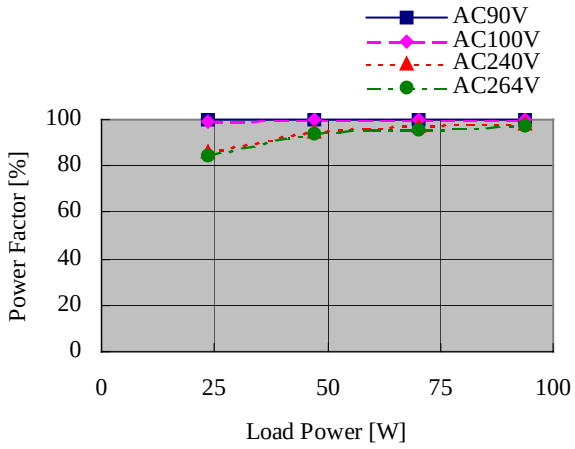
at AC Input



at AC Input

Input Voltage [V]	Power Factor [%]	
	50%Load	100% Load
90	99.81	99.70
100	99.72	99.61
240	94.44	98.47
264	94.00	97.83

at AC Input

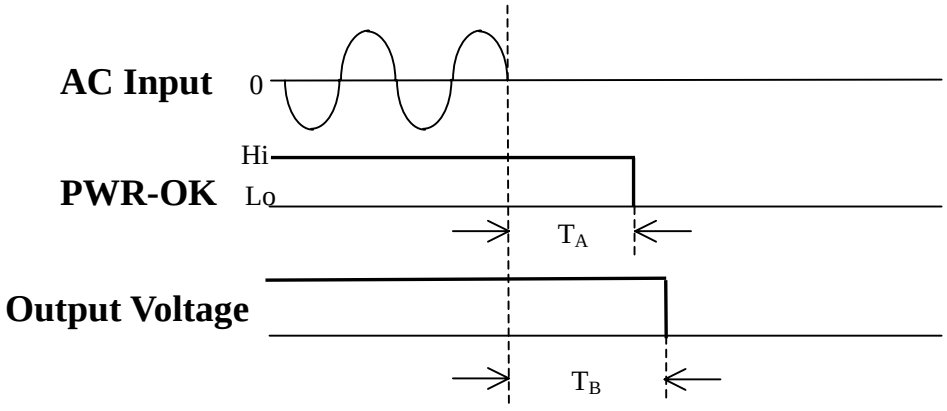


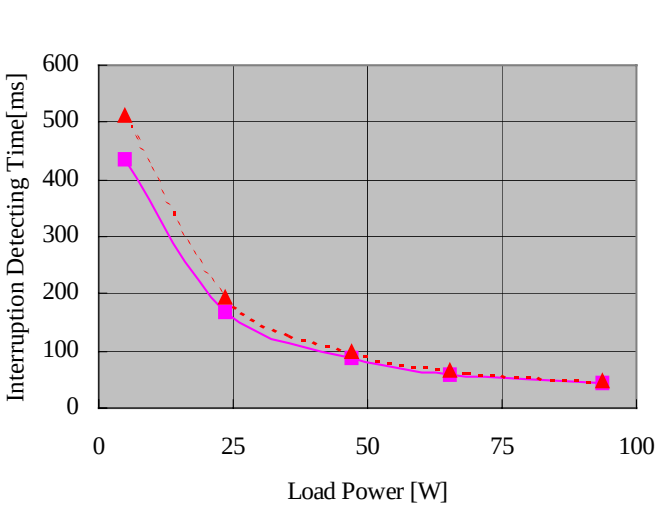
at AC Input

Load Power [W]	Power Factor [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
23.45	99.65	99.42	86.27	84.63
46.9	99.81	99.72	94.44	94.00
70.35	99.77	99.71	97.50	96.09
93.8	99.70	99.61	98.47	97.83

Model	PCSM-100-X2S	
Item	Instantaneous Interruption Compensation (by Load Power)	

at AC Input (90V / 100V / 240V / 264V)



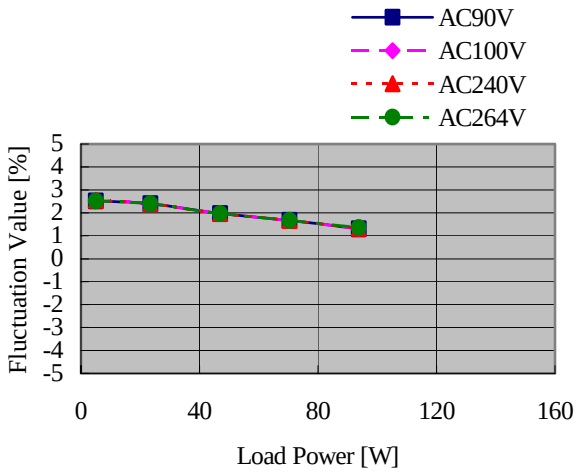


Load Power [W]	Interruption Detecting Time (ms)	
	PWR-OK T_A	DC Output T_B
5	435.04	512.58
23.45	169.16	195.48
46.9	88.60	100.50
65.25	58.44	66.24
93.8	43.76	49.24

Model	PCSM-100-X2S
Item	Load Regulation

V1：3.3V 6A

at AC Input



at AC Input

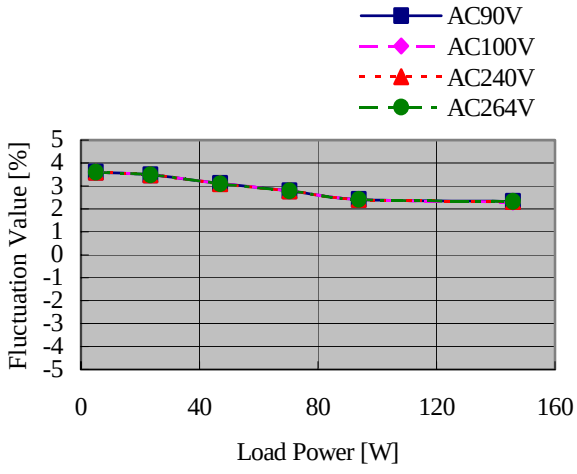
Load Power [W]	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	2.52	2.52	2.55	2.52
23.45	2.39	2.39	2.39	2.39
46.9	1.97	1.97	1.97	1.97
70.35	1.67	1.67	1.67	1.67
93.8	1.30	1.30	1.33	1.36

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
5	0	1	0	0	0
23.45	1.5	2.5	0.375	0.05	0.18
46.9	3	5	0.75	0.1	0.36
70.35	4.5	7.5	1.125	0.15	0.54
93.8	6	10	1.5	0.2	0.72

V2：5V 10A

at AC Input



at AC Input

Load Power [W]	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	3.60	3.60	3.60	3.60
23.45	3.48	3.48	3.48	3.48
46.9	3.12	3.12	3.10	3.10
70.35	2.78	2.78	2.78	2.78
93.8	2.42	2.42	2.42	2.42
145.8	2.32	2.30	2.32	2.32

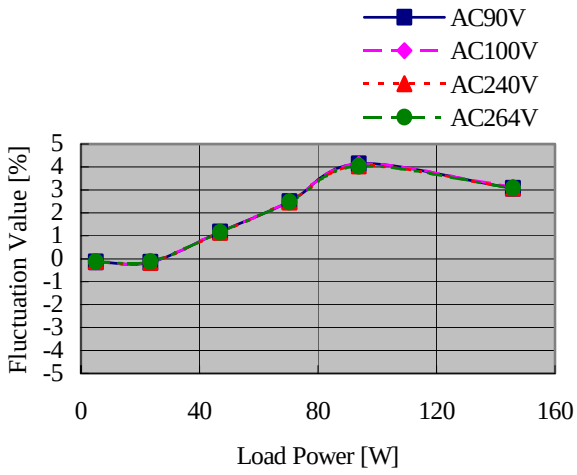
Load Condition

Load Power [W]	Load Current [A]				
	5V	3.3V	12V	-12V	5Vs
5	0	1	0	0	0
23.45	1.5	2.5	0.375	0.05	0.18
46.9	3	5	0.75	0.1	0.36
70.35	4.5	7.5	1.125	0.15	0.54
93.8	6	10	1.5	0.2	0.72
145.8	6	12	4.8	0.2	1.2

Model	PCSM-100-X2S
Item	Load Regulation

V3：12V 4.8A

at AC Input



at AC Input

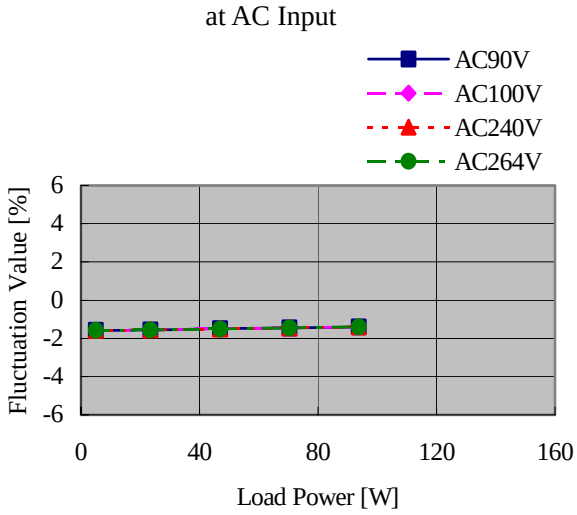
Load Power [W]	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	-0.14	-0.14	-0.13	-0.13
23.45	-0.15	-0.15	-0.15	-0.13
46.9	1.17	1.17	1.16	1.16
70.35	2.49	2.48	2.48	2.48
93.8	4.13	4.12	4.04	4.03
145.8	3.07	3.11	3.08	3.08

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
5	0	1	0	0	0
23.45	1.5	2.5	0.375	0.05	0.18
46.9	3	5	0.75	0.1	0.36
70.35	4.5	7.5	1.125	0.15	0.54
93.8	6	10	1.5	0.2	0.72
145.8	6	12	4.8	0.2	1.2

V4：-12V 0.2A

at AC Input



at AC Input

Load Power [W]	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	-1.58	-1.58	-1.58	-1.58
23.45	-1.57	-1.57	-1.57	-1.57
46.9	-1.49	-1.49	-1.50	-1.50
70.35	-1.45	-1.45	-1.45	-1.45
93.8	-1.41	-1.41	-1.41	-1.41

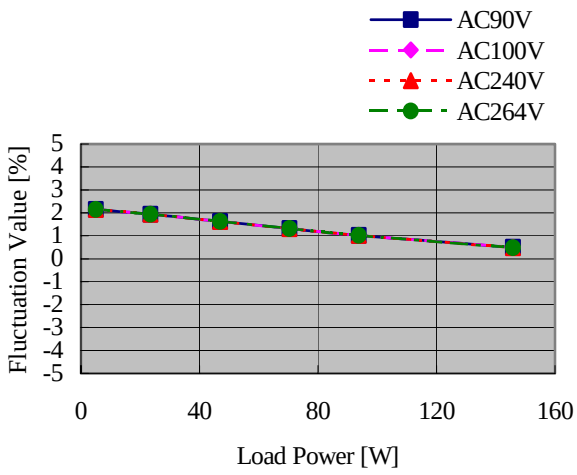
Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
5	0	1	0	0	0
23.45	1.5	2.5	0.375	0.05	0.18
46.9	3	5	0.75	0.1	0.36
70.35	4.5	7.5	1.125	0.15	0.54
93.8	6	10	1.5	0.2	0.72

Model	PCSM-100-X2S
Item	Load Regulation

V5∶5Vs 1.2A

at AC Input



at AC Input

Load Power [W]	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
5	2.14	2.14	2.14	2.14
23.45	1.94	1.94	1.94	1.94
46.9	1.62	1.62	1.62	1.62
70.35	1.32	1.32	1.32	1.32
93.8	1.02	1.02	1.02	1.02
145.8	0.50	0.50	0.48	0.48

Load Condition

Load Power [W]	Load Current [A]				
	3.3V	5V	12V	-12V	5Vs
5	0	1	0	0	0
23.45	1.5	2.5	0.375	0.05	0.18
46.9	3	5	0.75	0.1	0.36
70.35	4.5	7.5	1.125	0.15	0.54
93.8	6	10	1.5	0.2	0.72
145.8	6	12	4.8	0.2	1.2

Model	PCSM-100-X2S	
Item	Ripple / Noise Voltage Test	

		V1	3.3V	V2	5V	V3	12V
Temperature	Input Voltage	Ripple (mV) /	Noise (mV)	Ripple (mV) /	Noise (mV)	Ripple (mV) /	Noise (mV)
10℃	90 V	15 /	65	13 /	40	12 /	50
	100 V	15 /	65	13 /	40	12 /	50
	240 V	15 /	65	13 /	40	12 /	50
	264 V	15 /	65	13 /	40	12 /	50
25℃	90 V	12 /	60	9 /	35	12 /	45
	100 V	12 /	60	9 /	35	12 /	45
	240 V	12 /	60	9 /	35	12 /	45
	264 V	12 /	60	9 /	35	12 /	45
50℃	90 V	10 /	55	9 /	30	10 /	35
	100 V	10 /	55	9 /	30	10 /	35
	240 V	10 /	55	9 /	30	10 /	35
	264 V	10 /	55	9 /	30	10 /	35
Specification		50 /	100	50 /	100	120 /	170
Judgement		Good		Good		Good	

		V4	-12V	V5	5Vs
Temperature	Input Voltage	Ripple (mV) /	Noise (mV)	Ripple (mV) /	Noise (mV)
10℃	90 V	5 /	75	15 /	40
	100 V	5 /	75	15 /	40
	240 V	5 /	75	15 /	40
	264 V	5 /	75	15 /	40
25℃	90 V	5 /	75	15 /	40
	100 V	5 /	75	15 /	40
	240 V	5 /	75	15 /	40
	264 V	5 /	75	15 /	40
50℃	90 V	5 /	75	15 /	40
	100 V	5 /	75	15 /	40
	240 V	5 /	75	15 /	40
	264 V	5 /	75	15 /	40
Specification		120 /	170	50 /	100
Judgement		Good		Good	

Model	PCSM-100-X2S	
Item	Over-Current Protection	

Temperature	Input Voltage	V1 3.3V	V2 5V	V3 12V
10℃	90 V	8.0 A	16.8 A	7.1 A
	100 V	8.0 A	16.9 A	7.2 A
	240 V	8.0 A	16.9 A	7.2 A
	264 V	8.0 A	16.9 A	7.2 A
25℃	90 V	8.0 A	16.3 A	7.2 A
	100 V	8.0 A	16.3 A	7.2 A
	240 V	8.0 A	16.4 A	7.2 A
	264 V	8.0 A	16.4 A	7.3 A
50℃	90 V	8.1 A	17.4 A	7.4 A
	100 V	8.1 A	17.4 A	7.4 A
	240 V	8.0 A	17.4 A	7.4 A
	264 V	8.0 A	17.3 A	7.4 A
Specification		6.3A or More	12.6A or More	5A or More
Judgement		Good	Good	Good

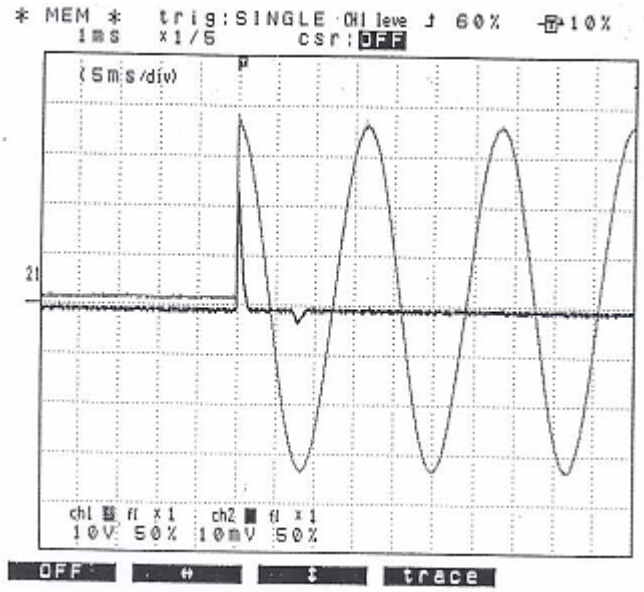
Temperature	Input Voltage	V4 -12V	V5 5VS
10℃	90 V	1.37 A	3.10 A
	100 V	1.45 A	3.10 A
	240 V	1.44 A	3.10 A
	264 V	1.45 A	3.10 A
25℃	90 V	0.98 A	3.20 A
	100 V	0.99 A	3.20 A
	240 V	0.99 A	3.20 A
	264 V	0.98 A	3.20 A
50℃	90 V	0.89 A	2.94 A
	100 V	0.91 A	2.94 A
	240 V	0.92 A	2.94 A
	264 V	0.92 A	2.94 A
Specification		0.3A or More	1.3A or More
Judgement		Good	Good

Model	PCSM-100-X2S	
Item	Over-Voltage Protection	

Temperature	Input Voltage	V1：3.3V	V2：5V
10℃	AC100V	4.0V	6.1V
	AC240V	4.0V	6.1V
25℃	AC100V	4.0V	6.1V
	AC240V	4.0V	6.1V
50℃	AC100V	4.0V	6.1V
	AC240V	4.0V	6.1V
Specification		3.7～4.3V	5.6～7.0V
Judgement		Good	Good

Model	PCSM-100-X2S	
Item	Inrush Current	

Inrush Current Wave



Wave No.1	
CH1	Measuring Point：Input Voltage
	Range 100V/DIV
CH2	Measuring Point：Input Current
	Range 20A/DIV
Time Line	5ms/DIV
Conditions	Input：AC240V 60Hz Load：Rated Load
Note： Inrush Current Value：47.2A	

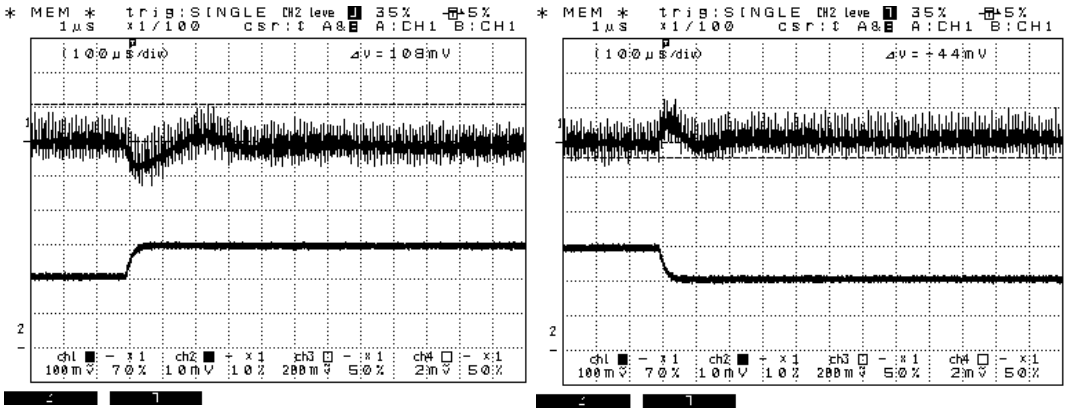
Model	PCSM-100-X2S	
Item	Dynamic Load Response	

V1：+3.3V 6A

4.2A ⇔ 6A

Output Voltage

Load Current



Sudden Fluctuation of Load	Fluctuation Value	SFX Specific Value	Judgement
70%Load→100% Load	108mV -128mV	±165mV	Good
100% Load→70% Load	124mV -44mV		Good

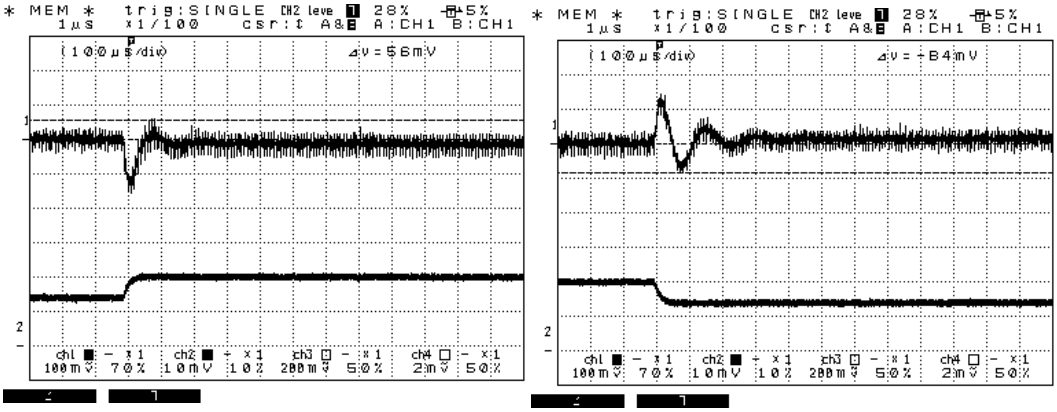
Model	PCSM-100-X2S	
Item	Dynamic Load Response	

V2：+5V 10A

7A ⇔ 10A

Output Voltage

Load Current



Sudden Fluctuation of Load	Fluctuation Value	ATX Specific Value	Judgement
70%Load→100% Load	56mV -156mV	±250mV	Good
100% Load→70% Load	144mV -84mV		Good

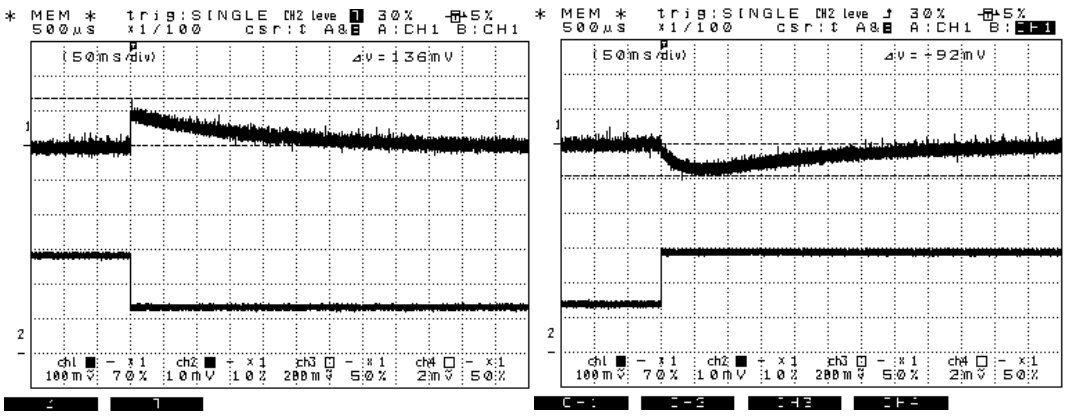
Model	PCSM-100-X2S	
Item	Dynamic Load Response	

V3：+12V 1.5A

0.75A ⇔ 1.5A

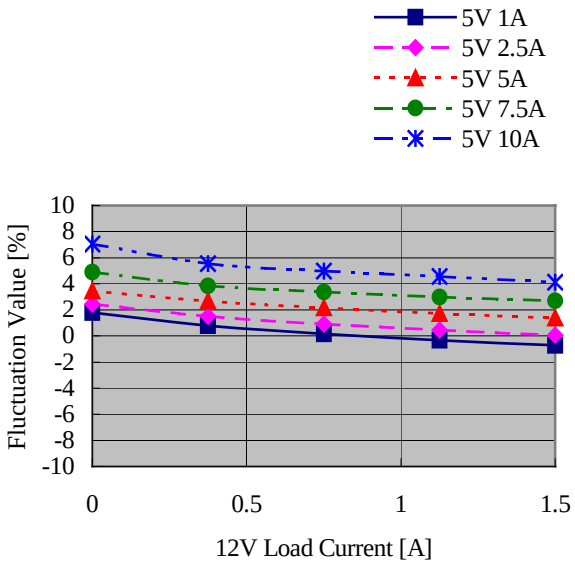
Output Voltage

Load Current



Sudden Fluctuation of Load	Fluctuation Value	ATX Specific Value	Judgement
50%Load→100% Load	— mV -136mV	±600mV	Good
100% Load→50% Load	92mV — mV		Good

Model	PCSM-100-X2S
Item	12V Cross Regulation

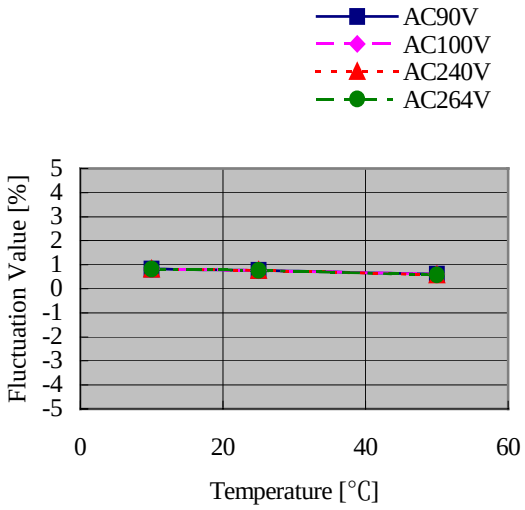


12V Load Current	12V Voltage Value [V]				
	5V 1A	5V 2.5A	5V 5A	5V 7.5A	5V 10A
0A	12.215	12.292	12.416	12.587	12.846
0.375A	12.096	12.181	12.322	12.462	12.667
0.75A	12.021	12.110	12.259	12.405	12.598
1.125A	11.962	12.055	12.208	12.360	12.548
1.5A	11.914	12.009	12.167	12.323	12.494

12V Load Current	Fluctuation Value [%]				
	5V 1A	5V 2.5A	5V 5A	5V 7.5A	5V 10A
0A	1.79	2.43	3.47	4.89	7.05
0.375A	0.80	1.51	2.68	3.85	5.56
0.75A	0.18	0.92	2.16	3.38	4.98
1.125A	-0.32	0.46	1.73	3.00	4.57
1.5A	-0.72	0.08	1.39	2.69	4.12

Model	PCSM-100-X2S
Item	Ambient Temperature Drift

V1：3.3V 6A

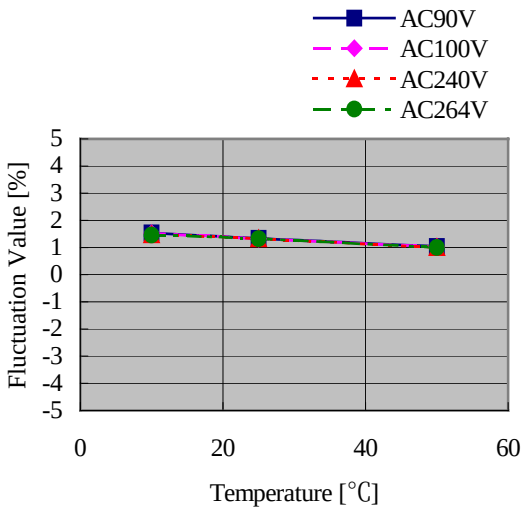


at AC Input

Temperature (℃)	Output Voltage [V]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	3.327	3.327	3.327	3.327
25	3.325	3.325	3.325	3.325
50	3.320	3.320	3.319	3.319

Temperature (℃)	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	0.82	0.82	0.82	0.82
25	0.76	0.76	0.76	0.76
50	0.61	0.61	0.58	0.58

V2：5V 10A



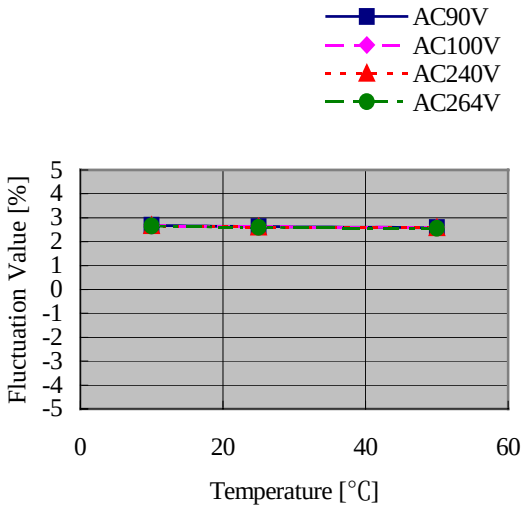
at AC Input

Temperature (℃)	Output Voltage [V]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	5.077	5.076	5.074	5.073
25	5.067	5.066	5.066	5.066
50	5.052	5.051	5.050	5.050

Temperature (℃)	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	1.54	1.52	1.48	1.46
25	1.34	1.32	1.32	1.32
50	1.04	1.02	1.00	1.00

Model	PCSM-100-X2S
Item	Ambient Temperature Drift

V3：12V 1.5A

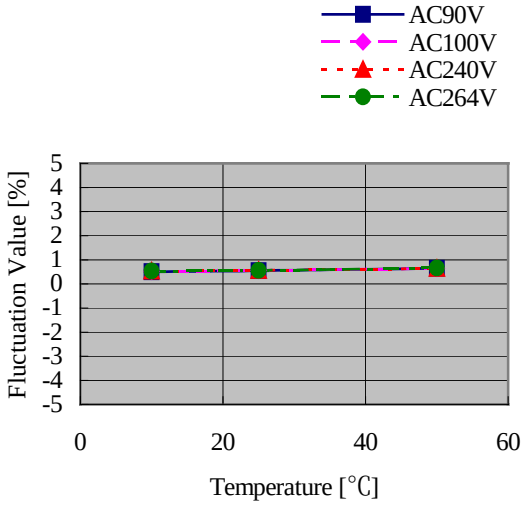


at AC Input

Temperature (℃)	Output Voltage [V]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	12.323	12.321	12.321	12.319
25	12.316	12.315	12.313	12.312
50	12.311	12.312	12.310	12.307

Temperature (℃)	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	2.69	2.68	2.68	2.66
25	2.63	2.62	2.61	2.60
50	2.59	2.60	2.58	2.56

V4：-12V 0.2A



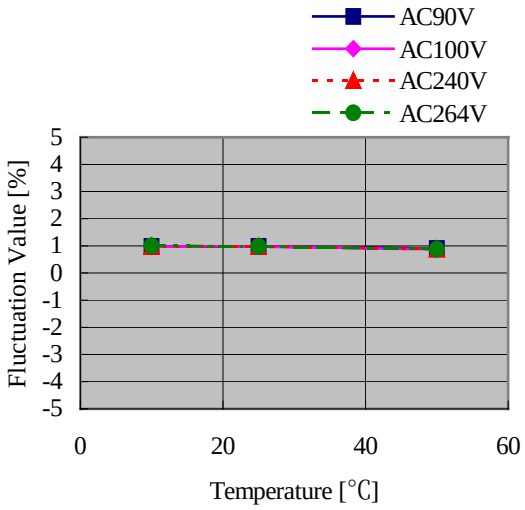
at AC Input

Temperature (℃)	Output Voltage [V]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	-12.061	-12.063	-12.064	-12.064
25	-12.066	-12.067	-12.067	-12.067
50	-12.078	-12.078	-12.078	-12.079

Temperature (℃)	Fluctuation Value [%]			
	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	0.51	0.52	0.53	0.53
25	0.55	0.56	0.56	0.56
50	0.65	0.65	0.65	0.66

Model	PCSM-100-X2S
Item	Ambient Temperature Drift

V5：5Vs 0.72A



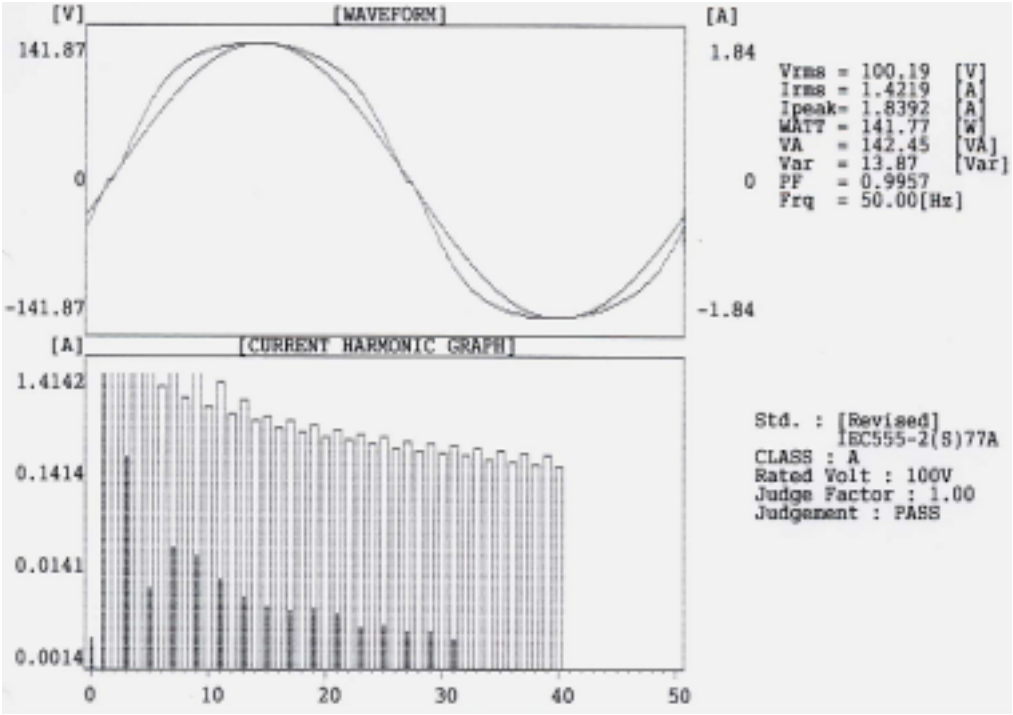
at AC Input

	Output Voltage [V]			
Temperature (℃)	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	5.049	5.049	5.049	5.050
25	5.049	5.049	5.049	5.049
50	5.045	5.044	5.044	5.044

	Fluctuation Value [%]			
Temperature (℃)	Input Voltage AC90V	Input Voltage AC100V	Input Voltage AC240V	Input Voltage AC264V
10	0.98	0.98	0.98	1.00
25	0.98	0.98	0.98	0.98
50	0.90	0.88	0.88	0.88

Model	PCSM-100-X2S	
Item	Harmonic Current	

Measuring Instrument ： MP701(Keisoku Giken)

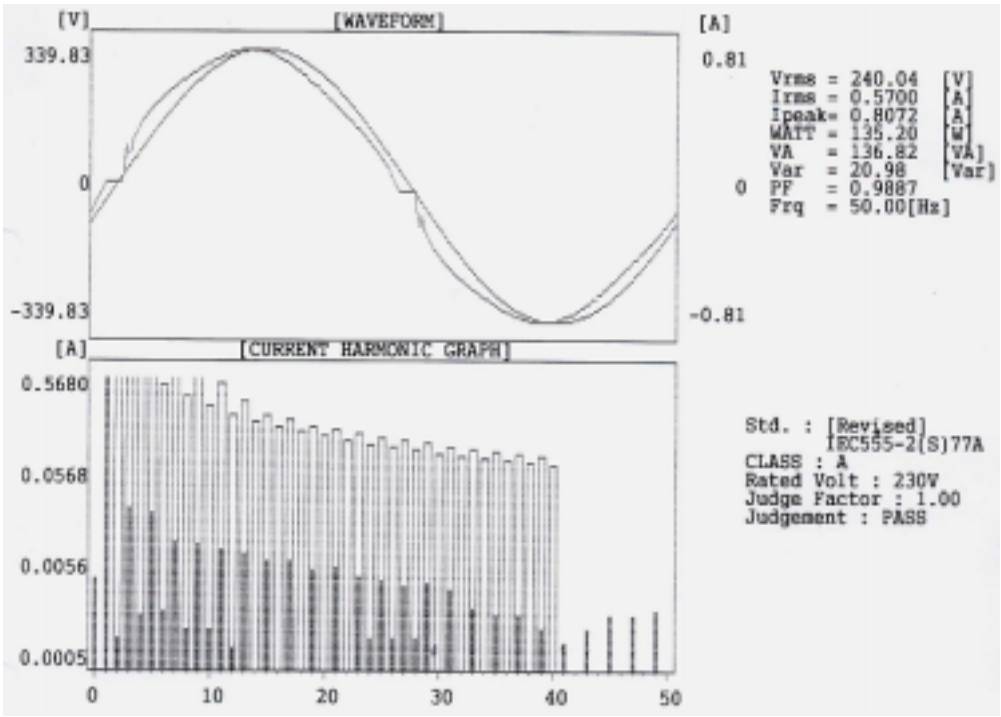


[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0018	13	0.0050	26	0.0002	39	0.0007
01	1.4142	14	0.0008	27	0.0021	40	0.0000
02	0.0009	15	0.0040	28	0.0002	41	0.0007
03	0.1323	16	0.0003	29	0.0022	42	0.0005
04	0.0013	17	0.0036	30	0.0000	43	0.0008
05	0.0063	18	0.0005	31	0.0019	44	0.0002
06	0.0009	19	0.0038	32	0.0002	45	0.0011
07	0.0165	20	0.0005	33	0.0012	46	0.0004
08	0.0005	21	0.0033	34	0.0000	47	0.0009
09	0.0130	22	0.0004	35	0.0009	48	0.0002
10	0.0009	23	0.0024	36	0.0000	49	0.0010
11	0.0078	24	0.0002	37	0.0009		
12	0.0009	25	0.0026	38	0.0002		

Model	PCSM-100-X2S	
Item	Harmonic Current	

Measuring Instrument ： MP701(Keisoku Giken)



[CURRENT HARMONIC DATA]

No	(A)	No	(A)	No	(A)	No	(A)
00	0.0033	13	0.0060	26	0.0008	39	0.0010
01	0.5680	14	0.0003	27	0.0028	40	0.0000
02	0.0008	15	0.0051	28	0.0008	41	0.0007
03	0.0171	16	0.0000	29	0.0029	42	0.0000
04	0.0014	17	0.0051	30	0.0005	43	0.0010
05	0.0156	18	0.0000	31	0.0025	44	0.0000
06	0.0015	19	0.0041	32	0.0000	45	0.0014
07	0.0079	20	0.0000	33	0.0016	46	0.0000
08	0.0010	21	0.0042	34	0.0000	47	0.0013
09	0.0075	22	0.0005	35	0.0013	48	0.0000
10	0.0010	23	0.0034	36	0.0000	49	0.0015
11	0.0067	24	0.0008	37	0.0014		
12	0.0006	25	0.0031	38	0.0002		

Model	PCSM-100-X2S	
Item	Leakage Current Test	

Temperature Room Temperature
Input AC100V、200V
Load Rated Load 、Minimum Load

Input Voltage (V)	at Rated Load (mA)	at Minimum Load (mA)
100V	0.42	0.29
200V	0.61	0.59

Measuring Instrument：YEW.TYPE3226 Applicable Products（ Range：1KΩ）

Model	PCSM-100-X2S	
Item	Line Noise Tolerance	

Temperature	Room Temperature
Input	AC100V,60Hz
Load	Rated Load
Noise Impressed Voltage	±1200V
Repeat Cycle	10～35ms
Pulse Width	50,1000ns

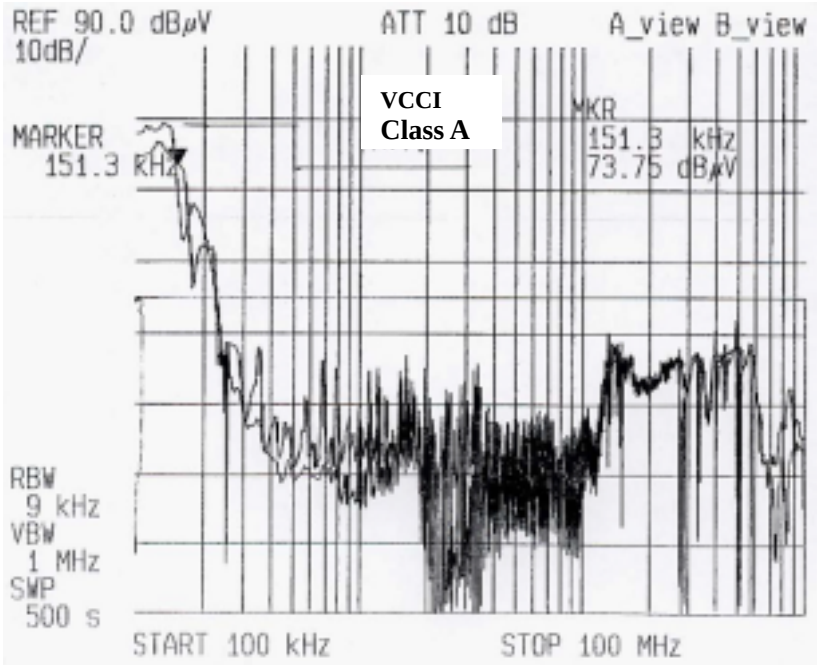
	Pulse Impressed Mode			
Normal	50ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	○	○	○	○
Common R Phase	Pulse Impressed Mode			
	50ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	○	○	○	○
Common S Phase	Pulse Impressed Mode			
	50ns		1000ns	
	Polarity +	Polarity -	Polarity +	Polarity -
	○	○	○	○

○→No Trouble
△→Faulty Operation of Over-Voltage and so on
×→Power Supply Breakdown

Measuring Instrument ： INS420 (Noise Laboratory Co.,Ltd.)

Model	PCSM-100-X2S	
Item	Conduction Emission	

Temperature	Room Temperature
Input	AC100V
Load	Rated Load
Measuring Point	L-FG
Measuring Instrument	R3261A (Advantest)



Model	PCSM-100-X2S	
Item	Conduction Emission	

Temperature	Room Temperature
Input	AC240V
Load	Rated Load
Measuring Point	L-FG、N-FG
Measuring Instrument	R3261A (Advantest)