# PHIHONG TECHNOLOGY CO., LTD.

SWITCHING POWER SUPPLY GROUP
TAIPEI TAIWAN R.O.C. FAX NO: 886-3-3185999

### GENERAL SPECIFICATION OF: PSMF05X-050Q-R (X=A,E)/PSMF05A-050QW-R

ISSUED: 2015/11/30

	ISSUED: 2015/11/3				
REVISION	ENG.	CHECK	CHECK	SAFETY	APP.
	DATE	DATE	DATE	DATE	DATE
A1	楊明雄	陳志宏	陳榮輝	黄茂洲	張遠順
AI	2015/12/04	2015/12/04	2015/12/07	2015/12/07	2015/12/07
A2	楊明雄	陳志宏	陳榮輝	翁敏蓮	張遠順
A2	2016/03/30	2016/03/30	2016/03/30	2016/03/31	2016/03/31
A3	楊明雄	陳志宏	陳榮輝	陳仲安	張遠順
AS	2016/07/29	2016/07/29	2016/07/29	2016/07/29	2016/07/30
1					

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SPECIFICATION	DWG NO.	PES13905		
	REVISION	A3	ISSUED DATE	2015/11/30

# **Reversion History**

Date	Rev.	Summary	Engineer
2015/11/30	A1	CHECK & ISSUE	Mars Yang
2016/03/29	A2	6. Test item and sequence in production: T2 MEASURE Output DC Voltage 4.94V to 5.25V change to 4.90V to 5.25V T3 MEASURE Output DC Voltage 5.00V to 5.25V change to 4.90V to 5.25V T2 & T3 Add Test Condition: DC Cord ( 20AWG 1200mm ) 5.2 Hi-Pot: Primary to secondary: 4250Vdc 1 min. <5mA or 3000Vac 1 min. <10mA Change to 4242Vdc 1 min. or 3000Vac 1 min. <10mA	Mars Yang
2016/07/22	A3	ADD Model: PSMF05A-050QW-R & Model information in item 6	Mars Yang
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1. Input

1.1 AC input voltage range: 90Vac~264 Vac
1.2 AC input rating: 100Vac~240 Vac
1.3 AC input Frequency: 47 ~ 63 Hz

1.4 AC input current: 0.2A (rms)Max@100Vac/230Vac, maximum load.

1.5 Max. In-rush current: 60A Max. @240Vac/50Hz, (Cold start at 25°C)

1.6 Leakage current: 20uA Max @240Vac/50Hz

2. Output characteristics:

2.1 Output voltage: 5.2V

2.2 Max. load current: 1 A .(CC MODE)

2.3 Output ripple current: 100mAp-p max. @ 1A

2.4 Min. load current: OA (CC MODE)

2.5 Output Voltage Regulation: 4.94V~5.25V @ No load End of USB connect

5V~5.25V @ Full load End of USB connect

b. 100mVp-p Max. @25°C at load 0A~0.5A.

\* Ripple & Noise test conditions:

Measurements shall be made with an oscilloscope with 20MHz (or over) Bandwidth.

Output should be bypassed at a connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor.

3. General characteristics:

3.1 Output power: 5.2 Watts continuous.

3.2 Efficiency: 73.92% Min. (Base on nameplate), DOE VI

Nameplate on label: Output Voltage 5.2 V

Output Current 1 A ±2%

Testing at 100%, 75%, 50%, 25% of rated current output and then computing the arithmetic average of these four values.

>60.7% Testing at 10% of rated current output.

Measure efficiency at 100% load after burn in 30min.

And measure efficiency test at 75%,50%,25% load after Burn

in 30min at 100% load.

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3.3 Power saving:	a. ≦75mW (	@ no load ,	230Vac/50Hz ,			
	b. Pin≤0.45\	W @ DC Po	ower 0.25W, 230Vac/5	0Hz		
3.4 Over Shoot:	5.72V max	(0A/1A)				
3.5 Dynamic Response:	Vmax=6.0	V, Vmin=4.	6V			
	Condition	1:				
	Rise rate=1	A/uS, Fall	rate=1A/uS			
	0A↔0.5A,	T High=5m	S, T low=295mS,			
	Condition 2	2:				
	0.5A↔1A,	T High=5m	S, T low=25mS,			
	Note:					
	If output drop less than 4.6V, the during shall less than 3ms					
	@ condition1.					
3.6 Turn On Delay time:	3 sec. max @ 100V/60Hz and 240V/50Hz					
3.7 Rise time:		nax @115Va				
3.8 Hold up time:		nin @100V	ac/60Hz			
3.9 Over current protection:	1.22A max.					
3.10 Over voltage protection:			ot exceed 7.5V			
		edback resis		$\mathcal{M}$		
3.11 Short Circuit protection:		Auto recovery and no component damage.  13140 hrs @25°C Ambient Temperature.				
3.12 EC cap. Life:		0Hz / 240V		7		
3.13 Acoustic performance:	a. Microphone at a distance of 10cm from the surface and noise					
<del>-</del>		ess than 20				
	b. Microph	one at a dis	tance of 3cm from the	surface and noise		
	level is l	ess than 25	dB			
3.15 Common mode noise:	Set EN610	000-4-6 test	environment, Test vo	ltage 3V,		
	150KHz~6	00KHz,Oso	eilloscope Channel set	on FET		
	mode, CM	N: 0.8V ma	х.			
3.16 MTBF:	Minimum	150K hours	(MIL-HDBK-217F) a	at full load		
	100VAC/60	0Hz and 24	0VAC/50Hz @ 25°C.			



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4. Environment:

4.1 Operating temperature:  $0^{\circ}$ C to 40  $^{\circ}$ C

Surface thermal  $\leq 60^{\circ}$ C at ambient 25°C @ 100Vac ~ 240Vac full load.

4.2 Storage Temperature:  $-30^{\circ}$ C to  $80^{\circ}$ C

4.3 Operating and Storage: relative humidity: 5~90% RH Max

4.4 Case Temperature rise The case temperature rise shall be  $\leq 35^{\circ}$ C at ambient  $25^{\circ}$ C.

5. Safety requirement:

UL/CUL,CB,NOM,BSMI,CTIA

5.1 EMS requirement:

1 EN 61000-4-2		ESD-Contact	±8KV	Criteria B
		ESD-Air	±15KV	Criteria B
2	EN 61000-4-3	RS	0.15MHz~80MHz Level: 3V/m	Criteria A
3	EN 61000-4-4	EFT	AC: ±1KV, 5/50 Tr/Th nS ;5KHz	Criteria B
			Level 30%,500mS	Criteria C
4	EN 61000-4-11	Dip	Level 95%,10mS	Criteria B
			Level 95%,5000m\$	Criteria C

(1) EMI:

EN55022 CLASS B

FCC | CLAS\$ B

Load without grounding

5.2 Hi-Pot:

Primary to secondary: 4242Vdc 1 min. or 3000Vac 1 min. <10mA

5.3 Insulation test:

Input to output: > 30M ohm. 500Vdc 1 min.

5.4 Surge test: Line to Line 1KV

5.5 Drop test: Test condition: Drop 30 times (5 times on each face) on

each cycles from a height of 36 inches onto a hardwood

surface. There must be no function damage after testing.

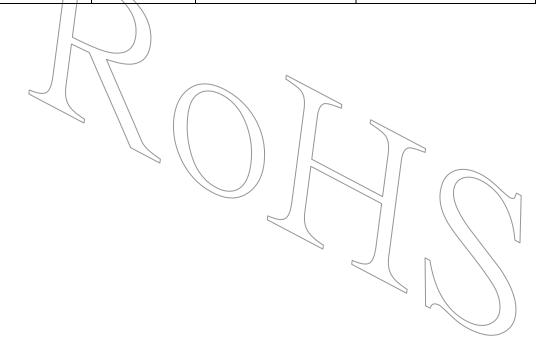
5.6 Dimension 38x38x27.5mm

5.7 USB Connector: Vertical Type

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## 6. Model information

Phihong P/N	Description	Reference model	Difference
PSMF05A-050Q-R	US plug		
PSMF05E-050Q-R	EU plug	PSMF05A-050Q-R	AC plug Bottom case
PSMF05A-050QW-R	US plug	PSMF05A-050Q-R	Top case & Bottom case change to white



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#### 7. Test item and sequence in production

#### START TEST:

(T1) Hi-POT test the unit at Pri to Sec. 3600Vac for 1 second, the current leakage requirement is 10 mA (max.)

(1) Set input power to 90Vac/50 Hz and go through (T2~T3).

(2) Set input power to 264Vac/50 Hz and go through (T2~T3).

(3) Set input power to 230Vac/50 Hz and go through (T4).

(4) Set input power to 230Vac/50 Hz and go through (T5).

(5) Set ambient to  $25 \,^{\circ}\text{C}$ 

(T2) CONNECTOR

Electronic Load (CC MODE)

SET LOAD \ Current 0A

MEASURE \ Output DC Voltage 4,90V to 5.25V

Output Voltage AC ripple

Ripple & noise should be less than 100 mVp-p

Test Condition: DC Cord (20AWG 1200mm)

(T3) CONNECTOR Electronic Load

SET LOAD Current 1.0A

MEASURE Output DC Voltage 4.90V to 5.25V

Output Voltage AC ripple

Ripple & noise should be less than 200mVp-p

Test Condition: DC Cord (20AWG 1200mm)

(T4) DISCONNECT Electronic Load

MEASURE - Power Saving, < 75mW

(T5) CONNECTOR Electronic Load

SET LOAD Current 1A

MEASURE Efficiency > 75%

