SPECIFICATION FOR

MODEL NO. : TN19-0060-24-1

60 WATTS SWITCHING POWER SUPPLY

RoHS DIRECTIVE 2011/65/EU & (EU)2015/863 COMPLIANT

PREPARED BY	CHECKED BY	APPROVED BY	REVISION	ISSUED DATE
Parker 2025-09-05	Dick 2025-09-05	Andy 2025-09-05	A3	2025-09-05

表單編號(電腦檔案)：RD-4-89A

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Rev	Description	Date
X1	Draft	2024-06-13
A0	Release to Production	2024-10-14
A1	12.0 DIMENSION Add outline diagram	2024-11-28
A2	4.1 OCP from 7Amax change to >5.5A 12.0 Update Dimension outline diagram	2025-04-07
A3	Remove Peak Load 3 times condiction	2025-09-05

1.0 INPUT:

1.1 VOLTAGE

MINIMUM	NOMINAL	MAXIMUM	UNITS
90	100-240	264	Vrms

1.2 FREQUENCY

47Hz ~ 63Hz

1.3 CURRENT

1.4Amp RMS Max for 100Vac.

1.4 INRUSH CURRENT

30Amp Max at 115Vac, 25℃ cold start
60Amp Max at 230Vac, 25℃ cold start
Hot start no damage

1.5 POWER EFFICIENCY

87%(min)at full load with 115Vac
87%(min)at full load with 230Vac

2.0 OUTPUT REQUIREMENTS

2.1 OUTPUT RATING

VOLTAGE	+24V
Max. load	2.5A
Min. load	0A
Line Regulation	±1%
Load Regulation	±5%
Ripple & Noise①	200mVpp

NOTE:

① A 0.1uF and 10uF capacitors should be put across output terminals during ripple & noise test. The oscilloscope bandwidth is set at 20 MHz and co-axial probe used for measurement.The test condition is Max Load.

2.2 OVERSHOOT

Overshoot at turn on shall be less than 10% of the nominal output voltage.

2.3 TURN-ON DELAY TIME

3sec(maximum) at input 115Vac

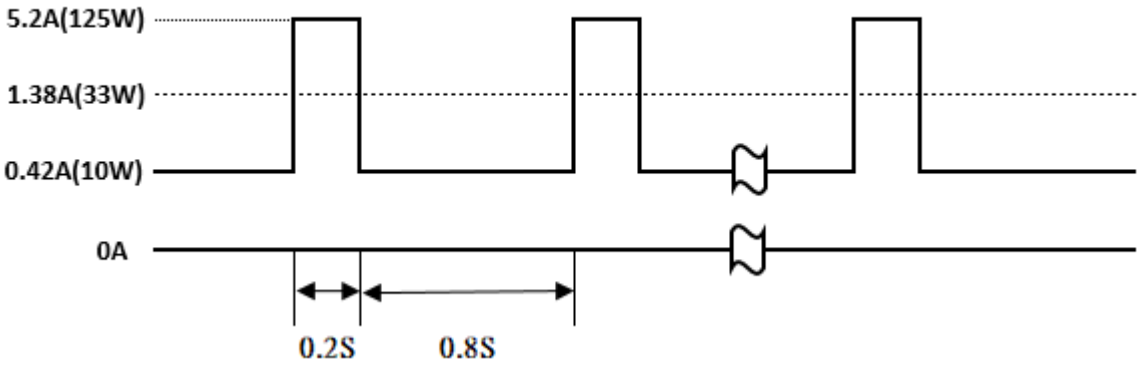
2.4 Output Dynamic Response

The following table gives the maximum acceptable voltage transient for the current transients on the output at 50Hz/1KHz.

Output	Minimum	Maximum	Slew rate	Transient Voltage
+24V	0.1A	1.25A	1A/uS	±5%
+24V	1.25A	2.5A	1A/uS	±5%

2.5 Peak current

During peak load testing, the transient voltage deviation of the 24V output does not exceed the range of 25.2V maximum to 20.4V minimum.



3.0 HOLD-UP TIME

16ms(minimum) at max.load, 115Vac/60Hz input.
16ms(minimum) at max.load, 230Vac/60Hz input.

4.0 PROTECTION:

4.1 OVER CURRENT PROTECTION & SHORT CIRCUIT PROTECTION

If power supply is protected. The power supply will Auto recovery.

OUTPUT	OVER CURRENT
+24V	>5.5 A

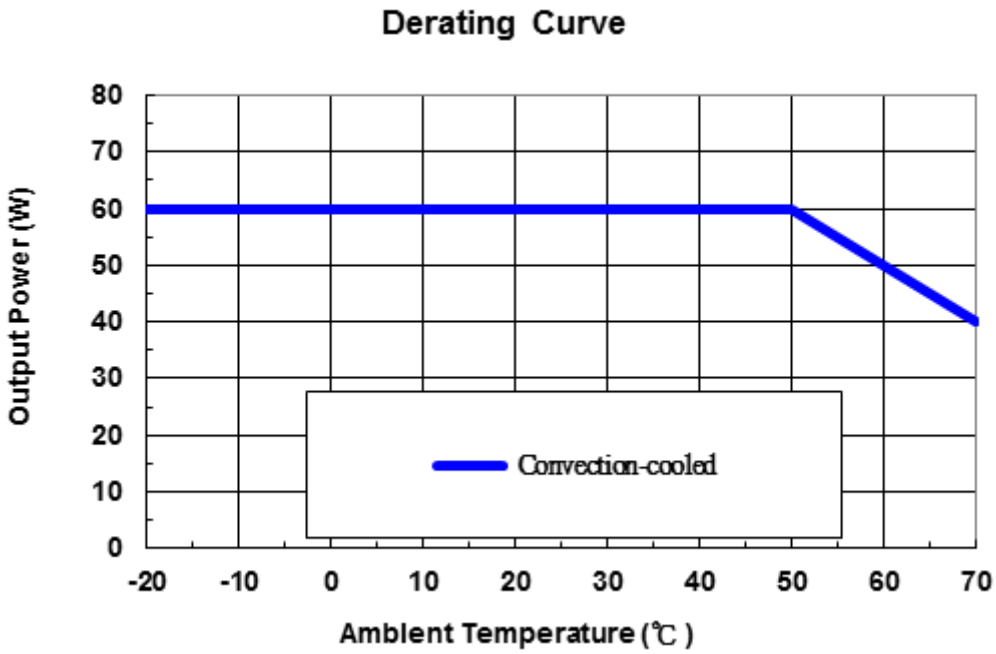
4.2 OVER VOLTAGE PROTECTION

If power supply is protected. The power supply will latch-off

OUTPUT	OVER VOLTAGE
+24V	26V～32V

5.0 ENVIRONMENT:

5.1 The output power de-rates above 50°C @1watts per °C.PSU could start up at -20℃ to 0℃, but some specification parameters like ripple & noise may not be met.



5.2 STORAGE TEMPERATURE -40℃ to +85℃

5.3 OPERATION TEMPERATURE -20℃ to +70℃

5.4 STORAGE RELATIVE HUMIDITY 0% to 90% (non-condensing)

5.5 OPERATION RELATIVE HUMIDITY 0% to 90% (non-condensing)

6.0 EMC REQUIREMENT

All EMC performance of the power supply is tested while assembled on a metal plate.

6.1 Conduction noise :
FCC Class B, EN55032 Class B
EMI can comply with Class I (with FG) and Class II (no FG) configurations.

6.2 Radiation noise :
FCC Class B, EN55032 Class B
EMI can comply with Class I (with FG) and Class II (no FG) configurations.

6.3 Surge : Line to Line : ±2KV, Line to Earth: ±4KV, criteria A, EN 61000-4-5.

6.4 ESD : Air electrostatic discharge ±15KV, criteria A
Contact electrostatic discharge ±8KV,criteria A
EN 61000-4-2.
6.5 EFT : ±2KV, EN 61000-4-4.

6.6 Power frequency magnetic field test EN 61000-4-8.

6.7 Voltage dips EN 61000-4-11.

7.0 SAFETY REQUIREMENTS

Meet:
(1) UL/cUL UL62368-1
(2) EN62368-1 2nd Edition
(3) IEC60950-1 / IEC62368 2nd Edition

8.0 RELIABILITY

8.1 MTBF
The power will be designed for a minimum life of 100,000 hours at 115Vac 25℃ and Max load by Telcordia SR-332,issue 2.

8.2 LIFE EXPECTANCY:4 years (35040 hours) for 100VAC input, 60W at 50°C input air temperature for the PSU (and system)

8.3 VIBRATION (Operating)

10~55Hz, 1.0mm,15 minutes per cycle for each axis(X,Y,Z)

9.0 HI-POT TEST

9.1 INPUT TO SECONDARY	3000Vac for 1 minute ,10mAMax.
9.2 INPUT TO P.E	1500Vac for 1 minute ,10mAMax

10.0 INSULATION RESISTANCE

INPUT TO SECONDARY	>50Mohm 500Vdc.

11.0 TOUCH CURRENT

The leakage currents when measured for class I, shall be less than 3.5mA. Leakage current measurement shall be done at operated maximum input voltage and maximum load.

12.0 DIMENSION

2"x4"x1.1" (WxLxH)

Outline diagram