PAW/PBW SERIES

2-3W WIDE INPUT RANGE

AvivEnergy tech ltd.

FEATURES

- LEAD FREE
- 1500-3000VDC ISOLATION
- SINGLE IN LINE PACKAGE
- UP TO 2-3W REGULATED OUTPUT POWER
- NO EXTERNAL COMPONENTS REQUIRED
- INTERNAL FILTERING
- 100% BURNED IN
- HIGH EFFICIENCY
- UL 94-V0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE
- RoHS COMPLIANT

OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy	+/-2% max
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise(20MHz BW)[1]	Output=3.3V 50mVp-p max
Line Regulation[2]	+/-0.5% max
Load Regulation[3]	+/-0.5% typ
Minimum Load	20% of Full Load
Short Circuit Protection	Continuous
Short Circuit Restart	Automatic
Over Load Protection	150% Typ

INPUT SPECIFICATIONS

Input Voltage Range	2:1 or 4:1 Input Range
Input Filter	Capacitor Type
Protection	Fuse Recommended

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GENERAL SPECIFICATIONS

Efficiency	70% min
Isolation Voltage[4]	1500VDC or 3000VDC min
Isolation Resistance	10^9 ohms min
Isolation Capacitance	80pF max
Switching Frequency	100 KHz min
MTBF[5]	>900,000 Hours
Weight	4.8g Typ
Case Material	Non-Conductive Plastic
Case Size	21.80mm*9.20mm*11.10mm
Potting Material	Epoxy(UL94-V0)
Conducted Emissions	EN55022 Class B
Radiated Emissions	EN55022 Class B

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°C to +71°C
Case Temperature	+95°C max
Storage Temperature	-55°C to +105°C
Humidity	95% max
Cooling	Free-Air Convection

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD , AND 25°C UNLESS OTHERWISE NOTED.

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[1] *Measured with 1uF ceramic capacitor connect to the output pins.*
[2] *High Line to Low Line.*
[3] *Load Regulation is for output load current change from 20% to 100%.*
[4] *1500VDC for 10 seconds,3000VDC for 3 seconds.*
[5] *MIL-HDBK-217F @25 °C , Ground Benign.*

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● SELECTION GUIDE(1)
2W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[6] CURRENT(mA)		EFF (%)[7]	ISOLATION[8] (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
PAWS-0503.3(-3K)	4.5-9	3.3	500	516	50	64	1500(3000)	H
PAWS-0505(-3K)	4.5-9	5	400	555	50	72	1500(3000)	H
PAWS-0509(-3K)	4.5-9	9	222	540	50	74	1500(3000)	H
PAWS-0512(-3K)	4.5-9	12	150	500	50	72	1500(3000)	H
PAWS-0515(-3K)	4.5-9	15	120	500	50	72	1500(3000)	H
PAWS-1203.3(-3K)	9-18	3.3	500	205	30	67	1500(3000)	H
PAWS-1205(-3K)	9-18	5	400	215	20	78	1500(3000)	H
PAWS-1209(-3K)	9-18	9	222	225	20	74	1500(3000)	H
PAWS-1212(-3K)	9-18	12	168	209	20	80	1500(3000)	H
PAWS-1215(-3K)	9-18	15	133	209	20	80	1500(3000)	H
PAWS-1224(-3K)	9-18	24	83	213	20	78	1500(3000)	H
PAWD-1205	9-18	+/-5	+/-200	225	20	74	1500	H
PAWD-1212	9-18	+/-12	+/-83	225	20	74	1500	H
PAWD-1215	9-18	+/-15	+/-67	225	20	74	1500	H
PAWS-2403.3(-3K)	18-36	3.3	500	98	12	71	1500(3000)	H
PAWS-2405(-3K)	18-36	5	400	110	12	76	1500(3000)	H
PAWS-2409(-3K)	18-36	9	222	111	13	75	1500(3000)	H
PAWS-2412(-3K)	18-36	12	168	104	11	80	1500(3000)	H
PAWS-2415(-3K)	18-36	15	133	105	11	79	1500(3000)	H
PAWS-2424(-3K)	18-36	24	83	107	11	78	1500(3000)	H
PAWD-2405	18-36	+/-5	+/-200	112	12	74	1500	H
PAWD-2412	18-36	+/-12	+/-83	112	12	74	1500	H
PAWD-2415	18-36	+/-15	+/-67	112	12	74	1500	H
PAWS-4803.3(-3K)	36-75	3.3	500	52	8	67	1500(3000)	H
PAWS-4805(-3K)	36-75	5	400	56	8	74	1500(3000)	H
PAWS-4809(-3K)	36-75	9	222	55	8	75	1500(3000)	H
PAWS-4812(-3K)	36-75	12	168	51	8	82	1500(3000)	H
PAWS-4815(-3K)	36-75	15	133	54	8	77	1500(3000)	H
PAWS-4824(-3K)	36-75	24	83	54	8	77	1500(3000)	H
PAWD-4805	36-75	+/-5	+/-200	56	8	74	1500	H
PAWD-4812	36-75	+/-12	+/-83	54	8	77	1500	H
PAWD-4815	36-75	+/-15	+/-67	54	8	77	1500	H

Note: Other input to output voltages may be available. Please contact factory

FOR EXAMPLE: ***PAWS-1205***

(H PACKAGE 2W SINGLE OUTPUT 1000VDC ISOLATION)

PAWS-1205-3K

(H PACKAGE 2W SINGLE OUTPUT 3000VDC ISOLATION)

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[6] *NOMINAL INPUT VOLTAGE.*
[7] *NOMINAL INPUT VOLTAGE, FULL LOAD.*
[8] *1500VDC for 10 seconds,3000VDC for 3 seconds.*

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SELECTION GUIDE(2)
2W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[9] CURRENT(mA)		EFF (%)[10]	ISOLATIO N[11] (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
PAWS-0503.3J	4.5-9	3.3	500	516	50	64	1500	J
PAWS-0505J	4.5-9	5	400	602	50	66	1500	J
PAWS-0509J	4.5-9	9	222	540	50	74	1500	J
PAWS-0512J	4.5-9	12	150	500	50	72	1500	J
PAWS-0515J	4.5-9	15	120	500	50	72	1500	J
PAWS-1203.3J	9-18	3.3	500	205	30	67	1500	J
PAWS-1205J	9-18	5	400	222	20	75	1500	J
PAWS-1209J	9-18	9	222	225	20	74	1500	J
PAWS-1212J	9-18	12	168	213	20	78	1500	J
PAWS-1215J	9-18	15	133	213	20	78	1500	J
PAWS-1224J	9-18	24	83	213	20	78	1500	J
PAWS-2403.3J	18-36	3.3	500	98	12	71	1500	J
PAWS-2405J	18-36	5	400	112	12	74	1500	J
PAWS-2409J	18-36	9	222	111	13	75	1500	J
PAWS-2412J	18-36	12	168	107	11	78	1500	J
PAWS-2415J	18-36	15	133	107	11	78	1500	J
PAWS-2424J	18-36	24	83	107	11	78	1500	J
PAWS-4803.3J	36-75	3.3	500	52	8	67	1500	J
PAWS-4805J	36-75	5	400	56	8	74	1500	J
PAWS-4809J	36-75	9	222	55	8	75	1500	J
PAWS-4812J	36-75	12	168	54	8	77	1500	J
PAWS-4815J	36-75	15	133	54	8	77	1500	J
PAWS-4824J	36-75	24	83	54	8	77	1500	J

Note: Other input to output voltages may be available. Please contact factory.

[9] *NOMINAL INPUT VOLTAGE.*
[10] *NOMINAL INPUT VOLTAGE, FULL LOAD.*
[11] *1500VDC for 10 seconds,3000VDC for 3 seconds.*

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SELECTION GUIDE(3)
2W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[12] CURRENT(mA)		EFF (%)[13]	ISOLATION[14] (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
PAWS-1203.3T	9-36	3.3	500	205	30	70	1500	H
PAWS-1205T	9-36	5	400	222	20	74	1500	H
PAWS-1209T	9-36	9	222	225	20	74	1500	H
PAWS-1212T	9-36	12	165	213	20	78	1500	H
PAWS-1215T	9-36	15	133	213	20	78	1500	H
PAWS-1224T	9-36	24	83	213	20	78	1500	H
PAWD-1215T	9-36	+/-15	+/-67	220	20	76	1500	H
PAWS-2403.3T	18-75	3.3	500	98	12	70	1500	H
PAWS-2405T	18-75	5	400	112	12	74	1500	H
PAWS-2409T	18-75	9	222	112	13	74	1500	H
PAWS-2412T	18-75	12	165	107	11	78	1500	H
PAWS-2415T	18-75	15	133	107	11	78	1500	H
PAWS-2424T	18-75	24	83	107	11	78	1500	H

Note: Other input to output voltages may be available. Please contact factory

[12] *NOMINAL INPUT VOLTAGE.*
[13] *NOMINAL INPUT VOLTAGE, FULL LOAD.*
[14] *1500VDC for 10 seconds,3000VDC for 3 seconds.*

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SELECTION GUIDE(4)
3W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[15] CURRENT(mA)		EFF (%)[16]	ISOLATION[17] (VDC)	PACKAGE
				FULL LOAD	NO LOAD			
PBWS-0503.3	4.5-9	3.3	700	641	100	72	1500	H
PBWS-0505	4.5-9	5	600	800	100	75	1500	H
PBWS-0509	4.5-9	9	333	778	100	77	1500	H
PBWS-0512	4.5-9	12	250	779	100	77	1500	H
PBWS-0515	4.5-9	15	200	779	100	77	1500	H
PBWD-0505	4.5-9	+/-5	+/-300	789	100	76	1500	H
PBWD-0512	4.5-9	+/-12	+/-125	779	100	77	1500	H
PBWD-0515	4.5-9	+/-15	+/-100	779	100	75	1500	H
PBWS-1203.3	9-18	3.3	700	263	45	73	1500	H
PBWS-1205	9-18	5	600	336	45	74	1500	H
PBWS-1209	9-18	9	333	320	45	78	1500	H
PBWS-1212	9-18	12	250	320	45	78	1500	H
PBWS-1215	9-18	15	200	310	45	81	1500	H
PBWD-1205	9-18	+/-5	+/-300	324	45	77	1500	H
PBWD-1212	9-18	+/-12	+/-125	320	45	78	1500	H
PBWD-1215	9-18	+/-15	+/-100	320	45	78	1500	H
PBWS-2405	18-36	5	600	162	20	77	1500	H
PBWS-2409	18-36	9	333	158	20	79	1500	H
PBWS-2412	18-36	12	250	158	20	79	1500	H
PBWS-2415	18-36	15	200	154	20	81	1500	H
PBWD-2405	18-36	+/-5	+/-300	162	20	77	1500	H
PBWD-2412	18-36	+/-12	+/-125	158	20	79	1500	H
PBWD-2415	18-36	+/-15	+/-100	158	20	79	1500	H
PBWS-4803.3	36-75	3.3	700	66	12	73	1500	H
PBWS-4805	36-75	5	600	81	12	77	1500	H
PBWS-4809	36-75	9	333	80	12	78	1500	H
PBWS-4812	36-75	12	250	79	12	79	1500	H
PBWS-4815	36-75	15	200	76	12	82	1500	H
PBWD-4805	36-75	+/-5	+/-300	81	12	77	1500	H
PBWD-4812	36-75	+/-12	+/-125	79	12	79	1500	H
PBWD-4815	36-75	+/-15	+/-100	79	12	79	1500	H

[15] *NOMINAL INPUT VOLTAGE.*
[16] *NOMINAL INPUT VOLTAGE, FULL LOAD.*
[17] *1500VDC for 10 seconds,3000VDC for 3 seconds.*

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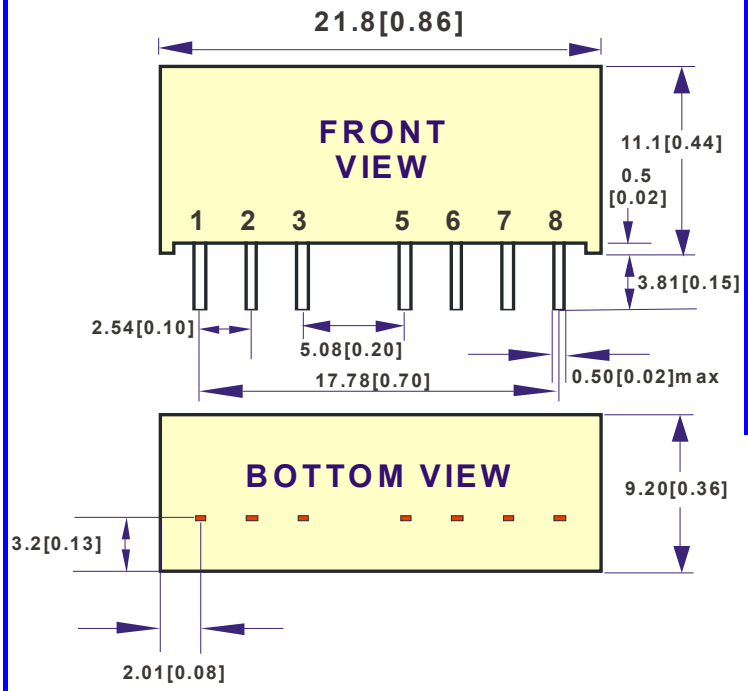
MECHANICAL DIMENSIONS(1) & RECOMMENDED FOOTPRINT DETAILS

PACKAGE "H"



All dimensions are in mm[inches]

PIN	SINGLE	DUAL
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote On/Off	Remote On/Off
5	NC	NC
6	+Vout	+Vout
7	-Vout	Com
8	NC	-Vout

NOTE:Pin Size is Tolerance 0.50Φ ±0.05mm

All Dimensions In mm(Inches)

Tolerance .X or .XX= ±0.5mm

Remote On/Off Control

Parameter	Min	Max
Supply On	Under 1 VDC or Open Circuit	
Supply Off	4VDC	
Standby Input Current		0.2mA
Control Input Current(On)		-0.4mA
Control Input Current(Off)		1mA
Control Common	Refernced to -Vin (pin 1)	

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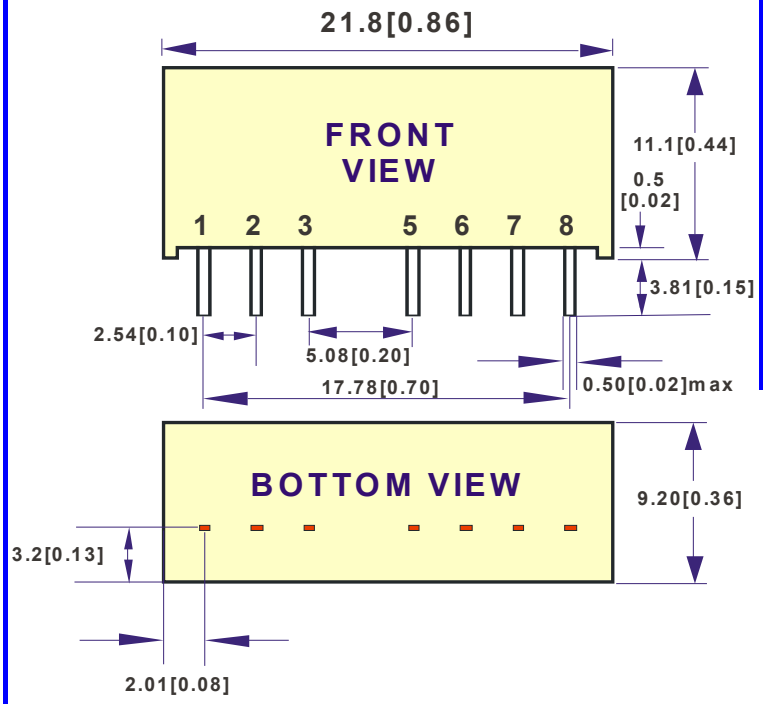
MECHANICAL DIMENSIONS(2) & RECOMMENDED FOOTPRINT DETAILS

PACKAGE "J"



PIN	SINGLE
1	-Vin
2	+Vin
3	Remote On/Off
5	NC
6	+Vout
7	-Vout
8	CS[18]

NOTE:Pin Size is Tolerance 0.50Φ ±0.05mm

All Dimensions In mm(Inches)

Tolerance .X or .XX= ±0.5mm

All dimensions are in mm[inches]

Remote On/Off Control

Parameter	Min	Max
Supply On	Under 1 VDC or Open Circuit	
Supply Off	4VDC	
Standby Input Current		0.2mA
Control Input Current(On)		-0.4mA
Control Input Current(Off)		1mA
Control Common	Refernced to -Vin (pin 1)	

[18] *Additional capacitance can be added from this pin to pin7. Any lower ESR capacitor will remove ripple and noise to some degree. The desired ripple figure. Values can be up to100μF.*

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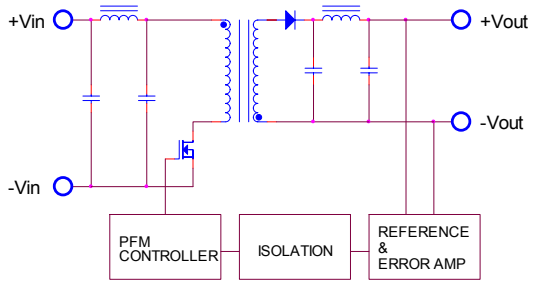
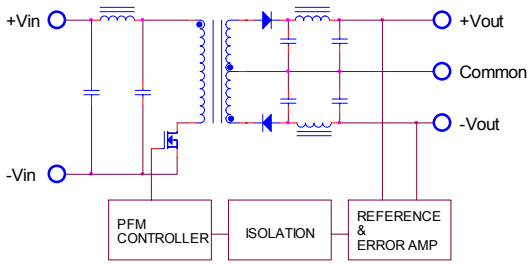
SIMPLIFIED SCHEMATIC

SINGLE OUTPUT

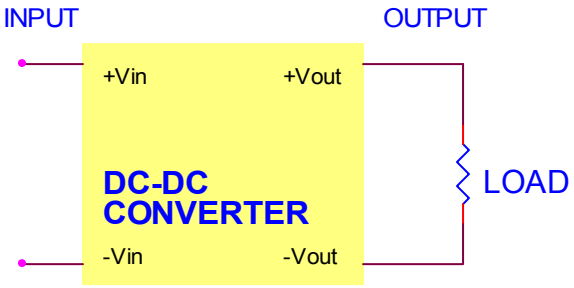


DUAL OUTPUT

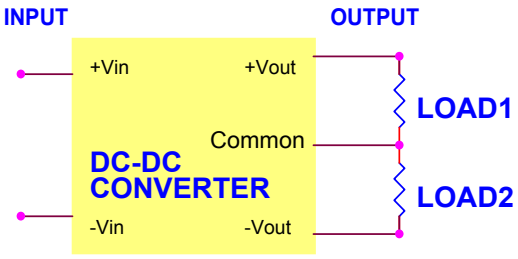


TYPICAL APPLICATIONS

SINGLE OUTPUT



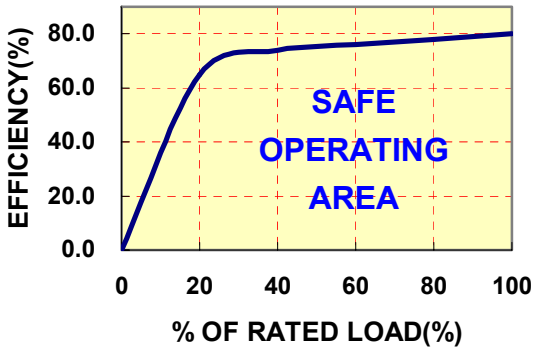
DUAL OUTPUT



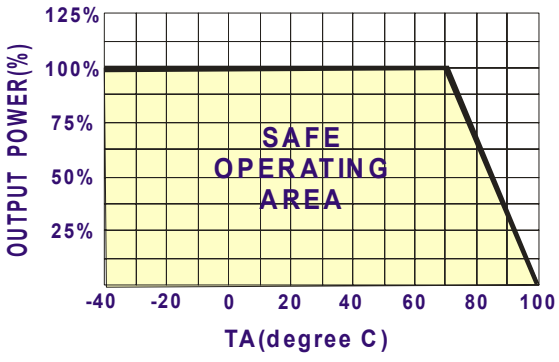
TYPICAL PERFORMANCE CURVES

Specifications typical at TA=25°C, nominal input voltage , rated output current unless otherwise specified.

OUTPUT LOAD VS EFFICIENCY



TEMPERATURE DERATING



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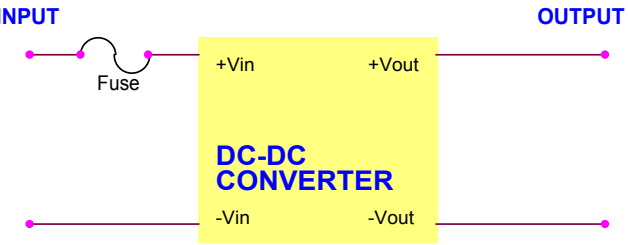
● INPUT FUSE SELECTION GUIDE

4.5-9V INPUT VOLTAGE(VDC)	9-18V INPUT VOLTAGE(VDC)	18-36V INPUT VOLTAGE(VDC)	36-75V INPUT VOLTAGE(VDC)
2000mA Slow-Blow Type	1000mA Slow-Blow Type	500mA Slow-Blow Type	200mA Slow-Blow Type



Note: Certain applications may require the installation of external fuse in front of the input.

PAW/PBW SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

No external capacitance is required for operation of the PAW/PBW series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 100KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 220uF.

We Can Offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting –OUT as the negative output.

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