

# P30WG-xxxxE/Z/D4:1LF



## PMTW-SERIES

Rev.11-2009

- ✓ 30 Watt
- ✓ 4:1 Ultra Wide Input
- ✓ 2" x 1" Metal Case
- ✓ 1.6 kV DC I/O Isolation
- ✓ Regulated Output
- ✓ **Single, Dual and Triple Output**
- ✓ Continuous Short Circuit Prot.

The PMTW series P30WG-xxxxE/Z/D4:1LF is a family of cost effective 30W, single, dual and triple output DC-DC converters with an ultra wide input range of 4:1. These converters are encapsulated in nickel coated brass 2"x1" case with high performance features: 1600VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation, over current protection, over voltage protection, over temperature protection, high efficiency operation and soft start.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

### Input Specifications

Voltage Range	4:1 Ultra Wide Input (see table)
Input Filter	PI Type
Input Reflected Ripple Current <sup>1</sup>	20 mA pk-pk
Start up Time (Nom. Vin and constant resistive load)	30mS, typ.

### Output Specifications

Voltage Accuracy	± 1% (main out) ± 5% (AUX - for triple output)
Voltage Adjustability (only Single Output)	± 10%, max.
Short Circuit Protection	Indefinite (hiccup, automatic recovery)
Over Load Protection	150% of FL, typ.
Line Regulation	± 0.5% (single&dual) ±1% / ±5% (triple main / aux)
Load Regulation (0% - 100%) / Triple (10% - 100%)	± 0.5% (single) ±1% / ±5% (dual & triple main / aux)
Cross Regulation <sup>3</sup>	± 5% (dual & triple)
Ripple&Noise (20Mhz bandwidth / 1.0uF – pk-pk)	100 mV (single&dual) 50 / 75mV (triple: main / aux)
Temperature Coefficient	± 0.02% / °C
Transient Recovery Time <sup>4</sup>	250us, typ.
Transient Response Deviation <sup>4</sup>	± 3%, max.

### General Specifications

I/O Isolation Voltage (3 sec.)	1600 VDC
I/O Isolation Capacitance	1500 pF, typ.
I/O Isolation Resistance	1000 M Ohm, min.
Switching Frequency	330 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	>435 khrs (single&dual out) >320 khrs (triple out)

### Physical Specifications

Case Material	Nickel Coated Copper
Potting / Base Material	Epoxy / Plastic (UL94V-0 rated)
Weight	~ 31g, typ.

### Environment Specifications

Operating Temperature	-40 to +50°C (for 100% - ambient)
Maximum Case Temperature	105°C
Storage Temperature	-40 to +125°C
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260°C, max. (1.5mm from case 10s.)

# Selection Guide

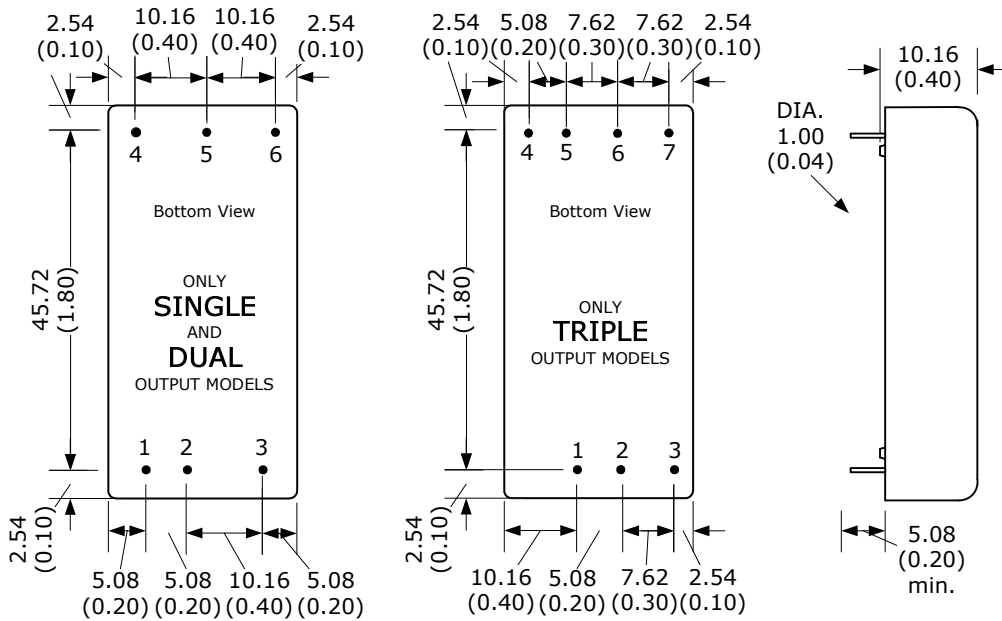
## Single, Dual and Triple Output

Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Auxiliary (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF) <sup>2</sup>
<b>SINGLE OUTPUT</b>									
P30WG-243R3E4:1LF	9-36	60	1185	3.3	-	0	7500	89	20000
P30WG-2405E4:1LF	9-36	100	1420	5	-	0	6000	91	14000
P30WG-245R1E4:1LF	9-36	90	1448	5.1	-	0	6000	91	14000
P30WG-2412E4:1LF	9-36	30	1436	12	-	0	2500	90	2000
P30WG-2415E4:1LF	9-36	30	1420	15	-	0	2000	91	2000
P30WG-483R3E4:1LF	18-72	50	593	3.3	-	0	7500	89	20000
P30WG-4805E4:1LF	18-72	60	702	5	-	0	6000	91	14000
P30WG-485R1E4:1LF	18-72	60	724	5.1	-	0	6000	91	14000
P30WG-4812E4:1LF	18-72	30	718	12	-	0	2500	90	2000
P30WG-4815E4:1LF	18-72	30	710	15	-	0	2000	90	2000
<b>DUAL OUTPUT</b>									
P30WG-2405Z4:1LF	9-36	120	1437	± 5	-	0	± 3000	90	3000
P30WG-2412Z4:1LF	9-36	30	1453	± 12	-	0	± 1250	89	1300
P30WG-2415Z4:1LF	9-36	40	1437	± 15	-	0	± 1000	89	1300
P30WG-4805Z4:1LF	18-72	70	710	± 5	-	0	± 3000	91	3000
P30WG-4812Z4:1LF	18-72	30	718	± 12	-	0	± 1250	90	1300
P30WG-4815Z4:1LF	18-72	40	718	± 15	-	0	± 1000	90	1300
<b>TRIPLE OUTPUT</b>									
P30WG-243R312D4:1LF	9-36	80	1287	3.3	±12	500 / ±42	5000 / ±420	89	15000 / ±220
P30WG-243R315D4:1LF	9-36	90	1279	3.3	±15	500 / ±33	5000 / ±330	89	15000 / ±220
P30WG-240512D4:1LF	9-36	100	1440	5	±12	400 / ±42	4000 / ±420	89	8000 / ±220
P30WG-240515D4:1LF	9-36	110	1431	5	±15	400 / ±33	4000 / ±330	90	8000 / ±220
P30WG-483R312D4:1LF	18-72	50	636	3.3	±12	500 / ±42	5000 / ±420	89	15000 / ±220
P30WG-483R315D4:1LF	18-72	50	640	3.3	±15	500 / ±33	5000 / ±330	89	15000 / ±220
P30WG-480512D4:1LF	18-72	60	712	5	±12	400 / ±42	4000 / ±420	91	8000 / ±220
P30WG-480515D4:1LF	18-72	60	707	5	±15	400 / ±33	4000 / ±330	90	8000 / ±220

If you need other specifications, please enquire.

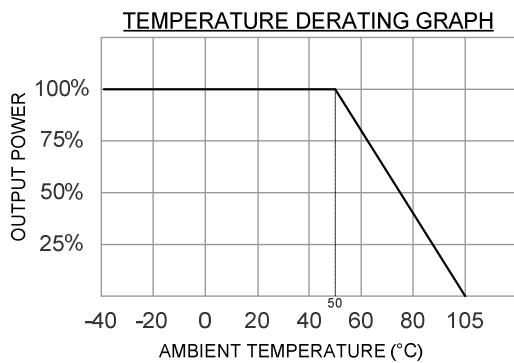
Notes:

# Package / Pinning / Derating



All dimensions are typical in millimeters (inches).  
 - Pin diameter: 1.0 +/-0.05 (0.04 +/-0.002)  
 - Pin pitch tolerance: +/-0.35 (+/-0.014)  
 - Case tolerance +/-0.5 (+/-0.02)  
 Specification may change without notice.

## 2" x 1" – METAL CASE



PIN CONNECTIONS			
#	SINGLE	DUAL	TRIPLE
1	+Vin	+Vin	+Vin
2	- Vin	- Vin	- Vin
3	CTRL	CTRL	CTRL
4	+Vout	+Vout	+Aux
5	- Vout	COM	- Aux
6	TRIM	- Vout	COM
7			+Vout

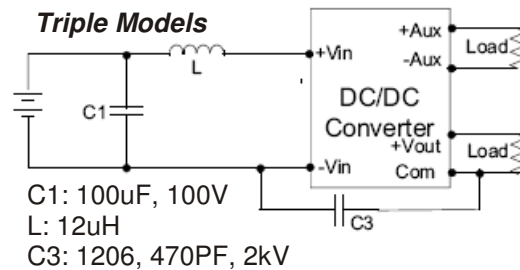
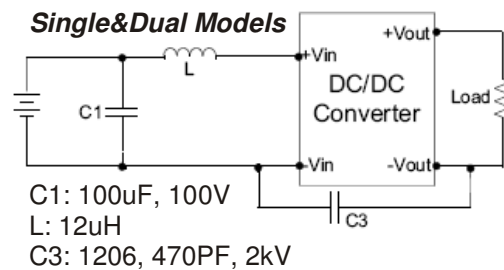
Notes:

# App Notes

- 1 = Measured Input reflected ripple current with a simulated source inductance of 12uH.
- 2 = Tested by minimal Vin and constant resistive load.
- 3 = Dual: One load is 25% to 100% load, the other load is 100% load, the output voltage variable rate is within ±5%.  
Triple: Main output 100% load, auxiliary 100%, other auxiliary 25% to 100%.  
Auxiliary outputs ( + Aux and - Aux ) : main output 100% load, auxiliary 100%, other auxiliary 25% to 100% or main output 25%, auxiliary 25%, other auxiliary 25% to 100%.
- 4 = Tested by nominal Vin and 25% load step change (75% - 50% - 25% of Io)
- 5 = The PMTW series can meet EN55022 Class A With an external filter in parallel with the input pins.
- 6 = An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5
- 7 = The remote on/off control pin is referenced to -Vin (Pin2).

## EMI Filter:

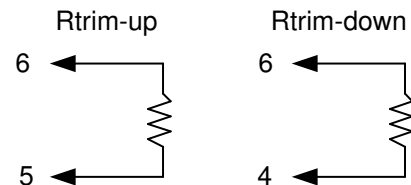
Input filter components (C1, C3, L) are used to help meet conducted emissions requirement. These components should be mounted as close as possible to the module; all leads should be minimized to decrease radiated noise.



EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS A
Conducted Emissions <sup>5</sup>	EN 55022	CLASS A
ESD	EN 61000-4-2	Perf. Criteria A
RS	EN 61000-4-3	Perf. Criteria A
EFT <sup>6</sup>	EN 61000-4-4	Perf. Criteria A
Surge <sup>6</sup>	EN 61000-4-5	Perf. Criteria A
CS	EN 61000-4-6	Perf. Criteria A
PFMF	EN 61000-4-8	Perf. Criteria A

## External Output Trimming

Output can be externally trimmed.  
(Single output models only!)



Over Voltage Protection (Zender diode clamp)	
3.3 Vout:	3.9 V
5 Vout	6.2 V
5.1 Vout	6.2 V
12 Vout	15 V
15 Vout	18 V
± 5 Vout	± 6.2 V
± 12 Vout	± 15 V
± 15 Vout	± 18 V

Under Input Voltage Lockout (typ.)	
24 Vin Models	Module ON/OFF 8.6V / 7.9V
48 Vin Models	Module ON/OFF 17.8V / 16V

Remote ON/OFF Control <sup>7</sup>	
ON:	3 -12 VDC or open circuit
OFF:	0 - 1.2 VDC or short circuit PIN2 and PIN3
OFF idle current:	5mA, typ.