P40WG-xxxxE/Z2:1LF

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PMT-SERIES Rev.05-2011

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

The PMT series P40WG-xxxxE/Z2:1LF is a family of cost effective 40W, single and dual output DC-DC converters with a wide input range of 2:1. 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℃, nominal input voltage and full load unless otherwise specified

Input Specifications	
Voltage Range	2:1 Wide Input (see table)
Input Filter	PI Type
Input Reflected Ripple Current[1]	20 mA pk-pk
Start up Time (Nom. Vin and constant resistive load)	30mS, typ.
Output Specifications	
Voltage Accuracy	± 1%
Voltage Adjustability (only Single Output)	± 10%, max.
Short Circuit Protection	Indefinite (hiccup, automatic recovery)
Over Load Protection	115% - 130% of Iout, max.
Line Regulation	± 0.5%, max.
Load Regulation (0% - 100%)	± 0.5% (single) ±1% (dual balanced load), max.
Cross Regulation[3]	± 5% (dual)
Ripple&Noise (20Mhz bandwidth / 1.0uF – pk-pk)	100 mV (3.3 & 5 Vout) 150 mV (others), max.
Temperature Coefficient	± 0.02% / ℃
Transient Recovery Time[4]	250us, typ.
Transient Response Deviation[4]	± 3%, max.
General Specifications	
I/O Isolation Voltage (3 sec.)	1600 VDC
I/O Isolation Capacitance	1000 pF, max.
I/O Isolation Resistance	1000 M Ohm, min.
Switching Frequency	270 kHz, typ.
Humidity	95% rel H
Reliability Calculated MTBF (MIL-HDBK-217F)	>328 khrs
Safety Standard (designed to meet)	IEC/EN 60950-1
Physical Specifications	
Case Material	Nickel Coated Copper
Potting / Base Material	Epoxy / Plastic (UL94V-0 rated)
Weight	~ 32g, typ.
Environment Specifications	
Operating Temperature	-40 to +71℃ (with derating)
Maximum Case Temperature	105℃
Storage Temperature	-40 to +125℃
Cooling	Free Air Convection (10mm distance required)
RoHS Conform	Soldering 260℃, max. (1.5mm from case 10s.)

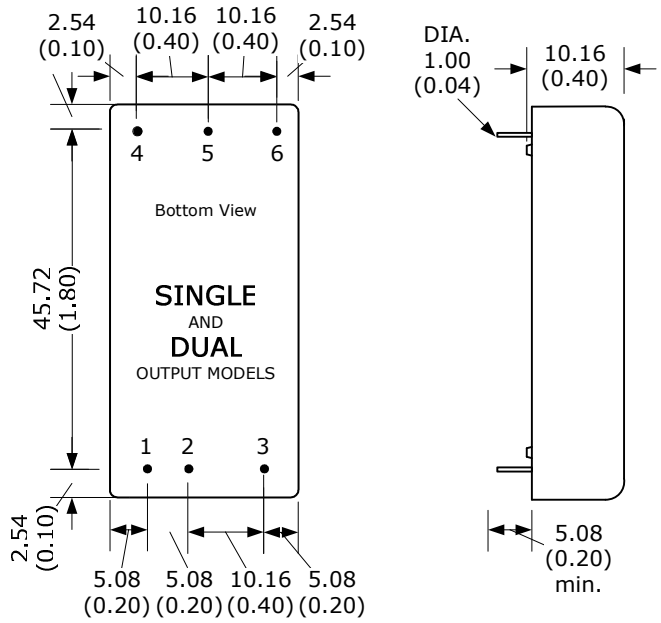
Selection Guide
Single and Dual Output

Order #	Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Output Current Min. Load (mA)	Output Current Full Load (mA)	Efficiency (%)	Capacitor Load (uF)[2]
SINGLE OUTPUT								
P40WG-123R3E2:1LF	9-18	100	2444	3.3	0	8000	90	24800
P40WG-1205E2:1LF	9-18	160	3663	5	0	8000	91	13600
P40WG-1212E2:1LF	9-18	40	3663	12	0	3333	91	2300
P40WG-1215E2:1LF	9-18	50	3663	15	0	2666	91	1500
P40WG-243R3E2:1LF	18-36	60	1208	3.3	0	8000	91	21800
P40WG-2405E2:1LF	18-36	90	1811	5	0	8000	92	13600
P40WG-2412E2:1LF	18-36	30	1831	12	0	3333	91	2300
P40WG-2415E2:1LF	18-36	40	1811	15	0	2666	92	1500
P40WG-483R3E2:1LF	36-72	40	605	3.3	0	8000	91	21800
P40WG-4805E2:1LF	36-72	60	905	5	0	8000	92	13600
P40WG-4812E2:1LF	36-72	20	915	12	0	3333	91	2300
P40WG-4815E2:1LF	36-72	20	905	15	0	2666	92	1500
DUAL OUTPUT								
P40WG-1212Z2:1LF	9-18	50	3663	± 12	0	± 1666	91	± 1200
P40WG-1215Z2:1LF	9-18	50	3623	± 15	0	± 1333	92	± 750
P40WG-2412Z2:1LF	18-36	50	1831	± 12	0	± 1666	91	± 1200
P40WG-2415Z2:1LF	18-36	40	1811	± 15	0	± 1333	92	± 750
P40WG-4812Z2:1LF	36-72	30	906	± 12	0	± 1666	92	± 1200
P40WG-4815Z2:1LF	36-72	40	906	± 15	0	± 1333	92	± 750

If you need other specifications, please enquire.

Notes:

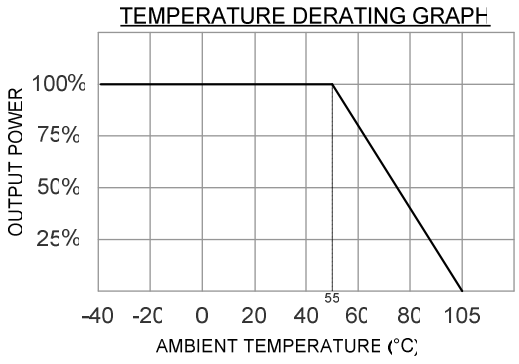
Package / Pinning / Derating



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



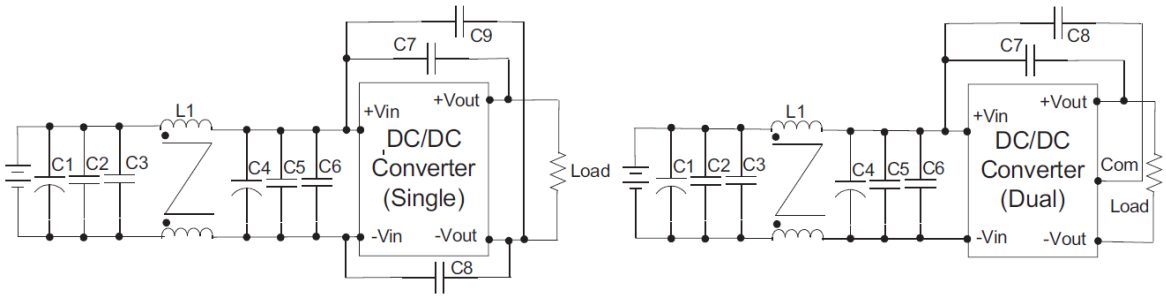
PIN CONNECTIONS		
#	SINGLE	DUAL
1	+Vin	+Vin
2	- Vin	- Vin
3	CTRL	CTRL
4	+Vout	+Vout
5	- Vout	COM
6	TRIM	- Vout

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%.
4 = Tested by nominal Vin and 25% load step change (75% - 50% - 25% of Io)
5 = The PMT 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).

App Notes

EMI Filter:
Input filter components 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.

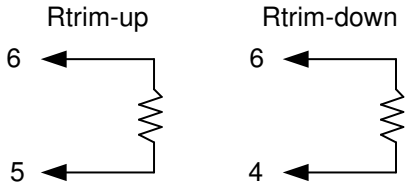


Single	C1	L1	C2/C3/C5/C6	C4	C7	C8	C9
12Vin	220uF, 100V	Common Choke 68uH	1812,6.8uF, 50V	330uF, 100V			1206,1000PF, 2KV
24Vin	220uF, 100V	Common Choke 68uH	1812,4.7uF, 50V	220uF, 100V	1206,1000PF, 2KV	1206,1000PF, 2KV	
48Vin	220uF, 100V	Common Choke 68uH	1812,1.5uF, 100V	220uF, 100V	1206,1000PF, 2KV	1206,1000PF, 2KV	

Dual	C1	L1	C2/C3/C5/C6	C4	C7	C8
12Vin	220uF, 100V	Common Choke 68uH	1812,6.8uF, 50V	330uF, 100V	1206,1000PF, 2KV	1206,1000PF, 2KV
24Vin	220uF, 100V	Common Choke 68uH	1812,4.7uF, 50V	220uF, 100V	1206,1000PF, 2KV	1206,1000PF, 2KV
48Vin	220uF, 100V	Common Choke 68uH	1812,1.5uF, 100V	220uF, 100V	1206,1000PF, 2KV	1206,1000PF, 2KV

EMC SPECIFICATIONS		
Radiated Emissions	EN 55022	CLASS B
Conducted Emissions[5]	EN 55022	CLASS B
ESD	EN 61000-4-2	Perf. Criteria A
RS	EN 61000-4-3	Perf. Criteria A
EFT[6]	EN 61000-4-4	Perf. Criteria A
Surge[6]	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
12 Vout	15 V
15 Vout	18 V
± 12 Vout	± 15 V
± 15 Vout	± 18 V

Under Input Voltage Lockout (typ.)	
12 Vin Models	Module ON/OFF 8.6V / 7.9V
24 Vin Models	Module ON/OFF 17.8V / 16V
48 Vin Models	Module ON/OFF 33.5V / 30.5V

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

CTRL Module ON / OFF
Positive logic turns on the module during high logic and off during low logic.
Ctrl module on/off can be controlled by an external switch between the ctrl terminal and -Vin terminal.
The switch can be an open collector or open drain
For positive logic if the ctrl feature is not used, please leave the ctrl pin floating.