

(877) 634-0982 www.digipwr.com

DPMULP275 Series

275 Watt AC/DC Medical Grade Power Supply



Description

as

The MULP275 Series of open frame switching power supplies utilizes a highly advanced circuit topology to deliver 275 Watts in an industry standard package that has a 3.00 x 5.00 inch footprint and 0.75 in. height. The series has been designed meet the requirements of Medical, Telecom, and Industrial applications and operates over the universal AC input range with active PFC. These supplies feature cutting edge efficiency and power density and are fully and compliant with worldwide safety and EMC standards.

Ratin

Input Voltage Range—AC Input		80-264VAC/390 VDC, Universal (see derating curves)	
Input Frequency Range		47-63Hz	
Input Current		2.6A at 115VAC max., 1.3A at 230VAC max.	
Output Power—forced convection		275W with 13 CFM airflow—see derating curves	
Output Power—natural convection		160W natural convection—see derating curves	
Operating Temperature Range		-40°C to +70°C	
Power Factor		>0.95 at full load	
Model Selection			
Model	Output Voltage, VDC	Rated Current, A	
		13 CFM Convection	Natural Convection
DPMULP275-WZ12	12.0	22.92	13.33
DPMULP275-WZ15	15.0	18.33	10.66
DPMULP275-WZ24	24.0	11.46	6.67
DPMULP275-WZ30	30.0	9.17	5.33
DPMULP275-WZ48	48.0	5.73	3.33
DPMULP275-WZ58	58.0	4.74	2.76
ULP275-CK	Metal Cover Kit		

Complete model number as follows:

Replace Z in model number with 3 for Molex type header connectors or 0 for Euro Style Terminal Blocks. Replace W in the model with 1 for N.A on PGPF Or 0 with PFPG. Add –II for classII.

Single Output with 12V Aux lan

Product Specification

Universal AC Input with PFC

Key Product Features

- EN60601 3rd Ed. Safety Approved
- Class I or Class II
- High Power Density—28W/in³
- Active PFC
- High Efficiency—up to 92% typ.
- Dual Fusing

Safety and EMC

- UL/CSA 60601-1 (ed.3) Medical Safety
- IEC/EN60601-1 (ed.3)
- ANSI / AAMI ES 60601-1
- CAN/CSA C22.2 No. 60601-1 Class 1 SELV
- Nemko, UL, cUL and CE Marks
- EN50022-B (CISPR 22-B) FCC Part 15 Conducted—Level B
- EN61000-3-2 Class D Harmonics
- EN61000-4-2, Level 4 Immunity
- EN61000-4-3, 4, 5 Level 3 Immunity



Electrical Specifications		
Input		
Input Voltage	80-264VAC/390VDC, Universal (see derating under output power)	
Input Frequency	47-63Hz	
Input Current	2.6A at 115VAC max., 1.3A at 230VAC max.	
No Load Power	<0.5W typical for MULP275-1XXX and <0.85W typical for MULP275-0XXX	
Inrush Current	115VAC - 25A, 230VAC - 45A, 264VAC - 75A	
Leakage Current	300uA Typical, (N.A. For Class II option), Touch current<100uA	
Efficiency	92% (48V, 58V), 90% (24V, 30V), 88% (12V, 15V)	
Hold-up Time	Full Load: 8ms, 160W: 16ms	
Power Factor	> 0.95 with full load	
Output		
Output Voltage Adjustability	+/-3% (Ref. Note 8)	
Line Regulation	+/-0.5%	
Load Regulation	+/-1%	
Transient Response	25% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz=4% , recovery time < 5ms	
Rise Time	55ms typical	
Set Point Tolerance	+/-1%	
Over Current Protection	> 110%	
Over Voltage Protection	110 to 140%	
Short Circuit Protection	Hiccup mode	

EMC and Safety Certifications			
EMC			
CE Mark	Complies with LVD Directive		
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15-B		
Static Discharge	EN61000-4-2, Level-4		
RF Field Susceptibility	EN61000-4-3, Level-3		
Fast Transients/Bursts	EN61000-4-4, Level-3		
Radiated Emissions	Level A radiated, Level B radiated with external core (King core K5B RC 25x12x15-M in input cable (5 turns))		
Surge Susceptibility	EN61000-4-5, Level-3		
Harmonic Current	EN61000-3-2, Class D		
Safety			
Safety Standard(s)	EN 60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 – 1, CSA C22.2 No. 60601-1		
Approval Agency	Nemko, UL, C-UL		
Isolation Voltage	Input to Output—4000VAC medical applications. Input to GND—1500VAC (Not Applicable For Class II Option) Output to GND—1500VAC for type BF, 500 VAC for type B (Not Applicable For Class II Option)		



Environmental Specifications		
Operating Temperature*	-40 to +70°C	
Storage Temperature	-40 to +85°C	
Relative Humidity	5% to 95%, noncondensing	
Altitude	Operating: 16,000ft.; Nonoperating: 40,000ft.	
MTBF	3.37m Hours, Telcordia-SR332-isue 3	

Mechanical Specifications			
AC Input Connector (J1)	Molex: 26-60-4030		
	Mating: 09-50-3031; Pins: 08-50-0106		
DC Output Connector (J2) Option 1 (Screw Terminal)	Molex: 39357 Series or equivalent		
DC Output Connector (J2) Option 2	Molex: 26-60-4060		
(Molex Connector)	Mating: 09-50-3061; Pins: 08-50-0106		
Aux (Fan) Output (J3)	AMP: 640456-2		
	Mating: 640440-2		
Signal Output (J4)	AMP: 640456-3		
	Mating: 640440-3		
Dimensions	5 x 3 x 0.75inches (127 x 76.2 x 19.05mm)		
Weight	200gm Max.		

Connector Pin Assignments				
Connector	Pin	Function		
	1	AC Line		
J1	2	Not Provided		
	3	AC Neutral		
J2 Option 1 & 2	1, 2, 3	+Vout		
	4, 5, 6	-Vout		
J3	1	Fan +Vout		
	2	Fan -Vout		
J4	1	Vs		
(For PGPF Option Only)	2	PGPF		
	3	GND		

Notes:

1. Ripple is peak to peak with 20MHz bandwidth and 10µF (Tantalum capacitor) in parallel with a 0.1µF capacitor at rated line voltage and load ranges.

2. Class II means without Earth pin.

3. Combined output power of main output and fan supply shall not exceed max. Power rating.

4. Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and ripple and noise is less than 10%

5. Specifications are for nominal input voltage, 25°C unless otherwise stated.

 $6.\ 275W$ with 13CFM forced air and 160W with natural convection cooling at 100 to 264VAC

7. -40 to 0°C startup is guaranteed with spec deviation in output ripple can be more than 10%.

8. Adjustment potentiometer is located on the SMT side of the PCB.



Mechanical Outline

Option 1 (Without PGPF)



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4mm max.

2. Screws, used to fix PCB on stand off, have head dia of 6.0mm max.

3. Washer, if used, to have dia of 6.5mm max.

Option 2 (Without PGPF)



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4mm max.

2. Screws, used to fix PCB on stand off, have head dia of 6.0mm max.

3. Washer, if used, to have dia of 6.5mm max.



Mechanical Outline

Option 3 (With PGPF)



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4mm max.

2. Screws, used to fix PCB on stand off, have head dia of 6.0mm max.

3. Washer, if used, to have dia of 6.5mm max.

Option 4 (With PGPF)



Notes: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following

1. Stand off, used to mount PCB has OD of 5.4mm max.

2. Screws, used to fix PCB on stand off, have head dia of 6.0mm max.

3. Washer, if used, to have dia of 6.5mm max.



Derating Curve





Key Product Features

- Noncorrosive
- Easy assembly
- Low weight
- Fully safe

ULP275-CK Cover Kit

275 Watt AC/DC Medical Grade Power Supply



Derating Guidelines ULP275/MULP275: For Ambient > 50°C, derate by 50% to 70°C. 13 CFM FAN recommended to circulate air Contents Mounting Base, Cover, Insulator, Fixing Screws **Mechanical Dimensions** Cover and Base Material EG(Zintec)/CRCA/GI 1.0mm thick (Powder coating/ Passivation/ ED coating black) Marked A: PCB MTG; B: COVER MTG; C: SYSTEM MTG All dimensions are in mm. General tolerance : +/-1.0 **Mechanical Outline** 115.6 ±0.2 0 0000 0000 107.0 ±0.2 \$ ULP275-CK. MECHANICAL OUTLINE DIMENSIONS.



Digital Power Corporation | USA

48430 Lakeview Blvd., Fremont, CA 94538, USA www.digipwr.com | (877) 634-0982 Gresham Power Electronics | UK/Europe Telford Rd, Salisbury, Wiltshire SP2 7PH, UK www.greshampower.com | +44 (0)1722 413 060

T: (877) 634-0982 | F: (510) 657-6634 sales@digipwr.com Digital Power Corporation designs and manufactures flexible power supply solutions for the most demanding applications in the defense, healthcare, telecom, and industrial markets. With headquarters in Fremont, California, Digital Power is publically traded on the NYSE (symbol: DPW). The company was founded in 1969 incorporated in California.

MULP275 V3_08-17-17