180 Watt Medical



Features

- 4 x 2 x 0.75 Inches Form factor
- 180 Watts with Forced Air Cooling
- Approval to EN60601 3rd Edition
- Efficiencies upto 92%
- -40 to 70 degree operating temperature*
- Dual fusing
- 12V / 0.5A Fan Output, Thermal Shut-Down feature
- 3.37m Hours, Telcordia -SR332-issue 3 MTBF
- Standby Power < 0.5W
- Medical (BF) Safety Approvals

Electrical Specifications					
Input Voltage	80-264 VAC/390 VDC, Universal (Derate from 100% at 100V AC to 77% at 80V AC)				
Input Frequency	47–63 Hz				
Input Current	115 VAC: 2.2 A max. 230 VAC: 1.1 A max.				
No Load Power	<0.5W typical for MULP180-1XXX and <0.85W typical for MULP180-1XXX-PGPF				
Inrush Current	115 VAC – 25 A, 230 VAC – 45 A, 264 VAC – 75 A				
Leakage Current	300 uA Typical, (N.A. For Class II Option) Touch current <100uA				
Efficiency	92%(48V,58V), 90%(24 <mark>V,30</mark> V), <mark>88%(</mark> 12 <mark>V,1</mark> 5V)				
Hold-up Time	at 180W:10 ms ; <mark>120W: 16 ms</mark>				
Power Factor	>0.95@115 VAC and 0.9@230 VAC				
Output Power	180W with 13 CFM, upto 120W Convection				
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 < 5 ms				
Rise Tim <mark>e</mark>	55ms typical				
Set Point Tolerance	+/-1%				
Over Current Protection	>110%				
Over Voltage Protection	110 to 140%				
Short Circuit Protection	Hiccup mode				
Switching Frequency	PFC – 70 to 130 KHz ,PWM – 50-80 KHz				
Operating Temperature ⁷	-40 to +70°C				
Storage Temperature	-40 to +85°C				
Relative Humidity	5% to 95%, noncondensing				
Altitude	Operating: 16,000 ft.; Nonoperating: 40,000 ft.				
MTBF	3.37m Hours, Telcordia -SR332-issue 3				
Isolation Voltage	Input to Output – 4000 VAC medical applications.				
	Input to GND - 1500 VAC (Not Applicable For Class II Option)				
	Output to GND- 1500VAC for type BF , 500 VAC for type B (Not Applicable For Class II Option)				
Cooling	180W with 13 CFM forced air cooling ⁶ (refer Mechanical Drawing)				
	upto 120 W with natural convection cooling ⁶ (refer Derating Curve)				

Model Number	Description	Voltage	Max. Load (Convection) (112.5W) @50°C	Max.Load (Convection) (120W) @40°C	Max. Load (13 CFM)	Min. Load	Ripple	¹ Signal
MULP180-1012	with Screw Terminal	12 V	9.37A	10.00A	15.00A	0.0 A	2%	N.A
MULP180-1312	with Molex Connector	12 V	9.37A	10.00A	15.00A	0.0 A	2%	N.A
MULP180-1015	with Screw Terminal	15 V	7.50A	8.00A	12.00A	0.0 A	2%	N.A
MULP180-1315	with Molex Connector	15 V	7.50A	8.00A	12.00A	0.0 A	2%	N.A
MULP180-1024	with Screw Terminal	24 V	4.68A	5.00A	7.50A	0.0 A	1%	N.A
MULP180-1324	with Molex Connector	24 V	4.68A	5.00A	7.50A	0.0 A	1%	N.A
MULP180-1030	with Screw Terminal	30 V	3.75A	4.00A	6.00A	0.0 A	1%	N.A
MULP180-1330	with Molex Connector	30 V	3.75A	4.00A	6.00A	0.0 A	1%	N.A
MULP180-1048	with Screw Terminal	48 V	2.34A	2.50A	3.75A	0.0 A	1%	N.A
MULP180-1348	with Molex Connector	48 V	2.34A	2.50A	3.75A	0.0 A	1%	N.A
MULP180-1058	with Screw Terminal	58 V	1.94A	2.07A	3.10A	0.0 A	1%	N.A
MULP180-1358	with Molex Connector	58 V	1.94A	2.07A	3.10A	0.0 A	1%	N.A
MULP180-0012	with Screw Terminal	12 V	9.37A	10.00A	15.00A	0.0 A	2%	PG & AC PF
MULP180-0312	with Molex Connector	12 V	9.37A	10.00A	15.00A	0.0 A	2%	PG & AC PF
MULP180-0015	with Screw Terminal	15 V	7.50A	8.00A	12.00A	0.0 A	2%	PG & AC PF
MULP180-0315	with Molex Connector	15 V	7.50A	8.00A	12.00A	0.0 A	2%	PG & AC PF
MULP180-0024	with Screw Terminal	24 V	4.68A	5.00A	7.50A	0.0 A	1%	PG & AC PF
MULP180-0324	with Molex Connector	24 V	4.68A	5.00A	7.50A	0.0 A	1%	PG & AC PF
MULP180-0030	with Screw Terminal	30 V	3.75A	4.00A	6.00A	0.0 A	1%	PG & AC PF
MULP180-0330	with Molex Connector	30 V	3.75A	4.00A	6.00A	0.0 A	1%	PG & AC PF
MULP180-0048	with Screw Terminal	48 V	2.34A	2.50A	3.75A	0.0 A	1%	PG & AC PF
MULP180-0348	with Molex Connector	48 V	2.34A	2.50A	3.75A	0.0 A	1%	PG & AC PF
MULP180-0058	with Screw Terminal	58 V	1.94A	2.07A	3.10A	0.0 A	1%	PG & AC PF
MULP180-0358	with Molex Connector	58 V	1.94A	2.07A	3.10A	0.0 A	1%	PG & AC PF
MULP180-CK metal cover kit accessory								
MULP180-PGPF-CK metal cover kit accessory								

Connectors						
J1	Pin 1	AC LINE				
	Pin 2	NOT FITTED				
	Pin 3	AC NEUTRAL				
J2 Option 1 & 2	Pin 1,2,3	V1 +VE				
	Pin 4,5,6	V1 -VE				
J3	Pin 1	FAN +VE				
	Pin 2	FAN -VE				
J4	Pin 1	Vs				
(For PGPF Option Only)	Pin 2	PGPF				
	Pin 3	GND				



Notes

- 1. Ripple is peak to peak with 20 MHz bandwidth and 10 μ F (Tantalum capacitor) in parallel with a 0.1 μ F capacitor at rated line voltage and load ranges.
- 2. Class II means without input Earth pin.
- 3. Combined output power of main output, 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. 180W with 13CFM forced air cooling and 120W with natural convection cooling at 100 to 264VAC.
- 7. -40 to 0°C startup is guaranteed with spec deviation in output ripple and voltage regulation.

	Machanical Spacifications				
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	4 x 2 x 0.75 inches				
	(101.60 x 50.8x 19.05 mm)				
Weight	200 gm approx				
	EMC				
CE Mark	Complies with LVD Directive				
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15-B				
Static Discharge	EN61000-4-2, Level-3				
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)	EN60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1				
Approval Agency	Nemko, UL, C-UL				
Safety File Number(s)	(Pending)				











