



Transpower Applications Ltd

TPS374

Special Features

- 300W AC/DC converter
- One or two regulated outputs
- Convection cooled
- Withstands input surges
- Clean reliable power in vehicles



Description

A dual output AC to DC converter operating from either a nominal 115VAC single phase input or from 110-240VAC 50/60Hz domestic mains AC supply

Capable of operation in arduous environmental conditions with significant power disturbances on the input, the TPS374 provides secure power

Electrical Specification

AC Input Power:

Input voltage, prime: Nominal 115VAC, range 97-134VAC phase to neutral, 1 phase, floating AC connection into power supply

Input voltage, secondary: Also designed to operate on single phase AC domestic supply input. Nominal 115/230VAC, range 100-240VAC, 50/60Hz, 3 wire (Phase, neutral and earth)

Input frequency: 320-480Hz at 115VAC, normal and abnormal conditions, and 50/60Hz on domestic supplies

Standard definition: To MIL STD 704F and DO-160E&G, category A(CF)-I-P-Z

Extra input definition: Phase to neutral voltages; 180V 100ms to 148V 1s, 134V 5s; 58V 70ms to 108V 1000ms. Total domestic input range 90-264VAC

AC input power factor: >0.95 at full load at 400Hz and compliant to EN61000-3-2 at 230VAC

Input interruption: 50ms to DO160E with no break in supported outputs from 115VAC

Input current: 4A

Input inrush current: <9x rated input current for 3ms, <12A over 500ms

Fuse protection: Fuses in each phase



DC Output Power

	Dual output 1	Dual output 2
Nominal ratings:	5V at 150W (30A)	15V at 75W (5A)
Output voltage set tolerance:	+/-0.2V	+/-0.3V
Output voltage regulation:	1%	
Remote sense:	Up to 2V	Not fitted
Output ripple and noise:	<50mV	<150mV
Output adjustment	None	
Max capacitance load:	20,000uF	1,000uF
Isolated:	Isolated from input and chassis earth, outputs share common 0V	
Efficiency:	>85% at full load	
Minimum load:	0A	
Overload protection:	Current limit set at >40A	Current limit set at >5.1A
Short circuit protection:	Output protected against shorts with automatic recovery	
Over voltage protection:	6.25V typical	18VDC typical
Supported during 50ms AC supply interruption:	Yes	

Controls

Front panel control:	None
Front panel indicators:	Output on LED
Input signal 1:	Remote sense +V output 1
Input signal 2:	Remote sense 0V output 1
Input signal 3:	Output inhibit Open / 0V = on >10V = off
Output signal 1:	DCOK. Open = module fail, short = OK. Max 50V 5mA
Output signal 2:	SC output 1
Output signal 3:	SC output 2
Signal reference:	All signals referenced to 0V output



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Environmental

Cooling:	Convection cooled into free air. Forced air cooling not required
Shock:	Operates with 20g 11ms, MIL STD 810G Method 516.5 Procedure 1
Vibration:	Operated MIL STD 810G Method 514.5 Procedure 1
Gunfire vibration:	Withstands MIL STD 810G Method 519.5 Procedure IV
Acceleration:	Withstands 14g acceleration with adequate mounting
Crash acceleration:	Withstands 25g crash acceleration when securely mounted
Operating temperature:	-40° to +55°C ambient, to +71°C ambient for periods of less than 30 minutes at sea level
Storage temperature:	-55° to +85°C
Relative humidity:	20 - 100%%, PCB assemblies conformal coated
Waterproofness:	IP64 dust tight and water splash resistant
Altitude:	Operates to 55,000ft (91.2mbar) with adequate cooling
Salt fog:	Withstands MIL STD 810G Method 509.4
Mould growth:	Withstands exposure to mould growth environment for 28 days
Materials:	All materials are halogen free and LSF
RoHS:	Compliant
MTBF:	TBC hours at 25°C GB to MIL STD 217 Notice 2

Regulatory

Safety approvals:	Designed to comply EN60950 and BS3G100 requirements
Isolation:	Input to output: 2200VDC, 1500VAC Input to chassis: 2200VDC, 1500VAC Output to chassis: 500VDC
Ground bonding:	Earth bonding less than 10mOhms
CE mark directive:	CE marked for LVD under EN60950, RoHS and EMC
ITAR:	All components free from ITAR restrictions
EMC emissions:	MIL STD 461 CE101, 102, RE101, RE102, DEF STAN 59-411 and EN55022
EMC immunity:	MIL STD 461 CS101, CS114, CS115, CS116, RS101, RS103 and EN61000-45-level 3
Labelling:	Part number, date coded serial number and ratings on all label



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Mechanical

- Dimensions:** See outline drawing below, 202 x 108 x 118mm
- Materials and finish:** Solid aluminium chassis with stainless steel panels
- Weight:** Approx 3Kg
- Mounting format:** Bench mounted or customer defined fixings

AC Input power connector **D38999/20FD05PN**

Pin number	Function	Comment
A	AC Phase	Phase input 1
B	AC Phase	Phase / neutral input
C	No connection	
D	No connection	
E	Chassis safety earth	Safety earth

DC output power and signal connector **D38999/20FD19SN**

Connector pin out

Pin number	Function	Comment
A	+5V Output	Mains 5V output positive
B	+5V Output	Main 5V output positive
C	Inhibit	Inhibit control input
D	+15V Output	Aux 15V output positive
E	+15V Output	Aux 15V output positive
F	DCOK	Output good signal
G	5V SC	5V SC control
H	15V SC	15V SC control
J	+5V sense	Remote sense for main positive output
K	0V sense	Remote sense for main negative output



Connector pin out (cont.)

Pin number	Function	Comment
L	0V Output	Output negative
M	+5V Output	Main 5V output positive
N	0V Output	Output negative
P	0V Output	Output negative
R	+5V Output	Main 5V output positive
S	Chassis Earth	Chassis earth reference
T	0V Output	Output negative
U	0V Output	Output negative
V	0V Output	Output negative

Product Guidelines

The following parts are not present:

- Magnesium and Magnesium alloys
- Mercury or Mercury contaminated materials
- Polyvinyl chloride (PVC)
- Wet Tantalum capacitors other than MIL-C-39006/22 and /25 types
- Metal-oxide plate rectifiers
- Edge-card type printed circuit connectors
- Fuses and fusible links within an assembly
- Unsealed plastic (or metalized plastic) capacitors
- Hot carrier (Schottky) rectifiers
- Germanium semiconductors
- Microcircuit sockets
- Devices containing exposed Beryllium Oxide (BeO)
- Asbestos
- Arsenic or derivatives

All fixings are A2 stainless steel except swage in pillars which are plated steel.
Chassis plate, cover and wedge locks are all aluminium.

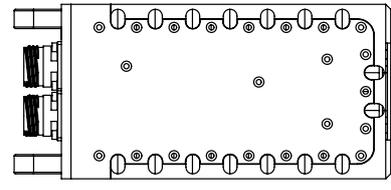
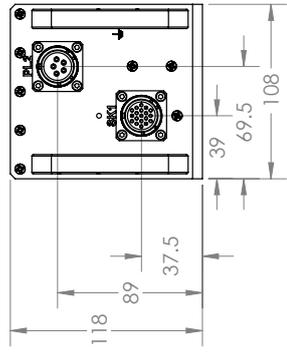
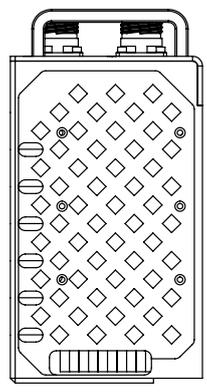
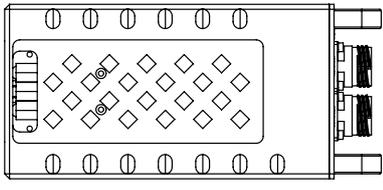
Hold up capacitors are long life aluminium electrolytic type.

All parts comply with the Montreal protocol according to their suppliers.

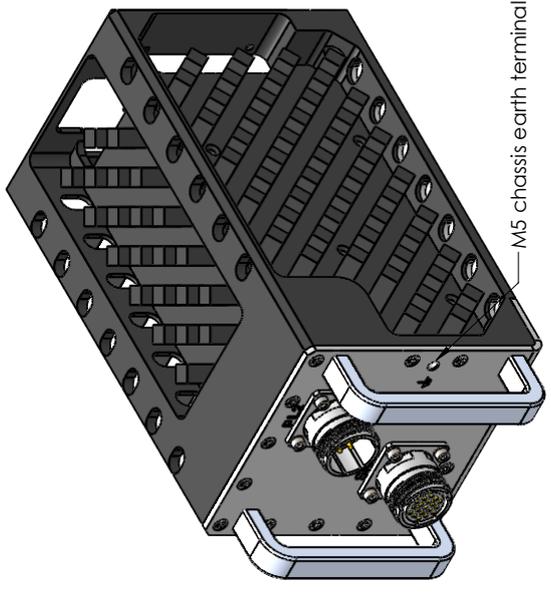
Manufacturer reference: Transpower TPS374-5/15

1 2 3 4 5 6 7 8

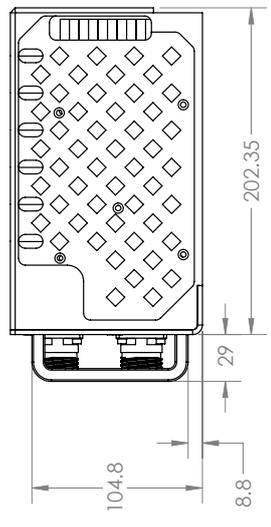
SK1 D38999/20FD19SN			
Pin number	Function	Pin number	Function
A	28V output	K	0V sense
B	28V output	L	0V output
C	Inhibit	M	28V output
D	28V output	N	0V output
E	28V output	P	0V output
F	DCOK	R	28V output
G	ACOK	S	Chassis earth
H	Temp OK	T	0V output
J	28V sense	U	0V output
		V	0V output



PL2 D38999/20FD5PN	
Pin number	Function
A	AC phase
B	AC phase
C	No connection
D	No connection
E	Protective earth



M5 chassis earth terminal



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH TOLERANCES UNLESS STATED: LINEAR: 0.2mm unless stated, ANGULAR: 0.2° unless stated.		FINISH: Black anodised chassis. Clear iridite front panel.		IDELUR AND BREAK SHARP EDGES. CORNERS MUST BE R0.6 COMPLIANT.		DO NOT SCALE DRAWING Projection: third angle.	
NAME	Lee	SIGNATURE	<i>Lee</i>	DATE	11-03-16	Revision history	Issue
CHK'D						Issue A	A
APPROV'D							
MFG							
G.A.							
MATERIAL: 6082-T6 aluminium chassis.				TITLE: TP374 Outline drawing		TP374	
				Finished part number:		95-809	
				DWG NO.		A3	
				File: TP374 complete assembly		SHEET 1 OF 1	
				SCALE: 1:3			