



DESCRIPTION: 15W 1.5KVDC Isolated Wide Input Voltage DC/DC Converters

The rated output power of TP15DC converters is 15W, 2:1 input voltage range, the voltage range is 9V-18V,18V-36V,36V-72V.The accuracy of the converter can reach $\pm 1\%$,it can be widely used in telecommunications, railway transportation, instrument and etc.

FEATURES

15W output power	2:1 input voltage range	Over load protection
1.5KVDC isolation	Fixed switching frequency	Operating temperature: -40°C to 85°C
Metal shielding package	RoHS compliant	/

SELECTION GUIDE

Part Number	Input Voltage		Output		Efficiency(Typ) %	Maximum capacitive load (u F)
	voltage (VDC)		Voltage (VDC)	Current (A)		
	Rated	Range values				
TP15DC12S03	12(2:1)	9-18	3.3	3	81	6800
TP15DC12S05	12(2:1)	9-18	5	3	82	4700
TP15DC12S12	12(2:1)	9-18	12	1.25	83	690
TP15DC12S15	12(2:1)	9-18	15	1	84	470
TP15DC12D05	12(2:1)	9-18	± 5	± 1.5	82	± 680
TP15DC12D12	12(2:1)	9-18	± 12	± 0.63	84	± 330
TP15DC12D15	12(2:1)	9-18	± 15	± 0.5	84	± 110
TP15DC24S03	24(2:1)	18-36	3.3	3	81	6800
TP15DC24S05	24(2:1)	18-36	5	3	84	4700
TP15DC24S12	24(2:1)	18-36	12	1.25	84	690
TP15DC24S15	24(2:1)	18-36	15	1	84	470
TP15DC24S24	24(2:1)	18-36	24	0.63	84	470
TP15DC24D05	24(2:1)	18-36	± 5	± 1.5	83	± 680
TP15DC24D12	24(2:1)	18-36	± 12	± 0.63	84	± 330
TP15DC24D15	24(2:1)	18-36	± 15	± 0.5	84	± 110
TP15DC48S03	48(2:1)	36-72	3.3	3	81	6800
TP15DC48S05	48(2:1)	36-72	5	3	84	4700
TP15DC48S12	48(2:1)	36-72	12	1.25	85	690
TP15DC48S15	48(2:1)	36-72	15	1	85	470
TP15DC48D05	48(2:1)	36-72	± 5	± 1.5	83	± 680
TP15DC48D12	48(2:1)	36-72	± 12	± 0.63	84	± 330
TP15DC48D15	48(2:1)	36-72	± 15	± 0.5	84	± 110
TP15DC24S05W	24(4:1)	9-36	5	3	84	4700
TP15DC24S12W	24(4:1)	9-36	12	1.25	85	690
TP15DC24S15W	24(4:1)	9-36	15	1	84	470
TP15DC48S12W	48(4:1)	18-72	12	1.25	85	690

Input voltage 9-18VDC, start-up voltage 9.5-18VDC, input voltage 9-36VDC, start-up voltage 9.5-36VDC.

GENERAL CHARACTERISTICS

parameter	Test conditions	Min	Typ	Max	Units
Isolation voltage	Input to output		500	1500	VDC
Insulation resistance	Input to output	100M			Ohm
Seismic	10~55Hz		5		G
MTBF	MIL-HDBK-217F2		5×10^5		hrs
Over-current protection mode	All input range	Automatic recovery			
Cooling	Free air convection				
Case material	Metal case				

INPUT CHARACTERISTICS

parameter	Test conditions	Min	Typ	Max	Units
Input voltage	12V Input module(9V-18V)	9.5	12	18	VDC
Input voltage	24V Input module(18V-36V)	18	24	36	VDC
Input voltage	48V Input module(36V-72V)	36	48	72	VDC
Input voltage	24V Input module(9V-36V)	9.5	24	36	VDC
Input voltage	48V Input module(18V-72V)	18	48	72	VDC
Start time	Input rising time from 5%-100%	20			ms

OUTPUT CHARACTERISTICS

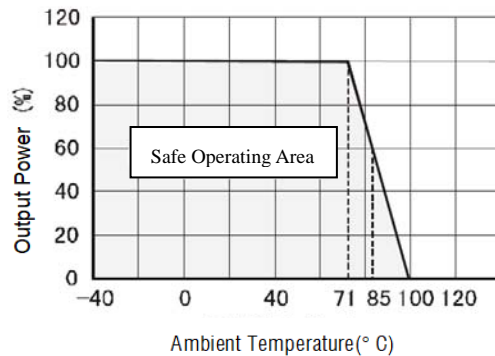
parameter	Test conditions	Min	Typ	Max	Units
Voltage accuracy	$I_o=0.1...1.0 \times I_{onom}$ $V_i=V_i$ rated			± 1	%
Line regulation	$V_{imin} \leq V_i \leq V_{imax}$			± 0.2	%
Load regulation	$I_o=0.1...1.0 \times I_{onom}$ $V_{imin} \leq V_i \leq V_{imax}$			± 0.5	%
Auxiliary voltage accuracy	Main Load and auxiliary load differ 25%, the auxiliary circuit of the load with at least 25%, the main circuit with full load			± 3	%
Ripple and noise	20MHz bandwidth			± 1	%
Over current protection	$V_{imin} \leq V_i \leq V_{imax}$	120			%
Transient recovery time	25% load changes			± 5	%
Transient overshoot time	25% load changes			400	US
Switch frequency	$V_{imin} \leq V_i \leq V_{imax}$		300		KHZ

ENVIRONMENT CHARACTERISTICS

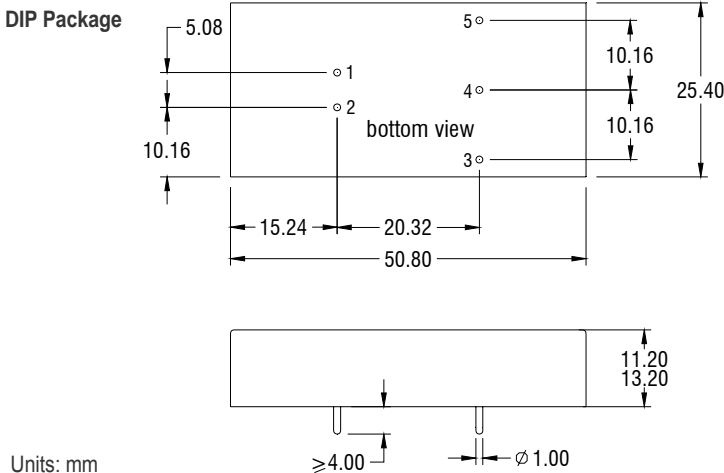
parameter	Test conditions	Min	Typ	Max	Units
Storage Humidity	Non condensing	5		+95	%
Operating Temperature	Power derating (above 71°C)	-40		+85	°C
Storage Temperature		-55		+125	°C
Max. Case Temperature	Operating Temperature curve range			105	°C
Lead Temperature	1.5mm from case for 10 seconds			300	°C
Cooling		Free air convection			

- Module in every environment temperature rating, case temperature under shall not exceed the maximum case temperature level.

TEMPERATURE DERATING GRAPHS



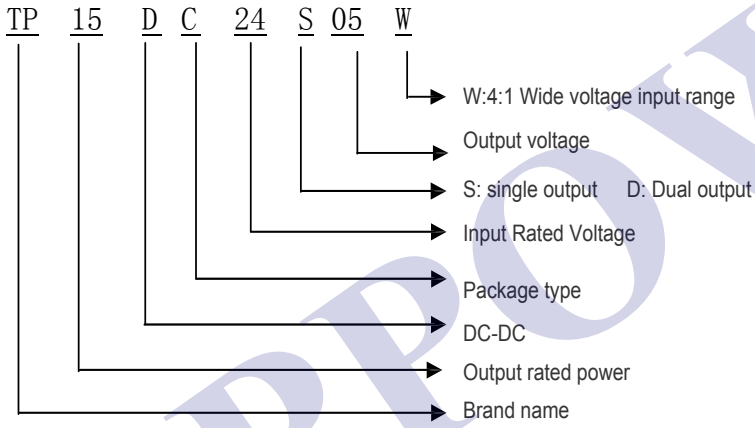
MECHANICAL DIMENSIONS **PIN CONNECTIONS**



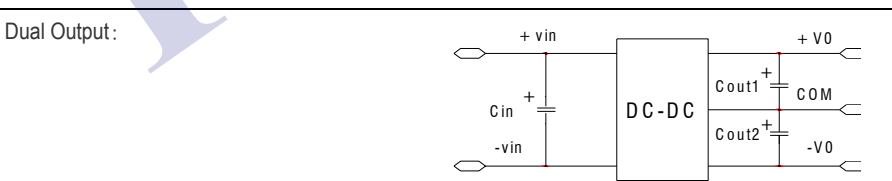
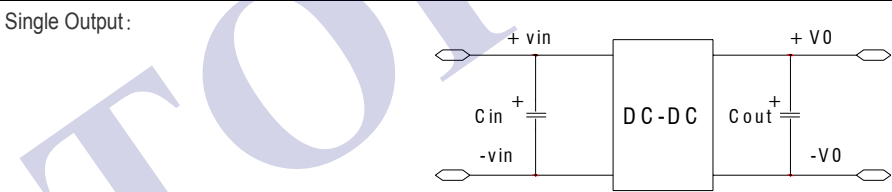
Units: mm
 Pin diameter tolerances: $\pm 0.1\text{mm}$
 General Tolerance: $\pm 0.5\text{mm}$

Pin	Single output	Dual output
1	+Vin	+Vin
2	-Vin	-Vin
3	-Vout	-Vout
4	/	Com
5	+Vout	+Vout

MODEL SELECTION



RECOMMEND CIRCUIT



- Add input capacitance C_{in} is helpful to improve the electromagnetic compatibility, recommend C_{in} use 47 μF -100 μF of the electrolytic capacitors.
- If the module connect to the digital circuits, please add the C_{out} , C_{out1} , C_{out2} .
- If C_{out} , C_{out1} , C_{out2} value is too high or lower ESR, it will cause the module instable,
- The recommended value of C_{out} , C_{out1} , C_{out2} should be 100 $\mu\text{F}/\text{A}$, the current here means the output current.

USING ATTENTIONS

- Module will cause irreversible damage when in the state of the input reverse polarity.
- Module will cause irreversible damage when in the long-term overload conditions.
- Module will cause irreversible damage when out of the maximum input voltage range.