DESCRIPTION: **10W 1.5KVDC Isolated Wide Input Voltage DC/DC Converters**

The rated output power of TP10DC converters is 10W,the outline dimensions is "50.8*25.4*11.2", 2:1 and 4:1 wide input voltage range, the voltage range is 9V-18V,18V-36V,36V-72V,9V-36V and 18V-72VDC.The accuracy of the converter can reach ±1%,it can be widely used in telecommunications, railway transportation, instrument and etc.

FEATURES

10W output power	2:1&4:1 input voltage range	Over load protection
50.8mm*25.4mm*11.2mm standard package	Fixed switching frequency	Operating temperature: -40℃ to 85℃
Metal shielding package	RoHS compliant	1.5KVDC isolation

SELECTION GUIDE

Part Number	Input Voltage voltage (VDC)		Output		Efficiency(Typ) %	Maximum Capacitive Load (u F)
	Rated	Range values	Voltage (VDC)	Current (A)		
TP10DC12S03	12(2:1)	9-18	3.3	2	≥75	6800
TP10DC12S05	12(2:1)	9-18	5	2	≥77	4700
TP10DC12S12	12(2:1)	9-18	12	0.84	≥80	690
TP10DC12S15	12(2:1)	9-18	15	0.66	≥82	470
TP10DC12D05	12(2:1)	9-18	±5	±1	≥77	±680
TP10DC12D12	12(2:1)	9-18	±12	±0.42	≥79	±330
TP10DC12D15	12(2:1)	9-18	±15	±0.33	≥80	±110
TP10DC24S03	24(2:1)	18-36	3.3	2	≥76	6800
TP10DC24S05	24(2:1)	18-36	5	2	≥79	4700
TP10DC24S12	24(2:1)	18-36	12	0.84	≥81	690
TP10DC24S15	24(2:1)	18-36	15	0.66	≥83	470
TP10DC24S24	24(2:1)	18-36	24	0.42	≥82	470
TP10DC24D05	24(2:1)	18-36	±5	±1	≥80	±680
TP10DC24D12	24(2:1)	18-36	±12	±0.42	≥80	±330
TP10DC24D15	24(2:1)	18-36	±15	±0.33	≥83	±110
TP10DC48S03	48(2:1)	36-72	3.3	2	≥78	6800
TP10DC48S05	48(2:1)	36-72	5	2	≥81	4700
TP10DC48S12	48(2:1)	36-72	12	0.84	≥82	690
TP10DC48S15	48(2:1)	36-72	15	0.66	≥83	470
TP10DC48D05	48(2:1)	36-72	±5	±1	≥81	±680
TP10DC48D12	48(2:1)	36-72	±12	±0.42	≥82	±330
TP10DC48D15	48(2:1)	36-72	±15	±0.33	≥83	±110
TP10DC24S05W	24(4:1)	9-36	5	2	≥78	4700
TP10DC24S12W	24(4:1)	9-36	12	0.84	≥80	690
TP10DC24S15W	24(4:1)	9-36	15	0.66	≥82	470
TP10DC24D05W	24(4:1)	9-36	±5	±1	≥79	±680
TP10DC24D12W	24(4:1)	9-36	±12	±0.42	≥79	±330
TP10DC24D15W	24(4:1)	9-36	±15	±0.33	≥82	±110
TP10DC48S05W	48(4:1)	18-72	5	2	≥80	4700
TP10DC48S12W	48(4:1)	18-72	12	0.84	≥81	690
TP10DC48S15W	48(4:1)	18-72	15	0.66	≥82	470
TP10DC48D05W	48(4:1)	18-72	±5	±1	≥79	±680
TP10DC48D12W	48(4:1)	18-72	±12	±0.42	≥80	±330
TP10DC48D15W	48(4:1)	18-72	±15	±0.33	≥81	±110

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

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

GENERAL CHARACTERISTICS

parameter	Test conditions	Min	Typ	Max	Units
Isolation voltage	Input to Output		500	1500	VDC
Isolation resistance	Input to Output	100M			ohm
Seismic	10~55Hz		5		G
MTBF	MIL-HDBK-217F2		5×10^5		hrs
Over-current protection mode	Full input range		Auto 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

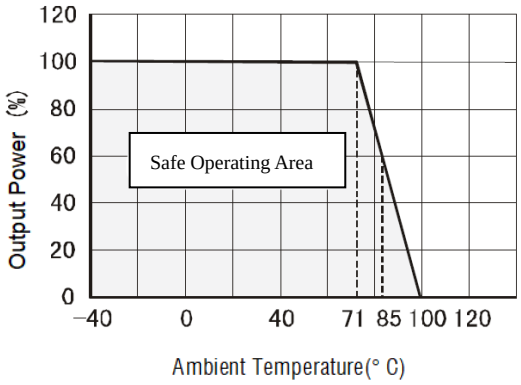
parameter	Test conditions	Min	Typ	Max	Units
Voltage accuracy	Io=0.1•••1.0 x Ionom Vi=Vi rated			±1	%
Line regulation	Vimin≤Vi≤Vimax			±0.2	%
Load regulation	Io=0.1•••1.0 x Ionom Vimin≤ Vi≤Vimax			±0.5	%
Auxiliary voltage accuracy	Main Load and auxiliary load differ 25%,the auxiliary circuit of the load with at least 25%, the main circuit with the full load			±3	%
Ripple and noise	20MHz bandwidth			±1	%
Over-current protection	Vimin≤Vi≤Vimax	120			%
Transient recovery time	25% load change			±5	%
Transient overshoot range	25% load change			400	us
Switch frequency	Vimin≤Vi≤Vimax		300		KHz

ENVIRONMENT CHARACTERISTICS

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

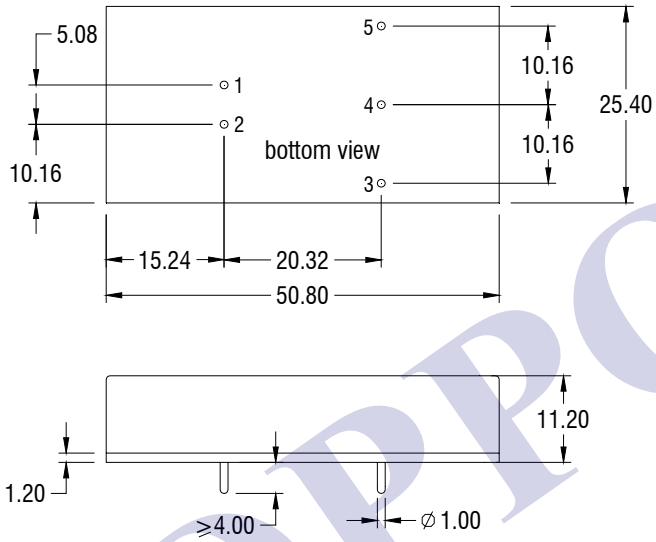
- Module in every environment temperature rating, case temperature under shall not exceed the maximum case temperature level.

TEMPERATURE DERATING GRAPHS



MECHANICAL DIMENSIONS

DIP Package

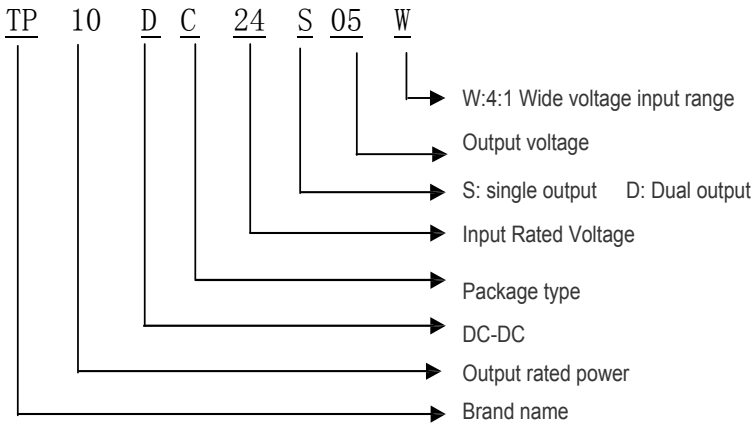


Units: mm
Pin diameter tolerances: ±0.1mm
General Tolerance: ±0.5mm

PIN CONNECTIONS

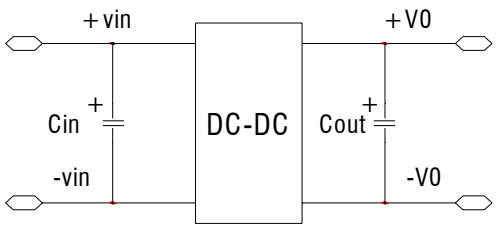
Pin	Single output	Dual output
1	+Vin	+Vin
2	-Vin	-Vin
3	-Vout	-Vout
4	/	Com
5	+Vout	+Vout

MODEL SELECTION

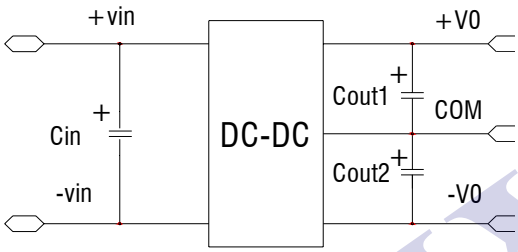


RECOMMEND CIRCUIT:

Single Output:



Dual Output:



- Add input capacitance Cin is helpful to improve the electromagnetic compatibility, recommend Cin use 47 uF-100uF of the electrolytic capacitors.
- If the module connect to the digital circuits, please add the Cout、Cout1、Cout2.
- If Cout, Cout1, Cout2 value is too high or lower ESR, it will cause the module instable,
- The recommended value of Cout, Cout1, Cout2 should be 100 uF/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.