



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

The rated output power of TP15DC converters is 15W, the outline dimensions is "50.8*25.4*11.2", 2:1 input voltage range, the voltage range is 9V-18V, 18V-36V, 36V-72V. The accuracy of the converter can reach ±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
50.8mm*25.4mm*11.2mm standard package	Fixed switching frequency	Operating temperature: -40°C to 85°C
Metal shielding package	RoHS compliant	1.5KVDC isolation

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
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

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		5x10 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
Startup voltage	The12V input module(9V-18V)	9.2	9.5	9.8	VDC
Startup voltage	The24V input module(18V-36V)			18	VDC
Startup voltage	The48Vinput module(36V-72V)			36	VDC
Under input voltage protection	The12V input module(9V-18V)			8.5	VDC
Under input voltage protection	The24V input module(18V-36V)			17	VDC
Under input voltage protection	The48Vinput module(36V-72V)			35	VDC
Start time	Input rising time from 5%-100%	20			ms

OUTPUT CHARACTERISTICS

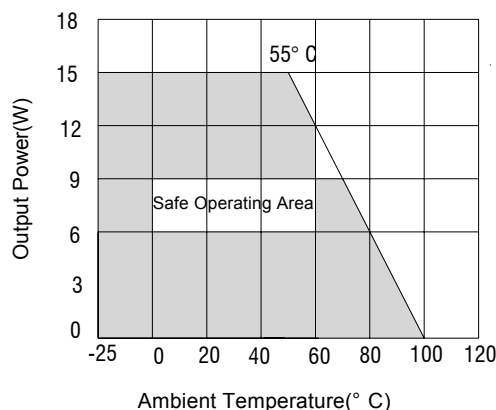
parameter	Test conditions	Min	Typ	Max	Units
Voltage accuracy	$I_o=0.1...1.0 \times I_{onom}$ $V_i=V_i$ rated			± 1	%
Line regulation	$V_{imin} \leq V_i \leq V_{imax}$			± 0.2	%
Load regulation	$I_o=0.1...1.0 \times I_{onom}$ $V_{imin} \leq V_i \leq V_{imax}$			± 0.5	%
Auxiliary voltage accuracy	Main 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.

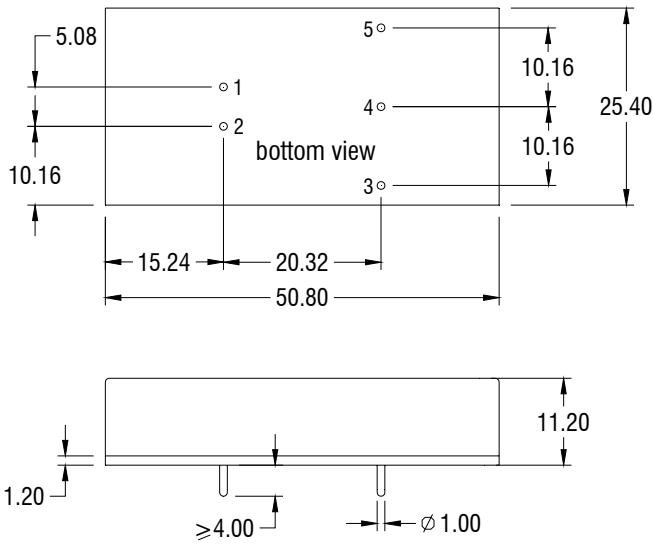
TEMPERATURE DERATING GRAPHS



MECHANICAL DIMENSIONS

PIN CONNECTIONS

DIP Package

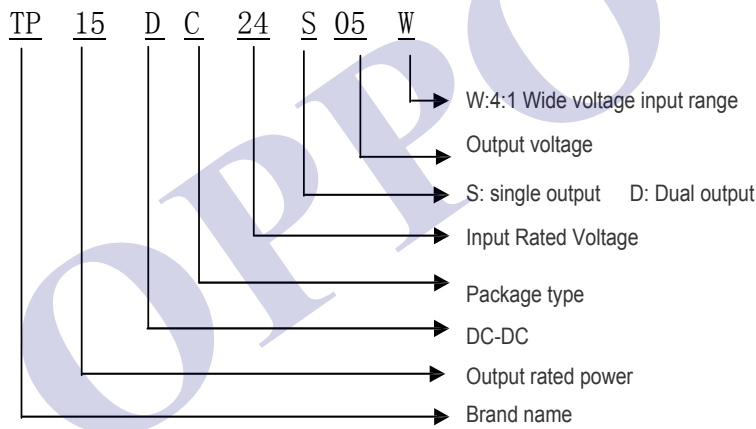


Units: mm

Tolerance: ± 0.2 mm

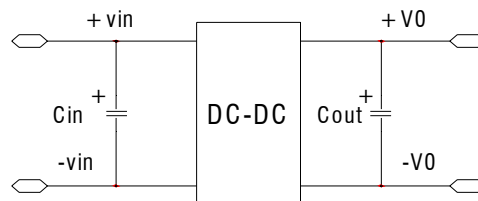
Pin	Single output	Dual output
1	+Vin	+Vin
2	-Vin	-Vin
3	-Vout	-Vout
4	/	Com
5	+Vout	+Vout

MODEL SELECTION



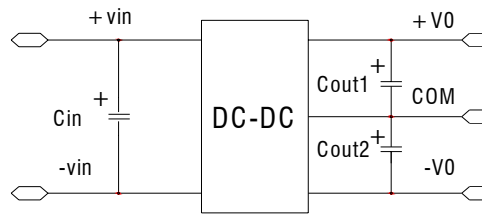
RECOMMEND CIRCUIT

Single Output:



RECOMMEND CIRCUIT

Dual Output:



- Add input capacitance C_{in} is helpful to improve the electromagnetic compatibility, recommend C_{in} use 47 μ F-100 μ F 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 μ F/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.

TEMPERATURE DEGRADING OF

TOPPOWER