TOPPOWER

TP05DA Series



DESCRIPTION: **5W Wide Input Voltage DC/DC Converters**

The rated output power of TP05DA converters is 5W,the outline dimensions is "31.75*20.32*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. Isolated voltage from 1KVDC to 3KVDC. The accuracy of the converter can reach ±1%,it can be widely used in telecommunications, railway transportation, instrument and etc.

FEATURES

5W output power	2:1 and 4:1 wide input voltage range	Over load protection
31.75mm*20.32mm*11.2mm standard package	Fixed switching frequency	Over voltage protection
Metal shell package	RoHS compliant	Operating temperature: -40℃to 85℃

SELECTION GUIDE

Part Number	Input Voltage		Output		Efficiency(Typ) %	Maxium capacitive load (u F)
	voltage (VDC)		Voltage (VDC)	Current (A)		
	Rated	Range values				
TP05DA12S03	12(2:1)	9-18	3.3	1	≥73	2200
TP05DA12S05	12(2:1)	9-18	5	1	≥74	1500
TP05DA12S12	12(2:1)	9-18	12	0.42	≥75	660
TP05DA12S15	12(2:1)	9-18	15	0.33	≥75	470
TP05DA12D05	12(2:1)	9-18	±5	±0.5	≥76	±850
TP05DA12D12	12(2:1)	9-18	±12	±0.21	≥78	±140
TP05DA12D15	12(2:1)	9-18	±15	±0.17	≥79	±47
TP05DA24S03	24(2:1)	18-36	3.3	1	≥74	2200
TP05DA24S05	24(2:1)	18-36	5	1	≥76	1500
TP05DA24S12	24(2:1)	18-36	12	0.42	≥76	660
TP05DA24S15	24(2:1)	18-36	15	0.33	≥76	470
TP05DA24S24	24(2:1)	18-36	24	0.21	≥76	470
TP05DA24D05	24(2:1)	18-36	±5	±0.5	≥78	±850
TP05DA24D12	24(2:1)	18-36	±12	±0.21	≥79	±140
TP05DA24D15	24(2:1)	18-36	±15	±0.17	≥79	±47
TP05DA48S03	48(2:1)	36-72	3.3	1	≥74	2200
TP05DA48S05	48(2:1)	36-72	5	1	≥76	1500
TP05DA48S12	48(2:1)	36-72	12	0.42	≥78	660
TP05DA48S15	48(2:1)	36-72	15	0.33	≥78	470
TP05DA48D05	48(2:1)	36-72	±5	±0.5	≥79	±850
TP05DA48D12	48(2:1)	36-72	±12	±0.21	≥79	±140
TP05DA48D15	48(2:1)	36-72	±15	±0.17	≥80	±47
TP05DA24S05W	24(4:1)	9-36	5	1	≥75	1500
TP05DA24S12W	24(4:1)	9-36	12	0.42	≥75	660
TP05DA24S15W	24(4:1)	9-36	15	0.33	≥75	470
TP05DA24D05W	24(4:1)	9-36	±5	±0.5	≥77	±850
TP05DA24D12W	24(4:1)	9-36	±12	±0.21	≥78	±140
TP05DA24D15W	24(4:1)	9-36	±15	±0.17	≥78	±47
TP05DA48S05W	48(4:1)	18-72	5	1	≥75	1500
TP05DA48S12W	48(4:1)	18-72	12	0.42	≥77	660
TP05DA48S15W	48(4:1)	18-72	15	0.33	≥77	470
TP05DA48D05W	48(4:1)	18-72	±5	±0.5	≥78	±850
TP05DA48D12W	48(4:1)	18-72	±12	±0.21	≥78	±140
TP05DA48D15W	48(4:1)	18-72	±15	±0.17	≥79	±47

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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	3000	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
Startup voltage	12V Input module(9V -18V)	8.8	9	9.3	VDC
Startup voltage	24V Input module(18V-36V)			18	VDC
Startup voltage	48V Input module(36V-72V)			36	VDC
Startup voltage	24V Input module(9V -36V)	8.8	9	9.3	VDC
Startup voltage	48V Input module(18V-72V)			18	VDC
Start rising 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 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

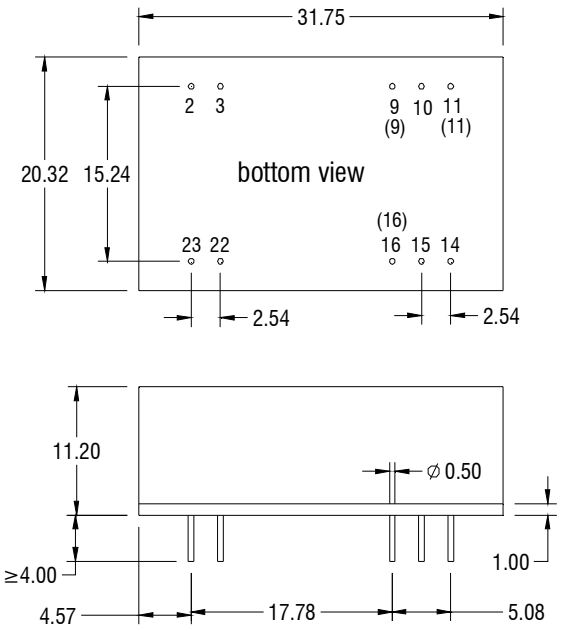
ENVIRONMENT CHARACTERISTICS

parameter	Test conditions	Min	Typ	Max	Units
Environment temperature	industrial-class	-40		+85	℃
Maximum case temperature	industrial-class			+85	℃
Storage temperature	Industry-class/ Military JI&JII class	-40		+105	℃
Relative humidity	No condensation	5		90	RH(%)
Temperature coefficient			±0.02		%/℃

- Case temperature under shall not exceed the maximum case temperature level.

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MECHANICAL DIMENSIONS



Units: mm

Tolerance: ±0.2mm

PIN CONNECTION		
Pin	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	/
(9)	/	Com
10	NC	NC
11	NC	/
(11)	/	-Vout
14	+Vout	+Vout
15	NC	NC
16	-Vout	/
(16)	/	Com
22	+Vin	+Vin
23	+Vin	+Vin

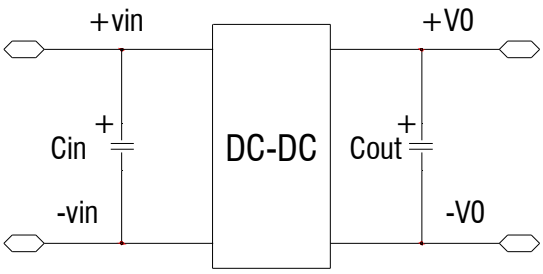
MODEL SELECTION

TP 05 D A 24 S 05 W

- W:4:1 Wide voltage input range
- Output voltage
- S:single output D:Dual output
- Input Rated Voltage
- Package type
- DC-DC
- Output rated power
- Brand name

RECOMMEND CIRCUIT:

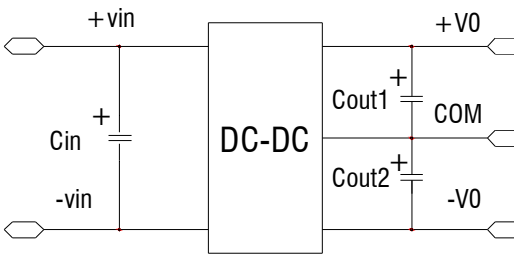
Single Output:



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RECOMMEND CIRCUIT:

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.

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