TOPPOWER

TP04DA Series

DESCRIPTION: **4W Wide Range Input Voltage DC/DC Converters**

The rated output power of TP04DA converters is 4W,the outline dimensions is "31.75*20.32*11.2", 2:1 and 4:1 wide input voltage range,the voltage range is 4.9V-9V,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

4W 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	Operating temperature: -40℃to 85℃
Metal shell packaging	RoHS compliant	3KVDC isolated optional

SELECTION GUIDE

Part Number	Input Vlotage		Output		Efficiency(Typ) %	Maxium capacitive load (u F)
	voltage (VDC)		Voltage (VDC)	Current (A)		
	Rated	Range values				
TP04DA05S05	5(2:1)	4.5-9	5	0.8	≥73	1000
TP04DA05D05	5(2:1)	4.5-9	±5	±0.4	≥73	±470
TP04DA12S04	12(2:1)	9-18	3.3	1.2	≥73	2200
TP04DA12S05	12(2:1)	9-18	5	0.8	≥74	1000
TP04DA12S12	12(2:1)	9-18	12	0.33	≥75	220
TP04DA12S15	12(2:1)	9-18	15	0.26	≥75	100
TP04DA12D05	12(2:1)	9-18	±5	±0.4	≥76	±470
TP04DA12D12	12(2:1)	9-18	±12	±0.16	≥78	±100
TP04DA12D15	12(2:1)	9-18	±15	±0.13	≥79	±47
TP04DA24S04	24(2:1)	18-36	3.3	1.2	≥74	2200
TP04DA24S05	24(2:1)	18-36	5	0.8	≥76	1000
TP04DA24S12	24(2:1)	18-36	12	0.33	≥76	220
TP04DA24S15	24(2:1)	18-36	15	0.26	≥76	220
TP04DA24D05	24(2:1)	18-36	±5	±0.4	≥78	±470
TP04DA24D12	24(2:1)	18-36	±12	±0.16	≥79	±100
TP04DA24D15	24(2:1)	18-36	±15	±0.13	≥79	±47
TP04DA48S04	48(2:1)	36-72	3.3	1.2	≥74	2200
TP04DA48S05	48(2:1)	36-72	5	0.8	≥76	680
TP04DA48S12	48(2:1)	36-72	12	0.33	≥78	330
TP04DA48S15	48(2:1)	36-72	15	0.26	≥78	100
TP04DA48D05	48(2:1)	36-72	±5	±0.4	≥79	±470
TP04DA48D12	48(2:1)	36-72	±12	±0.16	≥79	±100
TP04DA48D15	48(2:1)	36-72	±15	±0.13	≥80	±47
TP04DA24S05W	24(4:1)	9-36	5	0.8	≥75	680
TP04DA24S12W	24(4:1)	9-36	12	0.33	≥75	330
TP04DA24S15W	24(4:1)	9-36	15	0.26	≥75	100
TP04DA24D05W	24(4:1)	9-36	±5	±0.4	≥77	±470
TP04DA24D12W	24(4:1)	9-36	±12	±0.16	≥78	±100
TP04DA24D15W	24(4:1)	9-36	±15	±0.13	≥78	±47
TP04DA48S05W	48(4:1)	18-72	5	0.8	≥75	680
TP04DA48S12W	48(4:1)	18-72	12	0.33	≥77	470
TP04DA48S15W	48(4:1)	18-72	15	0.26	≥77	100

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

*Only product when order confirmed.

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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
Startup voltage	5V Input module(4.5V -9V)	4.5	5	9	VDC
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		30		KHz

ENVIRONMENT CHARACTERISTICS

parameter	Test conditions	Min	Typ	Max	Units
Environment temperature	industrial-class	-25		+55	℃
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.

MECHANICAL DIMENSIONS

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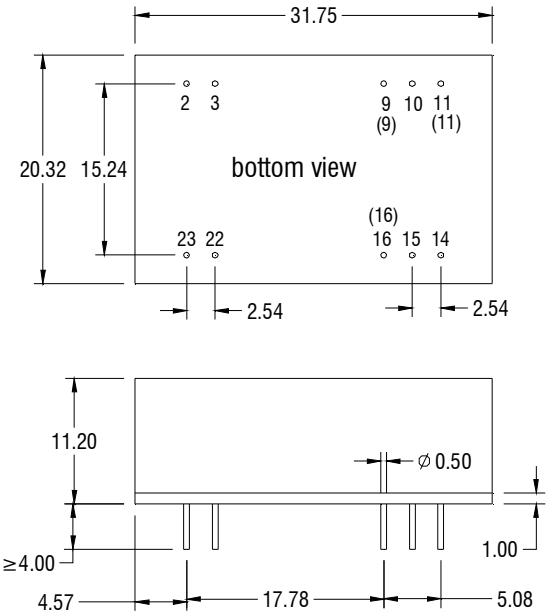
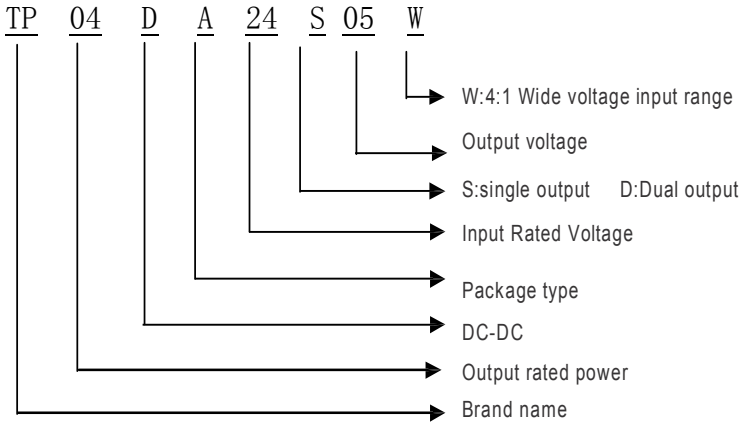


Units: mm

Tolerance: ±0.2mm

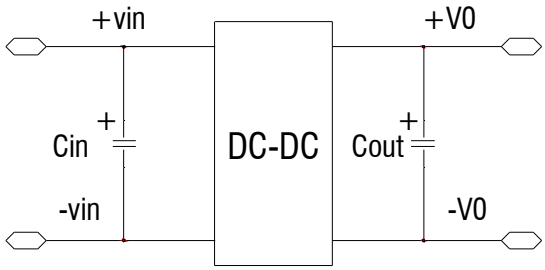
PIN CONNECTION		
Pin	Single Output	Dual Output
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	/
(9)	/	Com
10	NC	NC
11	NC	/
(11)	/	-Vout
14	+Vout	+Vout
15	NC	NC
16	-Vout	/
(16)	/	Com
22	+Vin	+Vin
23	+Vin	+Vin

MODEL SELECTION



RECOMMEND CIRCUIT:

Single Output:



RECOMMEND CIRCUIT:

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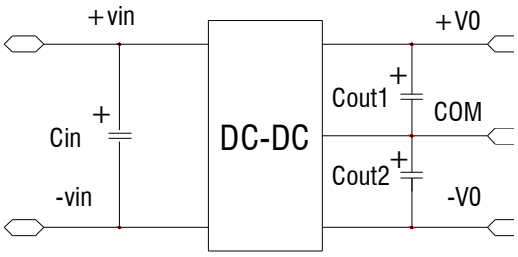
Dual Output:



- 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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