

CTB10 SERIES DC-DC Converter

10Watt 1600Vdc Isolated 4:1 Input Voltage Range
Single/Dual Output DIP16 Package



FEATURES :

- 10W DIL Package
- 4:1 Wide Input Voltage Range
- High Efficiency Up to 88%
- Regulated Output Types
- No Minimum Load Required
- Over Power and Short Circuit Protection
- Operating Temperature:-40°C to +91°C (with derating)
- UL/cUL/IEC/EN 62368-1 approved, CB-Report, CE Marking
- EMC standard of EMI EN55032:2015 approved
- EMC standard of EMS EN55035:2017 approved
- EMC standard of Canadian ICES-003 issue7(2020) approved
- EMC standard of 47CFR FCC Part 15 subpart B approved



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

Selection Guide

Part Number	Input Voltage Range	Input Current		Output Voltage	Output Current	Efficiency	Maximum capacitor Load
		No-Load	Full-Load				
	Vdc	mA (typ)	mA (typ)	Vdc	mA (typ)	% (typ)	μF
CTB10-24S05	9-36	9	496	5	2000	84	2200
CTB10-24S12	9-36	9	479	12	833	87	660
CTB10-24S15	9-36	9	473	15	666	88	470
CTB10-24S24	9-36	9	483	24	416	88	240
CTB10-24D12	9-36	9	473	±12	±416	88	±470
CTB10-24D15	9-36	9	473	±15	±333	88	±270
CTB10-48S05	18-75	6	248	5	2000	84	2200
CTB10-48S12	18-75	6	239	12	833	87	660
CTB10-48S15	18-75	6	237	15	666	88	470
CTB10-48S24	18-75	6	236	24	416	88	240
CTB10-48D12	18-75	6	236	±12	±416	88	±470
CTB10-48D15	18-75	6	237	±15	±333	88	±270

Part Number

CTB 10 - 24 S 05
A B C D E

A: Series
B: Output Power
C: Input Voltage
D: Single/Dual Output
E: Output Voltage

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Input Specifications

Parameters	Conditions	Min	Typ	Max	Units
Input Voltage	24V Models	9		36	Vdc
	48V Models	18		75	
Input Surge Voltage (100 ms max.)	24V Models	-0.7		50	Vdc
	48V Models	-0.7		100	
Start-up Voltage	24V Models			9	Vdc
	48V Models			18	
Under Voltage Shutdown	24V Models		8		Vdc
	48V Models		15		
Start-up Time	Constant Resistive Load, Nominal Vin		Power-up	30	ms
Input Filter	All Models		Internal LC type		

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Tolerance	100% Load	-2		+2	%
Line Regulation	Vin(min) to Vin(max) @100% Load	-0.5		+0.5	%
Load Regulation	0% Load to 100% Load	-0.5		+0.5	%
Load Cross Regulation	Asymmetrical Load 25% / 100% Load		Dual Output	+5.0	%
Ripple & Noise (BW=20MHz)	All models		60	100	mVp-p
Transient Response Setting Time	25% Load Step Change		350	500	us
Transient Response Deviation	25% Load Step Change	-5	±3	+5	%
Temperature Coefficient		-0.03		+0.03	%/°C
Output Power Protection	% of Io, Hiccup mode, Auto-recovery	120	155	190	%
Short Circuit Protection	Continuous [Hiccup Mode] ,Auto-Recovery				
Over Voltage Protection	5Vout		6.2		Vdc
	12Vout		15		
	15Vout		18		
	24Vout		30		

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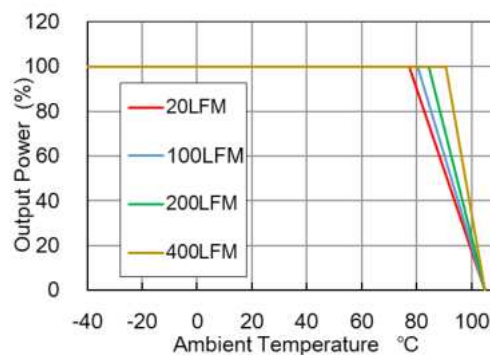
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General Specifications

Parameters	Conditions		Min	Typ	Max	Units
Isolation Voltage	Input To Output (60sec)		1600			Vdc
Isolation Resistance	500Vdc		1000			MΩ
Isolation Capacitance	100kHz, 1V				2200	pF
Switching Frequency	100% Load, Nominal Input	Other Output		390		KHz
Operating Ambient Temperature (Power Derating See Derating Graph)	Nominal Vin, 100% Load	CTB10-24S05, CTB10-48S05	-40		66	°C
		CTB10-24S12, CTB10-48S12			74	
		CTB10-24S15, CTB10-48S15 CTB10-24S24, CTB10-48S24 CTB10-24D12, CTB10-48D12 CTB10-24D15, CTB10-48D15			77	
Thermal Impedance	20LFM		20.4			°C/W
	100LFM		18.1			
	200LFM		15.1			
	400LFM		10.5			
Maximum Case Temperature					105	°C
Storage Temperature	-55				125	°C
Humidity	Non Condensing		5		95	%
Cooling	Natural Convection					
Case Material	Copper, Black Coating					
Potting Material	Silicone (UL94-V0)					
MTBF	MIL-HDBK-217F@25°C (calculated)			1.1X10 ⁶		Hours
Weight					10	g
Dimensions	24.3 x 14.3 x 9.8					mm

Temperature Derating Graph



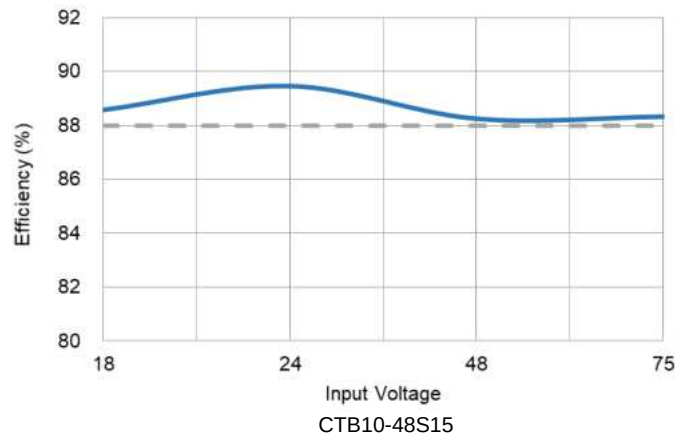
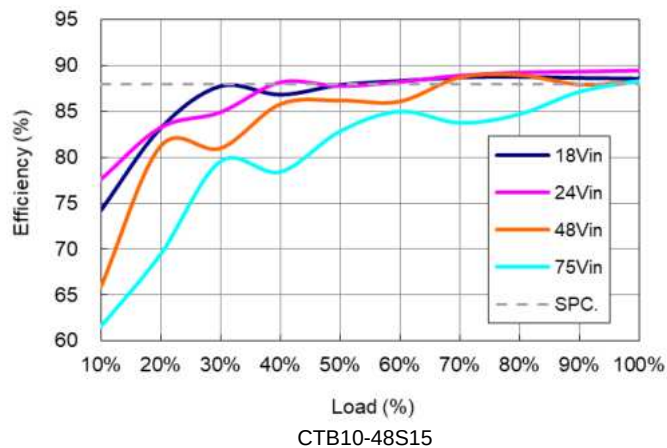
CTB10-48S15

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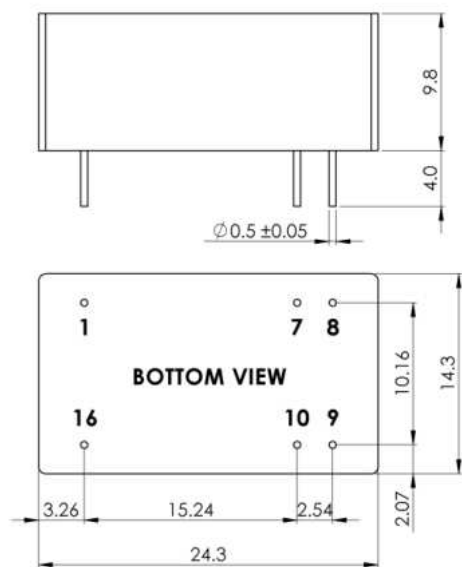
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Characteristic Curve



Dimensions



Unit : mm
Tolerance : XX.X ± 0.5 , XX.XX ± 0.25

PIN Assignment

Pin	Single	Dual	Diameter
1	-Vin	-Vin	0.5mm[0.02"]
7	NC	NC	0.5mm[0.02"]
8	NC	Com	0.5mm[0.02"]
9	+Vout	+Vout	0.5mm[0.02"]
10	-Vout	-Vout	0.5mm[0.02"]
16	+Vin	+Vin	0.5mm[0.02"]

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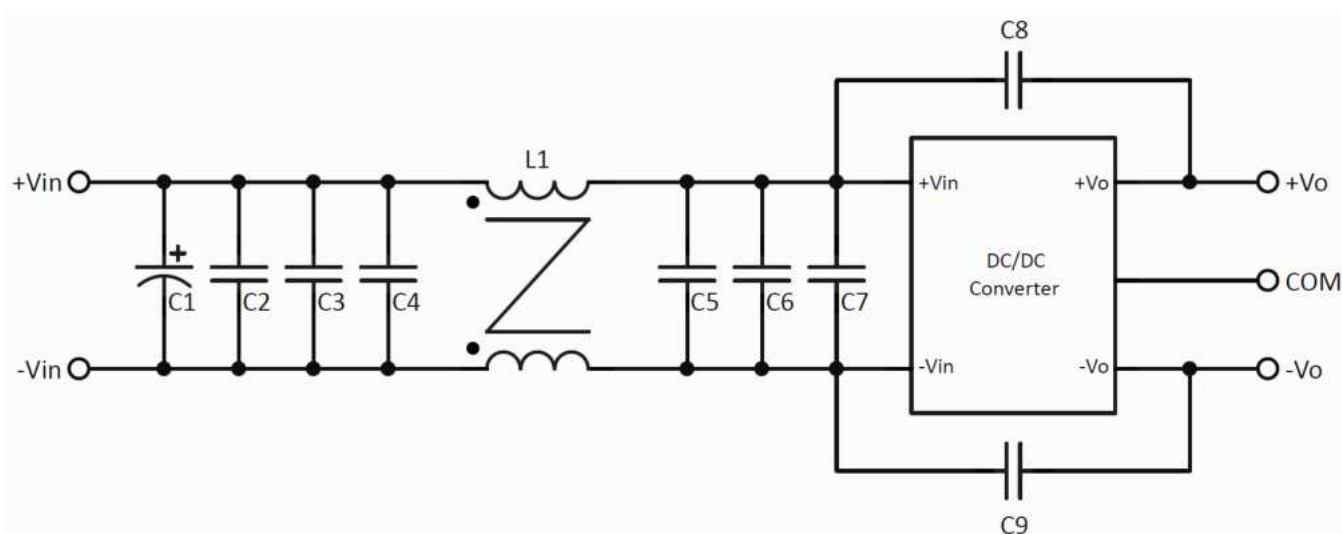
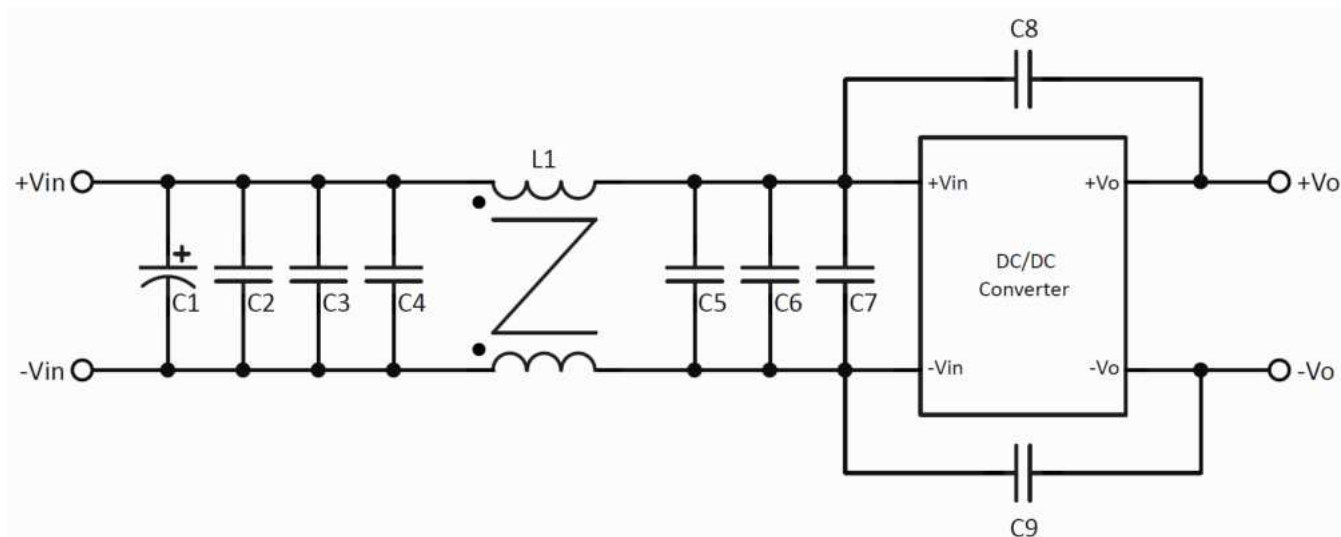
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EMI Filter Suggestion

Models	C1~C2,C5~C7	C3~C4	C8~C9	L1
CTB10-XXSXX CTB10-XXDXX	N/A	4.7 μ F/100V/ 1210 MLCC	470pF/2kV/	14 μ H Common choke

Single

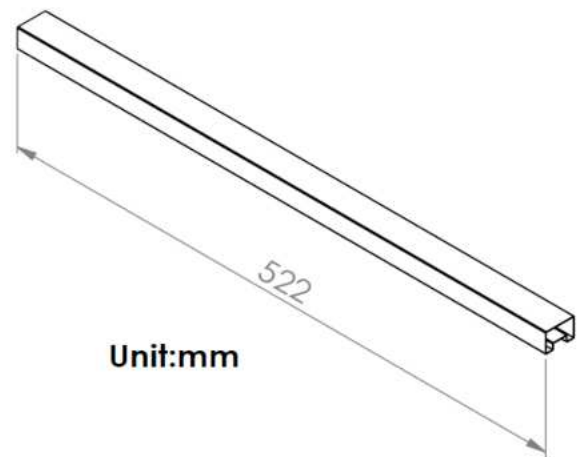
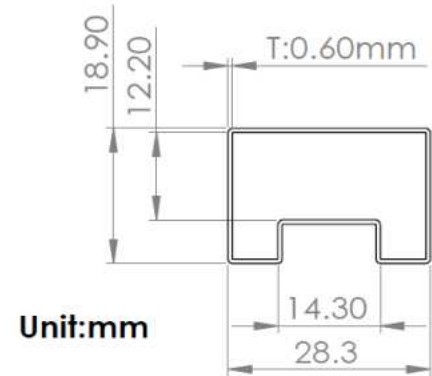
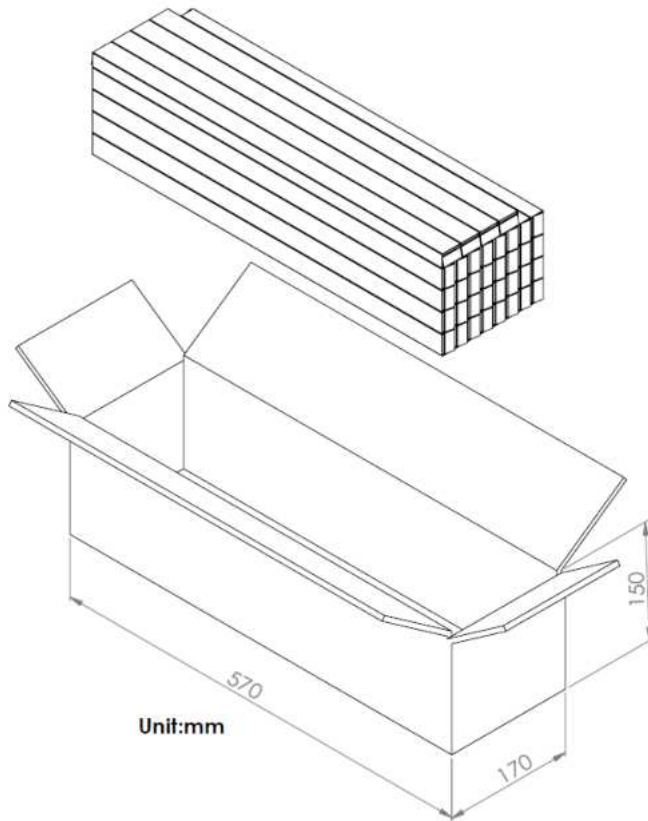


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Packing Formation



Tube	35 pcs (max)
BOX	1260 pcs (max)
Weight	10 grams/pcs
Total Weight	15.35 KG/BOX (max)