


 Size: 0.94in x 0.54in x 0.4in
 (23.8mm x 13.7mm x 10.2mm)

FEATURES

- Wide 4:1 Input Voltage Range
- Industry Standard DIP-16 Package
- Fully Regulated Output Voltage
- I/O Isolation 1500VDC
- No Min. Load Requirement
- RoHS Compliant
- Optional Heatsink
- Low No Load Power Consumption
- Shielded Metal Case with Insulated Baseplate
- Under Voltage Protection
- Over Load and Short Circuit Protection
- Conducted EMI EN 55032 Class A Approved
- UL/cUL/IEC/EN 62368-1 Safety Approval & CE Marking

DESCRIPTION

The DCDTW15 series of DC/DC converters offers up to 15 watts of output power in a compact 0.94" x 0.54" x 0.4" DIP-16 package. This series consists of both single and dual output models with a wide 4:1 input voltage range. Each model in this series has fully regulated output voltage, no minimum load requirement, as well as a shielded metal case with insulated baseplate. This series is RoHS compliant, has under voltage, over load and short circuit protection, and UL/cUL/IEC/E N 62368-1 safety approvals.

MODEL SELECTION TABLE

Single Output Models

Model Number	Input Voltage Range	Output Voltage	Max. Output Current	Input Current		Maximum Capacitive Load	Efficiency	Output Power
				No Load	Max Load			
DCDTW15-24S51	24VDC (9~36VDC)	5.1VDC	2940mA	10mA	726mA	1800µF	86%	15W
DCDTW15-24S12		12VDC	1250mA		718mA	820µF	87%	
DCDTW15-24S15		15VDC	1000mA		718mA	820µF	87%	
DCDTW15-24S24		24VDC	625mA		718mA	270µF	87%	
DCDTW15-48S51	48VDC (18~75VDC)	5.1VDC	2940mA	7mA	363mA	1800µF	86%	15W
DCDTW15-48S12		12VDC	1250mA		359mA	820µF	87%	
DCDTW15-48S15		15VDC	1000mA		359mA	820µF	87%	
DCDTW15-48S24		24VDC	625mA		359mA	270µF	87%	

MODEL SELECTION TABLE

Dual Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	Input Current		Maximum Capacitive Load	Efficiency	Output Power
				No Load	Max Load			
DCDTW15-24D12	24VDC (9~36VDC)	±12VDC	±625mA	10mA	718mA	#560µF	87%	15W
DCDTW15-24D15		±15VDC	±500mA		718mA	#270µF	87%	
DCDTW15-48D12	48VDC (18~75VDC)	±12VDC	±625mA	7mA	359mA	#560µF	87%	15W
DCDTW15-48D15		±15VDC	±500mA		359mA	#270µF	87%	

SPECIFICATIONS

All specifications are based on 25°C, Resistive Load, Nominal Input Voltage, and Rated Output Current unless otherwise noted.
 We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
		INPUT SPECIFICATIONS			
Input Voltage Range	24V Input Models	9		36	VDC
	48V Input Models	18		75	
Input Surge Voltage (1 sec. max)	24V Input Models	-0.7		50	VDC
	48V Input Models	-0.7		100	
Start-Up Threshold	24V Input Models			9	VDC
	48V Input Models			18	
Under Voltage Shutdown	24V Input Models		8		VDC
	48V Input Models		16		
Input Filter	All Models	Internal Pi Type			

SPECIFICATIONS

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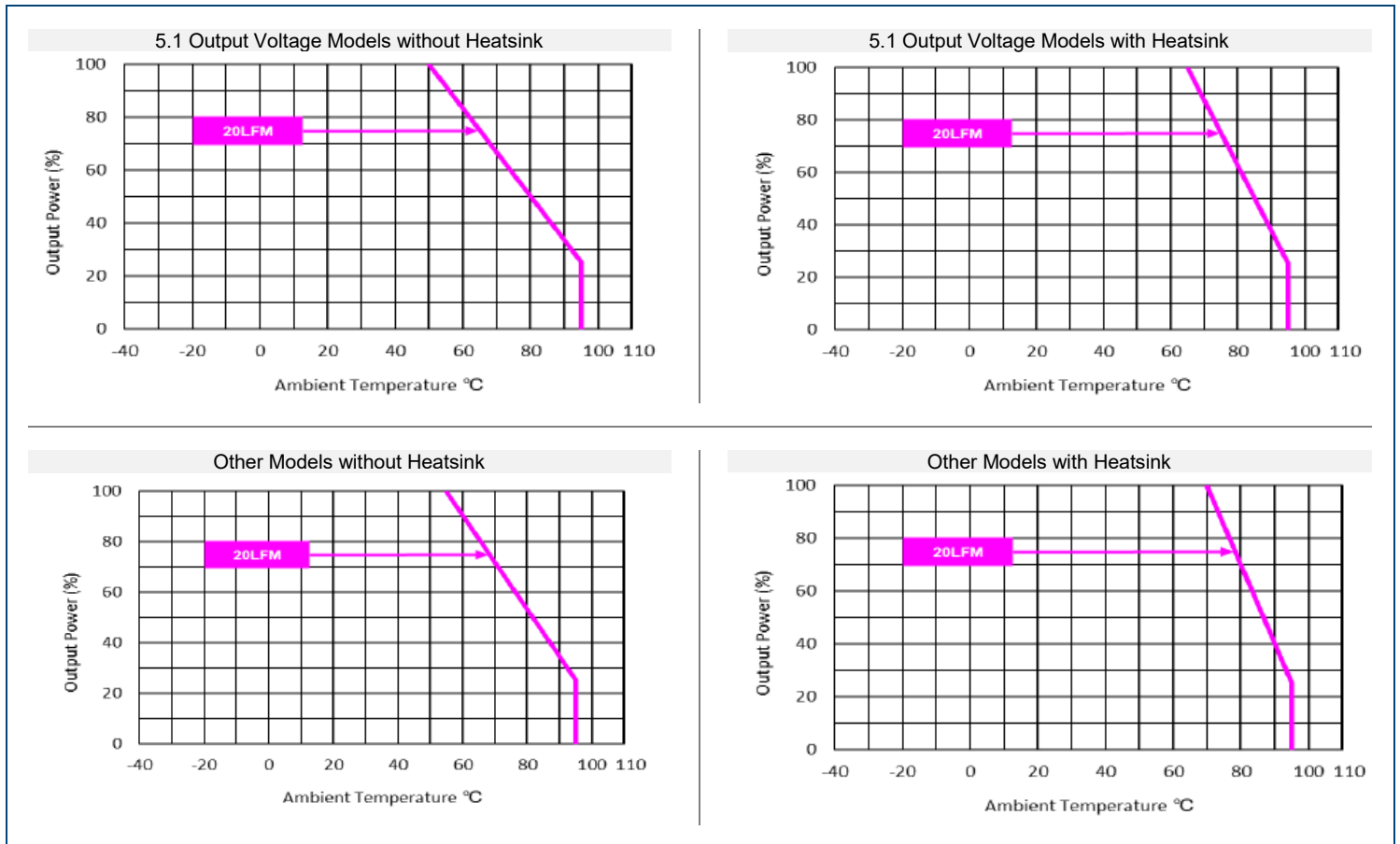
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Voltage Accuracy					±1.0	%Vom
Output Voltage Balance	Dual Output, Balanced Loads			±1.0	±2.0	%
Line Regulation	Vin=Min. to Max. @Full Load			±0.2	±0.8	%
Load Regulation	Io=0% to 100%				±1.0	%
Load Cross Regulation	Dual Output Models, Asymmetrical Load 25/100% Full Load				±5.0	%
Output Power			See Table			
Output Current			See Table			
Minimum Load			No Minimum Load Required			
Maximum Capacitive Load			See Table			
Ripple & Noise	0-20MHz Bandwidth, measured with a 2.2µF/50V MLCC			70		mVp-p
Start Up Time (Power On)	Nominal Vin and Constant Resistive Load			30		mS
Transient Recovery Time	25% Load Step Change				500	µSec
Transient Response Deviation	25% Load Step Change			±3	±5	%
Temperature Coefficient				±0.01	±0.02	%/°C
PROTECTION						
Short Circuit Protection	Continuous, Automatic Recovery		Hiccup Mode 0.3Hz typ.			
Over Load Protection	Hiccup		110	160		%
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	Nominal Vin, Load 100% Inom. For power derating, see derating curves	5.1VDC Single Output Models	Without Heatsink	-40	+50	°C
			With Heatsink	-40	+65	
		Other Models	Without Heatsink	-40	+55	
			With Heatsink	-40	+70	
Storage Temperature			-50		+125	°C
Case Temperature					+110	°C
Humidity	Non-Condensing				95	%RH
Cooling			Natural Convection			
Lead Temperature	1.5mm from case for 10sec.			260		°C
MTBF (Calculated)	MIL-HDBK-217F, @25°C, Ground Benign		2,026,549			Hours
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency				480		kHz
Isolation Voltage	60 Seconds		1500			VDC
	1 Second		1800			
Isolation Voltage	Input/Output to Case		1000			VDC
I/O Isolation Resistance	500VDC		1000			MΩ
I/O Isolation Capacitance	100KHz, 1V				2200	pF
PHYSICAL SPECIFICATIONS						
Weight			0.31oz (8.77g)			
Dimensions (L x W x H)			0.94in x 0.54in x 0.4in (23.8mm x 13.7mm x 10.2mm)			
Case Material			Metal with Non-Conductive Baseplate			
Pin Material			Copper Alloy			
SAFETY CHARACTERISTICS						
Safety Approvals ⁽⁵⁾			UL/cUL 62368-1 Recognition (UL Certificate) IEC/EN 62368-1 (CB Report)			
EMI ⁽⁶⁾	Conduction	EN 55032	Without External Components		Class A	
	Radiation	EN 55032	With External Components		Class A	
EMS ⁽⁶⁾			EN 55024, EN55035			
	ESD	Direct Discharge	Indirect Discharge HCP & VCP		A	
		EN61000-4-2, Air ±8kV, Contact ±6kV	Contact ±6kV			
	Radiated Immunity	EN61000-4-3	20V/m		A	
	Fast Transient	EN61000-4-4	±2kV		A	
	Surge	EN61000-4-5	±2kV		A	
	Conducted Immunity	EN61000-4-6	10Vrms		A	
PFMF	EN61000-4-8	30A/m		A		

NOTES

1. # for each output
2. Transient Recovery time is measured to within 1% error band for a step change in output load of 75% to 100%
3. It is recommended to protect the converter by a slow blow fuse in the input supply line.
4. Other inputs and outputs may be available, please contact factory.
5. This product is Listed to applicable standards and requirements by UL.
6. The external components might be required to meet EMI/EMS standard for some test items. Contact factory for more information.
7. Heatsink is available for this series. To indicate product with heatsink, add "H" suffix.

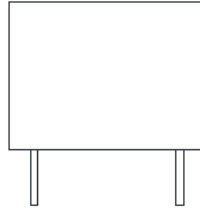
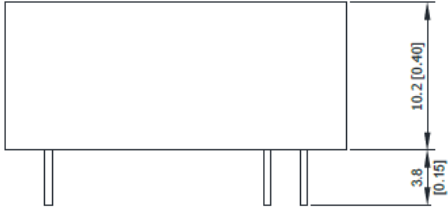
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES



MECHANICAL DRAWINGS

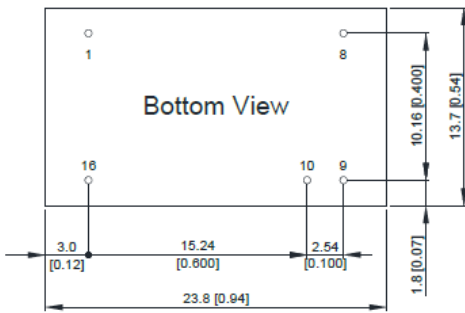
Standard Model



PIN CONNECTIONS

Pin	Single Output	Dual Output	Diameter mm (inches)
1	-Vin	-Vin	Ø0.5 [0.02]
8	NC	Common	Ø0.5 [0.02]
9	+Vout	+Vout	Ø0.5 [0.02]
10	-Vout	-Vout	Ø0.5 [0.02]
16	+Vin	+Vin	Ø0.5 [0.02]

NC= No Connection



Notes:

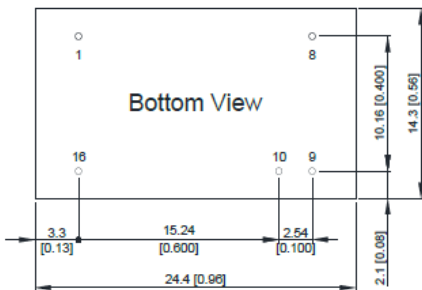
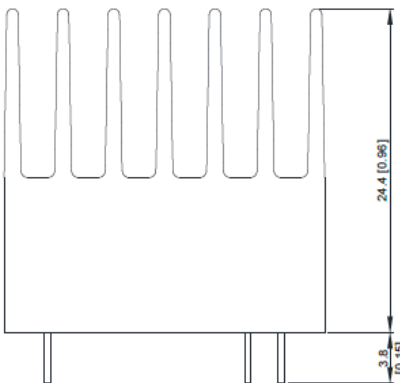
All dimensions in mm (inches)

Tolerance: X.X±0.5 (X.XX ±0.02)

X.XX±0.25 (X.XXX±0.01)

Pin Diameter Tolerance: X.X±0.05 (X.XX±0.002)

Standard Model with Heatsink ("H" Suffix)



Notes:

Heatsink Material: Aluminum

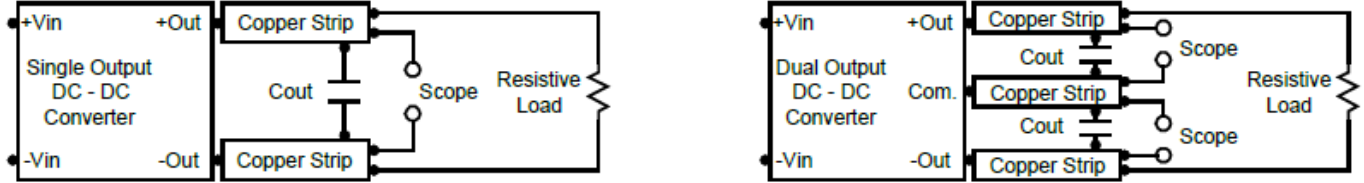
Finish: Black Anodized Coating

Weight: 14.2g

TEST SETUP

Peak to Peak Output Noise Measurement Test

Refer to the output specifications or add 2.2μF capacitor if the output specifications undefine Cout. Scope measurement should be made by using a BNC socket, measurement bandwidth is 0-20 MHz. Position the load between 50 mm and 75 mm from the DC-DC Converter.



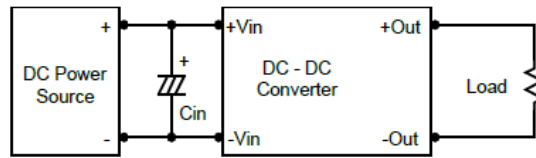
TECHNICAL NOTES

Overload Protection

To provide hiccup mode protection in a fault (output overload) condition, the unit is equipped with internal current limiting circuitry and can endure overload for an unlimited duration.

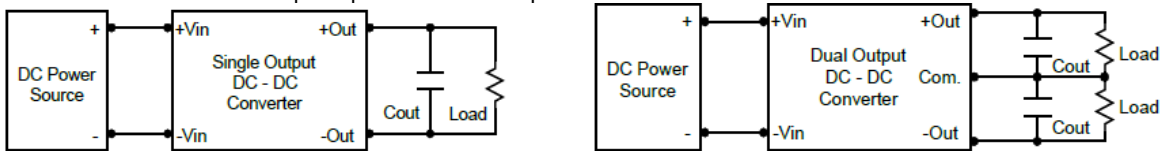
Input Source Impedance

The power module should be connected to a low ac-impedance input source. Highly inductive source impedances can affect the stability of the power module. In applications where power is supplied over long lines and output loading is high, it may be necessary to use a capacitor on the input to insure startup. By using a good quality low Equivalent Series Resistance (ESR < 1.0Ω at 100 kHz) capacitor of a 2.2μF for the 124V and a 27μF/200V/KXJ for the 48V input devices, capacitor mounted close to the power module helps ensure stability of the unit.



Output Ripple Reduction

A good quality low ESR capacitor placed as close as practicable across the load will give the best ripple and noise performance. To reduce output ripple, it is recommended to use 2.2μF capacitors at the output.

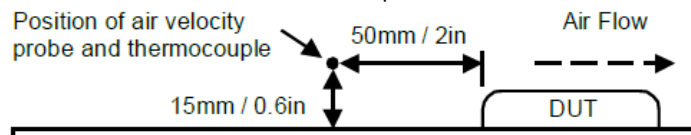


Maximum Capacitive Load

The DCDTW15 series has limitation of maximum connected capacitance on the output. The power module may operate in current limiting mode during start-up, affecting the ramp-up and the startup time. Connect capacitors at the point of load for best performance. The maximum capacitance can be found in the data sheet.

Thermal Considerations

Many conditions affect the thermal performance of the power module, such as orientation, airflow over the module and board spacing. To avoid exceeding the maximum temperature rating of the components inside the power module, the case temperature must be kept below 110°C. The derating curves are determined from measurements obtained in a test setup.



COMPANY INFORMATION

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