DTE10 Series

DC-DC Converter

XP Power

10 Watts

- Regulated single & dual outputs from 5VDC to 48VDC
- Wide 4:1 input range
- Fully encapsulated chassis mount
- Optional DIN rail version
- IEC/UL/cUL62368-1 safety approvals
- EN55032 class A with no external components
- Remote on/off
- 3kVDC isolation
- -40°C to +105°C operating temperature
- Full power to 80°C
- MTBF >4Mhrs (MIL-HBDK-27F, +25°C GB)
- 3 year warranty

Dimensions:

DTE10:
3.11 x 1.34 x 0.87" (79.0 x 34.0 x 22.0 mm)

Available in two wide (4:1) input ranges for nominal 12/24VDC and 24/48VDC, the DTE10 series of encapsulated 10W DC-DC converters are chassis mount as standard or can be ordered with a DIN rail mount. They have screw terminals for ease of connection and an LED provides clear 'power good' indication. Remote On/Off is standard and when inhibited the standby current is just 2.5mA. Isolation is 3kVDC input/output providing excellent separation between supply and load. The modules are fully protected against input undervoltage, short circuit and overload conditions. These features, along with a rugged design and wide operating temperature range make the DTE10 series suitable for a variety of commercial and industrial applications.

Models & Ratings

			Input Current[1,4]		Maximum Capacitive Load[5]	Efficiency[2]	Model Number[3]
Input Voltage	Output Voltage	Output Current	No Load	Full Load			
24V (9-36V)	5.1 V	2.00 A	30 mA	506 mA	1000 µF	84%	DTE1024S5V1
	12.0 V	0.833 A	30 mA	484 mA	470 µF	86%	DTE1024S12
	15.0 V	0.666 A	30 mA	484 mA	330 µF	86%	DTE1024S15
	24.0 V	0.418 A	30 mA	484 mA	150 µF	86%	DTE1024S24
	48.0 V	0.208 A	30 mA	495 mA	68 µF	84%	DTE1024S48
	±12.0 V	±0.416 A	30 mA	484 mA	±220 µF	86%	DTE1024D12
	±15.0 V	±0.333 A	30 mA	484 mA	±150 µF	86%	DTE1024D15
	±24.0 V	±0.208 A	30 mA	489 mA	±68 µF	85%	DTE1024D24
48V (18-75V)	5.1 V	2.00 A	20 mA	253 mA	1000 µF	84%	DTE1048S5V1
	12.0 V	0.833 A	20 mA	242 mA	470 µF	86%	DTE1048S12
	15.0 V	0.666 A	20 mA	242 mA	330 µF	86%	DTE1048S15
	24.0 V	0.418 A	20 mA	242 mA	150 µF	86%	DTE1048S24
	48.0 V	0.208 A	20 mA	248 mA	68 µF	84%	DTE1048S48
	±12.0 V	±0.416 A	20 mA	242 mA	±220 µF	86%	DTE1048D12
	±15.0 V	±0.333 A	20 mA	242 mA	±150 µF	86%	DTE1048D15
	±24.0 V	±0.208 A	20 mA	245 mA	±68 µF	85%	DTE1048D24

Notes

1. Input current measured at nominal input voltage.
2. Typical values.
3. For optional version fitted with DIN Clip add suffix '-D' e.g. DTE1024S24-D. DIN Rail mounting clip is available as a separate item, order code DTE10 DIN CLIP.
4. Input current is typically 2.5mA at nominal input voltage when output is remotely turned off.
5. Per output.

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage Range	9		36	VDC	12V & 24V nominal input voltage
	18		75	VDC	24V & 48V nominal input voltage
Input Current					See Models and Ratings table
Inrush Current		89/161		A	DTE1024/DTE1048 series
External Fuse Required	2A/1A timelag 24V/48V nominal				
Input Filter	Pi type				
Undervoltage Lockout	On at >9 V. Off <8.0 V				DTE1024 series
	On at >18 V. Off <16.0 V				DTE1048 series
Input Surge			50	VDC	DTE1024 series for 1s
			100	VDC	DTE1048 series for 1s
Remote On/Off	On: Logic High (3.5-12 V) or open circuit				
	Off: Logic Low (<1.2 V) or short pin 1 to pin 2				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5.1		48	V	See models and ratings table
Initial Set Accuracy			±2	%	At full load
Minimum Load	0			A	No minimum load required
Start Up Delay			60	ms	At nominal input voltage
Line Regulation			±0.5	%	From minimum to maximum input voltage
Load Regulation			±0.5	%	0 - 100% load
Cross Regulation			±5	%	On dual output models with one output at 25% load and the other varied from 10% to 100% load.
Transient Response			±5	% deviation	Recovery to within 1% in <500µs for a 25% load change
Ripple & Noise		90		mV pk-pk	5V-15V output models, 20MHz bandwidth
		180			24V, 48V output models, 20MHz bandwidth
Short Circuit Protection					Trip & Restart (hiccup mode), auto recovery
Overload Protection		150		%	Trip & Restart (hiccup mode)
Temperature Coefficient			±0.02	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		86		%	See Models and Ratings table
Isolation	3000			VDC	For 60s functional
Isolation Resistance	1000			MΩ	At 500VDC
Input to Output Capacitance		2200		pF	At 100KHz, 1V
Switching Frequency		330		kHz	
Power Density			3.8	W/in³	
Mean Time Between Failure	4100			kHrs	MIL-HDBK-217F, +25°C GB
Case Material	Epoxy potted in plastic case, UL94V-0				
Weight		0.145 (66.0)		lb (g)	DIN rail option add 0.240 (109)

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-40		+105	°C	See derating curve
Storage Temperature	-50		+125	°C	
Case Temperature			+105	°C	
Thermal Impendance		4.3		°C/W	Natural convection, 20 LFM case to air
Humidity	5		95	%RH	Non-condensing
Cooling					Natural convection
Altitude			5000	m	Operating
Shock and Vibration	Tested to EN60068-2				

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class A	
Radiated	EN55032	Class A	

EMC: Immunity

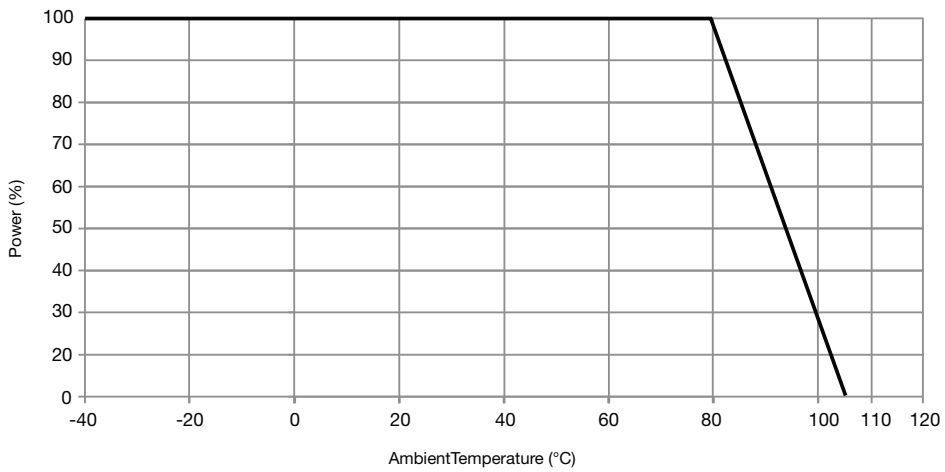
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
Immunity	EN55035			
ESD Immunity	EN61000-4-2	±6kV Contact, ±8kV Air	A	
Radiated Immunity	EN61000-4-3	10V/m	A	
EFT/Burst	EN61000-4-4	±2kV	A	
Surges	EN61000-4-5	±2kV	A	
Conducted Immunity	EN61000-4-6	10Vrms	A	
Magnetic Fields	EN61000-4-8	1000A/m	A	

Safety Approvals

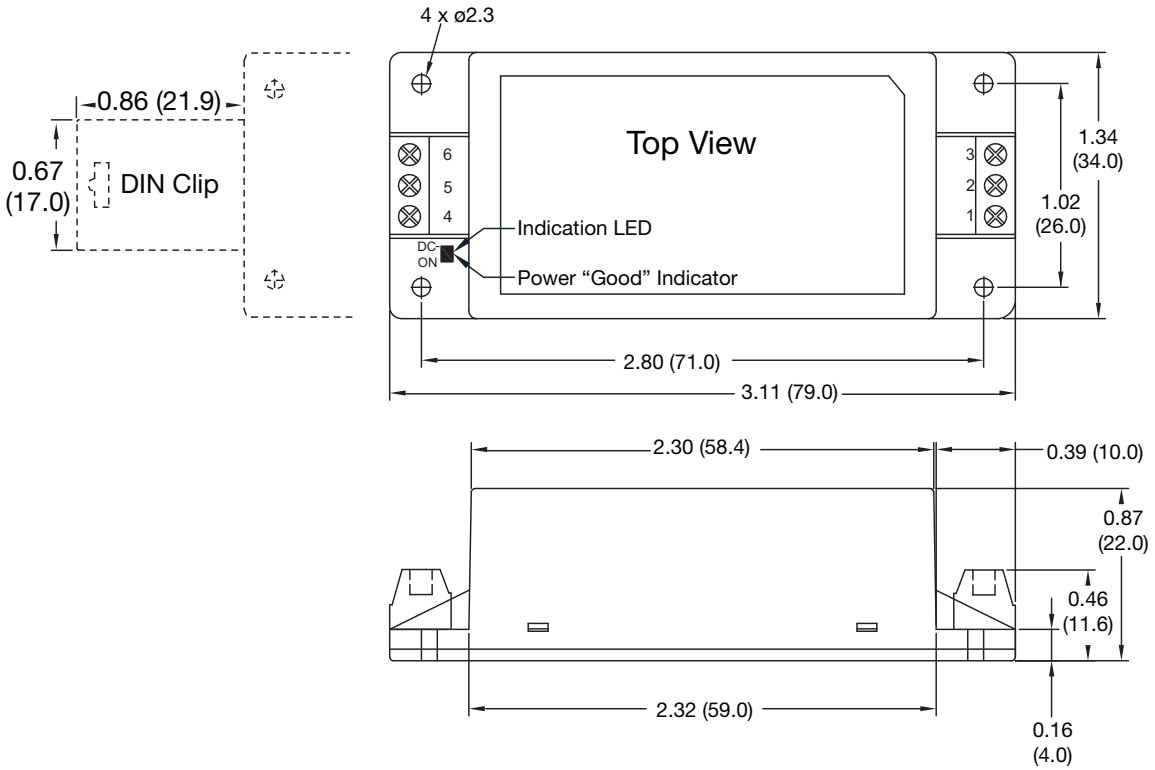
Safety Agency	Safety Standard	Notes & Conditions
CB	IEC62368-1	
UL	UL62368-1	
CSA	CAN/CSA-C22.2 No. 62368-1	

Application Notes

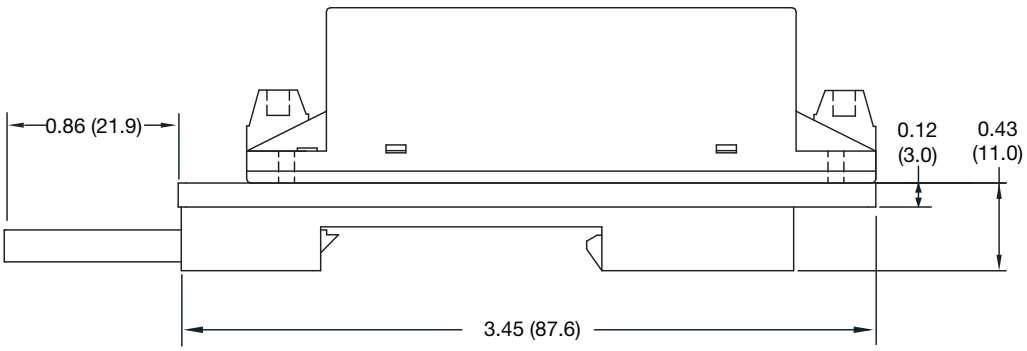
Derating Curve for Convection Cooling



Mechanical Details



-D Version



Pin Connections		
Pin	Single Output	Dual Output
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	No Connection	Common
6	+Vout	+Vout

Notes

1. All dimensions are in inches (mm)
2. Weight: 0.145 lbs (66 g) approx
3. Weight for -D version: 0.240 lbs (108 g) approx
4. Terminal wire size 0.240mm² max
5. Screw terminal torque 4.5 to 6.2 lb-in (0.5 to 0.7 Nm)
6. Case tolerance: ±0.02 (±0.5)