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DTE20 series

XP Power

20W

DC-DC power supplies

Available in two wide (4:1) input ranges for nominal 24VDC & 48VDC, the DTE20 series of encapsulated 20W DC-DC converters are chassis mount as standard or can be ordered with a DIN rail mount (suffix -D).

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 3mA. Isolation is 2.5kVDC 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 DTE20 series suitable for a variety of commercial and industrial electronics applications.



Features

- Regulated single output
- 4:1 input range
- Single outputs 5.1 to 48VDC
- Fully encapsulated chassis mount
- DIN rail mount option
- 3.0kVDC isolation
- EN55032 Class A with no external components
- Remote On/Off
- -40°C to +95°C operating temperature
- Full power to +85°C
- 3 year warranty

Applications

Industrial

Instrumentation

Process control

Robotics

Technology

Dimensions

96.0 x 54.0 x 23.3mm (3.78" x 2.13" x 0.92")

Documentation

For further information click the link or scan the code

→ xppower.com

Models & ratings

Model number[3]	Input voltage	Output voltage	Output current	Input current[1,4]		Maximum capacitive load[5]	Efficiency[2]
				No load	Full load		
DTE2024S5V1	24VDC (9-36VDC)	5.1VDC	4.0A	70mA	0.94A	6800µF	90%
DTE2024S12		12.0VDC	1.67A		0.92A	1160µF	91%
DTE2024S24		24.0VDC	0.835A		0.92A	300µF	91%
DTE2024S48		48.0VDC	0.42A		0.94A	75µF	89%
DTE2048S5V1	48 V (18-75VDC)	5.1VDC	4.0A	35mA	0.47A	6800µF	90%
DTE2048S12		12.0VDC	1.67A		0.46A	1160µF	91%
DTE2048S24		24.0VDC	0.835A		0.46A	300µF	91%
DTE2048S48		48.0VDC	0.42A		0.47A	75µF	89%

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. DTE2024S24-D.
4. Input current is typically 3mA at nominal input voltage when output is remotely turned off.

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AC-DC power supplies

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	9		36	VDC	24VDC nominal
	18		75		48VDC nominal
Input current	See models and ratings table				
Input filter	Pi type				
Undervoltage lockout	On at >9VDC, Off <7.5VDC				24VDC nominal
	On at >18VDC, Off <16.0VDC				48VDC nominal
Input surge			50	VDC	24VDC nominal for 100ms
			100		48VDC nominal for 100ms
Remote on/off	On: Logic High (3.5-12VDC) or open circuit				
	Off: Logic Low (<1.2VDC) or short pin 1 to pin 2				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	5.1		48	VDC	See models and ratings table
Initial set accuracy		±1	±2	%	
Minimum load	No minimum load required				
Start up delay		50		ms	
Line regulation		±0.5		%	
Load regulation		1		%	0 - 10% load
Transient response			5	% deviation	Recovery to within 1% in <250µs for a 50% load change at 0.25A/µs rate
Ripple & noise			100	mV pk-pk	5.1VDC model, 20MHz bandwidth
			150		12VDC & 48VDC models, 20MHz bandwidth
			200		48VDC models, 20MHz bandwidth
Short circuit protection	Trip & restart (hiccup mode), auto recovery				
Overload protection		150		%	Trip & restart (hiccup mode)
Overvoltage protection		120		%	Zener diode clamp
Temperature coefficient			0.02	%/°C	

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DTE20 series

AC-DC power supplies

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		90		%	See models and ratings table
Isolation	2500			VDC	For 60s functional
Isolation resistance	1000			MΩ	At 500VDC
Input to output capacitance			2200	pF	
Switching frequency		285		kHz	
Power density			0.16 (2.7)	W/cm³ (W/in³)	
Mean time between failure	750			khrs	MIL-HDBK-217F, +25°C GB
Weight		107 (0.214)		g (lbs)	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+95	°C	See derating curve
Storage temperature	-50		+125	°C	
Case temperature			95	°C	
Thermal impendance	3.9			°C/W	Natural convection
	3.3				100LFM
	3.1				200LFM
	2.5				400LFM
Humidity	5		95	%RH	Non-condensing
Coolling	Natural convection				
Shock	±3 shocks in each plane, total 18 shocks of 30g : 11ms halfsine. Conforms to EN60068-2-27 & EN60068-2-47				
Vibration	10-500Hz at 2g sweep and endurance at resonance in all 3 planes. Conforms to EN60068-2-6				

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Level A	With no external components
Radiated	EN55032	Level A	See application notes

Emissions - Immunity

Phenomenon	Standard	Test level	Criteria	Notes & conditions
Immunity	EN55035			
ESD immunity	EN61000-4-2	±4kV contact, ±8kV air	A	
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	3	A	
Surge	EN61000-4-5	3	A	
Conducted	EN61000-4-6	10Vm	A	
Magnetic fields	EN61000-4-8	30A/m	A	

DTE20 series

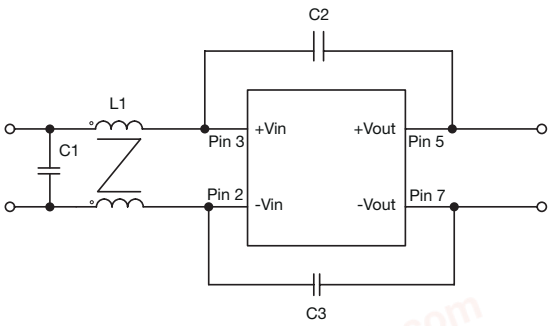
AC-DC power supplies

Safety approvals

Certification	Standard	Notes & conditions
UL	UL/cUL60950-1, UL/cUL62368-1	
CB	IEC60950-1, IEC62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

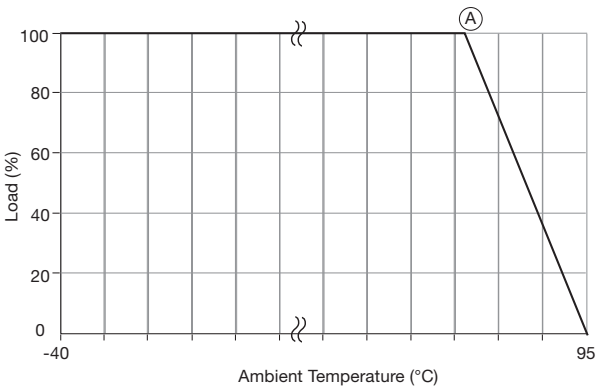
Application notes

Radiated emissions



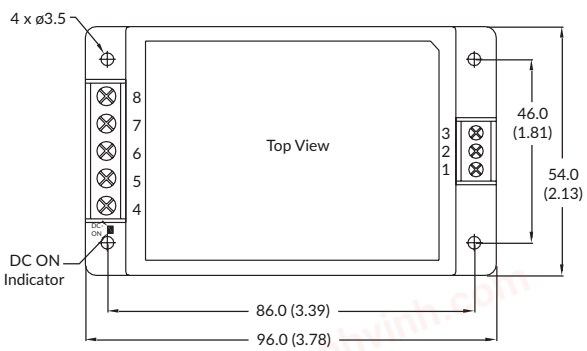
Model	L1	C1	C2	C3
DTE2024SXX	120µH	4.7µF/50VDC	None	220pF/3KV
DTE2048SXX	120µH	3.3µF/100VDC	220pF/3KV	220pF/3KV

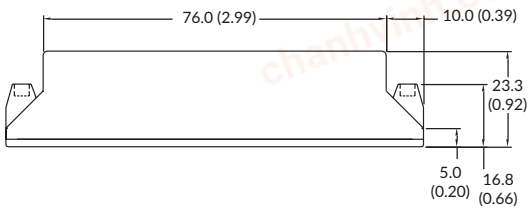
Derating curve for convection cooling



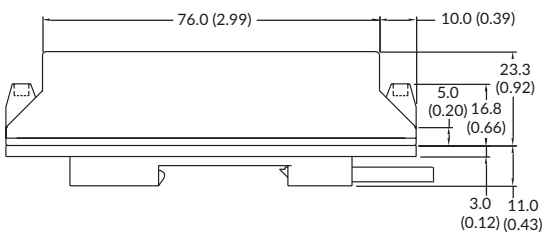
Ⓐ : 87°C for DTE2024S12, S24
DTE2048S12, S24
: 86°C for DTE2024S5V1
DTE2048S5V1
: 85°C for DTE2024S48
DTE2048S48

Mechanical details





-D version



Pin	Function
1	Remote On/Off
2	-Vin
3	+Vin
4	No Connection
5	-Vout
6	No Connection
7	+Vout
8	No Connection

Notes:

1. All dimensions in mm (inches).
2. Weight: 107g (0.214lbs) approx, -D version: 166g (0.332lbs) approx
3. Terminal wire size 1.5mm² max
4. Screw terminal torque 0.5 to 0.7Nm (4.5 to 6.2lb-in)
5. Case tolerance: ±0.5 (±0.02)