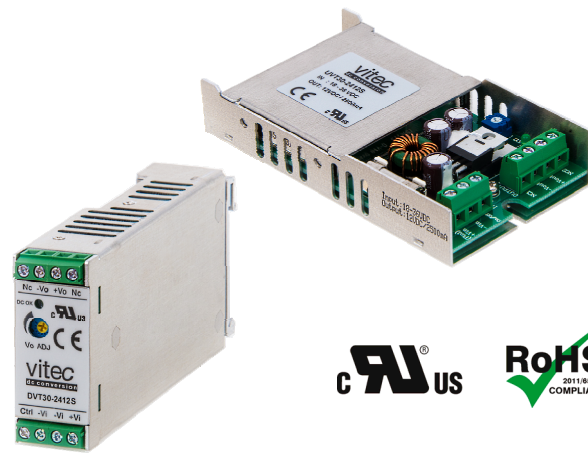


### FEATURES AND APPLICATIONS

- 2:1 Input Range
- High Efficiency up to 88%
- U-Channel or DIN Rail Chassis
- Low Ripple & Noise
- Screw Terminals for Input & Output
- UL60950-1 certified
- RoHS ✓



### GENERAL DESCRIPTION

The UVT20 and DVT20 series is a family of 20 Watt single and dual output DC-DC converters. These converters were designed as DC/DC Plug-in solution and are available in U-Channel chassis (UVT20), or DIN rail chassis (DVT20; Reliable snap-on for DIN rail TS-35/7.5 or TS-35/15). These devices offering high performance features such as 1500 Vdc input/output isolation voltage, continuous short circuit protection with automatic restart and tight line and load regulation. Further features are internal input fuse protection, internal reverse polarity protection, internal input in-rush current limit circuit, over voltage protection and Output DC-OK LED indicator.

Models operate from a 2:1 input bus voltage of 12, 24 and 48 Vdc offering output voltage levels of 3.3, 5, 12, 15,  $\pm 12$  and  $\pm 15$  Vdc. Cooling is by free-air convection.

### 2:1 Input – Single and Dual Outputs

Type Number	Input Voltage [Vdc]	Output Voltage [Vdc]	Output Current Full load [mA]	Input Current No load [mA] 12/24/48	Input Current Full load [mA] 12/24/48	Output Ripple & Noise [mVpp]	Efficiency [%] 12/24/48	max. Cap. Load [ $\mu$ F]
xVT20-yy3R3S	12 24 48	3.3	5000	118/32/17	1763/859/424	60	83/85/86	13000
xVT20-yy05S		5.0	4000	79/37/22	2083/1004/502	75	85/88/88	6800
xVT20-yy12S		12.0	1670	97/59/38	2119/1031/509	75	84/86/87	2200
xVT20-yy15S		15.0	1330	44/45/53	2104/1026/513	75	84/86/86	755
xVT20-yy12D		$\pm 12.0$	$\pm 833$	52/34/23	2109/1028/508	100	84/86/87	$\pm 680$
xVT20-yy15D		$\pm 15.0$	$\pm 667$	59/35/23	2111/1017/508	100	84/87/87	$\pm 450$

#### x ... Chassis:

U ... U-Channel Chassis  
D ... DIN Rail Chassis

#### Options UVT20-Series (U-Channel Chassis):

Suffix N Remote On/Off - Negative Logic  
Suffix -DR UVT20 with DIN rail clip for DIN35

#### yy ... nominal input voltage:

xVT20-Series: 12 (9.5 – 18 Vdc)  
24 (18 – 36 Vdc)  
48 (36 – 75 Vdc)

#### Options DVT20-Series (DIN Rail Chassis):

Suffix N Remote On/Off - Negative Logic

e.g. UVT20-1205S (U-Channel Chassis, Input 12 Vdc, Output 5 Vdc)  
UVT20-483R3S-DR (U-Channel Chassis, Input 48 Vdc, Output 3.3 Vdc, DIN rail clip option)  
DVT20-2412D (DIN rail Chassis, 24 Vdc input,  $\pm 12$  Vdc dual output)

### ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal Input voltage, rated output current unless otherwise specified.

#### Input Specifications

Input Voltage Range	12V: 9.5 to 18 Vdc
	24V: 18 to 36 Vdc
	48V: 36 to 75 Vdc
Input Fuse (slow blow)	12V: 6 A
	24V: 6 A
	48V: 4 A
Input Surge Voltage	12V: 36 Vdc, 100 mS, max.
	24V: 50 Vdc, 100 mS, max.
	48V: 100 Vdc, 100 mS, max.
In-Rush Current	15 A
Input Reflected Ripple Current	10 mApp
Start Up time (nom. input, const. res. load)	100 mS (Power up)
	10 mS (Remote On/Off)

#### Output Specifications

Output Power	20 Watts, max.
Output Voltage Accuracy	±1.0%
	±1.5% (3.3 Vout)
Output Voltage Trim	±10%
The output voltage could be adjusted by a potentiometer (single output only).	
Min. Load for specified regulation	0%
Ripple and Noise (20 MHz BW)	see table
Line Voltage Regulation	±0.2% (Single)
	±0.5% (Dual)
Load Voltage Regulation	±1.0%
	±1.5% (3.3 Vout)
Cross Regulation (Dual)	±5.0% (Asym. load 25%/100% FL)
Temperature Coefficient	±0.02%/°C, max.
Over Load Protection	150% (of FL at nominal input)
Short Circuit Protection	Continuous (Hiccup)
Over Voltage Protection	3.3 Vout: 3.9 Vdc    12 Vout: 15 Vdc
	5 Vout: 6.2 Vdc    15 Vout: 18 Vdc
Transient response recovery time	250 µsec (25% load step change)
Output Indicator	Green LED

#### EMC Characteristics

EMI	EN55022	Class B
ESD	EN61000-4-2	Perf. Criteria A (Air ±8 kV; Contact ±6 kV)
Radiated Im.	EN61000-4-3	Perf. Criteria A (10 V/m)
F. Transients	EN61000-4-4	Perf. Criteria A (±2 kV)
Surge	EN61000-4-5	Perf. Criteria A (±0.5 kV)
Conducted I.	EN61000-4-6	Perf. Criteria A (10 Vrms)

#### General Specifications

Efficiency	see table
Switching Frequency	500 kHz, ±10%
Isolation Voltage	1500 Vdc, min. (1 minute)
Isolation Resistance	10 <sup>9</sup> Ohms, min.
Isolation Capacitance	4000 pF, max.
Approvals	UL60950-1 certified (E352836) IEC/EN60950-1 (designed to meet)

#### Remote ON/OFF Control

Control Voltage referenced to negative (-) input	
Positive Logic (Standard)	ON-Control: 3 to 12 V or open
	OFF-Control: 0 to 1.2 V or short
Negative Logic (Suffix N)	ON-Control: 0 to 1.2 V or short
	OFF-Control: 3 to 12 V or open
Input current of remote control pin	-0.5 mA to +0.5 mA, max.
Remote off input current	2.5 mA

#### Physical Characteristics

Dimensions	U-channel:	101.6 x 57.2 x 19.1 mm 4.00 x 2.25 x 0.75 inches
	DIN rail:	125.0 x 57.6 x 24.5 mm 4.92 x 2.27 x 0.97 inches
	Chassis Material	Aluminium
Weight	U-channel:	89 g
	DIN rail mounting:	148 g

#### Environmental Specification

Operating Temperature	Case mounting:	-40°C to +70°C without Derating +70°C to 88°C with Derating
	DIN rail mounting:	-40°C to +73°C without Derating +73°C to 90°C with Derating
Storage Temperature		-40°C to +105°C
Cooling		Free-air Convection
MTBF	MIL-HDBK-217F:	6.837 x 10 <sup>5</sup> Hrs *
	Bellcore TR-NWT-000332:	1.275 x 10 <sup>6</sup> Hrs **
* Notice2 @25°C, FL, Ground, Benign, controlled environment		
** Case1, 50% Stress, 40°C		
Thermal Shock		MIL-STD-810F
Vibration		MIL-STD-810F
Relative Humidity		5% to 95% RH

**CAUTION:** This power module is not internally fused. An input line fuse must always be used!

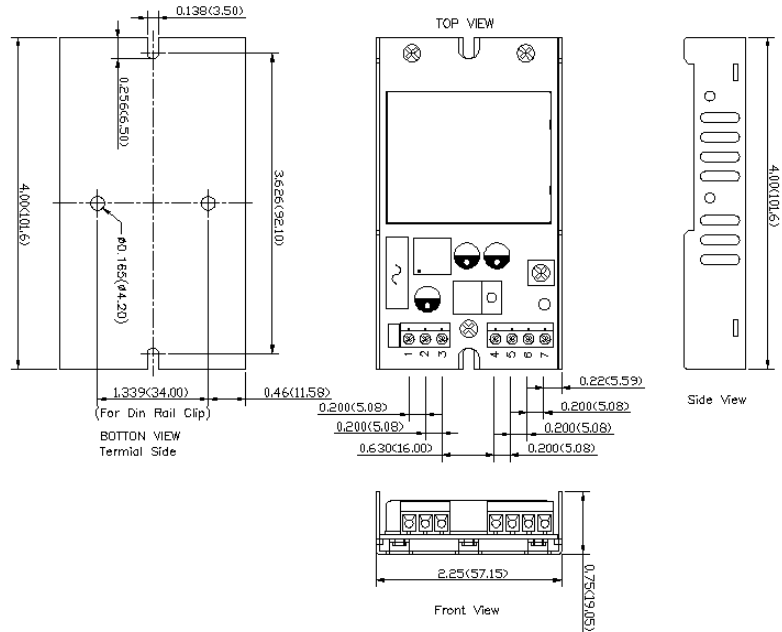
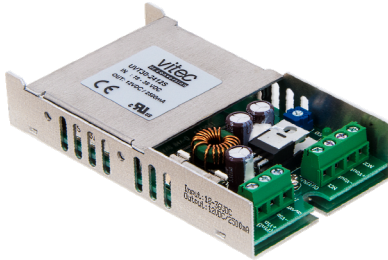
# UVT20 DVT20 SERIES

20 Watt DC/DC Converter  
Single and Dual Output  
1500 Vdc Isolation

**vitec**  
dc conversion

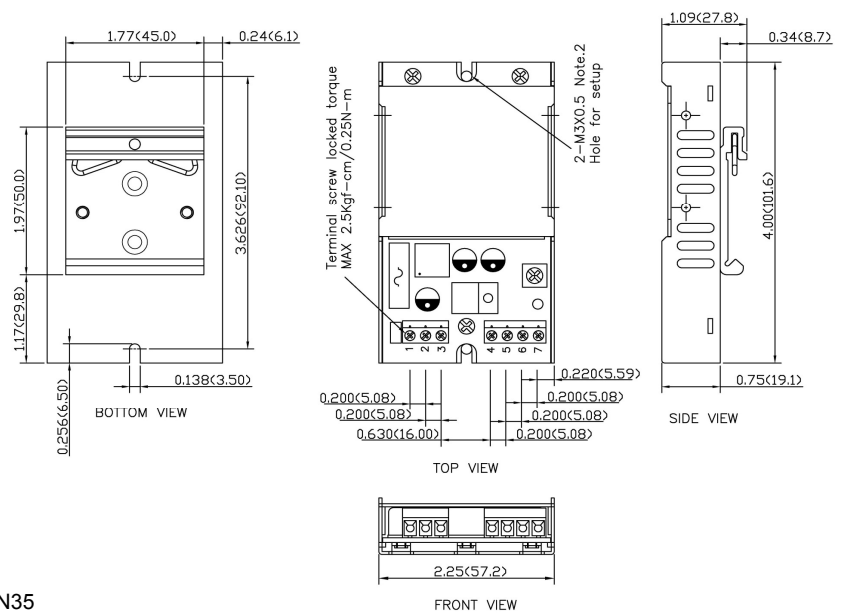
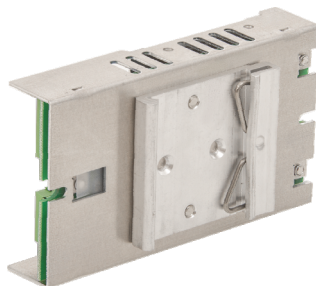
## Drawings & PIN Connections

### UVT20 Series (U-Channel Version)



PIN Connections		
Pin	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	CTRL	CTRL
4	NC	NC
5	-V Output	-V Output
6	+V Output	Common
7	NC	+V Output

### UVT20 Series (U-Channel Version) with DIN Rail Mounting Clip Option



#### Options UVT20-Series (U-Channel Chassis):

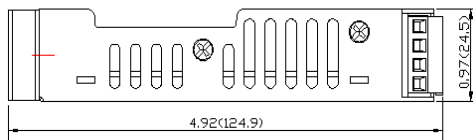
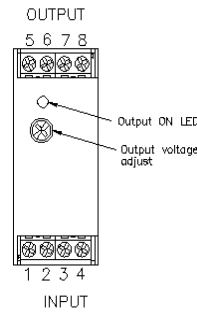
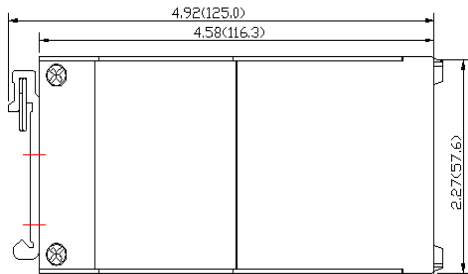
- Suffix -DR UVT20 with DIN rail clip for DIN35
- Suffix N Remote On/Off - Negative Logic

**V i t e c POWER GmbH**

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[www.vitecpower.com](http://www.vitecpower.com)

### DVT20 Series – DIN Rail Chassis (Case protection meets IP20 / IEC60529)

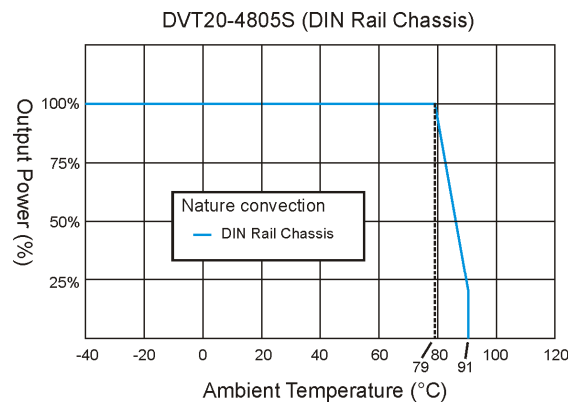
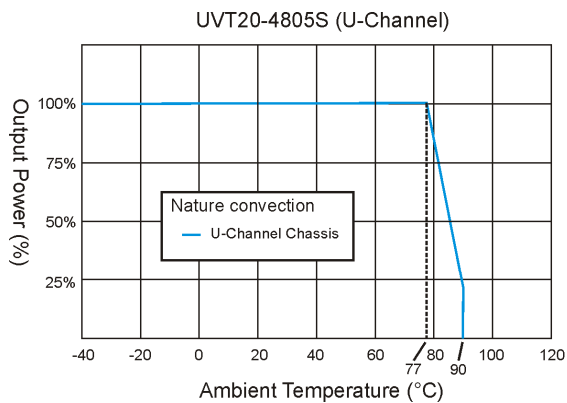


PIN Connections		
Pin	Single	Dual
1	CTRL	CTRL
2	-V Input	-V Input
3	-V Input	-V Input
4	+V Input	+V Input
5	NC	NC
6	-V Output	-V Output
7	+V Output	Common
8	NC	+V Output

NC ... not connected

**Options DVT20-Series (DIN Rail Chassis):**  
Suffix N      Remote On/Off - Negative Logic

### Derating



Notes: All dimensions in millimeters (inches). Tolerance  $\pm 0.25\text{mm}$  (0.01).

Specifications can be changed without prior notice. Products are not intended for and must not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure or malfunction of the component could lead to loss of life or catastrophic property damage.