



ETA-USA

HIGH QUALITY SWITCHING POWER SUPPLIES

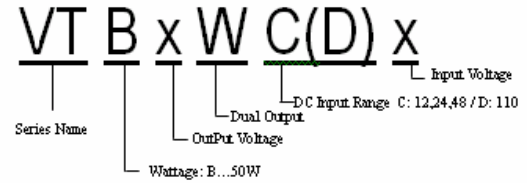
DC/DC SWITCHING POWER SUPPLY
DC INPUT 12,24,48, 110
DUAL OUTPUT
45WATTS

VTB-WCx/VTB-WD SERIES



Dimension: 96W × 160L × 33H

General Description



Features

1. Variety of Models
2. Chassis mount type
3. Compact and High Efficiency

DC INPUT: 12V

| Input Characteristics | Unit | VTB21FWC 12 | VTB21FWC 12B | VTB22FWC 12 | VTB22FWC 12B | VTB23FWC 12 | VTB24FWC 12 | VTB24FWC 12B |
|-------------------------|------|----------------|-----------------|----------------|-----------------|----------------|----------------|-----------------|
| Input Voltage | Vdc | DC 12V | | | | | | |
| Input Voltage Range | Vdc | DC 9.2V-16V | | | | | | |
| Inrush Current | A | Not Specified | | | | | | |
| Efficiency (typical) *1 | % | 78 | 84 | 82 | 81 | 83 | 73 | 81 |
| MTBF | H | 500'000 | | | | | | |
| Switching Frequency | kHz | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix |

DC INPUT: 24V

| Input Characteristics | Unit | VTB21FWC 24 | VTB21FWC 24B | VTB22FWC 24 | VTB22FWC 24B | VTB23FWC 24 | VTB24FWC 24 | VTB24FWC 24B |
|-------------------------|------|----------------|-----------------|----------------|-----------------|----------------|----------------|-----------------|
| Input Voltage | Vdc | DC 24V | | | | | | |
| Input Voltage Range | Vdc | DC 19-32V | | | | | | |
| Inrush Current | A | Not Specified | | | | | | |
| Efficiency (typical) *1 | % | 79 | 83 | 83 | 83 | 84 | 79 | 79 |
| MTBF | H | 500'000 | | | | | | |
| Switching Frequency | kHz | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix |

DC INPUT: 48V

| Input Characteristics | Unit | VTB21FWC 48 | VTB21FWC 48B | VTB22FWC 48 | VTB22FWC 48B | VTB23FWC 48 | VTB24FWC 48 | VTB24FWC 48B |
|-------------------------|------|----------------|-----------------|----------------|-----------------|----------------|----------------|-----------------|
| Input Voltage | Vdc | DC 48V | | | | | | |
| Input Voltage Range | Vdc | DC 38-63V | | | | | | |
| Inrush Current | A | Not Specified | | | | | | |
| Efficiency (typical) *1 | % | 76 | 83 | 81 | 81 | 83 | 79 | 80 |
| MTBF | H | 500'000 | | | | | | |
| Switching Frequency | kHz | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix |

DC INPUT: 110V

| Input Characteristics | Unit | VTB21FWD | VTB21FWD B | VTB22FWD | VTB22FWD B | VTB23FWD | VTB24FWD | VTB24FWD B |
|-------------------------|------|---------------|---------------|----------|---------------|----------|----------|---------------|
| Input Voltage | Vdc | DC 110V | | | | | | |
| Input Voltage Range | Vdc | DC 85-140V | | | | | | |
| Inrush Current | A | 20A (maximum) | | | | | | |
| Efficiency (typical) *1 | % | 76 | 83 | 81 | 81 | 83 | 79 | 80 |
| MTBF | H | 500'000 | | | | | | |
| Switching Frequency | kHz | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix | 40 Fix |





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VTB-WC / VTB-WD

| Output Characteristic | Unit | Models | | | | | | | | | | | | | |
|---|------|--|------|--------------------|-----|-----------------|-----|--------------------|-----|-----------------|-----|-----------------|-----|--------------------|-----|
| | | VTB21FWCx / FWD | | VTM21FWCx B / FWDB | | VTM22FWCx / FWD | | VTM22FWCx B / FWDB | | VTM23FWCx / FWD | | VTM24FWCx / FWD | | VTM24FWCx B / FWDB | |
| Output Voltage | V | 5 | 24 | 24 | 5 | 12 | 12 | 12 | 12 | 15 | 15 | 5 | 12 | 12 | 5 |
| Output Current 45W at horizontal mount (Vin=12) | A | 0.5 | 0.75 | 1.5 | 1.4 | 2.0 | 1.5 | 3.0 | 0.6 | 1.5 | 1.3 | 5.0 | 1.5 | 3.0 | 1.4 |
| 25W at horizontal mount (Vin=24,48) | | 0.5 | 0.85 | 1.5 | 1.5 | 2.0 | 1.7 | 3.0 | 0.8 | 1.7 | 1.3 | 5.0 | 1.7 | 3.0 | 1.5 |
| 30W at vertical mount without cover(Vin=24,48) | | - | 1.0 | 1.8 | - | - | 2.0 | 3.3 | - | - | 1.7 | - | 2.0 | 3.5 | - |
| 45W at horizontal mount(Vin=110) | | 0.5 | 0.85 | 1.5 | 1.5 | 2.0 | 1.7 | 3.0 | 0.8 | 1.7 | 1.3 | 5.0 | 1.7 | 3.0 | 1.5 |
| 50W at vertical mount without cover(Vin=110) | | 5.0 | 1.0 | 1.8 | 1.5 | 2.0 | 2.0 | 3.3 | 0.8 | 1.7 | 1.7 | 5.0 | 2.0 | 3.5 | 1.5 |
| Voltage Adjust Range | V | +/-5% of Rated Output Voltage(at no load within input range) | | | | | | | | | | | | | |
| Ripple Noise(max)*2 | mVpp | 100 | 290 | 290 | 100 | 170 | 170 | 170 | 170 | 200 | 200 | 100 | 170 | 170 | 100 |
| Rise up time | mS | 200mS(maximum) at 25°C and rated input/output | | | | | | | | | | | | | |
| Hold up time | mS | Not specified | | | | | | | | | | | | | |
| Regulation | | | | | | | | | | | | | | | |
| a. Line Regulation (max) | mV | 35 | 168 | 168 | 35 | 84 | 84 | 84 | 84 | 105 | 105 | 35 | 84 | 84 | 35 |
| b. Load Regulation (max) | mV | 50 | 240 | 240 | 50 | 120 | 120 | 120 | 120 | 150 | 150 | 50 | 120 | 120 | 50 |
| c. Temperature Coefficient *3 | °C | 0.03%/°C | | | | | | | | | | | | | |
| d. Drift(maximum) *4 | mV | 40 | 135 | 135 | 40 | 75 | 75 | 75 | 75 | 90 | 90 | 40 | 75 | 75 | 40 |
| e. Dynamic Load Regulation (typ.) *5 | mV | 150 | 720 | 720 | 150 | 360 | 360 | 360 | 360 | 450 | 450 | 150 | 360 | 360 | 150 |
| f. Recovery Time *5 | mS | 0.5mS(typical) | | | | | | | | | | | | | |

Conditions:

*1 at rated input/output

*2 measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

*3 at 0 to +50°C

*4 for 7hour period after 1hour warm-up at 25°C and rated input/output

*5 when output current changed between 25% and 75% of rated output current rapidly at rated input



ETA USA

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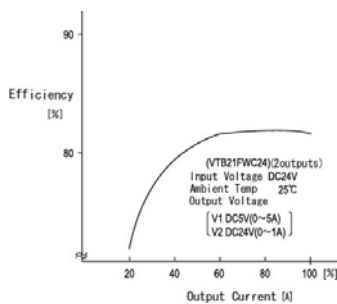


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| Environmental Specification | |
|-----------------------------|--|
| Operating Temperature | 0 to +50°C |
| Operating Humidity | 85%RH (non-condensing) |
| Storage Temperature | -20 to +85°C |
| Storage Humidity | - |
| Withstanding Voltage | Primary-Secondary AC1,500V for 1minute (Vin=110 2000) Primary-Frame Ground AC1,500V for 1minute (Vin=110 2000) Secondary-Frame Ground AC500V for 1minute |
| Isolation Resistance | Primary-Secondary-Frame Ground 50MΩ (minimum) by DC500V insulation tester |
| Vibration | 5-10Hz:10mm double amplitude, 10-55Hz:19.6m/s ² , 20minutes' period for 60minutes each along X,Y,Z axes (non-operating) |
| Shock | 294m/s ² |
| Cooling | Convection |
| Functions | |
| Over current Protection | Current Limiting with automatic recovery |
| Over voltage Protection | zener diode clamping |
| Remote Sense | not available |
| Remote On/Off | not available |
| Reverse Voltage Protection | by internal fuse (Vin=110 by internal bridge diode) |
| Line Conduction Noise | Not specified |
| Weight [g] (typical) | 480 G |
| Dimension [mm] | 96W × 160L × 25H |

EFFICIENCY CURVE



OCP CURVE

