

Features:

- 20W DIL Package
- Industry Standard Package
- 9-18V, 18-36V, 36-72V, 9-36V, 18-72V Wide Input Range
- 100% Burned In
- High Efficiency
- UL 94V-0 Package Material
- Custom Solutions Available
- RoHS Compliant

Specifications:

| | | |
|------------------------------|--|--|
| Output Specifications | Voltage Setpoint Accuracy | Single Output +/-2% max Dual Output +/-2% max Triple 5V +/-2% max 12V/15V +/-5% max |
| | Over Voltage Protection Temperature Coefficient Ripple & Noise (20MHz BW) ¹ Line Regulation ² | Built-in +/-0.05%/°C 100mVp-p max Single +/-0.5% max Dual +/-0.5% max Triple +/-1.0% max |
| Input Specifications | Load Regulation ³ | Single +/-0.5% max Dual +/-0.5% max Triple +/-5% max 10% of Full Load |
| | Minimum Load Short Circuit Protection Short Circuit Restart External Trim Adj. Range Over Load Protection Transient Response ⁴ | Continuous Automatic +/-10% 180% Typ 500uS max |
| Environmental Specifications | Input Voltage Range Input Filter Protection | 2:1 or 4:1 Input Range Pi Network Fuse Recommended |
| General Specifications | Operating Temperature Storage Temperature Humidity Cooling | -40°C to +71°C -55°C to +100°C 95% max Free-Air Convection |
| | Efficiency Isolation Voltage ⁵ Isolation Resistance Isolation Capacitance Switching Frequency MTBF ⁶ Weight Case Material Case Size Potting Material Conducted Emissions Radiated Emissions | 75% min 1000VDC min 109 ohms min 1200pF max 100KHz min >400,000 Hours 110g Typ Six-Side Shielded Case 50.8mm*50.8mm*21mm Epoxy(UL94-V0) EN55022 Class A EN55022 Class A |

Zu Seite 1:

All Specifications Typical at Nominal Line, Full Load, and 25 °C Unless Otherwise Noted.

Footnotes: ¹ Measured with 1uF ceramic capacitor connect to the output pins. ² High Line to Low Line.
³ Load Regulation is for output load current change from 10% to 100%. ⁴ 25% Step Load Change.
⁵ For 10 seconds. ⁶ MIL-HDBK-217F @25°C, Ground Benign.

Selection Guide 2:1 20 W Output

| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ¹ CURRENT(mA) | | EFF (%) ² | ISOLATION (VDC) |
|-------------------|---------------------|----------------------|---------------------|--------------------------------|---------|----------------------|-----------------|
| | | | | FULL LOAD | NO LOAD | | |
| EP9-18-05S4000 | 9-18 | 5 | 4000 | 2083 | 30 | 80 | 1000 |
| EP9-18-09S2222 | 9-18 | 9 | 2222 | 2062 | 30 | 81 | 1000 |
| EP9-18-12S1667 | 9-18 | 12 | 1667 | 2058 | 30 | 81 | 1000 |
| EP9-18-15S1333 | 9-18 | 15 | 1333 | 2058 | 28 | 81 | 1000 |
| EP9-18-05D2000 | 9-18 | +/-5 | +/-2000 | 2083 | 30 | 80 | 1000 |
| EP9-18-12D833 | 9-18 | +/-12 | +/-833 | 2033 | 30 | 82 | 1000 |
| EP9-18-15D667 | 9-18 | +/-15 | +/-667 | 2033 | 28 | 82 | 1000 |
| EP9-18-05S12D 20W | 9-18 | +5,+/-12 | 2500,+/-310 | 2083 | 30 | 80 | 1000 |
| EP9-18-05S15D 20W | 9-18 | +5,+/-15 | 2500,+/-250 | 2083 | 30 | 80 | 1000 |
| EP18-36-03,3S6000 | 18-36 | 3.3 | 6000 | 1041 | 18 | 80 | 1000 |
| EP18-36-05S4000 | 18-36 | 5 | 4000 | 1041 | 18 | 80 | 1000 |
| EP18-36-09S2222 | 18-36 | 9 | 2222 | 960 | 18 | 87 | 1000 |
| EP18-36-12S1667 | 18-36 | 12 | 1667 | 980 | 18 | 85 | 1000 |
| EP18-36-15S1333 | 18-36 | 15 | 1333 | 980 | 18 | 85 | 1000 |
| EP18-36-05D2000 | 18-36 | +/-5 | +/-2000 | 1041 | 18 | 80 | 1000 |
| EP18-36-12D833 | 18-36 | +/-12 | +/-833 | 980 | 18 | 85 | 1000 |
| EP18-36-15D667 | 18-36 | +/-15 | +/-667 | 980 | 18 | 85 | 1000 |
| EP18-36-05S12D | 18-36 | +5,+/-12 | 2500,+/-310 | 1016 | 18 | 82 | 1000 |
| EP18-36-05S15D | 18-36 | +5,+/-15 | 2500,+/-250 | 1016 | 18 | 82 | 1000 |
| EP36-72-03,3S6000 | 36-72 | 3.3 | 6000 | 523 | 10 | 80 | 1000 |
| EP36-72-05S4000 | 36-72 | 5 | 4000 | 521 | 10 | 80 | 1000 |
| EP36-72-09S2222 | 36-72 | 9 | 2222 | 515 | 10 | 81 | 1000 |
| EP36-72-12S1667 | 36-72 | 12 | 1667 | 508 | 9 | 82 | 1000 |
| EP36-72-15S1333 | 36-72 | 15 | 1333 | 508 | 9 | 82 | 1000 |
| EP36-72-05D2000 | 36-72 | +/-5 | +/-2000 | 521 | 10 | 80 | 1000 |
| EP36-72-12D833 | 36-72 | +/-12 | +/-833 | 508 | 9 | 82 | 1000 |
| EP36-72-15D667 | 36-72 | +/-15 | +/-667 | 508 | 9 | 82 | 1000 |
| EP36-72-05S12D | 36-72 | +5,+/-12 | 2500,+/-310 | 508 | 9 | 82 | 1000 |
| EP36-72-05S15D | 36-72 | +5,+/-15 | 2500,+/-250 | 508 | 9 | 82 | 1000 |

Note: Other input to output voltages may be available. Please contact factory.

Footnotes: ¹ Nominal Input Voltage ² Nominal Input Voltage, Full Load

Selection Guide 4:1 20 W Output

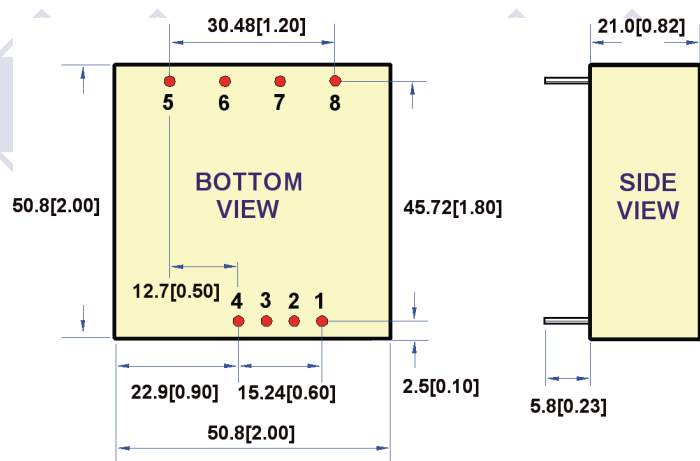
| MODEL NUMBER | INPUT VOLTAGE (VDC) | OUTPUT VOLTAGE (VDC) | OUTPUT CURRENT (mA) | INPUT ¹ CURRENT(mA) | | EFF (%) ² | ISOLATION (VDC) |
|--------------------|---------------------|----------------------|---------------------|--------------------------------|---------|----------------------|-----------------|
| | | | | FULL LOAD | NO LOAD | | |
| EP9-36-05S4000 | 9-36 | 5 | 4000 | 2083 | 30 | 80 | 1000 |
| EP9-36-12S1667 | 9-36 | 12 | 1667 | 2000 | 30 | 83 | 1000 |
| EP9-36-15S1333 | 9-36 | 15 | 1333 | 2058 | 28 | 81 | 1000 |
| EP9-3605D2000 | 9-36 | +/-5 | +/-2000 | 2083 | 30 | 80 | 1000 |
| EP9-36-12D833 | 9-36 | +/-12 | +/-833 | 2033 | 30 | 82 | 1000 |
| EP9-36-15D667 | 9-36 | +/-15 | +/-667 | 2033 | 28 | 82 | 1000 |
| EP9-36-05S12D 20W | 9-36 | +5,+/-12 | 2500,+/-310 | 2023 | 28 | 82 | 1000 |
| EP9-36-05S15D 20W | 9-36 | +5,+/-15 | 2500,+/-250 | 2022 | 28 | 82 | 1000 |
| EP18-72-05S4000 | 18-72 | 5 | 4000 | 1045 | 18 | 80 | 1000 |
| EP18-72-12S1667 | 18-72 | 12 | 1667 | 990 | 18 | 84 | 1000 |
| EP18-72-15S1333 | 18-72 | 15 | 1333 | 980 | 18 | 85 | 1000 |
| EP18-72-05D2000 | 18-72 | +/-5 | +/-2000 | 1042 | 18 | 80 | 1000 |
| EP18-72-12D830 | 18-72 | +/-12 | +/-830 | 998 | 18 | 84 | 1000 |
| EP18-72-15D667 | 18-72 | +/-15 | +/-667 | 980 | 18 | 85 | 1000 |
| EP18-72-05S12D 20W | 18-72 | +5,+/-12 | 2500,+/-310 | 1020 | 18 | 82 | 1000 |
| EP18-72-05S15D 20W | 18-72 | +5,+/-15 | 2500,+/-250 | 1020 | 18 | 82 | 1000 |

Note: Other input to output voltages may be available. Please contact factory.

Mechanical Dimensions

| PIN | SINGLE | DUAL | TRIPLE |
|-----|---------------|--------|-----------|
| 1 | Remote On/Off | | |
| 2 | No Pin | | |
| 3 | -Vin | -Vin | -Vin |
| 4 | +Vin | +Vin | +Vin |
| 5 | NC | +Vout | +Aux. out |
| 6 | +Vout | Common | +5V out |
| 7 | -Vout | -Vout | Common |
| 8 | TRIM | TRIM | -Aux. out |

All dimensions are in mm (inches)



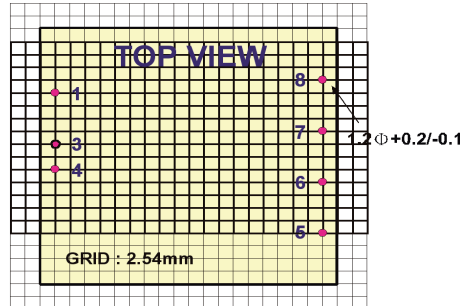
Remote On/Off Control

| Control Input | PIN1 | Control Common | PIN3 |
|-----------------|---------------------------------|----------------|--------------------|
| Control Voltage | Converter Shutdown Idle Current | | 10mA |
| ON | >+2.5VDC or Open Circuit | Logic | CMOS or |
| OFF | <+0.8VDC or Jumper to PIN3 | Compatibility | Open Collector TTL |

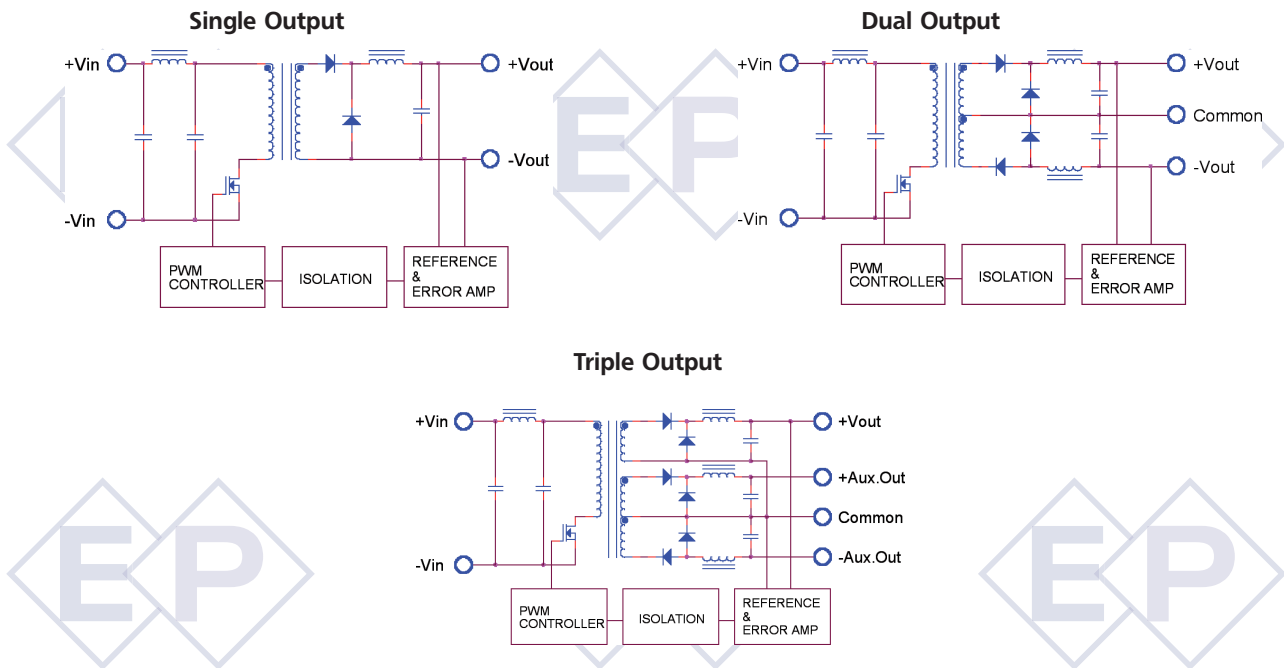
Footnotes: 1 Nominal Input Voltage

2 Nominal Input Voltage, Full Load

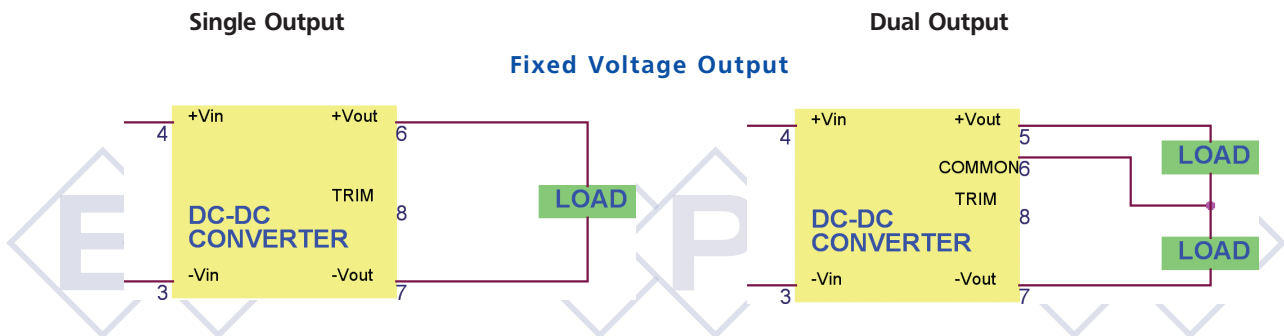
Recommended Footprint Details



Simplified Schematic



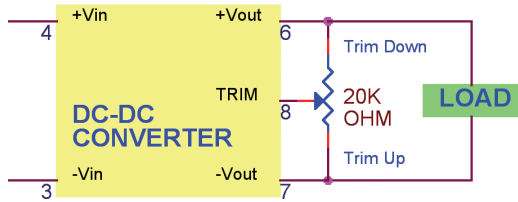
Typical Applications



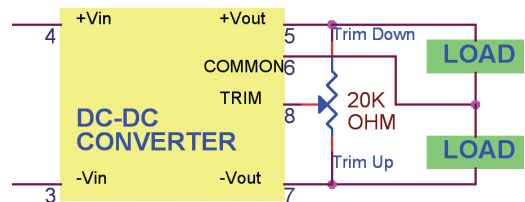
Typical Applications

Single Output

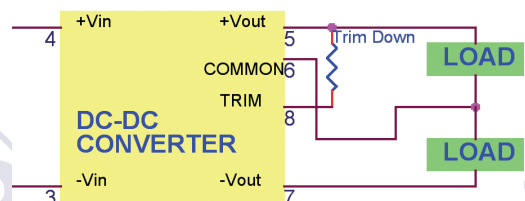
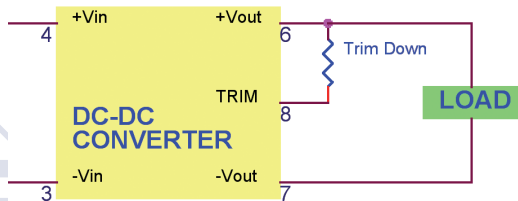
Trim Connections Using A Trimpot



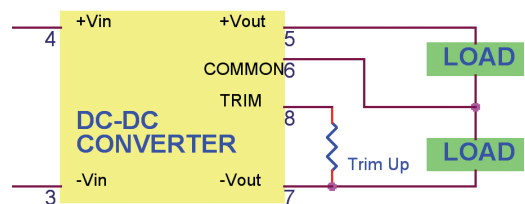
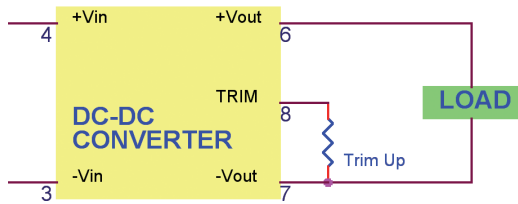
Dual Output



Fixed-Value Trim Down Resistor

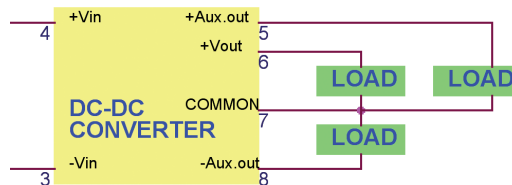


Fixed-Value Trim Up Resistor



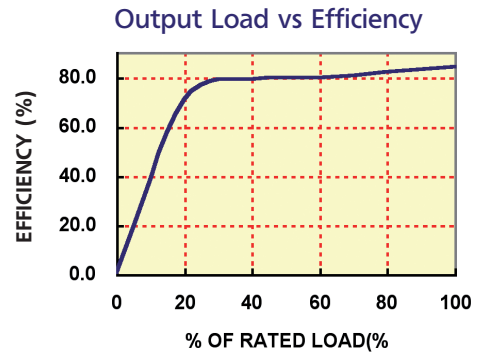
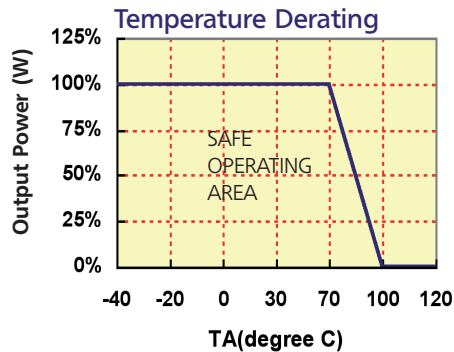
Triple Output

Fixed Voltage Output

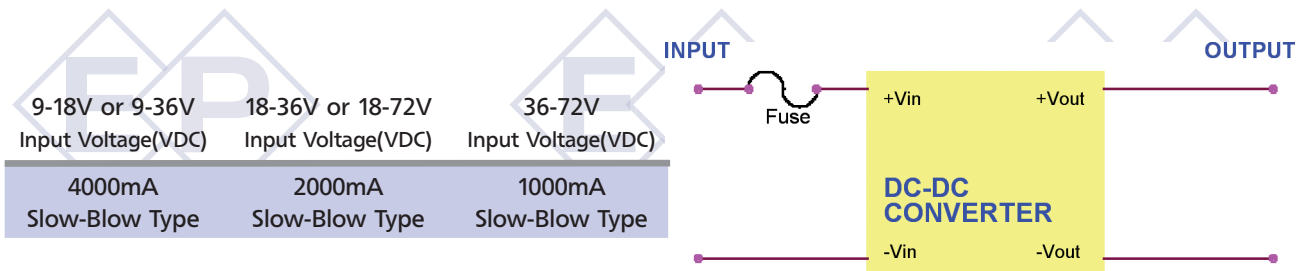


Typical Performance Curves

Specifications typical at $t_a=25\text{ }^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.



Input Fuse Selection Guide



Note: Certain applications may require the installation of external fuse in front of the input.

EP Series Application Notes

External Capacitance Requirements:

No external capacitance is required for operation of the EP series.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 220KHz is required.

External output capacitance is not required for operation, however it is recommended that 10uF tantalum and 0.1uF ceramic capacitance be selected for reduced system noise.

Additional output capacitance may be added for increased filtering, but should not exceed 2200uF.

We Can Offer EMC-Filter According To EN55011/22 Class A.

Negative Outputs:

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.

Remote ON/OFF:

The remote ON/OFF pin may be left floating if this function is not use. It is recommended to drive this pin with an open collector arrangement or a relay contact. When the ON/OFF pin is pulled low with respect to the -Vin, the converter is placed in a low power drain state.

Output TRIM:

The TRIM pin may be used to adjust the output +/-10% from the nominal setting. this function allows adjustment for voltage drops in the system wiring. If the TRIM function is not required the pin may be left floating.

Spezifikationen können jederzeit ohne Vorankündigung geändert werden.