

## NON-ISOLATED DC/DC CONVERTERS

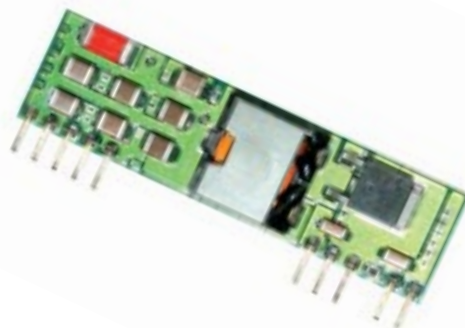
12V Input / 1.0 – 5.0V Output / 10A

**bel**  
POWER PRODUCTS

BP02V7PB-10A

### V7PB-10A Series

- Nonisolated
- Industry standard pinout
- Fixed frequency
- High efficiency means less power dissipation
- Optimized for cost
- Remote on/off
- Remote sense
- Undervoltage lockout
- Over current and short circuit protection
- Overtemperature shutdown



### Description

The Bel V7PB-10A series modules are non-isolated, step down DC/DC power converters that operate from a nominal 12V source. These converters are available in a range of output voltages from 1.0V to 5.0V. They are packaged in an industry standard single-in-line footprint and provide a maximum 10A output. Standard features include remote on/off, remote sense, over current and short circuit protection, overtemperature shutdown and output voltage adjust. Remote on/off logic is an optional feature. These products may be used almost anywhere low-voltage silicon is employed and a 12V source is available. Typical applications include file servers, routers, line cards and other computing and communications equipment.

### Applications

- Telecommunications
- Networking
- Computers and peripherals

### Options

- Remote on/off logic

### Part Number Selection

| Output Voltage | Input Voltage | Max. Output Current | Max. Output Power | Typical Efficiency | Part Number | Part Number Active Low Option |
|----------------|---------------|---------------------|-------------------|--------------------|-------------|-------------------------------|
| 5.0V           | 12V           | 10A                 | 50W               | 94%                | V7PB-10A50S | V7PB-10A50L                   |
| 3.3V           | 12V           | 10A                 | 33W               | 92%                | V7PB-10A33S | V7PB-10A33L                   |
| 2.5V           | 12V           | 10A                 | 25W               | 90%                | V7PB-10A25S | V7PB-10A25L                   |
| 2.0V           | 12V           | 10A                 | 20W               | 88%                | V7PB-10A20S | V7PB-10A20L                   |
| 1.8V           | 12V           | 10A                 | 18W               | 87%                | V7PB-10A18S | V7PB-10A18L                   |
| 1.5V           | 12V           | 10A                 | 15W               | 86%                | V7PB-10A15S | V7PB-10A15L                   |
| 1.2V           | 12V           | 10A                 | 12W               | 83%                | V7PB-10A12S | V7PB-10A12L                   |
| 1.0V           | 12V           | 10A                 | 10W               | 82%                | V7PB-10A10S | V7PB-10A10L                   |

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### Absolute Maximum Ratings

| Parameter                      | Symbol             | Min  | Typical | Max | Unit |
|--------------------------------|--------------------|------|---------|-----|------|
| Continuous Input Voltage       | V <sub>in</sub>    | -0.3 |         | 15  | V    |
| Output Enable Terminal Voltage | V <sub>outen</sub> | -0.3 |         | 15  | V    |
| Ambient Temperature            | T <sub>amb</sub>   | -40  |         | 85  | °C   |
| Storage Temperature            | T <sub>stor</sub>  | -40  |         | 125 | °C   |

Note: Use beyond the maximum ratings may cause a reliability degradation of the DC/DC converter or may permanently damage the device.

### Input Specifications

| Parameter                                         | Symbol          | Min  | Typical | Max  | Units             |
|---------------------------------------------------|-----------------|------|---------|------|-------------------|
| Operating Input Voltage                           | V <sub>in</sub> | 10.8 |         | 13.2 | V                 |
| Input Current                                     | I <sub>in</sub> |      |         | 5.5  | A                 |
| No Load Input Current                             |                 |      |         | 60   | mA                |
| Remote Off Input Current                          |                 |      | 3       | 15   | mA                |
| Input Reflected Ripple Current <sup>1</sup>       |                 |      |         | 120  | mA <sub>rms</sub> |
| Input Reflected Ripple Current (P-P) <sup>1</sup> |                 |      |         | 300  | mApk              |
| I <sup>2</sup> t Inrush Current Transient         |                 |      | 0.08    | 0.12 | A <sup>2</sup> s  |
| Turn On Voltage Threshold                         |                 |      | 9.7     |      | V                 |
| Turn Off Voltage Threshold                        |                 | 8.0  | 8.8     | 10.0 | V                 |

Note: Input capacitance 22μF tantalum.

1. With simulated source impedance of 800nH, 5Hz to 20MHz.

# NON-ISOLATED DC/DC CONVERTERS

## 12V Input / 1.0 – 5.0V Output / 10A



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### Output Specifications

| Parameter                                     | Module | Symbol | Min   | Typical | Max   | Units |
|-----------------------------------------------|--------|--------|-------|---------|-------|-------|
| Output Voltage Set Point <sup>1</sup>         | 5.0V   | Vout   | 4.900 | 5.0     | 5.100 | V     |
|                                               | 3.3V   |        | 3.247 | 3.3     | 3.353 |       |
|                                               | 2.5V   |        | 2.460 | 2.5     | 2.540 |       |
|                                               | 2.0V   |        | 1.968 | 2.0     | 2.032 |       |
|                                               | 1.8V   |        | 1.771 | 1.8     | 1.829 |       |
|                                               | 1.5V   |        | 1.476 | 1.5     | 1.524 |       |
|                                               | 1.2V   |        | 1.181 | 1.2     | 1.219 |       |
|                                               | 1.0V   |        | 0.984 | 1.0     | 1.016 |       |
| Load Regulation                               | 5.0V   |        |       | 10      | 20    | mV    |
|                                               | 3.3V   |        |       | 6       | 16    |       |
|                                               | 2.5V   |        |       | 6       | 12    |       |
|                                               | 2.0V   |        |       | 5       | 10    |       |
|                                               | 1.8V   |        |       | 5       | 9     |       |
|                                               | 1.5V   |        |       | 3       | 7     |       |
|                                               | 1.2V   |        |       | 3       | 6     |       |
|                                               | 1.0V   |        |       | 3       | 5     |       |
| Line Regulation                               | 5.0V   |        |       | 2       | 10    | mV    |
|                                               | 3.3V   |        |       | 2       | 10    |       |
|                                               | 2.5V   |        |       | 2       | 8     |       |
|                                               | 2.0V   |        |       | 2       | 6     |       |
|                                               | 1.8V   |        |       | 2       | 5     |       |
|                                               | 1.5V   |        |       | 2       | 5     |       |
|                                               | 1.2V   |        |       | 2       | 5     |       |
|                                               | 1.0V   |        |       | 2       | 5     |       |
| Regulation Over Temperature<br>-40° to +85° C | 5.0V   |        |       | 17      | 35    | mV    |
|                                               | 3.3V   |        |       | 15      | 30    |       |
|                                               | 2.5V   |        |       | 12      | 25    |       |
|                                               | 2.0V   |        |       | 11      | 22    |       |
|                                               | 1.8V   |        |       | 10      | 20    |       |
|                                               | 1.5V   |        |       | 9       | 18    |       |
|                                               | 1.2V   |        |       | 8       | 16    |       |
|                                               | 1.0V   |        |       | 7       | 15    |       |
| Total Output Voltage Regulation               | 5.0V   |        |       | 29      | 65    | mV    |
|                                               | 3.3V   |        |       | 23      | 56    |       |
|                                               | 2.5V   |        |       | 20      | 45    |       |
|                                               | 2.0V   |        |       | 18      | 38    |       |
|                                               | 1.8V   |        |       | 17      | 34    |       |
|                                               | 1.5V   |        |       | 14      | 30    |       |
|                                               | 1.2V   |        |       | 13      | 27    |       |
|                                               | 1.0V   |        |       | 12      | 25    |       |

Note: All specifications are typical at nominal input, full load at 25° C unless otherwise stated.

1. Vin = 12V, Iout = full load, Ta = 25° C.

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### Output Specifications

| Parameter                            | Module | Symbol                | Min | Typical | Max  | Units            |
|--------------------------------------|--------|-----------------------|-----|---------|------|------------------|
| Output Ripple and Noise <sup>2</sup> | 5.0V   |                       |     | 50      | 75   | mVp-p            |
|                                      | 3.3V   |                       |     | 45      | 60   |                  |
|                                      | 2.5V   |                       |     | 40      | 55   |                  |
|                                      | 2.0V   |                       |     | 30      | 45   |                  |
|                                      | 1.8V   |                       |     | 30      | 45   |                  |
|                                      | 1.5V   |                       |     | 30      | 45   |                  |
|                                      | 1.2V   |                       |     | 25      | 40   |                  |
|                                      | 1.0V   |                       |     | 20      | 35   |                  |
|                                      |        |                       |     |         |      |                  |
| Output Ripple and Noise <sup>2</sup> | 5.0V   |                       |     | 17      | 25   | mVrms            |
|                                      | 3.3V   |                       |     | 14      | 22   |                  |
|                                      | 2.5V   |                       |     | 10      | 15   |                  |
|                                      | 2.0V   |                       |     | 9       | 15   |                  |
|                                      | 1.8V   |                       |     | 8       | 12   |                  |
|                                      | 1.5V   |                       |     | 6       | 10   |                  |
|                                      | 1.2V   |                       |     | 5       | 8    |                  |
|                                      | 1.0V   |                       |     | 5       | 8    |                  |
|                                      |        |                       |     |         |      |                  |
| Output Current Range                 | All    | I <sub>out</sub>      | 0   |         | 10   | A                |
| Output DC Current Limit              | All    | I <sub>outlim</sub>   | 13  |         | 22   | A                |
| Short Circuit Surge                  | All    | I <sub>outsurge</sub> |     | 0.8     | 1.5  | A <sup>2</sup> s |
| Turn on Time                         | All    | T <sub>on</sub>       |     |         | 80   | ms               |
| Overshoot at Turn On                 | All    |                       |     | 0       | 3    | %                |
| Output Capacitance                   | All    | C <sub>out</sub>      | 0   |         | 3300 | μF               |

Note: All specifications are typical at nominal input, full load at 25° C unless otherwise stated.  
 2. 0 - 20MHz BW, 22μF tantalum cap on output.

# NON-ISOLATED DC/DC CONVERTERS

## 12V Input / 1.0 – 5.0V Output / 10A



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### Output Specifications

| Parameter                       | Module | Symbol | Min | Typical | Max | Units |
|---------------------------------|--------|--------|-----|---------|-----|-------|
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 5.0V   |        |     | 200     | 250 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 200     | 250 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 3.3V   |        |     | 160     | 200 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 160     | 200 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 2.5V   |        |     | 180     | 220 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 180     | 220 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 2.0V   |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |

Note: All specifications are typical at nominal input, full load at 25° C unless otherwise stated.  
 3. di/dt = 0.5A/ $\mu$ S, Vin = 12VDC, Ta = 25° C, and with a 22 $\mu$ F tantalum cap on output.

## Output Specifications

| Parameter                       | Module | Symbol | Min | Typical | Max | Units |
|---------------------------------|--------|--------|-----|---------|-----|-------|
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 1.8V   |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 1.5V   |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 140     | 180 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 1.2V   |        |     | 100     | 150 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 100     | 150 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| Transient Response <sup>3</sup> |        |        |     |         |     |       |
| ΔV 50% to 100% of Max Load      | 1.0V   |        |     | 100     | 150 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |
| ΔV 100% to 50% of Max Load      |        |        |     | 100     | 150 | mV    |
| Settling Time                   |        | Ts     |     | 50      | 80  | μs    |

Note: All specifications are typical at nominal input, full load at 25° C unless otherwise stated.

3. di/dt = 0.5A/ $\mu s$ , Vin = 12VDC, Ta = 25° C, and with a 22 $\mu F$  tantalum cap on output.

# NON-ISOLATED DC/DC CONVERTERS

## 12V Input / 1.0 – 5.0V Output / 10A



BP02V7PB-10A

### General Specifications

| Parameter                              | Module | Symbol | Min | Typical | Max | Units |
|----------------------------------------|--------|--------|-----|---------|-----|-------|
| Efficiency <sup>1</sup>                | 5.0V   | $\eta$ | 91  | 94      |     | %     |
|                                        | 3.3V   |        | 89  | 92      |     |       |
|                                        | 2.5V   |        | 87  | 90      |     |       |
|                                        | 2.0V   |        | 85  | 88      |     |       |
|                                        | 1.8V   |        | 84  | 87      |     |       |
|                                        | 1.5V   |        | 83  | 86      |     |       |
|                                        | 1.2V   |        | 80  | 83      |     |       |
|                                        | 1.0V   |        | 79  | 82      |     |       |
| Switching Frequency                    | All    | Fsw    | 180 | 200     | 220 | kHz   |
| Overtemperature Shutdown               | All    | Tc     |     | 130     |     | °C    |
| Output Voltage Trim Range <sup>2</sup> | All    |        | 90  |         | 110 | %     |
| Remote Sense Compensation              | All    |        |     |         | 10  | %     |
| Weight                                 | All    |        |     | 10      |     | g     |

1. Vin=12V, full load and Ta=25° C.

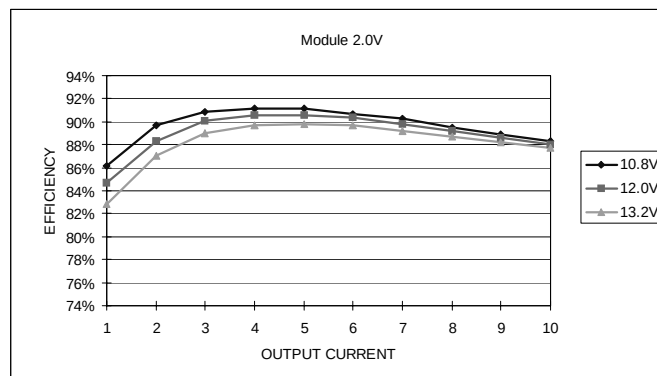
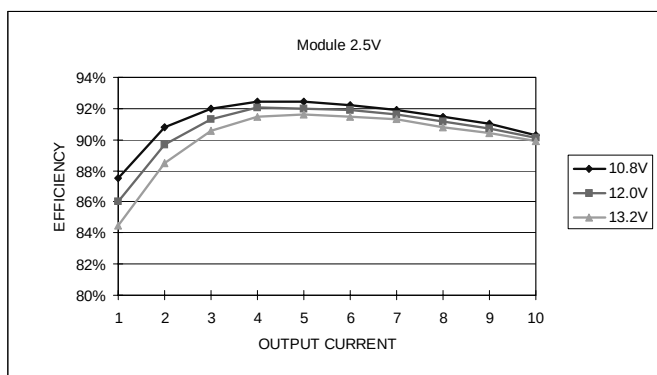
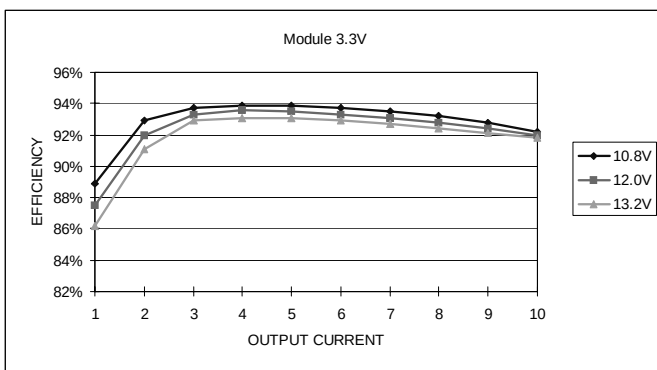
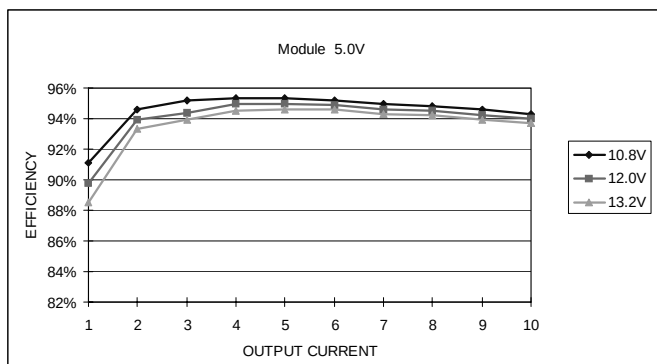
2. 1V module is 95% to 110%.

### Control Specifications

| Parameter              | Module      | Symbol | Min  | Typical | Max  | Units |
|------------------------|-------------|--------|------|---------|------|-------|
| Remote On/Off          | All         | Vouten |      |         |      | V     |
| Signal Low (Unit Off)  | V7PB-10AxxS |        | -0.3 |         | 0.4  | V     |
| Signal High (Unit On)  |             |        | 2.8  |         | 13.2 | V     |
| Signal Low (Unit On)   | V7PB-10AxxL |        | -0.3 |         | 0.4  | V     |
| Signal High (Unit Off) |             |        | 2.8  |         | 13.2 | V     |

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## Efficiency Data





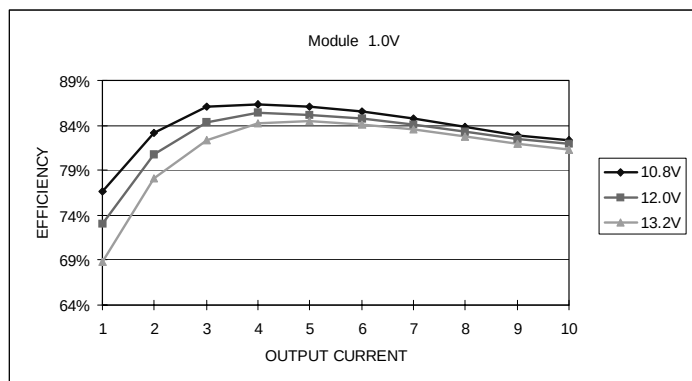
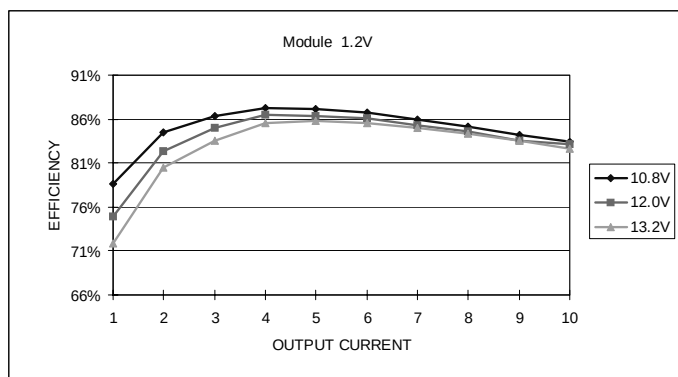
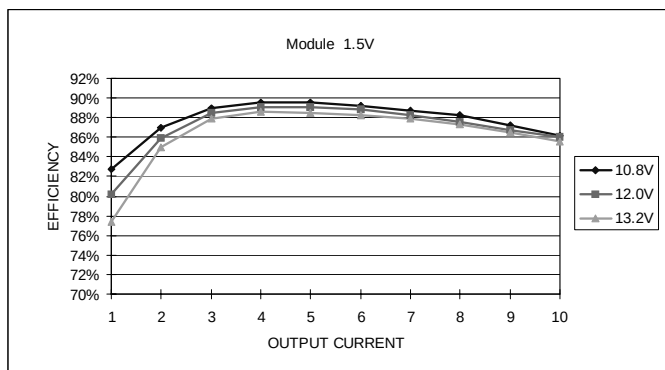
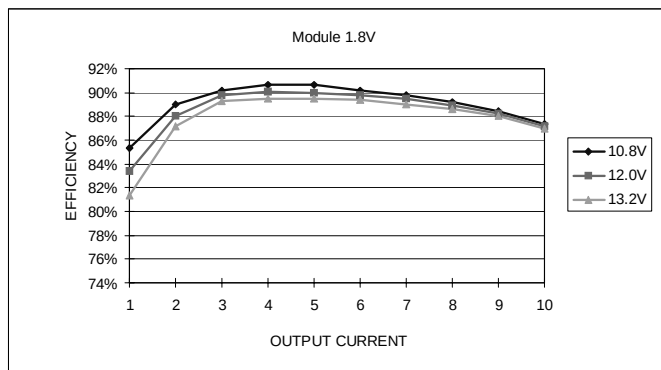
# NON-ISOLATED DC/DC CONVERTERS

## 12V Input / 1.0 – 5.0V Output / 10A



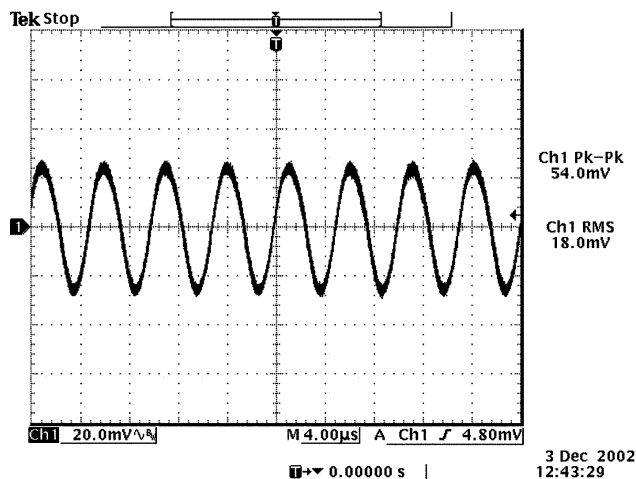
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### Efficiency Data

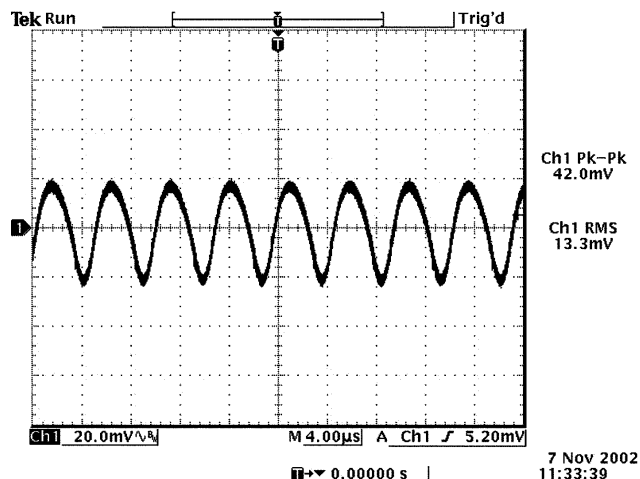


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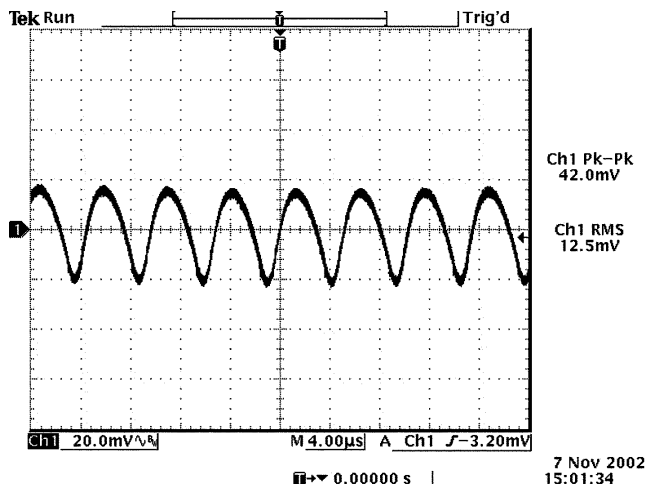
### Ripple and Noise



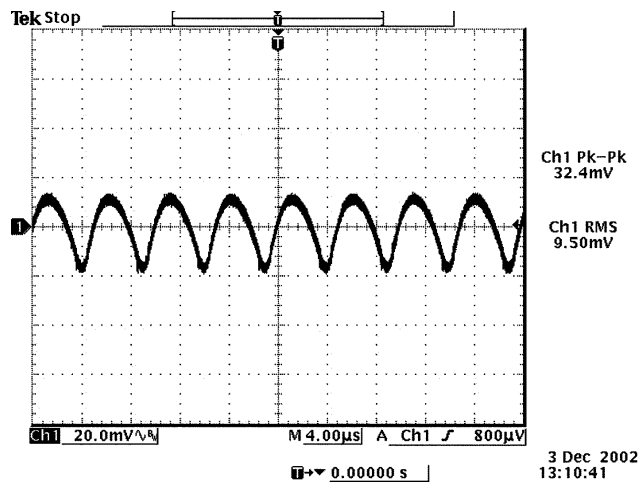
Ripple and noise at full load and 12Vdc input, 5.0Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C



Ripple and noise at full load and 12Vdc input, 3.3Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C



Ripple and noise at full load and 12Vdc input, 2.5Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C



Ripple and noise at full load and 12Vdc input, 2.0Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C

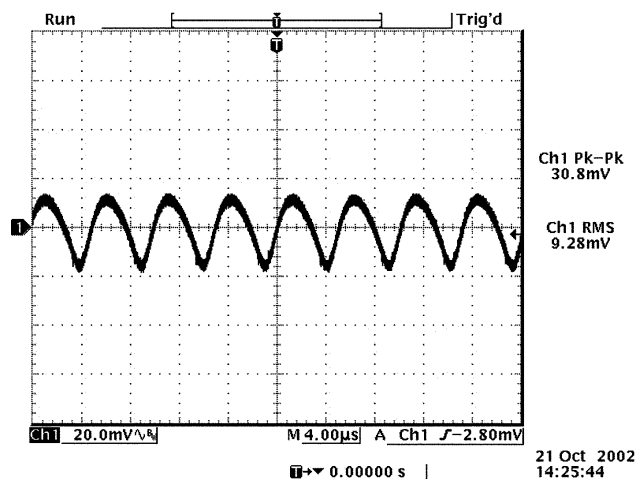
# NON-ISOLATED DC/DC CONVERTERS

12V Input / 1.0 – 5.0V Output / 10A

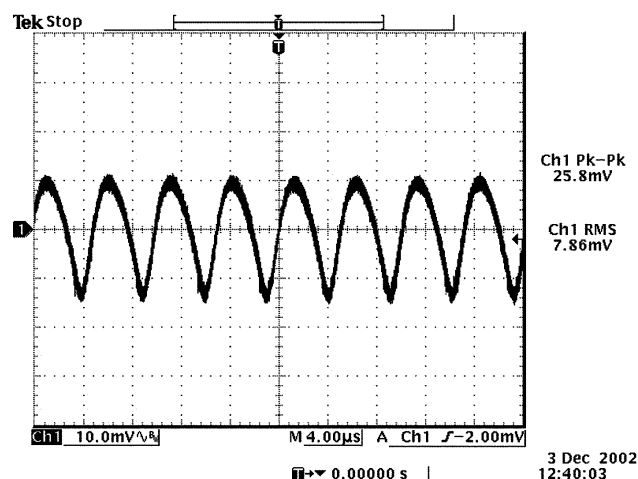


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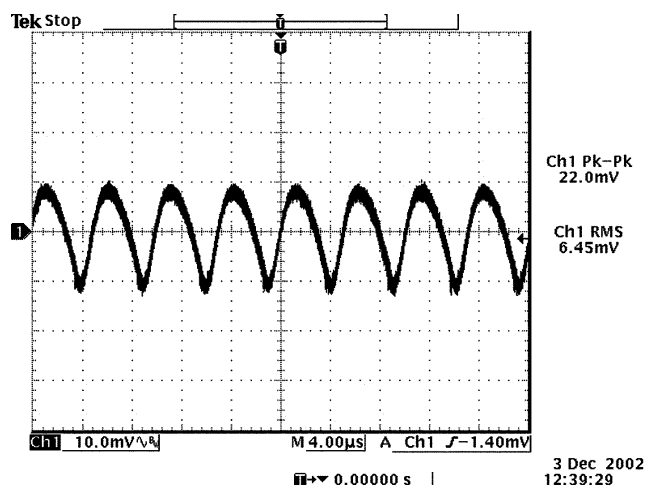
## Ripple and Noise



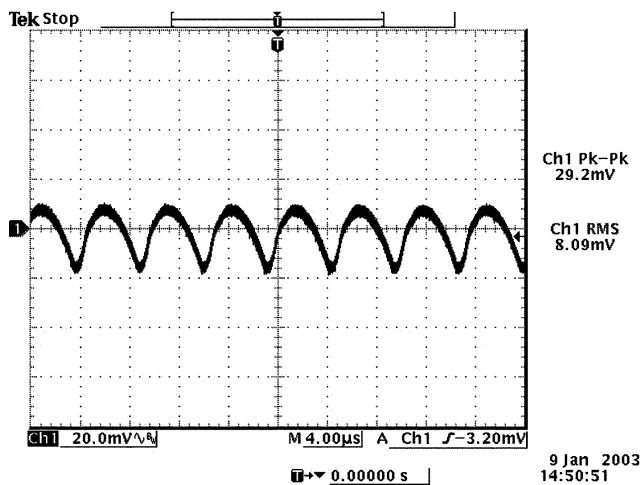
Ripple and noise at full load and 12Vdc input, 1.8Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C



Ripple and noise at full load and 12Vdc input, 1.5Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C



Ripple and noise at full load and 12Vdc input, 1.2Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C

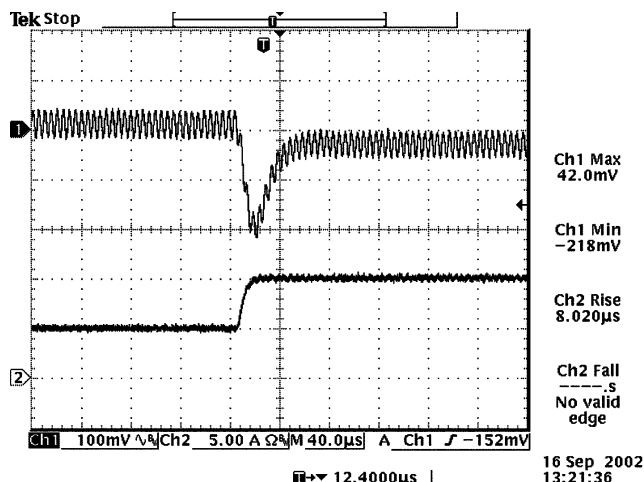


Ripple and noise at full load and 12Vdc input, 1.0Vdc output, full load with an external 22μF tantalum capacitor and Ta=25° C

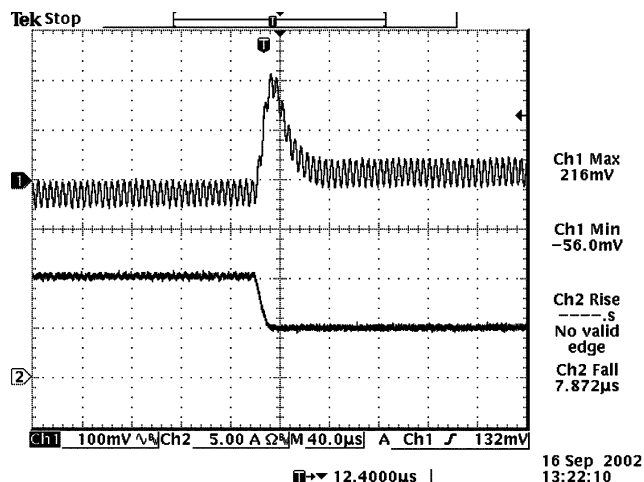
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### Transient Response

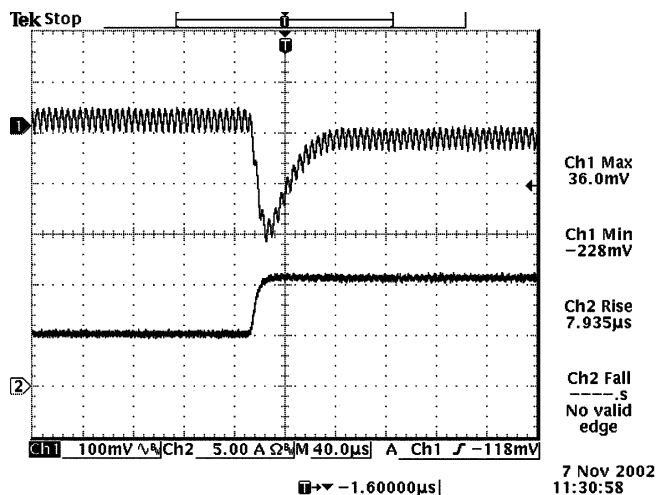
Transient response:  $di/dt = 0.5A/\mu S$ , external load capacitance  $C_o = 22\mu F$  (Tantalum capacitor)



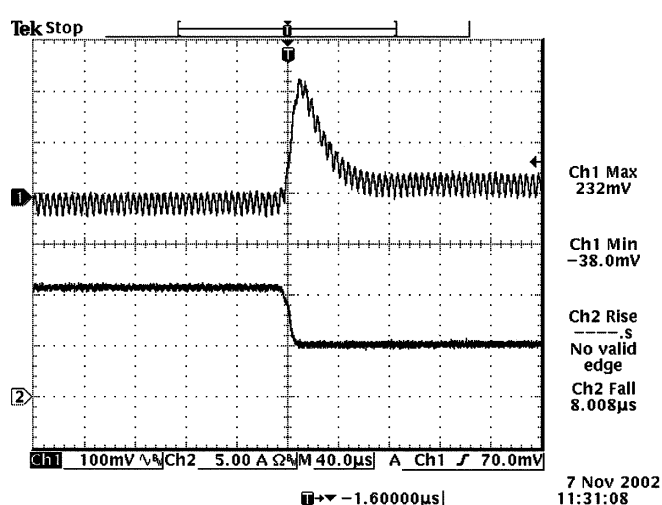
Vout=5.0V  
50% to 100% load transients at 12V input and  $T_a=25^\circ C$



Vout=5.0V  
100% to 50% load transients at 12V input and  $T_a=25^\circ C$



Vout=3.3V  
50% to 100% load transients at 12V input and  $T_a=25^\circ C$



Vout=3.3V  
100% to 50% load transients at 12V input and  $T_a=25^\circ C$

# NON-ISOLATED DC/DC CONVERTERS

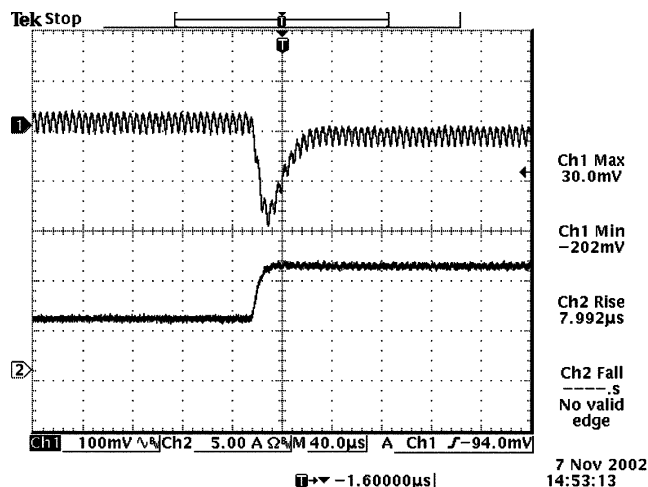
## 12V Input / 1.0 – 5.0V Output / 10A



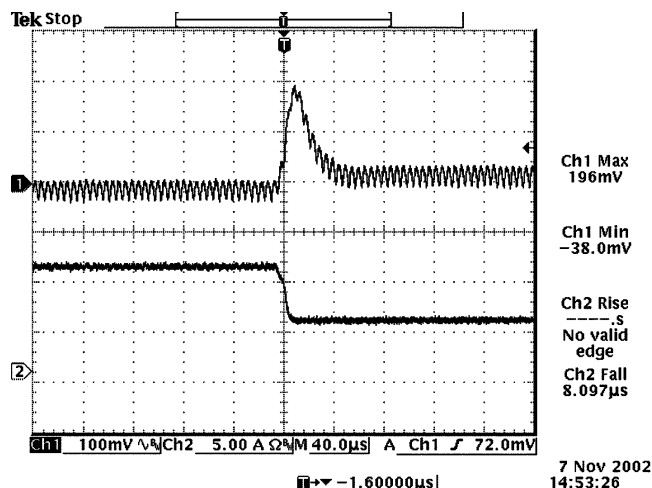
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### Transient Response

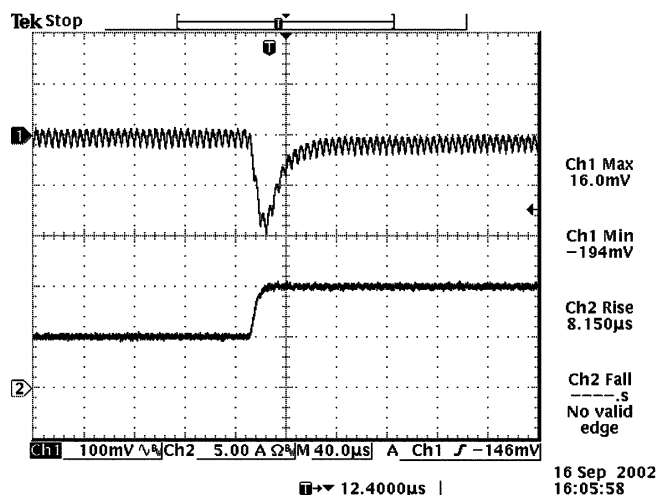
Transient response:  $di/dt = 0.5A/\mu S$ , external load capacitance  $C_o = 22\mu F$  (Tantalum capacitor)



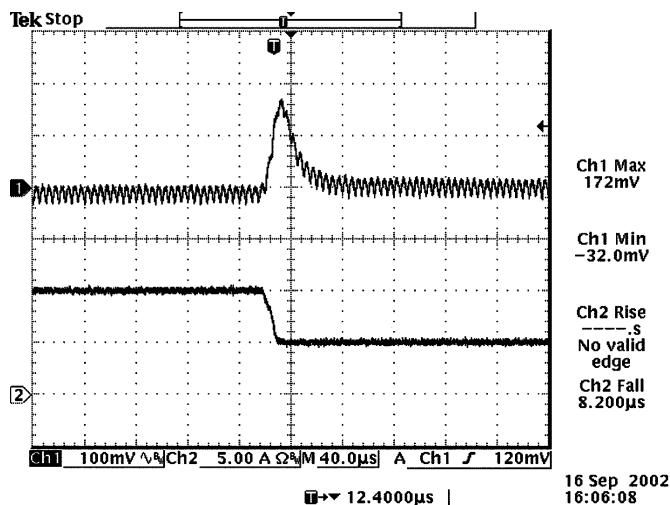
Vout=2.5V  
50% to 100% load transients at 12V input and Ta=25° C



Vout=2.5V  
100% to 50% load transients at 12V input and Ta=25° C



Vout=2.0V  
50% to 100% load transients at 12V input and Ta=25° C

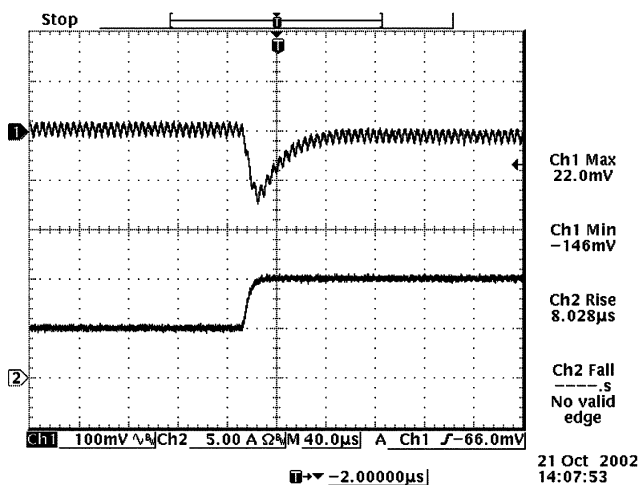


Vout=2.0V  
100% to 50% load transients at 12V input and Ta=25° C

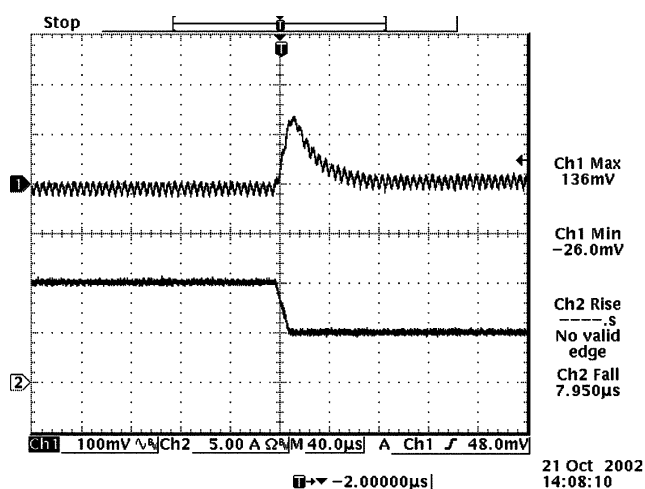
BP02V7PB-10A

### Transient Response

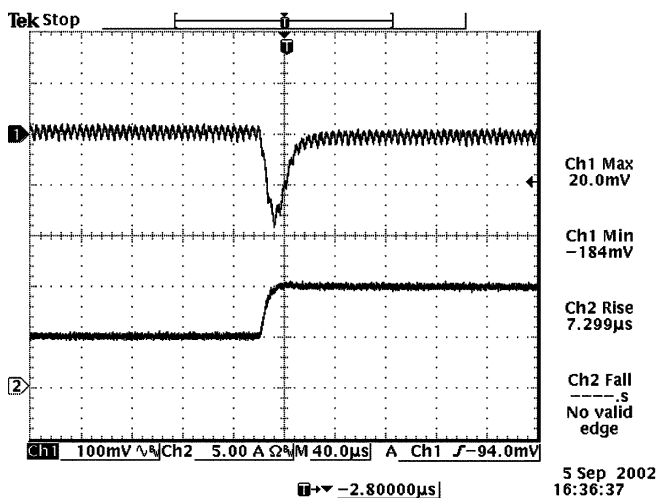
Transient response:  $di/dt = 0.5A/\mu S$ , external load capacitance  $C_o = 22\mu F$  (Tantalum capacitor)



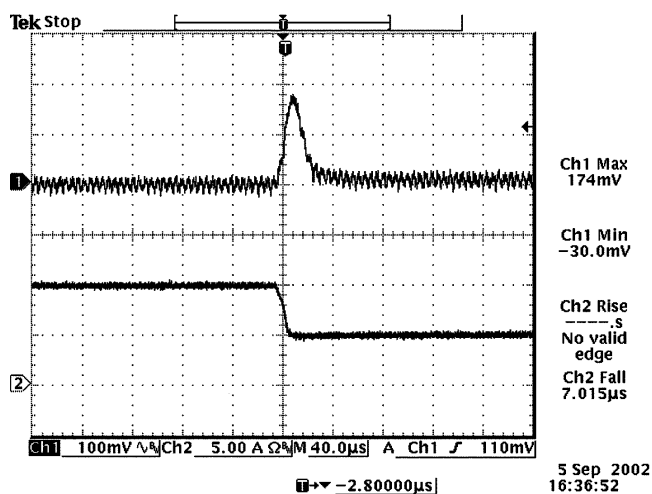
Vout=1.8V  
50% to 100% load transients at 12V input and Ta=25° C



Vout=1.8V  
100% to 50% load transients at 12V input and Ta=25° C



Vout=1.5V  
50% to 100% load transients at 12V input and Ta=25° C



Vout=1.5V  
100% to 50% load transients at 12V input and Ta=25° C

# NON-ISOLATED DC/DC CONVERTERS

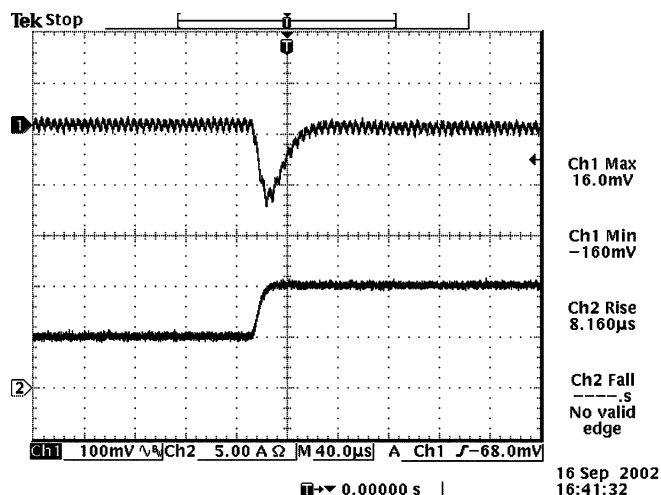
## 12V Input / 1.0 – 5.0V Output / 10A



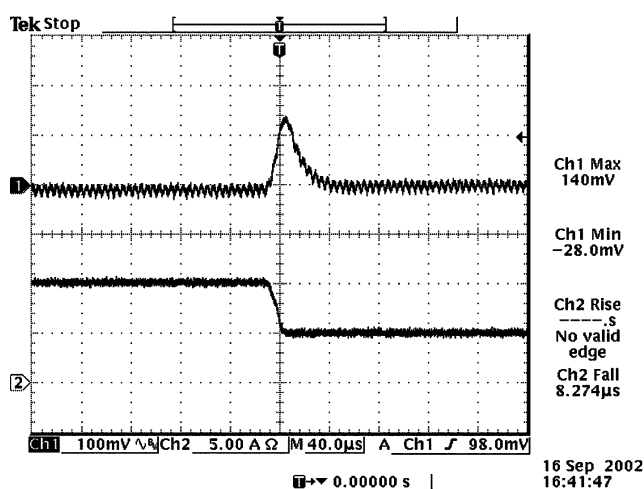
BP02V7PB-10A

### Transient Response

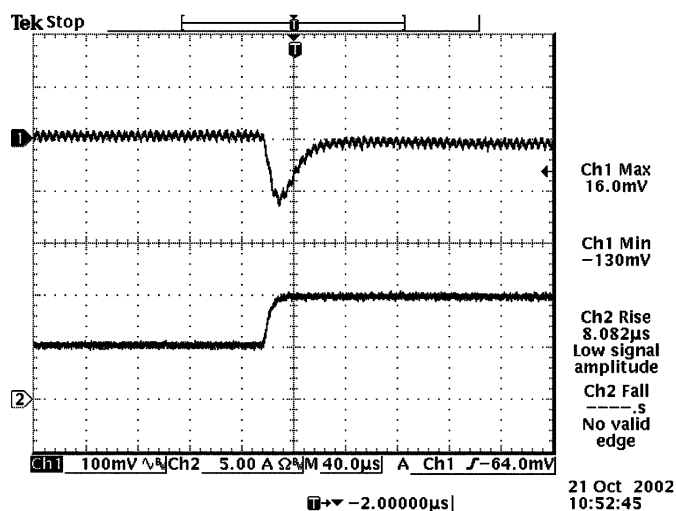
Transient response:  $di/dt = 0.5A/\mu S$ , external load capacitance  $C_o = 22\mu F$  (Tantalum capacitor)



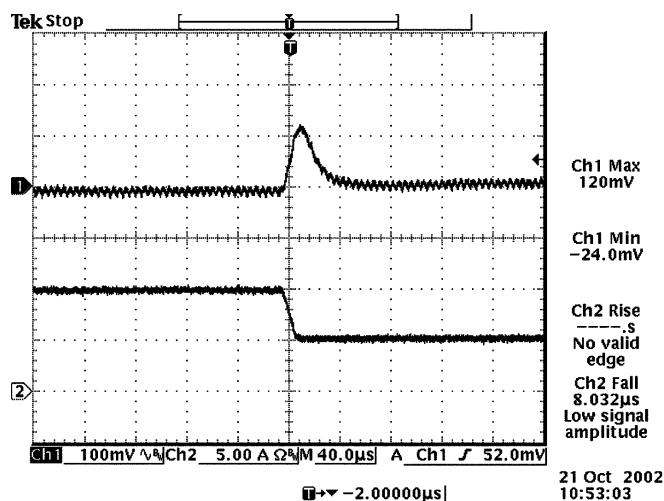
Vout=1.2V  
50% to 100% load transients at 12V input and Ta=25° C



Vout=1.2V  
100% to 50% load transients at 12V input and Ta=25° C

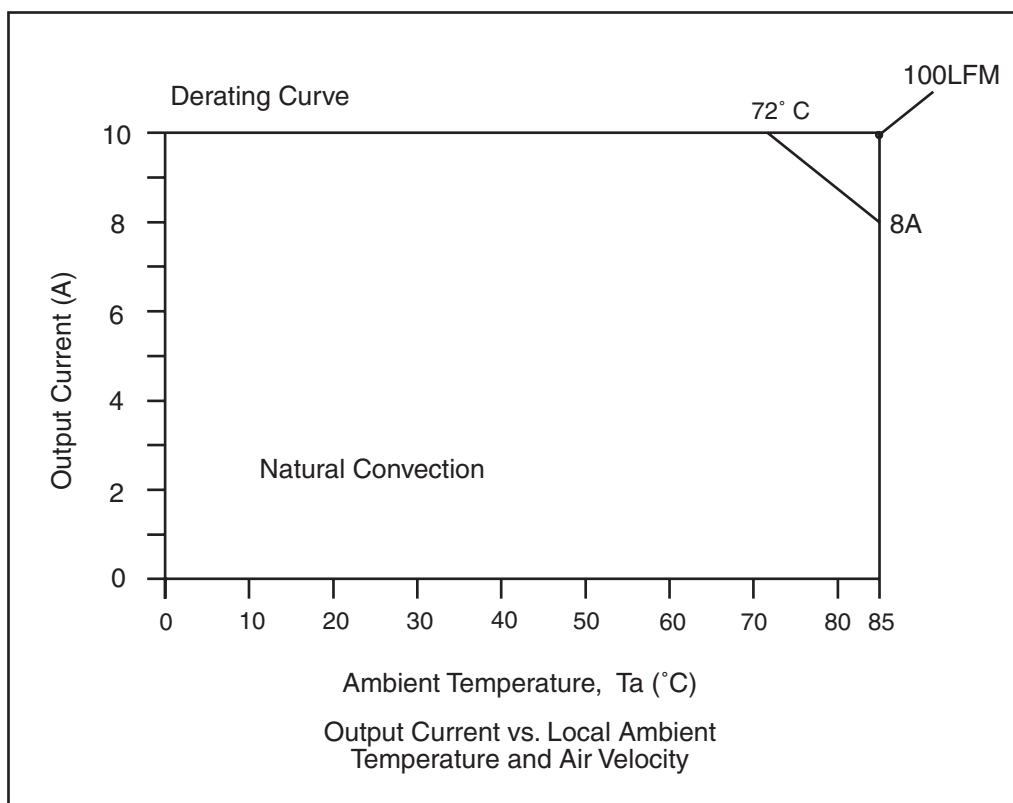


Vout=1.0V  
50% to 100% load transients at 12V input and Ta=25° C



Vout=1.0V  
100% to 50% load transients at 12V input and Ta=25° C

## Thermal Considerations





# NON-ISOLATED DC/DC CONVERTERS

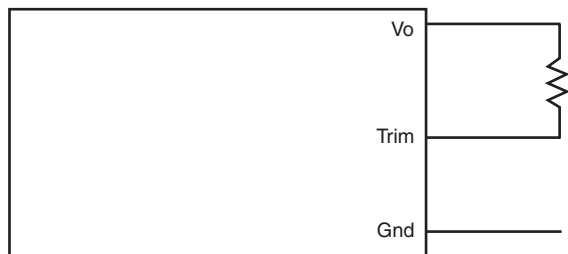
12V Input / 1.0 – 5.0V Output / 10A



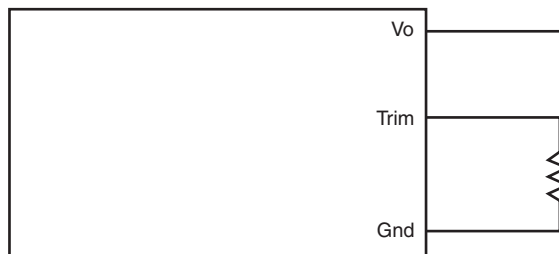
BP02V7PB-10A

## Output Voltage Set-Point Adjustment

Trim Down Test Circuit



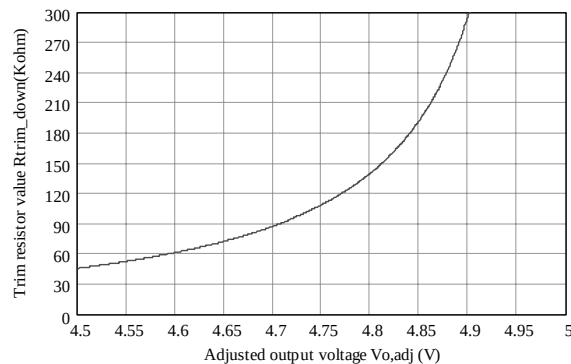
Trim Up Test Circuit



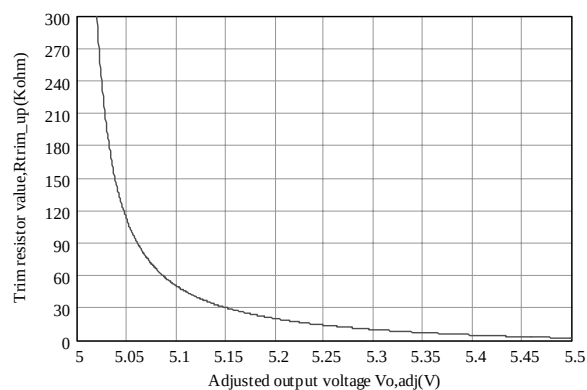
## Output Voltage Set-Point Adjustment

### V7PB-10A50x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{7.5 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 10 \right) \text{ Kohm}$$



$$R_{\text{trim up}} = \left( \frac{6}{V_o \text{, adj} - V_o \text{ nom}} - 10 \right) \text{ Kohm}$$



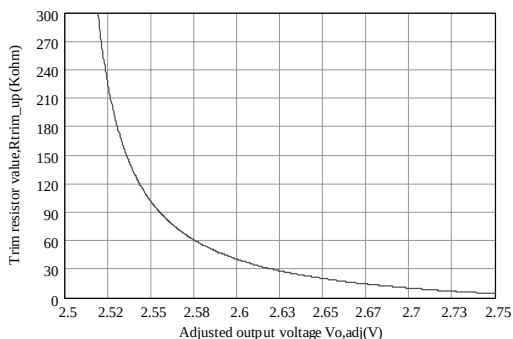
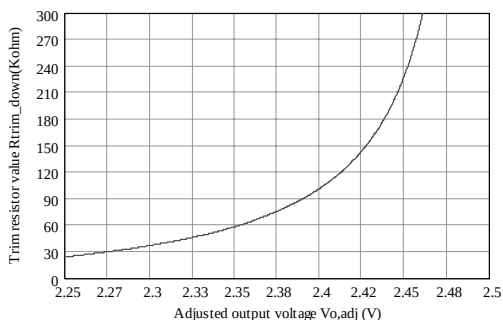
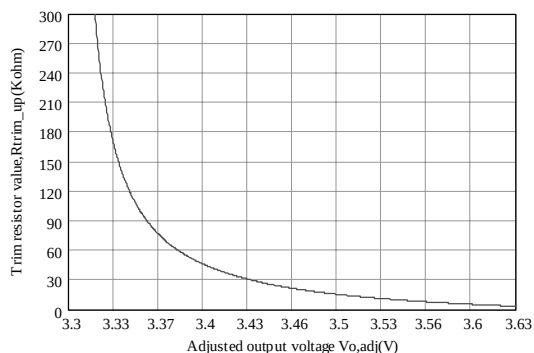
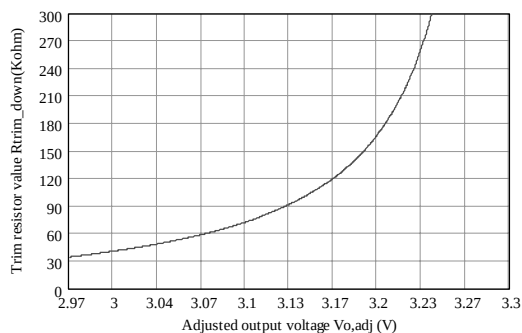
BP02V7PB-10A

### Output Voltage Set-Point Adjustment

#### V7PB-10A33x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{7.5 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 15 \right) \text{ Kohm}$$

$$R_{\text{trim up}} = \left( \frac{6}{V_o \text{, adj} - V_o \text{ nom}} - 15 \right) \text{ Kohm}$$



#### V7PB-10A25x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{7.5 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 20 \right) \text{ Kohm}$$

$$R_{\text{trim up}} = \left( \frac{6}{V_o \text{, adj} - V_o \text{ nom}} - 20 \right) \text{ Kohm}$$

# NON-ISOLATED DC/DC CONVERTERS

## 12V Input / 1.0 – 5.0V Output / 10A



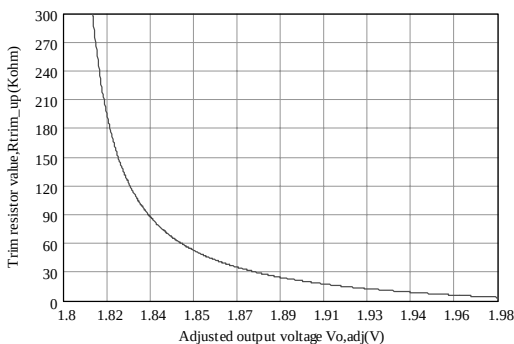
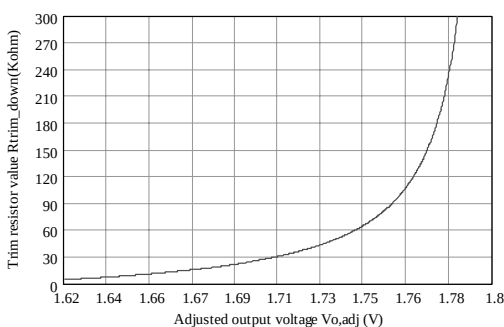
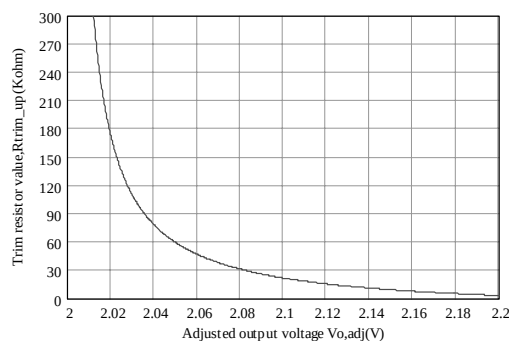
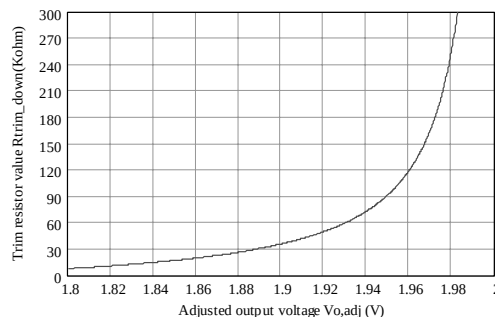
BP02V7PB-10A

### Output Voltage Set-Point Adjustment

#### V7PB-10A20x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{4.64 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 15.4 \right) \text{ Kohm}$$

$$R_{\text{trim up}} = \left( \frac{3.72}{V_o \text{, adj} - V_o \text{ nom}} - 15.4 \right) \text{ Kohm}$$



#### V7PB-10A18x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{4.64 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 16.9 \right) \text{ Kohm}$$

$$R_{\text{trim up}} = \left( \frac{3.72}{V_o \text{, adj} - V_o \text{ nom}} - 16.9 \right) \text{ Kohm}$$

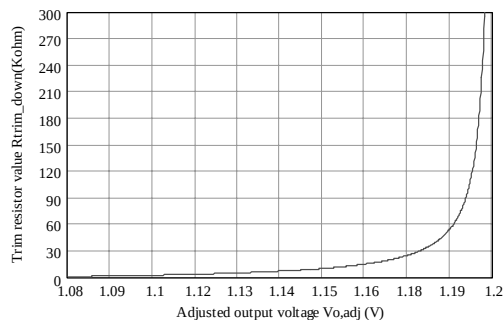
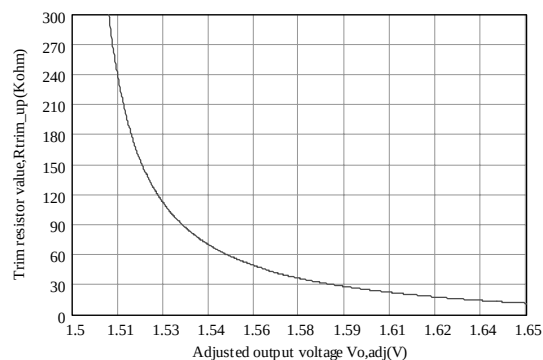
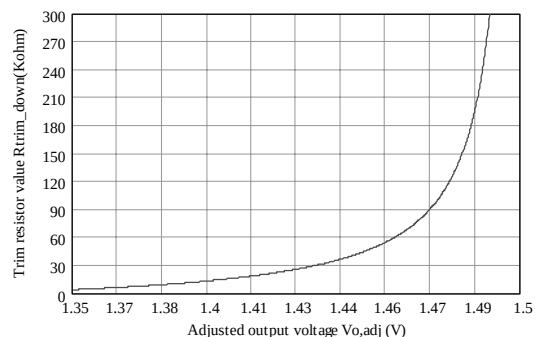
BP02V7PB-10A

### Output Voltage Set-Point Adjustment

#### V7PB-10A15x Trim Resistor Calculation

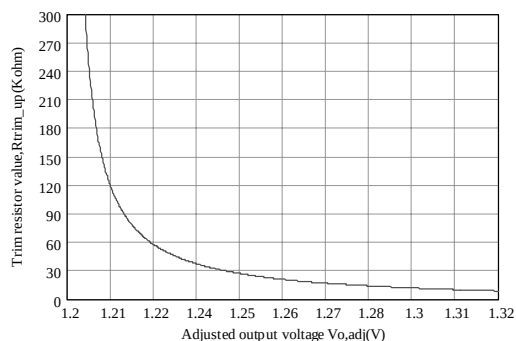
$$R_{\text{trim down}} = \left( \frac{4.64 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 13.3 \right) \text{ Kohm}$$

$$R_{\text{trim up}} = \left( \frac{3.72}{V_o \text{, adj} - V_o \text{ nom}} - 13.3 \right) \text{ Kohm}$$



#### V7PB-10A12x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{1.82 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 3.16 \right) \text{ Kohm}$$



$$R_{\text{trim up}} = \left( \frac{1.46}{V_o \text{, adj} - V_o \text{ nom}} - 3.16 \right) \text{ Kohm}$$

# NON-ISOLATED DC/DC CONVERTERS

12V Input / 1.0 – 5.0V Output / 10A

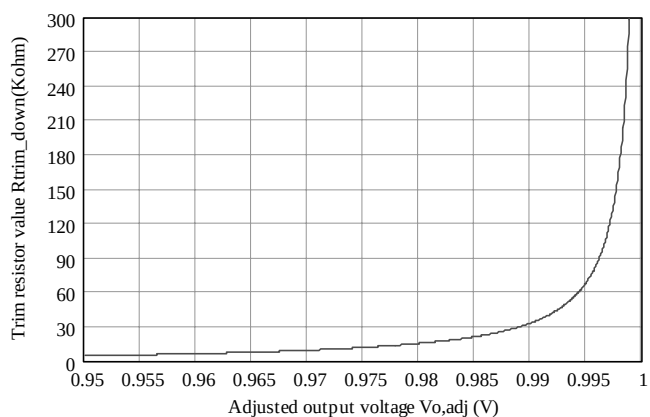


BP02V7PB-10A

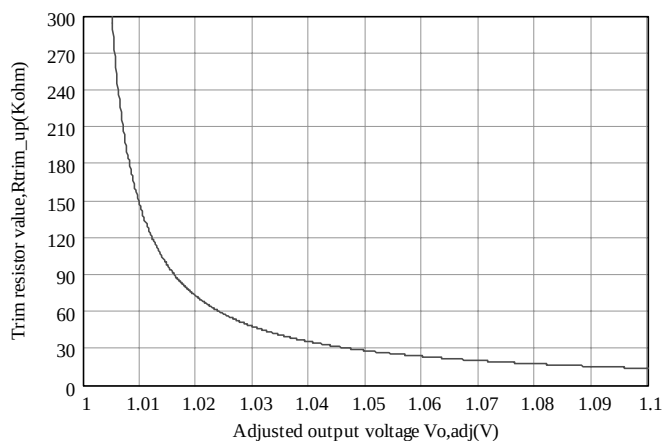
## Output Voltage Set-Point Adjustment

### V7PB-10A10x Trim Resistor Calculation

$$R_{\text{trim down}} = \left( \frac{1.82 (V_o \text{ adj} - 0.8)}{V_o \text{ nom} - V_o \text{, adj}} - 0.909 \right) \text{ Kohm}$$



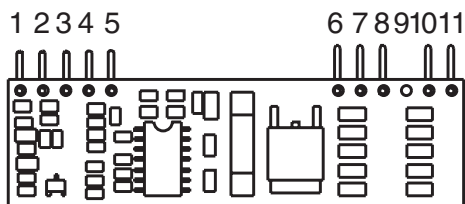
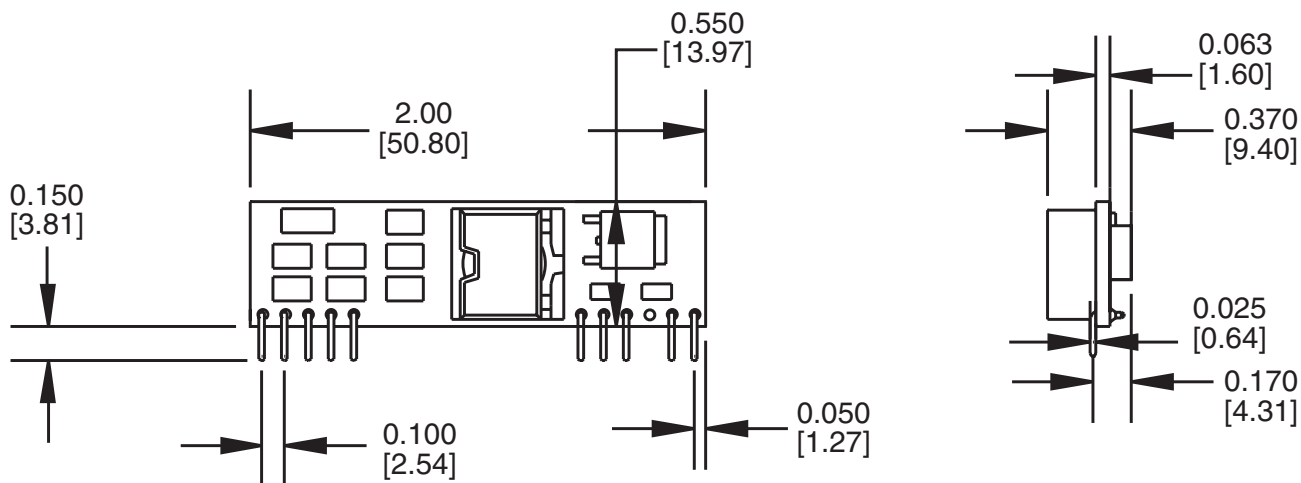
$$R_{\text{trim up}} = \left( \frac{1.46}{V_o \text{, adj} - V_o \text{ nom}} - 0.909 \right) \text{ Kohm}$$



BP01V7PC-10A

### Mechanical

V7PB-10A



| Pin | Function      |
|-----|---------------|
| 1   | +Vo           |
| 2   | +Vo           |
| 3   | Remote Sense  |
| 4   | +Vo           |
| 5   | Ground        |
| 6   | Ground        |
| 7   | +Vin          |
| 8   | +Vin          |
| 9   | No Pin        |
| 10  | Trim          |
| 11  | Remote On/Off |

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