

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

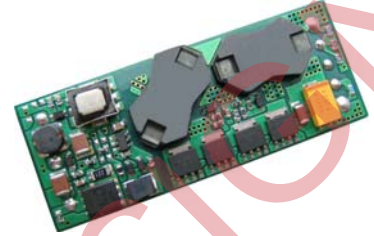
**bel**  
POWER PRODUCTS

### 0RCY-85T Series

RoHS Compliant

Rev.A

- Isolated
- High Efficiency
- High Power Density
- Fixed Frequency (300 kHz)
- Low Cost
- Input Under Voltage Lockout
- Safety Approval to UL60950-1 (UL/cUL)
- Pre-Bias Start Up
- Output Over Voltage Shutdown
- OCP/SCP
- Over Temperature Protection
- Remote On/Off
- Output Voltage Trim
- Positive/Negative Remote Sense
- Basic Insulation
- Pin Length (option)



### Description

The 0RCY-85T Series are isolated dc/dc converters that operate from a nominal 48 Vdc source. These units provide up to 100 W of output power. These units are designed to be highly efficient and cost-effective. Features include remote on/off, short circuit protection, over current protection, over temperature protection, input under voltage lockout, and output over voltage protection. These converters are provided in a compact, 1/8 brick industry standard package.

### Part Selection

| Output Voltage | Input Voltage | Max. Output Current | Max. Output Power | Typical Efficiency | Model Number Active High | Model Number Active Low |
|----------------|---------------|---------------------|-------------------|--------------------|--------------------------|-------------------------|
| 12.0 V         | 36 V - 75 V   | 8.33 A              | 100 W             | 91%                | 0RCY-85T120              | 0RCY-85T12L             |
| 5.0 V          | 36 V - 75 V   | 20 A                | 100 W             | 91%                | 0RCY-85T050              | 0RCY-85T05L             |
| 3.3 V          | 36 V - 75 V   | 25 A                | 85 W              | 90%                | 0RCY-85T033              | 0RCY-85T03L             |
| 2.5 V          | 36 V - 75 V   | 25 A                | 62.5 W            | 89%                | 0RCY-85T025              | 0RCY-85T02L             |
| 1.8 V          | 36 V - 75 V   | 25 A                | 45 W              | 88%                | 0RCY-85TV80              | 0RCY-85TV8L             |
| 1.5 V          | 36 V - 75 V   | 30 A                | 45 W              | 86%                | 0RCY-85TV50              | 0RCY-85TV5L             |
| 1.2 V          | 36 V - 75 V   | 30 A                | 36 W              | 84%                | 0RCY-85TV20              | 0RCY-85TV2L             |

**Notes:** 1. Change the last character to "M" to indicate 0.18" pin length and active low.

2. Add "G" suffix at the end of the model number to indicate Tray Packaging.

3. All part numbers above indicate RoHS 6. Change the second letter "R" to "7" for RoHS 5 part numbers.

### Absolute Maximum Ratings

| Parameter                  | Min    | Typ | Max    | Notes |
|----------------------------|--------|-----|--------|-------|
| Input Voltage (continuous) | -0.3 V | -   | 80 V   |       |
| Remote On/Off              | -0.3 V | -   | 18 V   |       |
| I/O Isolation Voltage      | -      | -   | 2000 V |       |
| Ambient Temperature        | -40 °C | -   | 85 °C  |       |
| Storage Temperature        | -55 °C | -   | 125 °C |       |

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick



### Input Specifications

| Parameter                                 | Min  | Typ                   | Max                   | Notes                                                                                                                                                 |
|-------------------------------------------|------|-----------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage                             | 36 V | 48 V                  | 75 V                  |                                                                                                                                                       |
| Input Current (full load)                 |      |                       |                       |                                                                                                                                                       |
| Vo=12.0 V                                 | -    | -                     | 3.2 A                 |                                                                                                                                                       |
| Vo=5.0 V                                  | -    | -                     | 3.2 A                 |                                                                                                                                                       |
| Vo=3.3 V                                  | -    | -                     | 2.8 A                 |                                                                                                                                                       |
| Vo=2.5 V                                  | -    | -                     | 2.2 A                 |                                                                                                                                                       |
| Vo=1.8 V                                  | -    | -                     | 1.7 A                 |                                                                                                                                                       |
| Vo=1.5 V                                  | -    | -                     | 1.7 A                 |                                                                                                                                                       |
| Vo=1.2 V                                  | -    | -                     | 1.5 A                 |                                                                                                                                                       |
| Input Current (no load)                   |      |                       |                       |                                                                                                                                                       |
| Vo=12.0 V                                 | -    | 65 mA                 | 90 mA                 |                                                                                                                                                       |
| Vo=5.0 V                                  | -    | 65 mA                 | 90 mA                 |                                                                                                                                                       |
| Vo=3.3 V                                  | -    | 60 mA                 | 80 mA                 |                                                                                                                                                       |
| Vo=2.5 V                                  | -    | 55 mA                 | 75 mA                 |                                                                                                                                                       |
| Vo=1.8 V                                  | -    | 50 mA                 | 70 mA                 |                                                                                                                                                       |
| Vo=1.5 V                                  | -    | 40 mA                 | 60 mA                 |                                                                                                                                                       |
| Vo=1.2 V                                  | -    | 35 mA                 | 50 mA                 |                                                                                                                                                       |
| Remote Off Input Current                  |      | 6 mA                  | 12 mA                 |                                                                                                                                                       |
| Input Reflected Ripple Current (pk-pk)    | -    | 12 mA                 | 24 mA                 | Tested with simulated source impedance of 10 uH, 5 Hz to 20 MHz; use a 100 uF/100 V electrolytic capacitor with ESR = 1 ohm max. at 200 kHz at 25 °C. |
| Input Reflected Ripple Current (rms)      | -    | 2 mA                  | 4 mA                  |                                                                                                                                                       |
| I <sup>2</sup> t Inrush Current Transient | -    | 0.01 A <sup>2</sup> s | 0.02 A <sup>2</sup> s |                                                                                                                                                       |
| Turn-on Voltage Threshold                 | 32 V | 34 V                  | 35 V                  |                                                                                                                                                       |
| Turn-off Voltage Threshold                | 30 V | 32 V                  | 33 V                  |                                                                                                                                                       |

### Output Specifications

| Parameter                | Min      | Typ    | Max     | Notes                                 |
|--------------------------|----------|--------|---------|---------------------------------------|
| Output Voltage Set Point |          |        |         |                                       |
| Vo=12.0 V                | 11.760 V | 12.0 V | 12.24 V | Vin=48 V, Io=50% full load, Ta=25 °C. |
| Vo=5.0 V                 | 4.925 V  | 5.0 V  | 5.075 V |                                       |
| Vo=3.3 V                 | 3.250 V  | 3.3 V  | 3.350 V |                                       |
| Vo=2.5 V                 | 2.463 V  | 2.5 V  | 2.538 V |                                       |
| Vo=1.8 V                 | 1.773 V  | 1.8 V  | 1.827 V |                                       |
| Vo=1.5 V                 | 1.477 V  | 1.5 V  | 1.523 V |                                       |
| Vo=1.2 V                 | 1.182 V  | 1.2 V  | 1.218 V |                                       |
| Line Regulation          |          |        |         |                                       |
| Vo=12.0 V-3.3 V          | -        | ±2 mV  | ±5 mV   |                                       |
| Vo=1.2 V-2.5 V           | -        | ±1 mV  | ±3 mV   |                                       |
| Load Regulation          |          |        |         |                                       |
| Vo=12.0 V                | -        | ±8 mV  | ±16 mV  |                                       |
| Vo=5.0 V                 | -        | ±8 mV  | ±16 mV  |                                       |
| Vo=3.3 V                 | -        | ±6 mV  | ±12 mV  |                                       |
| Vo=2.5 V                 | -        | ±4 mV  | ±8 mV   |                                       |
| Vo=1.8 V                 | -        | ±3 mV  | ±6 mV   |                                       |
| Vo=1.5 V                 | -        | ±3 mV  | ±6 mV   |                                       |
| Vo=1.2 V                 | -        | ±2 mV  | ±4 mV   |                                       |

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick



### Output Specifications (continued)

| Parameter                                         | Min           | Typ                | Max                | Notes                                                                                                                 |        |                                                                                                                                         |
|---------------------------------------------------|---------------|--------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Regulation Over Temperature<br>(-40 °C to +85 °C) |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| Vo=12.0 V                                         | -             | ±50 mV             | ±75 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | -             | ±50 mV             | ±75 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=3.3 V                                          | -             | ±20 mV             | ±40 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=2.5 V                                          | -             | ±15 mV             | ±30 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.8 V                                          | -             | ±15 mV             | ±30 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.5 V                                          | -             | ±10 mV             | ±20 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V                                          | -             | ±10 mV             | ±20 mV             |                                                                                                                       |        |                                                                                                                                         |
| Output Current                                    |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| Vo=12.0 V                                         | 0 A           | -                  | 8.33 A             |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | 0 A           | -                  | 20 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=3.3 V                                          | 0 A           | -                  | 25 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=2.5 V                                          | 0 A           | -                  | 25 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.8 V                                          | 0 A           | -                  | 25 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.5 V                                          | 0 A           | -                  | 30 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V                                          | 0 A           | -                  | 30 A               |                                                                                                                       |        |                                                                                                                                         |
| Current Limit Threshold                           |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| Vo=12.0 V                                         | 10 A          | 13 A               | 16 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | 23 A          | 29 A               | 35 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=3.3 V                                          | 30 A          | 36 A               | 42 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=2.5 V                                          | 27 A          | 33 A               | 40 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.8 V                                          | 27 A          | 33 A               | 40 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.5 V                                          | 32 A          | 36 A               | 45 A               |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V                                          | 32 A          | 36 A               | 45 A               |                                                                                                                       |        |                                                                                                                                         |
| Short Circuit Surge Transient                     | -             | 3 A <sup>2</sup> s | 5 A <sup>2</sup> s |                                                                                                                       |        |                                                                                                                                         |
| Ripple and Noise (rms)                            |               |                    |                    | Test conditions:<br>0-20 MHz BW, with a 1 uF<br>ceramic capacitor and a<br>10 uF Tantalum capacitor<br>at the output. |        |                                                                                                                                         |
| Vo=12.0 V                                         | -             | 30 mV              | 50 mV              |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | -             | 25 mV              | 50 mV              |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V-3.3 V                                    | -             | 15 mV              | 30 mV              |                                                                                                                       |        |                                                                                                                                         |
| Ripple and Noise (pk-pk)                          |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| Vo=12.0 V                                         | -             | 100 mV             | 150 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | -             | 80 mV              | 120 mV             |                                                                                                                       |        |                                                                                                                                         |
| Vo=3.3 V                                          | -             | 45 mV              | 90 mV              |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V-2.5 V                                    | -             | 40 mV              | 80 mV              |                                                                                                                       |        |                                                                                                                                         |
| Turn on Time                                      | -             | -                  | 30 mS              |                                                                                                                       |        |                                                                                                                                         |
| Overshoot at Turn on                              | -             | 0%                 | 5%                 |                                                                                                                       |        |                                                                                                                                         |
| Output Capacitance                                |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| Vo=12.0 V                                         | 0 uF          | -                  | 1000 uF            |                                                                                                                       |        |                                                                                                                                         |
| Vo=5.0 V                                          | 0 uF          | -                  | 10000 uF           |                                                                                                                       |        |                                                                                                                                         |
| Vo=1.2 V- 3.3 V                                   | 0 uF          | -                  | 20000 uF           |                                                                                                                       |        |                                                                                                                                         |
| Transient Response                                |               |                    |                    |                                                                                                                       |        |                                                                                                                                         |
| 25% ~ 50%<br>Max Load                             | Overshoot     | Vo=12.0 V          | -                  | 300 mV                                                                                                                | 400 mV | Test conditions: di/dt =<br>0.1 A/uS, Vin=48 V,<br>with a 1 uF ceramic<br>capacitor and a 10 uF<br>Tantalum capacitor at<br>the output. |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |
| 50% ~ 25%<br>Max Load                             | Overshoot     |                    | -                  | 300 mV                                                                                                                | 400 mV |                                                                                                                                         |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |
| 25% ~ 50%<br>Max Load                             | Overshoot     | Vo=5.0 V           | -                  | 200 mV                                                                                                                | 300 mV |                                                                                                                                         |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |
| 50% ~ 25%<br>Max Load                             | Overshoot     |                    | -                  | 200 mV                                                                                                                | 300 mV |                                                                                                                                         |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |
| 25% ~ 50%<br>Max Load                             | Overshoot     | Vo=3.3 V           | -                  | 150 mV                                                                                                                | 200 mV |                                                                                                                                         |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |
| 50% ~ 25%<br>Max Load                             | Overshoot     |                    | -                  | 150 mV                                                                                                                | 200 mV |                                                                                                                                         |
|                                                   | Settling Time |                    | -                  | 200 uS                                                                                                                | 300 uS |                                                                                                                                         |

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick



### Output Specifications (continued)

| Parameter                 |               | Min      | Typ    | Max    | Notes                                                                                                                    |
|---------------------------|---------------|----------|--------|--------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Transient Response</b> |               |          |        |        |                                                                                                                          |
| 25% ~ 50%<br>Max Load     | Overshoot     | Vo=2.5 V | 150 mV | 200 mV | Test conditions: di/dt = 0.1 A/uS, Vin=48 V, with a 1 uF ceramic capacitor and a 10 uF Tantalum capacitor at the output. |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 50% ~ 25%<br>Max Load     | Overshoot     |          | 150 mV | 200 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 25% ~ 50%<br>Max Load     | Overshoot     | Vo=1.8 V | 140 mV | 170 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 50% ~ 25%<br>Max Load     | Overshoot     |          | 140 mV | 170 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 25% ~ 50%<br>Max Load     | Overshoot     | Vo=1.5 V | 130 mV | 150 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 50% ~ 25%<br>Max Load     | Overshoot     |          | 130 mV | 150 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 25% ~ 50%<br>Max Load     | Overshoot     | Vo=1.2 V | 120 mV | 140 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |
| 50% ~ 25%<br>Max Load     | Overshoot     |          | 120 mV | 140 mV |                                                                                                                          |
|                           | Settling Time |          | 150 uS | 200 uS |                                                                                                                          |

**Note:** All specifications are typical at 25 °C unless otherwise stated.

### General Specifications

| Parameter                   |           | Min                   | Typ     | Max     | Notes                                                                         |
|-----------------------------|-----------|-----------------------|---------|---------|-------------------------------------------------------------------------------|
| Efficiency                  | Vo=12.0 V | 88%                   | 91%     | -       | Vin=48V, Io=Io, max                                                           |
|                             | Vo=5.0 V  | 88%                   | 91%     | -       |                                                                               |
|                             | Vo=3.3 V  | 87%                   | 90%     | -       |                                                                               |
|                             | Vo=2.5 V  | 86%                   | 89%     | -       |                                                                               |
|                             | Vo=1.8 V  | 85%                   | 88%     | -       |                                                                               |
|                             | Vo=1.5 V  | 83%                   | 86%     | -       |                                                                               |
|                             | Vo=1.2 V  | 81%                   | 84%     | -       |                                                                               |
| Switching Frequency         |           | 270 kHz               | 300 kHz | 330 kHz |                                                                               |
| Isolation capacitance       |           | -                     | 1500 pF | -       |                                                                               |
| Output Voltage Trim Range   |           |                       |         |         | The total voltage increased by trim and remote sense should not exceed 10%Vo. |
| Vo=1.5 V-12 V               |           | 80% Vo                | -       | 110% Vo |                                                                               |
| Vo=1.2 V                    |           | 90% Vo                | -       | 110% Vo |                                                                               |
| Remote Sense                |           | -                     | -       | 10%     |                                                                               |
| Over Temperature Protection |           | -                     | 125 °C  | -       |                                                                               |
| Over Voltage Protection     |           | -                     | 130% Vo | -       | Vin=48V, full load, in hiccup mode.                                           |
| Pre-bias Voltage            |           |                       |         |         |                                                                               |
| Vo=5.0 V                    |           | -                     | -       | 4.0 V   |                                                                               |
| Vo=3.3 V                    |           | -                     | -       | 1.4 V   |                                                                               |
| Vo=2.5 V                    |           | -                     | -       | 2.0 V   |                                                                               |
| Vo=1.8 V                    |           | -                     | -       | 1.4 V   |                                                                               |
| Vo=1.5 V                    |           | -                     | -       | 1.2 V   |                                                                               |
| Vo=1.2 V                    |           | -                     | -       | 0.9 V   |                                                                               |
| MTBF                        |           | 1,583,176 hours       |         |         | Calculated Per Bell Core SR-332 (Vin=48 V, Vo=3.3 V, Io=20 A, Ta = 25 °C)     |
| Dimensions                  |           |                       |         |         |                                                                               |
| Inches (L × W × H)          |           | 2.30 x 0.896 x 0.395  |         |         |                                                                               |
| Millimeters (L × W × H)     |           | 58.42 x 22.76 x 10.03 |         |         |                                                                               |
| Weight                      |           | -                     | 27 g    | -       |                                                                               |

**Note:** All specifications are typical at 25 °C unless otherwise stated.

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48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

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### Control Specifications

| Parameter              |             | Min    | Typ | Max     | Notes                                              |
|------------------------|-------------|--------|-----|---------|----------------------------------------------------|
| Remote On/Off          |             |        |     |         |                                                    |
| Signal Low (Unit On)   | Active Low  | -0.3 V | -   | 0.8 V   | 0RCY-85TxxL. The remote on/off pin open, Unit off. |
| Signal High (Unit Off) |             | 2.4 V  | -   | 18 V    |                                                    |
| Signal Low (Unit Off)  | Active High | -0.3 V | -   | 0.8 V   | 0RCY-85Txx0. The remote on/off pin open, Unit on.  |
| Signal High (Unit On)  |             | 2.4 V  | -   | 18 V    |                                                    |
| Current Sink           |             | 0 mA   | -   | 0.75 mA |                                                    |

### Output Trim Equations

Equations for calculating the trim resistor are shown below. The Trim Down resistor should be connected between the Trim pin and Ground pin. The Trim Up resistor should be connected between the Trim pin and the Vout. Only one of the resistors should be used for any given application.

$$R_{trim-down} = \frac{511}{|\delta|} - 10.22 [k\Omega]$$

**Vo=1.5 V-12 V:**

$$R_{trim-up} = \frac{(100 + \delta) \cdot V_o \cdot 5.11 - 626}{1.225 \cdot \delta} - 10.22 [k\Omega]$$

**Vo=1.2 V:**

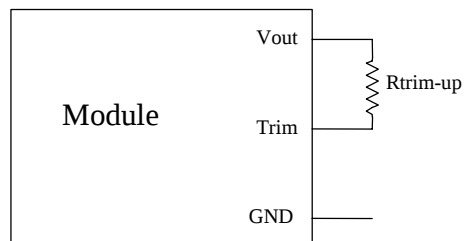
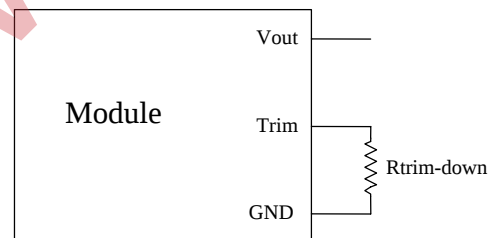
$$R_{trim-up} = \frac{(100 + \delta) \cdot V_o \cdot 5.11 - 313}{0.6125 \cdot \delta} - 10.22 [k\Omega]$$

**Notes:**

$$\delta = \frac{(V_o_{req} - V_o)}{V_o} \times 100 [\%]$$

V<sub>o\_req</sub>=Desired (trimmed) output voltage [V]

Output voltage V<sub>o</sub>=1.202 V for 1.2 V output; V<sub>o</sub>=1.503 V for 1.5 V output; V<sub>o</sub>=1.804 V for 1.8 V; V<sub>o</sub>=2.505 V for 2.5 V output; V<sub>o</sub>=3.308 V for 3.3 V output; V<sub>o</sub>=5.000 V for 5.0 V; V<sub>o</sub>=12.000 V for 12 V output

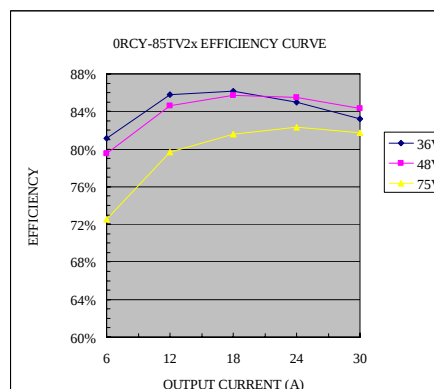
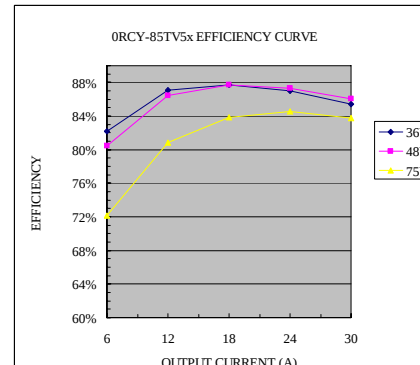
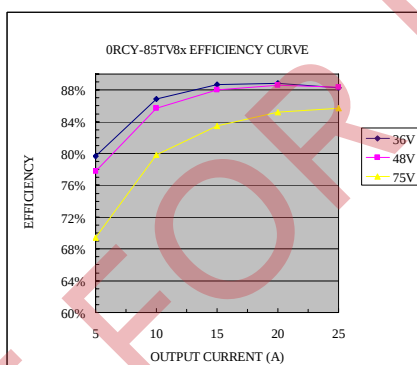
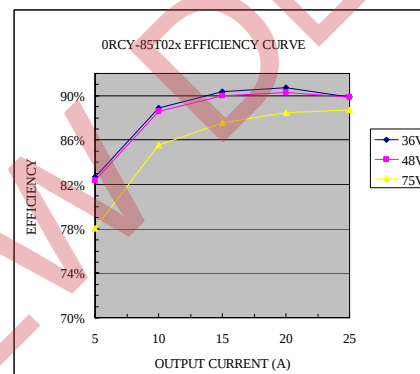
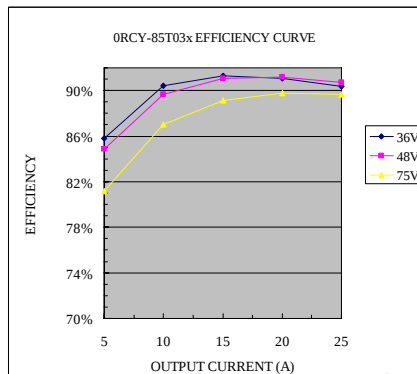
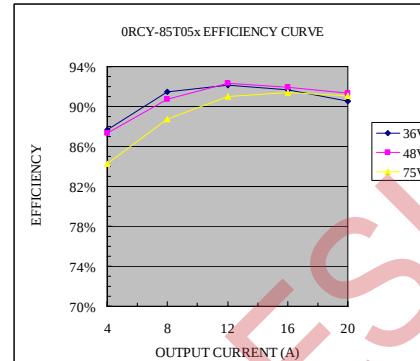
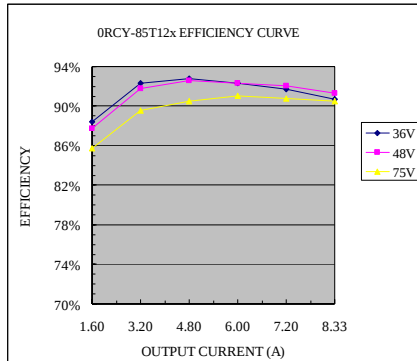


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## Efficiency Data



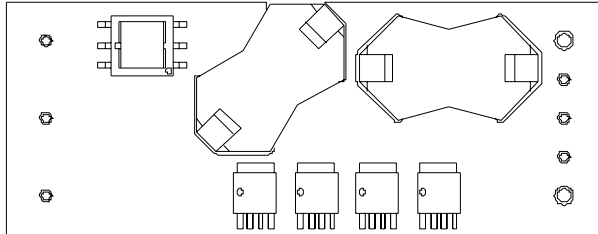
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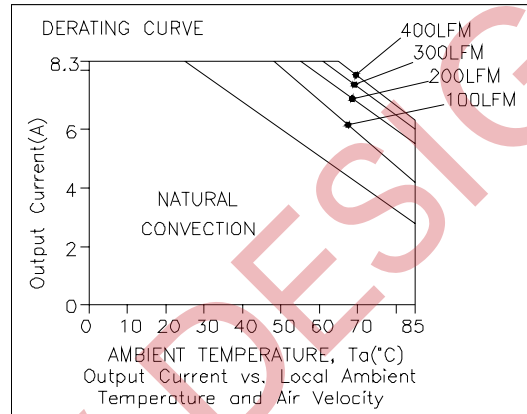
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POWER PRODUCTS

### Thermal Derating Curves

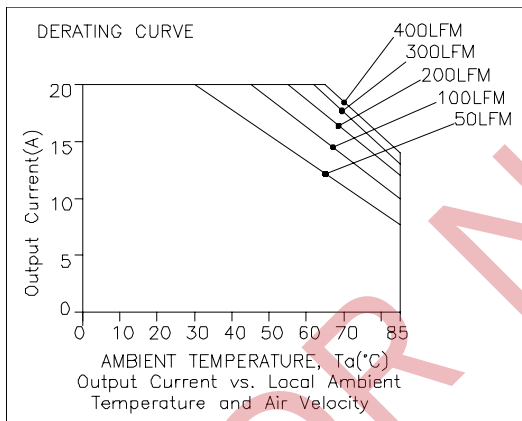
Vin=48V, with maximum junction temperature of semiconductors derated to 120 degree C.



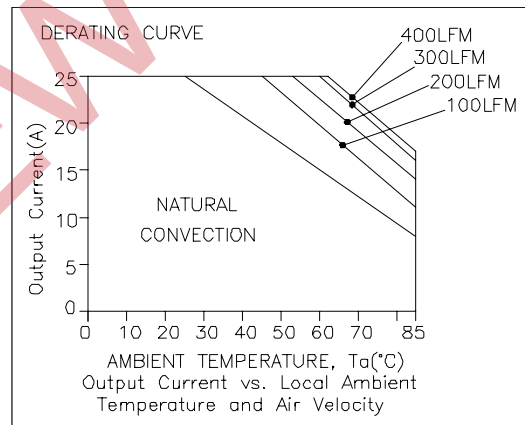
Forced Airflow Direction



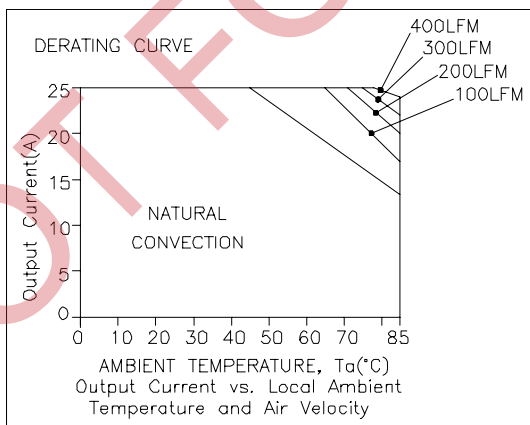
0RCY-85T12x



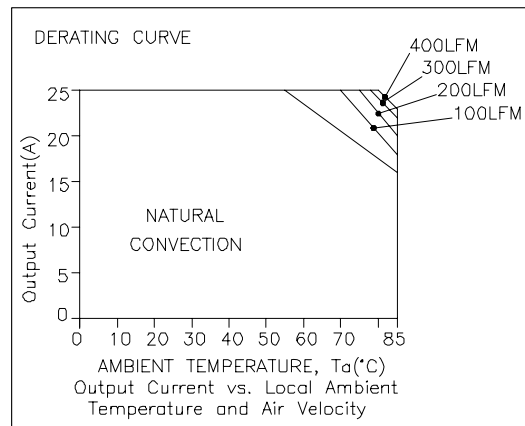
0RCY-85T05x



0RCY-85T03x



0RCY-85T02x



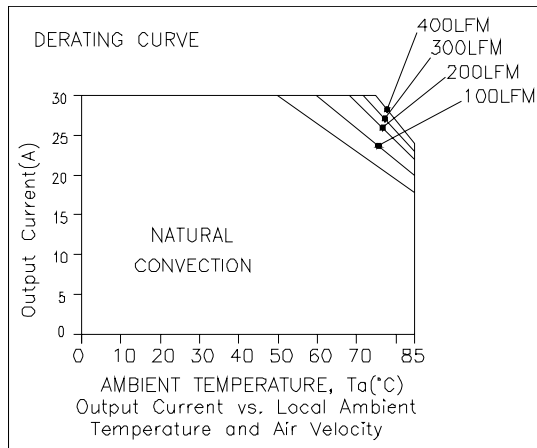
0RCY-85TV8x

## ISOLATED DC/DC CONVERTERS

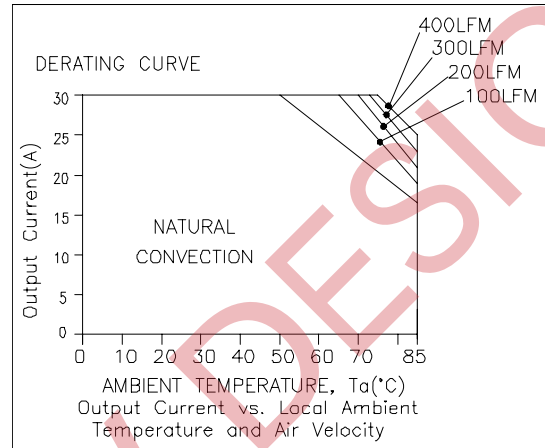
48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

**bel**  
POWER PRODUCTS

### Thermal Derating Curves (continued)

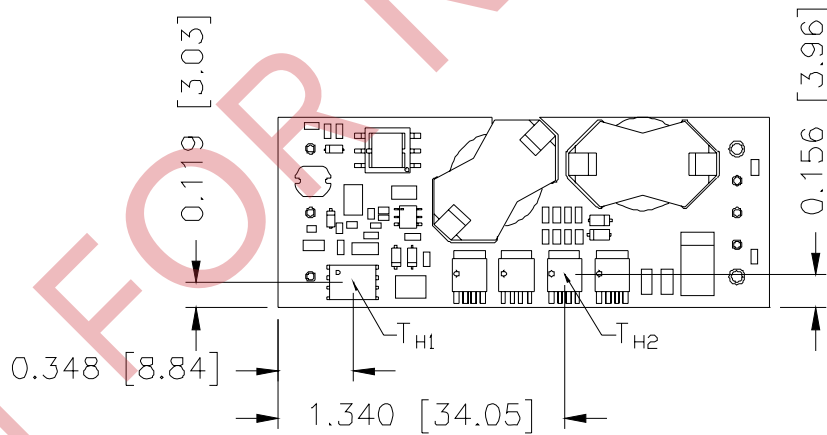


0RCY-85TV5x



0RCY-85TV2x

### Thermal Reference



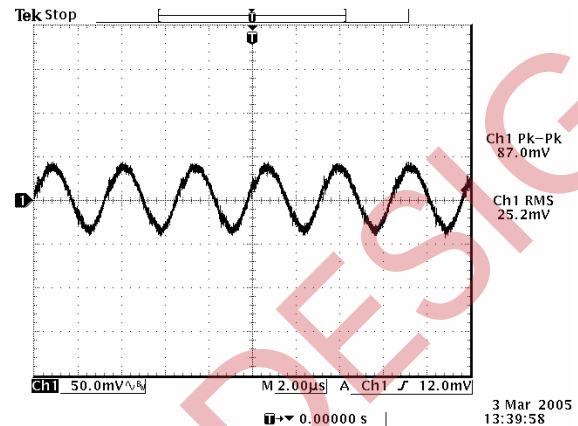
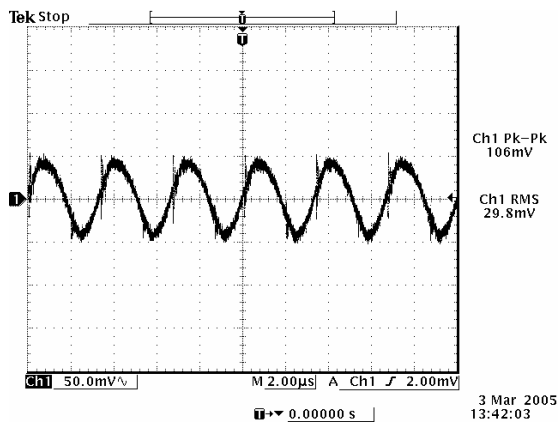
**Note:**  $T_{H1}$  and  $T_{H2}$  are hot spots which should not exceed 118 degree C.

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

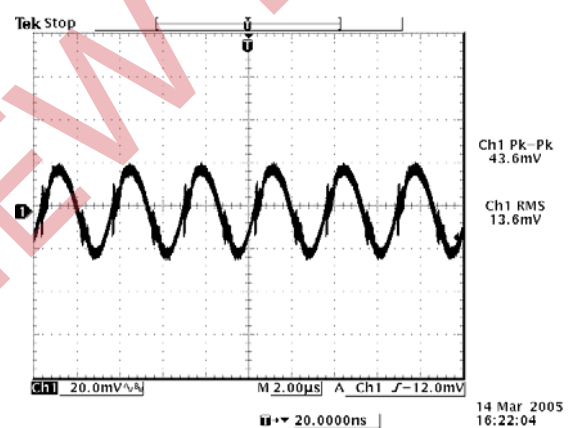
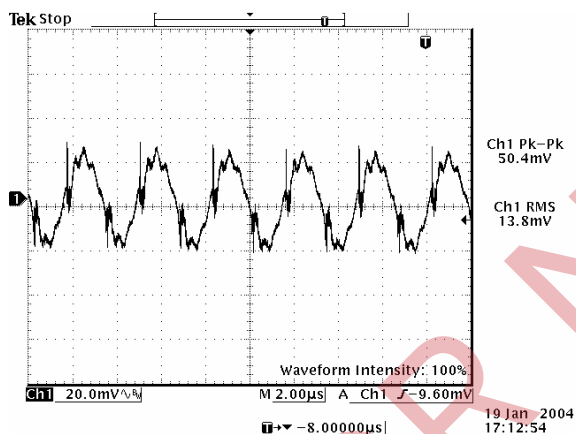
**bel**  
POWER PRODUCTS

### Ripple and Noise Waveforms



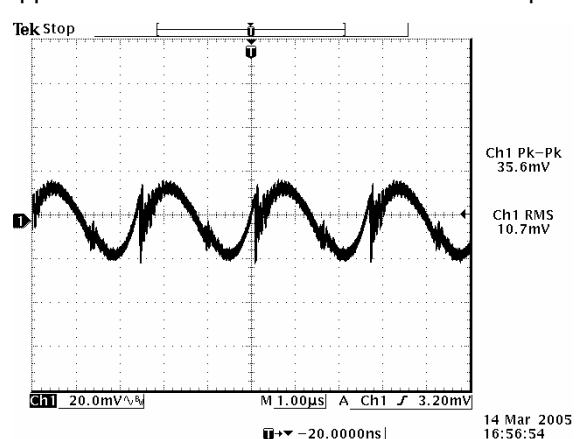
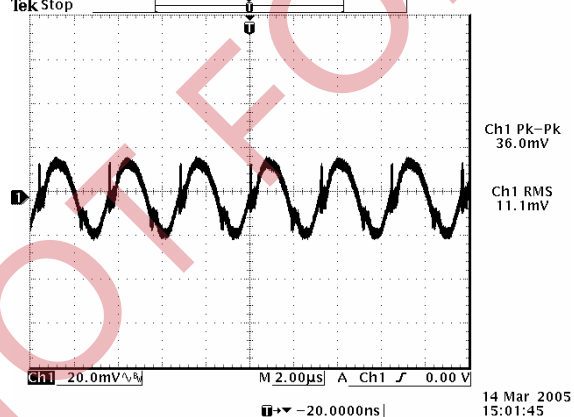
Ripple and noise at max load 12 Vdc/8.33 A output

Ripple and noise at max load 5.0 Vdc/20 A output



Ripple and noise at max load 3.3 Vdc/25 A output

Ripple and noise at max load 2.5 Vdc/25 A output



Ripple and noise at max load 1.8 Vdc/25 A output

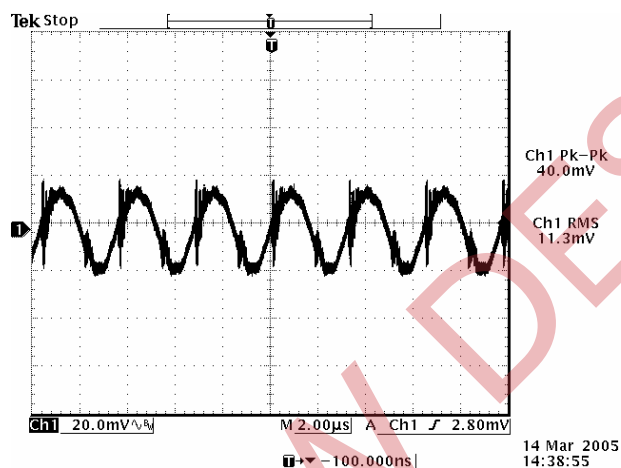
Ripple and noise at max load 1.5 Vdc/30 A output

## ISOLATED DC/DC CONVERTERS

48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

**bel**  
POWER PRODUCTS

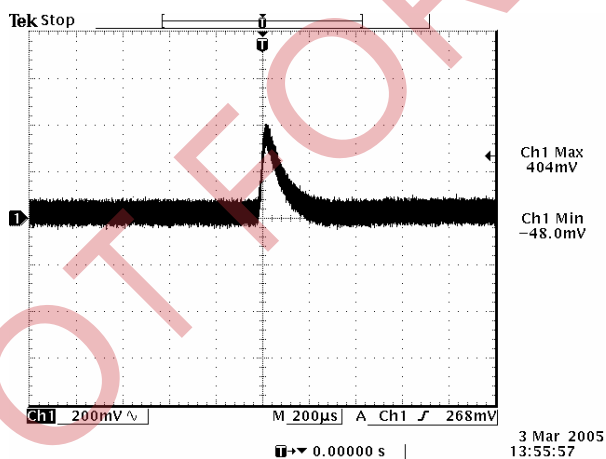
### Ripple and Noise Waveforms (continued)



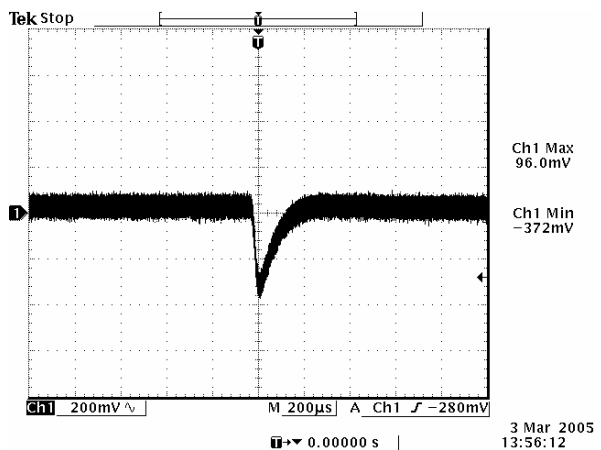
Ripple and noise at max load 1.2 Vdc/30 A output

**Note:** Ripple and Noise at 48 V input, with a 1  $\mu$ F ceramic capacitor and a 10  $\mu$ F tantalum capacitor at the output, and  $T_a=25$  deg C

### Transient Response Waveforms



Transients 50% to 25% load 12 Vdc output



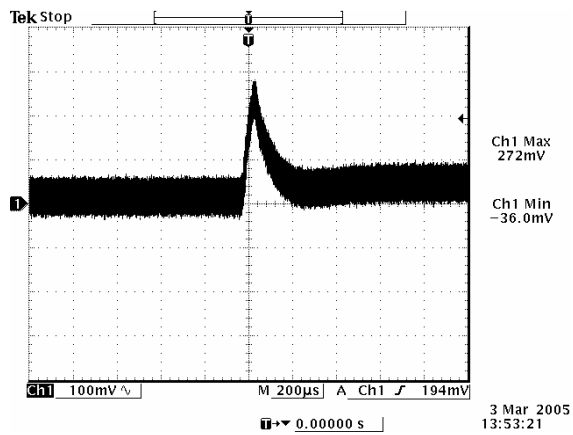
Transients 25% to 50% load 12 Vdc output

## ISOLATED DC/DC CONVERTERS

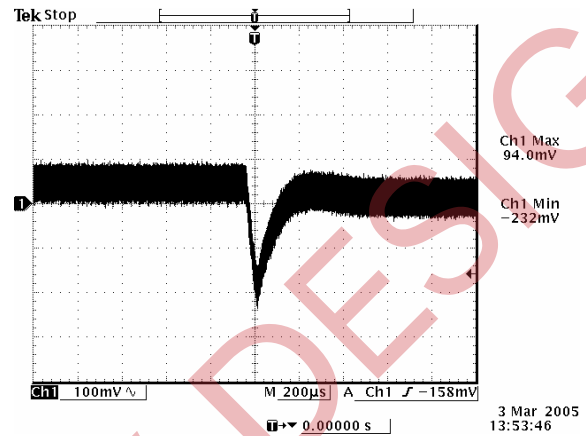
48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

**bel**  
POWER PRODUCTS

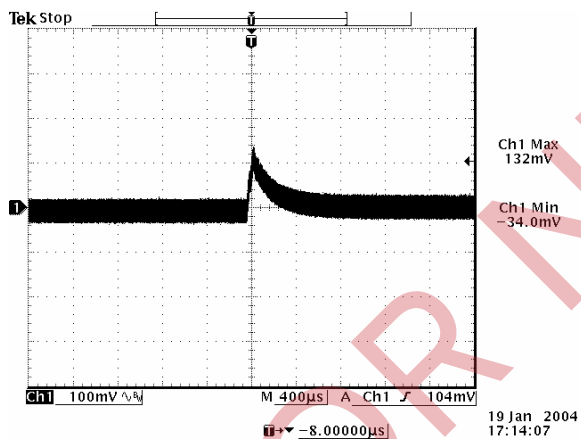
### Transient Response Waveforms (continued)



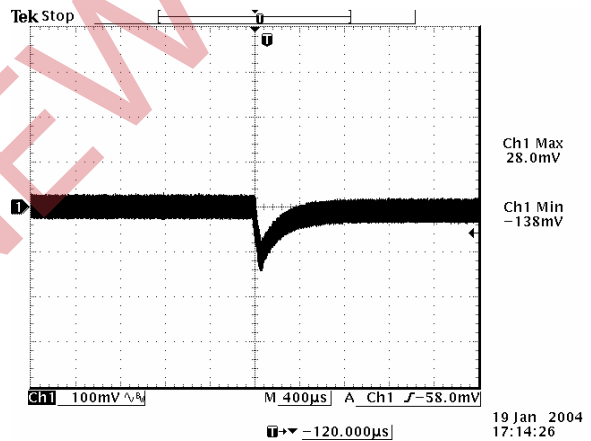
Transients 50% to 25% load 5.0 Vdc output



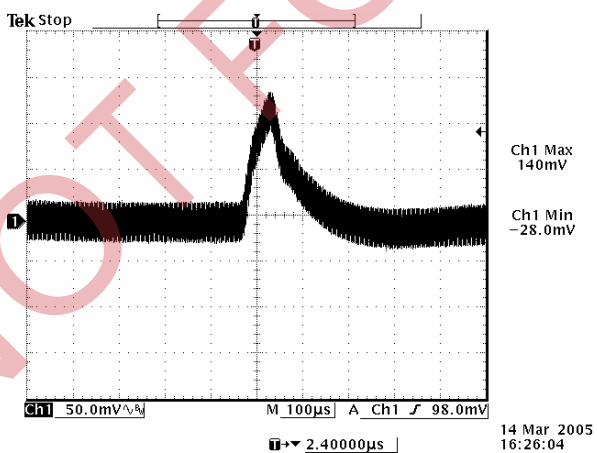
Transients 25% to 50% load 5.0 Vdc output



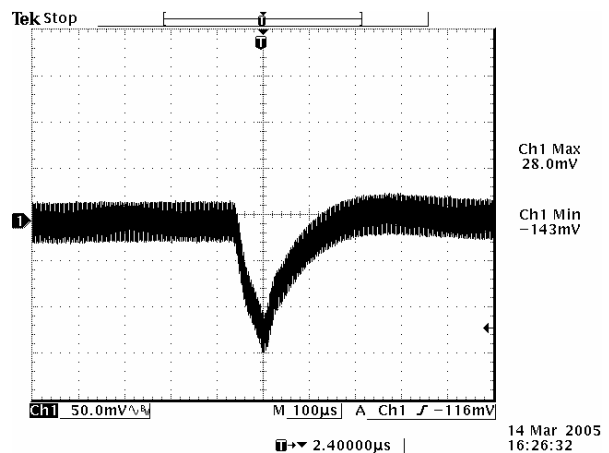
Transients 50% to 25% load 3.3 Vdc output



Transients 25% to 50% load 3.3 Vdc output



Transients 50% to 25% load 2.5 Vdc output



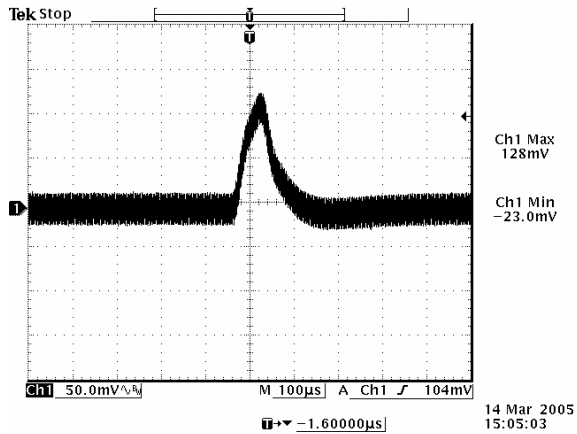
Transients 25% to 50% load 2.5 Vdc output

## ISOLATED DC/DC CONVERTERS

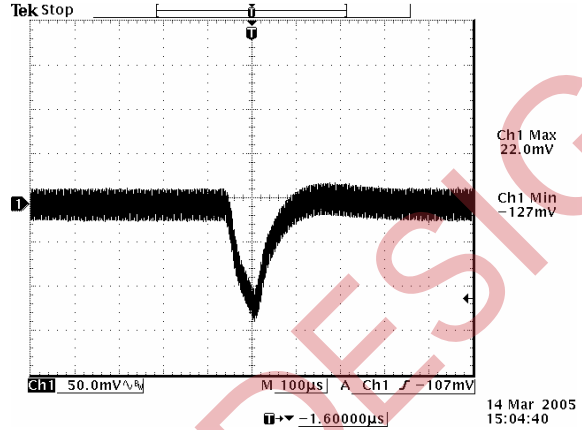
48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

**bel**  
POWER PRODUCTS

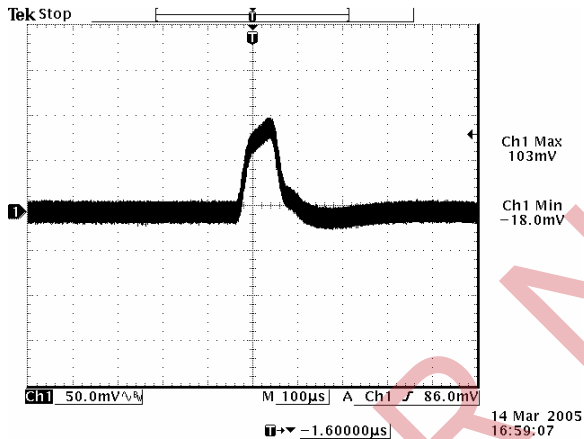
### Transient Response Waveforms (continued)



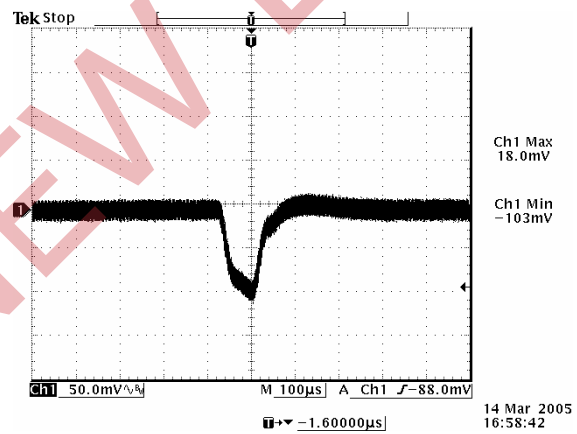
Transients 50% to 25% load 1.8 Vdc output



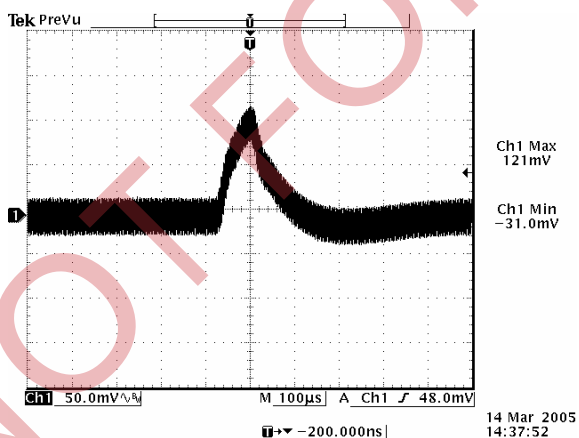
Transients 25% to 50% load 1.8 Vdc output



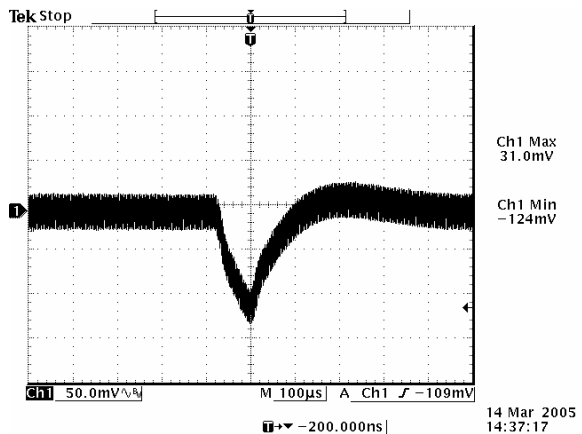
Transients 50% to 25% load 1.5 Vdc output



Transients 25% to 50% load 1.5 Vdc output



Transients 50% to 25% load 1.2 Vdc output



Transients 25% to 50% load 1.2 Vdc output

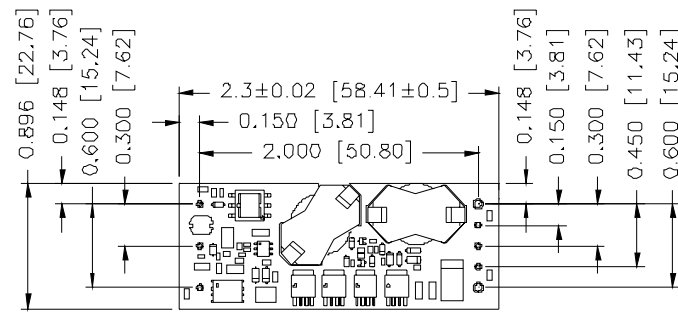
**Note:** Transient response at 48 V input,  $di/dt=0.1$  A/ $\mu$ S, with external 10  $\mu$ F tantalum cap and 1  $\mu$ F ceramic cap at the output,  $T_a=25$  deg C.

## ISOLATED DC/DC CONVERTERS

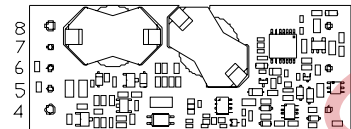
48 Vdc Input 1.2 Vdc - 12 Vdc / 8.33 A - 30 A Output, 1/8 Brick

**bel**  
POWER PRODUCTS

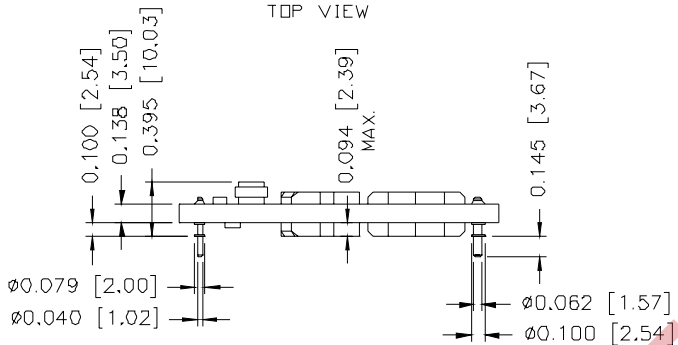
### Mechanical Outline



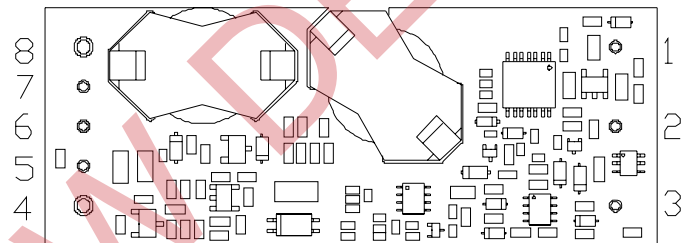
TOP VIEW



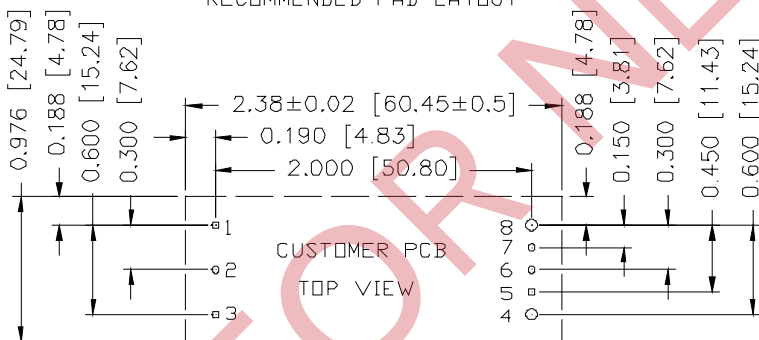
BOTTOM VIEW



RECOMMENDED PAD LAYOUT



BOTTOM VIEW



1,2,3,5,6,7  $\phi$ 0.047 HOLE SIZE,  $\phi$ 0.08 min PAD SIZE  
4,8  $\phi$ 0.07 HOLE SIZE,  $\phi$ 0.10 min PAD SIZE

### Pin Connections

| Pin | Function      | Pin Dia |
|-----|---------------|---------|
| 1   | Vin+          | 0.040"  |
| 2   | Remote On/Off | 0.040"  |
| 3   | Vin-          | 0.040"  |
| 4   | Vout-         | 0.062"  |
| 5   | Sense-        | 0.040"  |
| 6   | Trim          | 0.040"  |
| 7   | Sense+        | 0.040"  |
| 8   | Vout+         | 0.062"  |

### RoHS Compliance

Complies with the European Directive 2002/95/EC, calling for the elimination of lead and other hazardous substances from electronic products.



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