



**Size:**  
2.00 x 1.00 x 0.40 inches  
50.8 x 25.4 x 10.2 mm

**Weight:**  
1.07oz (30.5g)

- Options:**
- Negative Logic Remote On/Off
  - Heatsink

**FEATURES**

- High Efficiency up to 91%
- Remote ON/OFF Control
- 1600VDC I/O Isolation
- Six-Sided Continuous Shielding
- Single, Dual, and Triple Outputs
- Fixed Switching Frequency
- 4:1 Ultra Wide Input Voltage Ranges
- Protection: SCP / OVP / OLP / OTP
- Up to 30 Watts Output Power
- Standard 2.00" x 1.00" x 0.40" Package
- Wide Operating Temperature Range: -40°C to +85°C
- Compliant to RoHS EU Directive 2011/65/EU
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals
- CE Marked

**DESCRIPTION**

The CBW series of DC/DC power converters offers up to 30 Watts of output power in an industry standard 2.00" x 1.00" x 0.40" package. This series has single, dual, and triple output models with 4:1 ultra wide input voltage ranges of 9-36VDC and 18-75VDC. Some features include high efficiency up to 91%, 1600VDC I/O isolation, six-sided shielding, and remote ON/OFF control. These converters are also protected against short circuit, over voltage, over load, and over temperature conditions. All models are RoHS compliant and have UL60950-1, EN60950-1, and IEC60950-1 safety approvals. This series is best suited for use in wireless networks, telecom/datacom, industry control systems, measurement equipment, and semiconductor equipment.

**MODEL SELECTION TABLE**  
**SINGLE OUTPUT MODELS**

| Model Number   | Input Voltage           | Output Voltage | Output Current |           | No Load Input Current | Ripple & Noise | Output Power | Maximum Capacitive Load | Efficiency |
|----------------|-------------------------|----------------|----------------|-----------|-----------------------|----------------|--------------|-------------------------|------------|
|                |                         |                | Min. load      | Full load |                       |                |              |                         |            |
| CBW24S1.5-8500 | 24 VDC<br>(9 - 36 VDC)  | 1.5 VDC        | 0mA            | 8500mA    | 70mA                  | 100mVp-p       | 12.75W       | 20000µF                 | 80%        |
| CBW24S2.5-8000 |                         | 2.5 VDC        | 0mA            | 8000mA    | 70mA                  | 100mVp-p       | 20W          | 20000µF                 | 83%        |
| CBW24S3.3-7500 |                         | 3.3 VDC        | 0mA            | 7500mA    | 70mA                  | 100mVp-p       | 24.75W       | 20000µF                 | 86%        |
| CBW24S5-6000   |                         | 5 VDC          | 0mA            | 6000mA    | 105mA                 | 100mVp-p       | 30W          | 14400µF                 | 88%        |
| CBW24S5.1-6000 |                         | 5.1 VDC        | 0mA            | 6000mA    | 105mA                 | 100mVp-p       | 30.6W        | 14400µF                 | 88%        |
| CBW24S12-2500  |                         | 12 VDC         | 0mA            | 2500mA    | 20mA                  | 150mVp-p       | 30W          | 3000µF                  | 89%        |
| CBW24S15-2000  |                         | 15 VDC         | 0mA            | 2000mA    | 30mA                  | 150mVp-p       | 30W          | 2000µF                  | 89%        |
| CBW48S1.5-8500 | 48 VDC<br>(18 - 75 VDC) | 1.5 VDC        | 0mA            | 8500mA    | 30mA                  | 100mVp-p       | 12.75W       | 20000µF                 | 80%        |
| CBW48S2.5-8000 |                         | 2.5 VDC        | 0mA            | 8000mA    | 45mA                  | 100mVp-p       | 20W          | 20000µF                 | 84%        |
| CBW48S3.3-7500 |                         | 3.3 VDC        | 0mA            | 7500mA    | 45mA                  | 100mVp-p       | 24.75W       | 20000µF                 | 86%        |
| CBW48S5-6000   |                         | 5 VDC          | 0mA            | 6000mA    | 65mA                  | 100mVp-p       | 30W          | 14400µF                 | 88%        |
| CBW48S5.1-6000 |                         | 5.1 VDC        | 0mA            | 6000mA    | 65mA                  | 100mVp-p       | 30.6W        | 14400µF                 | 88%        |
| CBW48S12-2500  |                         | 12 VDC         | 0mA            | 2500mA    | 60mA                  | 150mVp-p       | 30W          | 3000µF                  | 90%        |
| CBW48S15-2000  |                         | 15 VDC         | 0mA            | 2000mA    | 50mA                  | 150mVp-p       | 30W          | 2000µF                  | 91%        |

**DUAL OUTPUT MODELS**

| Model Number  | Input Voltage           | Output Voltage | Output Current |           | No Load Input Current | Ripple & Noise | Output Power | Maximum Capacitive Load | Efficiency |
|---------------|-------------------------|----------------|----------------|-----------|-----------------------|----------------|--------------|-------------------------|------------|
|               |                         |                | Min. load      | Full load |                       |                |              |                         |            |
| CBW24D5-3000  | 24 VDC<br>(9 - 36 VDC)  | ±5 VDC         | 0mA            | ±3000mA   | 90mA                  | 100mVp-p       | 30W          | ±3000µF                 | 88%        |
| CBW24D12-1250 |                         | ±12 VDC        | 0mA            | ±1250mA   | 25mA                  | 150mVp-p       | 30W          | ±2000µF                 | 87%        |
| CBW24D15-1000 |                         | ±15 VDC        | 0mA            | ±1000mA   | 25mA                  | 150mVp-p       | 30W          | ±1300µF                 | 87%        |
| CBW48D5-3000  | 48 VDC<br>(18 - 75 VDC) | ±5 VDC         | 0mA            | ±3000mA   | 50mA                  | 100mVp-p       | 30W          | ±3000µF                 | 88%        |
| CBW48D12-1250 |                         | ±12 VDC        | 0mA            | ±1250mA   | 15mA                  | 150mVp-p       | 30W          | ±2000µF                 | 88%        |
| CBW48D15-1000 |                         | ±15 VDC        | 0mA            | ±1000mA   | 15mA                  | 150mVp-p       | 30W          | ±1300µF                 | 88%        |

**TRIPLE OUTPUT MODELS**

| Model Number   | Input Voltage          | Output Voltage          | Output Current |                 | No Load Input Current | Ripple & Noise | Output Power  | Maximum Capacitive Load | Efficiency       |
|----------------|------------------------|-------------------------|----------------|-----------------|-----------------------|----------------|---------------|-------------------------|------------------|
|                |                        |                         | Min. load      | Full load       |                       |                |               |                         |                  |
| CBW24T3.312-26 | 24 VDC<br>(9 - 36 VDC) | 3.3 / ±12 VDC           | 500mA / ±42mA  | 5000mA / ±416mA | 105mA                 | 50 / 75 mVp-p  | 26.5W         | 15000µF / ±340µF        | 87%              |
| CBW24T3.315-26 |                        | 3.3 / ±15 VDC           | 500mA / ±33mA  | 5000mA / ±333mA | 105mA                 | 50 / 75 mVp-p  | 26.5W         | 15000µF / ±220µF        | 87%              |
| CBW24T512-30   |                        | 5 / ±12 VDC             | 400mA / ±42mA  | 4000mA / ±416mA | 105mA                 | 50 / 75 mVp-p  | 30W           | 8000µF / ±340µF         | 88%              |
| CBW24T515-30   |                        | 5 / ±15 VDC             | 400mA / ±33mA  | 4000mA / ±333mA | 105mA                 | 50 / 75 mVp-p  | 30W           | 8000µF / ±220µF         | 88%              |
| CBW48T3.312-26 |                        | 48 VDC<br>(18 - 75 VDC) | 3.3 / ±12 VDC  | 500mA / ±42mA   | 5000mA / ±416mA       | 55mA           | 50 / 75 mVp-p | 26.5W                   | 15000µF / ±340µF |
| CBW48T3.315-26 | 3.3 / ±15 VDC          |                         | 500mA / ±33mA  | 5000mA / ±333mA | 55mA                  | 50 / 75 mVp-p  | 26.5W         | 15000µF / ±220µF        | 87%              |
| CBW48T512-30   | 5 / ±12 VDC            |                         | 400mA / ±42mA  | 4000mA / ±416mA | 55mA                  | 50 / 75 mVp-p  | 30W           | 8000µF / ±340µF         | 88%              |
| CBW48T515-30   | 5 / ±15 VDC            |                         | 400mA / ±33mA  | 4000mA / ±333mA | 55mA                  | 50 / 75 mVp-p  | 30W           | 8000µF / ±220µF         | 88%              |

**SPECIFICATIONS: CBW SERIES**

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

| SPECIFICATION                              | TEST CONDITIONS                              |      | Min                             | Typ  | Max                      | Unit  |      |
|--------------------------------------------|----------------------------------------------|------|---------------------------------|------|--------------------------|-------|------|
| <b>INPUT SPECIFICATIONS</b>                |                                              |      |                                 |      |                          |       |      |
| Input Voltage Range                        | 24VDC nominal input models                   |      | 9                               | 24   | 36                       | VDC   |      |
|                                            | 48VDC nominal input models                   |      | 18                              | 48   | 75                       |       |      |
| Start-Up Voltage                           | 24VDC nominal input models                   |      |                                 |      | 9                        | VDC   |      |
|                                            | 48VDC nominal input models                   |      |                                 |      | 18                       |       |      |
| Shutdown Voltage                           | 24VDC nominal input models                   |      |                                 | 8    |                          | VDC   |      |
|                                            | 48VDC nominal input models                   |      |                                 | 16   |                          |       |      |
| Input Surge Voltage (100ms)                | 24VDC nominal input models                   |      |                                 |      | 50                       | VDC   |      |
|                                            | 48VDC nominal input models                   |      |                                 |      | 100                      |       |      |
| Input Current                              | No Load                                      |      | See Table                       |      |                          |       |      |
| Input Filter                               |                                              |      | Pi type                         |      |                          |       |      |
| Input Reflected Ripple Current             |                                              |      |                                 | 20   |                          | mAp-p |      |
| <b>OUTPUT SPECIFICATIONS</b>               |                                              |      |                                 |      |                          |       |      |
| Output Voltage                             |                                              |      | See Table                       |      |                          |       |      |
| Voltage Accuracy                           | Single Output Models                         |      | -1.0                            |      | +1.0                     | %     |      |
|                                            | Dual Output Models                           |      | -1.0                            |      | +1.0                     | %     |      |
|                                            | Triple Output Models                         | Main | -1.0                            |      | +1.0                     | %     |      |
| Auxiliary                                  |                                              | -5.0 |                                 | +5.0 | %                        |       |      |
| Line Regulation                            | Low line to high line at full load           |      | Single Output Models            |      | -0.2                     | +0.2  | %    |
|                                            |                                              |      | Dual Output Models              |      | -0.2                     | +0.2  | %    |
|                                            |                                              |      | Triple Output Models            | Main | -1.0                     |       | +1.0 |
| Auxiliary                                  | -5.0                                         |      |                                 | +5.0 | %                        |       |      |
| Load Regulation                            | Min load to full load                        |      | Single Output Models            |      | -0.5                     | +0.5  | %    |
|                                            |                                              |      | Dual Output Models              |      | -1.0                     | +1.0  | %    |
|                                            |                                              |      | Triple Output Models            | Main | -1.0                     |       | +1.0 |
| Auxiliary                                  | -5.0                                         |      |                                 | +5.0 | %                        |       |      |
| Cross Regulation (Dual Output Models)      | Asymmetrical load 25% / 100% full load       |      | -5.0                            |      | +5.0                     | %     |      |
| Voltage Adjustability (Single Output Only) | See page 4                                   |      | -10                             |      | +10                      | %     |      |
| Output Power                               |                                              |      | See Table                       |      |                          |       |      |
| Output Current                             |                                              |      | See Table                       |      |                          |       |      |
| Minimum Load                               | See Note 3                                   |      | See Table                       |      |                          |       |      |
| Maximum Capacitive Load                    | Minimum input and constant resistive load    |      | See Table                       |      |                          |       |      |
| Ripple & Noise                             | 20MHz BW and with a 1µF/50V MLCC             |      | Single Output Models            |      | See Table                |       |      |
|                                            | 20MHz BW and with a 1µF/50V MLCC             |      | Dual Output Models              |      | See Table                |       |      |
|                                            | 20MHz BW and with a 0.1µF/50V MLCC           |      | Triple Output Models            |      | See Table                |       |      |
| Transient Response Recovery Time           | 25% load step change                         |      |                                 |      | 250                      | µs    |      |
| Start-Up Time                              | Nominal input and constant resistive load    |      | Power Up                        |      | 30                       | ms    |      |
|                                            |                                              |      | Remote On/Off                   |      | 30                       |       |      |
| Temperature Coefficient                    |                                              |      | -0.02                           |      | +0.02                    | %/°C  |      |
| <b>REMOTE ON/OFF CONTROL (See Note 2)</b>  |                                              |      |                                 |      |                          |       |      |
| Positive Logic (standard)                  | The CTRL pin voltage is referenced to -Input |      | DC/DC ON                        |      | Open or 3V < Vr < 12V    |       |      |
|                                            |                                              |      | DC/DC OFF                       |      | Short or 0 < Vr < 1.2VDC |       |      |
| Negative Logic (optional)                  | The CTRL pin voltage is referenced to -Input |      | DC/DC ON                        |      | Short or 0 < Vr < 1.2VDC |       |      |
|                                            |                                              |      | DC/DC OFF                       |      | Open or 3V < Vr < 12V    |       |      |
| Input Current of remote Control Pin        | Nominal input                                |      | -0.5                            |      | +0.5                     | mA    |      |
| Remote OFF State Input Current             | Nominal input                                |      |                                 | 3    |                          | mA    |      |
| <b>PROTECTION</b>                          |                                              |      |                                 |      |                          |       |      |
| Short Circuit Protection                   |                                              |      | Continuous, automatic recovery  |      |                          |       |      |
| Over Load Protection                       | % of full load at nominal input              |      |                                 | 150  |                          | %     |      |
| Over Voltage Protection                    | Zener diode clamp                            |      | 1.5V output models              |      | 2.0                      | VDC   |      |
|                                            |                                              |      | 2.5V output models              |      | 3.3                      | VDC   |      |
|                                            |                                              |      | 3.3V output models              |      | 3.9                      | VDC   |      |
|                                            |                                              |      | 5V, 5.1V, and ±5V output models |      | 6.2                      | VDC   |      |
|                                            |                                              |      | 12V & ±12V output models        |      | 15                       | VDC   |      |
| Over Temperature Protection                |                                              |      | 15V & ±15V output models        |      | 18                       | VDC   |      |
|                                            |                                              |      |                                 |      | +115                     | °C    |      |

**SPECIFICATIONS: CBW SERIES**

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
 We reserve the right to change specifications based on technological advances.

| SPECIFICATION                           |                                     | TEST CONDITIONS                                                          | Min                                                | Typ | Max              | Unit  |
|-----------------------------------------|-------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------|-----|------------------|-------|
| <b>GENERAL SPECIFICATIONS</b>           |                                     |                                                                          |                                                    |     |                  |       |
| Efficiency                              | Nominal input voltage and full load |                                                                          | See Table                                          |     |                  |       |
| Switching Frequency                     | Single & Dual output models         |                                                                          | 387                                                | 430 | 473              | kHz   |
|                                         | Triple output models                |                                                                          | 360                                                | 400 | 440              |       |
| Isolation Voltage                       | 1 minute                            | Input to Output                                                          | 1600                                               |     |                  | VDC   |
|                                         |                                     | Input to Case                                                            | 1600                                               |     |                  |       |
|                                         |                                     | Output to Case                                                           | 1600                                               |     |                  |       |
| Isolation Resistance                    | 500VDC                              |                                                                          | 1                                                  |     |                  | GΩ    |
| Isolation Capacitance                   |                                     |                                                                          |                                                    |     | 1500             | pF    |
| <b>ENVIRONMENTAL SPECIFICATIONS</b>     |                                     |                                                                          |                                                    |     |                  |       |
| Operating Ambient Temperature           | With derating                       |                                                                          | -40                                                |     | +50              | °C    |
|                                         | Without derating                    |                                                                          | +50                                                |     | +85              |       |
| Maximum Case Temperature                |                                     |                                                                          |                                                    |     | +105             | °C    |
| Storage Temperature                     |                                     |                                                                          | -55                                                |     | +125             | °C    |
| Thermal Impedance (See Note 1)          | Natural convection                  |                                                                          |                                                    | 12  |                  | °C/W  |
|                                         | Natural convection with heatsink    |                                                                          |                                                    | 10  |                  |       |
| Relative Humidity                       |                                     |                                                                          | 5                                                  |     | 95               | % RH  |
| Thermal Shock                           |                                     |                                                                          | MIL-STD-810F                                       |     |                  |       |
| Vibration                               |                                     |                                                                          | MIL-STD-810F                                       |     |                  |       |
| MTBF                                    | Single & Dual Output Models         | BELLCORE TR-NWT-000332 Case 1: 50% Stress, Ta=40°C                       | 3,163,000                                          |     |                  | hours |
|                                         |                                     | MIL-HDBK-217F Notice 2, Ta=25°C, full load (G/B, controlled environment) | 434,700                                            |     |                  |       |
|                                         | Triple Output Models                | BELLCORE TR-NWT-000332 Case 1: 50% Stress, Ta=40°C                       | 2,904,000                                          |     |                  | hours |
|                                         |                                     | MIL-HDBK-217F Notice 2, Ta=25°C, full load (G/B, controlled environment) | 318,400                                            |     |                  |       |
| <b>PHYSICAL SPECIFICATIONS</b>          |                                     |                                                                          |                                                    |     |                  |       |
| Weight                                  |                                     |                                                                          | 1.07oz (30.5g)                                     |     |                  |       |
| Dimensions (L x W x H)                  |                                     |                                                                          | 2.00 x 1.00 x 0.40 inch<br>(50.8 x 25.4 x 10.2 mm) |     |                  |       |
| Case Material                           |                                     |                                                                          | Nickel-coated copper                               |     |                  |       |
| Base Material                           |                                     |                                                                          | FR4 PCB                                            |     |                  |       |
| Potting Material                        |                                     |                                                                          | Epoxy (UL94-V0)                                    |     |                  |       |
| Shielding                               |                                     |                                                                          | Six-sided                                          |     |                  |       |
| Case Grounding                          |                                     |                                                                          | Connect case to -Input with decoupling Y Cap       |     |                  |       |
| <b>SAFETY &amp; EMC CHARACTERISTICS</b> |                                     |                                                                          |                                                    |     |                  |       |
| Safety Approvals                        |                                     |                                                                          | IEC60950-1, UL60950-1, EN60950-1                   |     |                  |       |
| EMI (See Note 4)                        | EN55022                             |                                                                          | Class A                                            |     |                  |       |
| ESD                                     | EN61000-4-2                         |                                                                          | Air ±8kV and Contact ±6kV                          |     | Perf. Criteria A |       |
| Radiated Immunity                       | EN61000-4-3                         |                                                                          | 10 V/m                                             |     | Perf. Criteria A |       |
| Fast Transient (See Note 5)             | EN61000-4-4                         |                                                                          | ±2kV                                               |     | Perf. Criteria A |       |
| Surge (See Note 5)                      | EN61000-4-5                         |                                                                          | ±1kV                                               |     | Perf. Criteria A |       |
| Conducted Immunity                      | EN61000-4-6                         |                                                                          | 10 Vrms                                            |     | Perf. Criteria A |       |

**NOTES**

- Heat sink is optional. To order the module with a heatsink please add the suffix "HS" to the model number (Ex: CBW24S12-2500HS).
- Positive remote on/off control is standard; for negative remote on/off please add the suffix "R" to the model number (Ex: CBW24S12-2500R).
- Triple output models require a minimum loading on the output to maintain all specified regulations. Operation under no-load conditions will not damage these devices; however, they may not meet all listed specifications.
- The CBW series standard models can only meet EN55022 Class A and Class B with external components added.
- An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
  - 24VDC nominal input models: Nippon chemi-con KY series, 330µF/50V
  - 48VDC nominal input models: Nippon chemi-con KY series, 220µF/100V

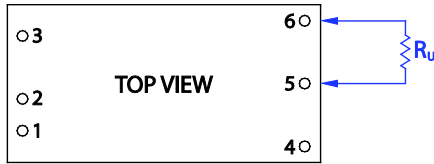
**CAUTION:** This power converter is not internally fused. An input line fuse must always be used.

Due to advances in technology, specifications subject to change without notice.

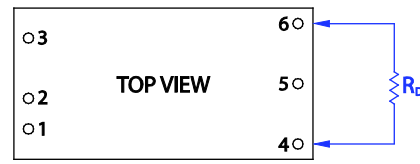
**OUTPUT VOLTAGE ADJUSTMENT**

Output voltage adjustability is for single output models only. Output voltage set-point adjustment allows the user to increase or decrease the output voltage set-point of a module. This is accomplished by connecting an external resistor between the TRIM pin and either the +OUTPUT or -OUTPUT pins. With an external resistor between the TRIM and -OUTPUT pins, the output voltage set-point increases. With an external resistor between the TRIM and +OUTPUT pins, the output voltage set-point decreases. The external TRIM resistor needs to be at least 1/16W resistance.

Trim Up



Trim Down



| CBWXXS1.5-8500 |                     |                |
|----------------|---------------------|----------------|
| Trim           | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%             | 1.515V              | 4.578kΩ        |
| 2%             | 1.530V              | 2.065kΩ        |
| 3%             | 1.545V              | 1.227kΩ        |
| 4%             | 1.560V              | 0.808kΩ        |
| 5%             | 1.575V              | 0.557kΩ        |
| 6%             | 1.590V              | 0.389kΩ        |
| 7%             | 1.605V              | 0.270kΩ        |
| 8%             | 1.620V              | 0.180kΩ        |
| 9%             | 1.635V              | 0.110kΩ        |
| 10%            | 1.650V              | 0.054kΩ        |

| CBWXXS2.5-8000 |                     |                |
|----------------|---------------------|----------------|
| Trim           | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%             | 2.525V              | 37.076kΩ       |
| 2%             | 2.550V              | 16.675kΩ       |
| 3%             | 2.575V              | 9.874kΩ        |
| 4%             | 2.600V              | 6.474kΩ        |
| 5%             | 2.625V              | 4.434kΩ        |
| 6%             | 2.650V              | 3.074kΩ        |
| 7%             | 2.675V              | 2.102kΩ        |
| 8%             | 2.700V              | 1.374kΩ        |
| 9%             | 2.725V              | 0.807kΩ        |
| 10%            | 2.750V              | 0.354kΩ        |

| CBWXXS1.5-8500 |                       |                |
|----------------|-----------------------|----------------|
| Trim           | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%             | 1.485V                | 5.704kΩ        |
| 2%             | 1.470V                | 2.571kΩ        |
| 3%             | 1.455V                | 1.527kΩ        |
| 4%             | 1.440V                | 1.005kΩ        |
| 5%             | 1.425V                | 0.692kΩ        |
| 6%             | 1.410V                | 0.483kΩ        |
| 7%             | 1.395V                | 0.334kΩ        |
| 8%             | 1.380V                | 0.222kΩ        |
| 9%             | 1.365V                | 0.135kΩ        |
| 10%            | 1.350V                | 0.065kΩ        |

| CBWXXS2.5-8000 |                       |                |
|----------------|-----------------------|----------------|
| Trim           | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%             | 2.475V                | 49.641kΩ       |
| 2%             | 2.450V                | 22.481kΩ       |
| 3%             | 2.425V                | 13.428kΩ       |
| 4%             | 2.400V                | 8.902kΩ        |
| 5%             | 2.375V                | 6.186kΩ        |
| 6%             | 2.350V                | 4.375kΩ        |
| 7%             | 2.325V                | 3.082kΩ        |
| 8%             | 2.300V                | 2.112kΩ        |
| 9%             | 2.275V                | 1.358kΩ        |
| 10%            | 2.250V                | 0.754kΩ        |

| CBWXXS3.3-7500 |                     |                |
|----------------|---------------------|----------------|
| Trim           | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%             | 3.333V              | 57.930kΩ       |
| 2%             | 3.366V              | 26.465kΩ       |
| 3%             | 3.399V              | 15.577kΩ       |
| 4%             | 3.432V              | 10.283kΩ       |
| 5%             | 3.465V              | 7.106kΩ        |
| 6%             | 3.498V              | 4.988kΩ        |
| 7%             | 3.531V              | 3.476kΩ        |
| 8%             | 3.564V              | 2.341kΩ        |
| 9%             | 3.597V              | 1.459kΩ        |
| 10%            | 3.630V              | 0.753kΩ        |

| CBWXXS5-6000 |                     |                |
|--------------|---------------------|----------------|
| Trim         | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%           | 5.050V              | 36.570kΩ       |
| 2%           | 5.100V              | 16.580kΩ       |
| 3%           | 5.150V              | 9.917kΩ        |
| 4%           | 5.200V              | 6.585kΩ        |
| 5%           | 5.250V              | 4.586kΩ        |
| 6%           | 5.300V              | 3.253kΩ        |
| 7%           | 5.350V              | 2.302kΩ        |
| 8%           | 5.400V              | 1.588kΩ        |
| 9%           | 5.450V              | 1.032kΩ        |
| 10%          | 5.500V              | 0.588kΩ        |

| CBWXXS3.3-7500 |                       |                |
|----------------|-----------------------|----------------|
| Trim           | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%             | 3.267V                | 69.470kΩ       |
| 2%             | 3.234V                | 31.235kΩ       |
| 3%             | 3.201V                | 18.490kΩ       |
| 4%             | 3.168V                | 12.117kΩ       |
| 5%             | 3.135V                | 8.294kΩ        |
| 6%             | 3.102V                | 5.745kΩ        |
| 7%             | 3.069V                | 3.924kΩ        |
| 8%             | 3.036V                | 2.559kΩ        |
| 9%             | 3.003V                | 1.497kΩ        |
| 10%            | 2.970V                | 0.647kΩ        |

| CBWXXS5-6000 |                       |                |
|--------------|-----------------------|----------------|
| Trim         | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%           | 4.950V                | 45.533kΩ       |
| 2%           | 4.900V                | 20.612kΩ       |
| 3%           | 4.850V                | 12.306kΩ       |
| 4%           | 4.800V                | 8.152kΩ        |
| 5%           | 4.750V                | 5.660kΩ        |
| 6%           | 4.700V                | 3.999kΩ        |
| 7%           | 4.650V                | 2.812kΩ        |
| 8%           | 4.600V                | 1.922kΩ        |
| 9%           | 4.550V                | 1.230kΩ        |
| 10%          | 4.500V                | 0.676kΩ        |

| CBWXXS5.1-6000 |                     |                |
|----------------|---------------------|----------------|
| Trim           | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%             | 5.151V              | 38.135kΩ       |
| 2%             | 5.202V              | 17.368kΩ       |
| 3%             | 5.253V              | 10.446kΩ       |
| 4%             | 5.304V              | 6.985kΩ        |
| 5%             | 5.355V              | 4.908kΩ        |
| 6%             | 5.406V              | 3.524kΩ        |
| 7%             | 5.457V              | 2.535kΩ        |
| 8%             | 5.508V              | 1.793kΩ        |
| 9%             | 5.559V              | 1.217kΩ        |
| 10%            | 5.610V              | 0.755kΩ        |

| CBWXXS12-2500 |                     |                |
|---------------|---------------------|----------------|
| Trim          | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%            | 12.120              | 367.908kΩ      |
| 2%            | 12.240              | 165.954kΩ      |
| 3%            | 12.360              | 98.636kΩ       |
| 4%            | 12.480              | 64.977kΩ       |
| 5%            | 12.600              | 44.782kΩ       |
| 6%            | 12.720              | 31.318kΩ       |
| 7%            | 12.840              | 21.701kΩ       |
| 8%            | 12.960              | 14.488kΩ       |
| 9%            | 13.080              | 8.879kΩ        |
| 10%           | 13.200              | 4.391kΩ        |

| CBWXXS5.1-6000 |                       |                |
|----------------|-----------------------|----------------|
| Trim           | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%             | 5.049V                | 47.191kΩ       |
| 2%             | 4.998V                | 21.431kΩ       |
| 3%             | 4.947V                | 12.844kΩ       |
| 4%             | 4.896V                | 8.551kΩ        |
| 5%             | 4.845V                | 5.975kΩ        |
| 6%             | 4.794V                | 4.258kΩ        |
| 7%             | 4.743V                | 3.031kΩ        |
| 8%             | 4.692V                | 2.111kΩ        |
| 9%             | 4.641V                | 1.396kΩ        |
| 10%            | 4.590V                | 0.823kΩ        |

| CBWXXS12-2500 |                       |                |
|---------------|-----------------------|----------------|
| Trim          | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%            | 11.880V               | 460.992kΩ      |
| 2%            | 11.760V               | 207.946kΩ      |
| 3%            | 11.640V               | 123.597kΩ      |
| 4%            | 11.520V               | 81.423kΩ       |
| 5%            | 11.400V               | 56.118kΩ       |
| 6%            | 11.280V               | 39.249kΩ       |
| 7%            | 11.160V               | 27.199kΩ       |
| 8%            | 11.040V               | 18.162kΩ       |
| 9%            | 10.920V               | 11.132kΩ       |
| 10%           | 10.800V               | 5.509kΩ        |

| CBWXXS15-2000 |                     |                |
|---------------|---------------------|----------------|
| Trim          | V <sub>out,up</sub> | R <sub>U</sub> |
| 1%            | 15.150V             | 404.184kΩ      |
| 2%            | 15.300V             | 180.592kΩ      |
| 3%            | 15.450V             | 106.061kΩ      |
| 4%            | 15.600V             | 68.796kΩ       |
| 5%            | 15.750V             | 46.437kΩ       |
| 6%            | 15.900V             | 31.531kΩ       |
| 7%            | 16.050V             | 20.883kΩ       |
| 8%            | 16.200V             | 12.898kΩ       |
| 9%            | 16.350V             | 6.687kΩ        |
| 10%           | 16.500V             | 1.718kΩ        |

| CBWXXS15-2000 |                       |                |
|---------------|-----------------------|----------------|
| Trim          | V <sub>out,down</sub> | R <sub>D</sub> |
| 1%            | 14.850V               | 499.816kΩ      |
| 2%            | 14.700V               | 223.408kΩ      |
| 3%            | 14.550V               | 131.272kΩ      |
| 4%            | 14.400V               | 85.204kΩ       |
| 5%            | 14.250V               | 57.563kΩ       |
| 6%            | 14.100V               | 39.136kΩ       |
| 7%            | 13.950V               | 25.974kΩ       |
| 8%            | 13.800V               | 16.102kΩ       |
| 9%            | 13.650V               | 8.424kΩ        |
| 10%           | 13.500V               | 2.282kΩ        |

MECHANICAL DRAWING

### Single & Dual Output Models

| PIN CONNECTIONS |         |         |
|-----------------|---------|---------|
| PIN             | SINGLE  | DUAL    |
| 1               | +INPUT  | +INPUT  |
| 2               | -INPUT  | -INPUT  |
| 3               | CTRL    | CTRL    |
| 4               | +OUTPUT | +OUTPUT |
| 5               | -OUTPUT | COMMON  |
| 6               | TRIM    | -OUTPUT |

All dimensions are for reference only

### Triple Output Models

| PIN CONNECTIONS |         |
|-----------------|---------|
| PIN             | TRIPLE  |
| 1               | +INPUT  |
| 2               | -INPUT  |
| 3               | CTRL    |
| 4               | +AUX    |
| 5               | -AUX    |
| 6               | COMMON  |
| 7               | -OUTPUT |

All dimensions are for reference only

#### Single Output Models Only

| EXTERNAL OUTPUT TRIMMING                                          |                  |
|-------------------------------------------------------------------|------------------|
| Output can be externally trimmed by using the method shown below. |                  |
| <p>TRIM UP</p>                                                    | <p>TRIM DOWN</p> |

#### NOTES

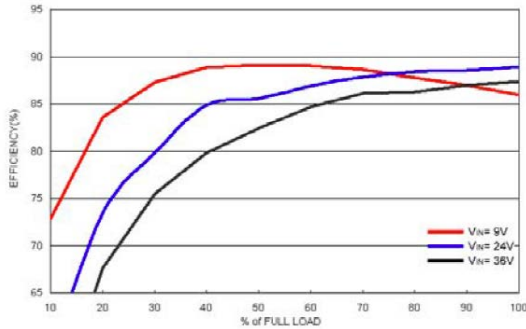
1. Unit: inches (mm)
2. Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
3. Pin Pitch Tolerance: ±0.01 (±0.25)
4. Pin Dimension Tolerance: ±0.004 (±0.1)
5. Potting Material: Epoxy (UL94-V0)
6. Case Material: Nickel-coated copper
7. Base Material: FR4 PCB
8. Weight: 1.07oz (30.5g)
9. Optional heatsink available (suffix "HS")



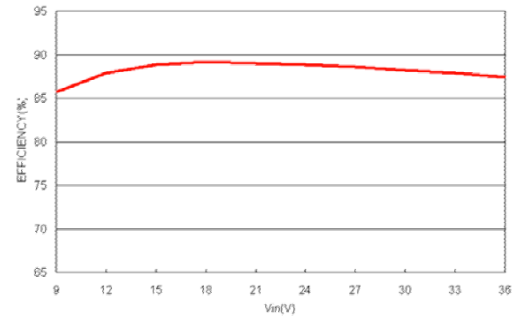
CHARACTERISTIC CURVES

\*Curves for CBW24D5-3000. All test conditions are at 25°C.

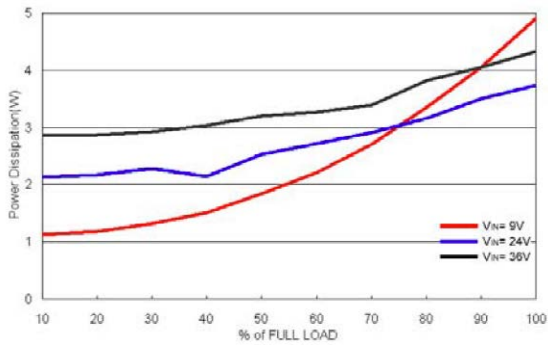
Efficiency vs. Output Load



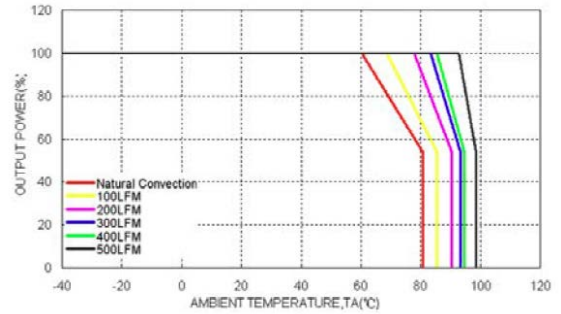
Efficiency vs. Input Voltage, Full Load



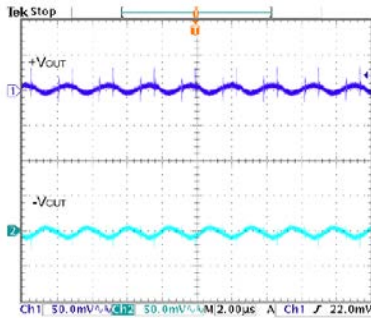
Power Dissipation vs. Output Load



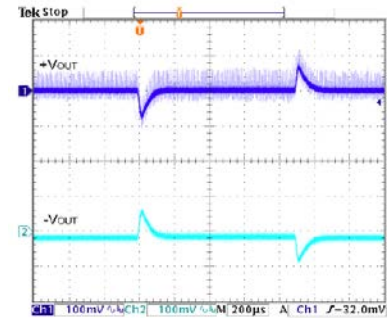
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



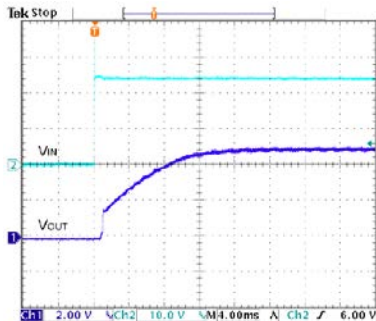
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



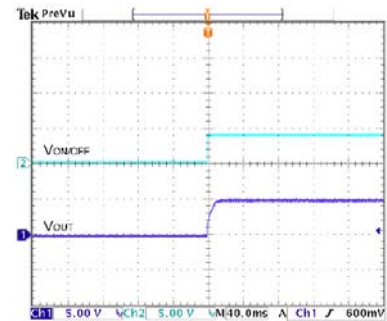
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



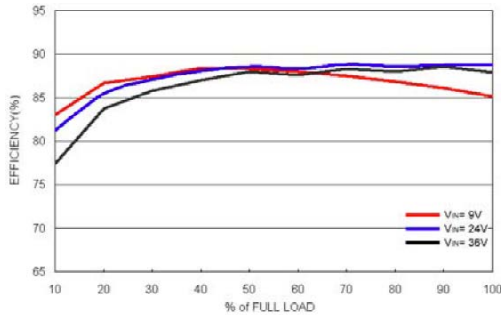
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



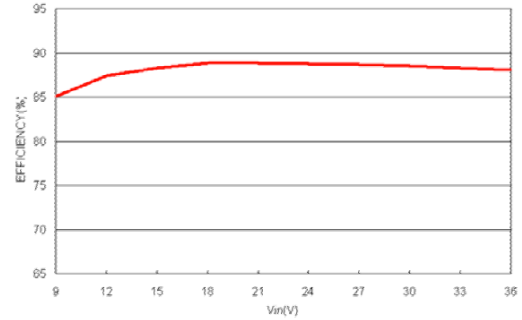
CHARACTERISTIC CURVES

\*Curves for CBW24D12-1250. All test conditions are at 25°C.

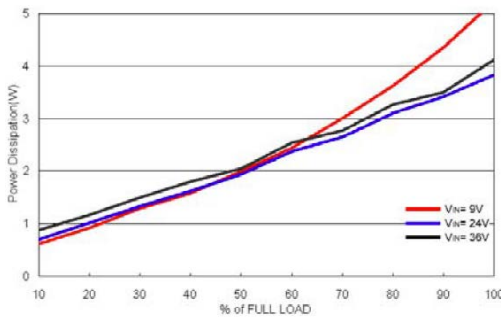
Efficiency vs. Output Load



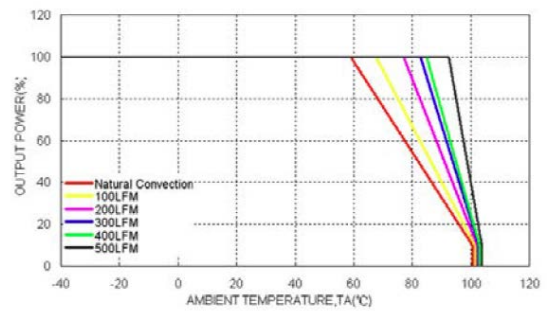
Efficiency vs. Input Voltage, Full Load



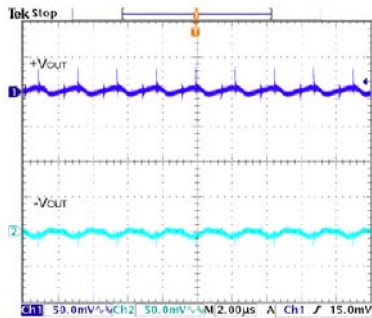
Power Dissipation vs. Output Load



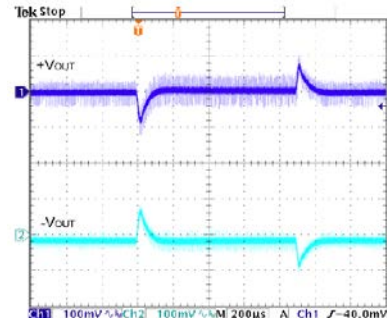
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



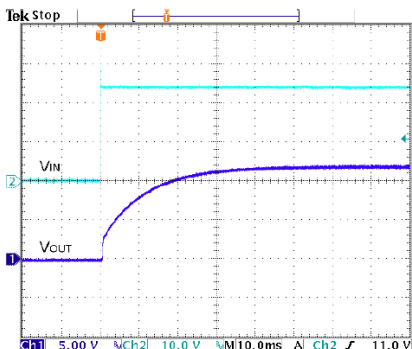
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



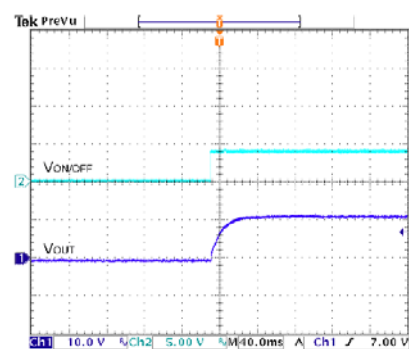
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



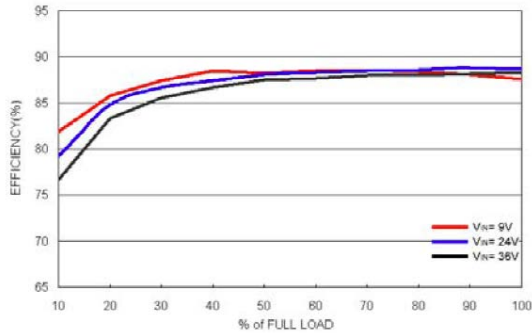
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



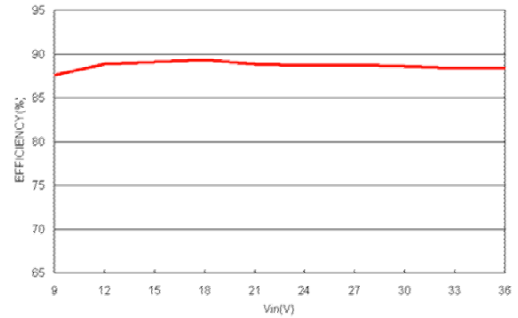
CHARACTERISTIC CURVES

\*Curves for CBW24D15-1000. All test conditions are at 25°C.

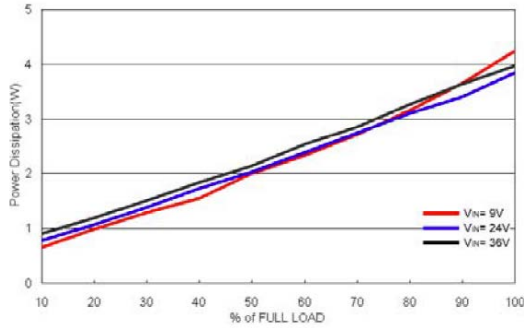
Efficiency vs. Output Load



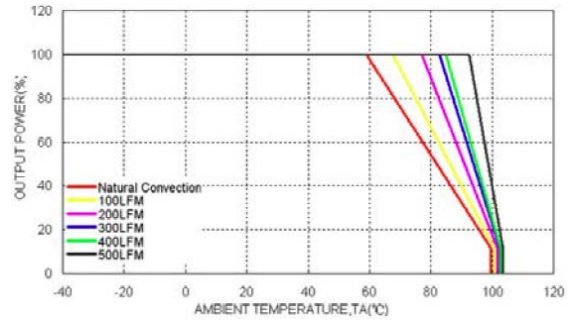
Efficiency vs. Input Voltage, Full Load



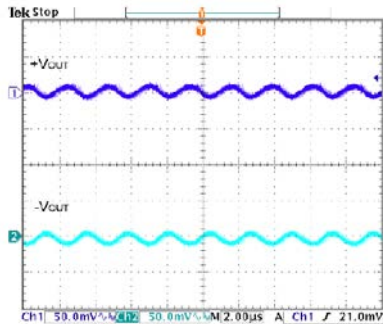
Power Dissipation vs. Output Load



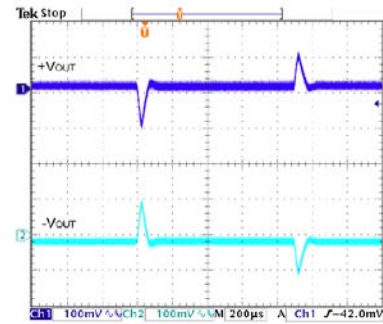
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



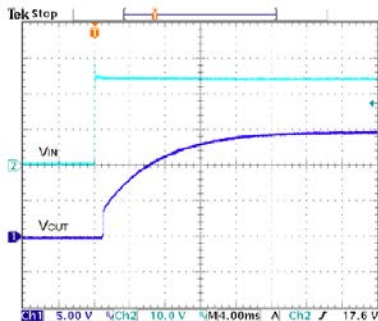
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



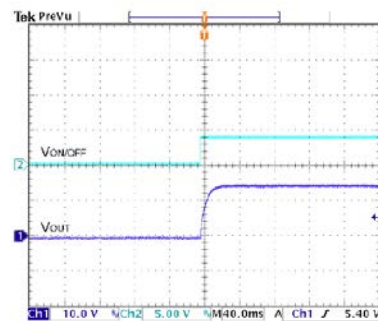
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load

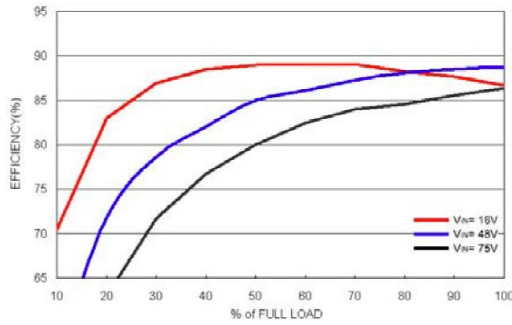




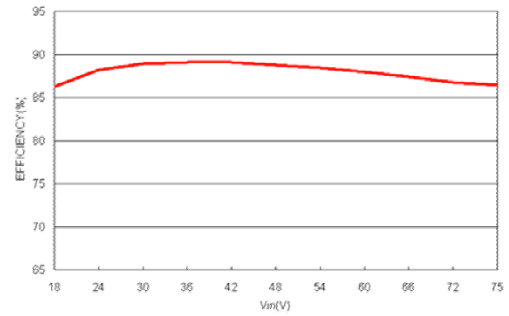
CHARACTERISTIC CURVES

\*Curves for CBW48D5-3000. All test conditions are at 25°C.

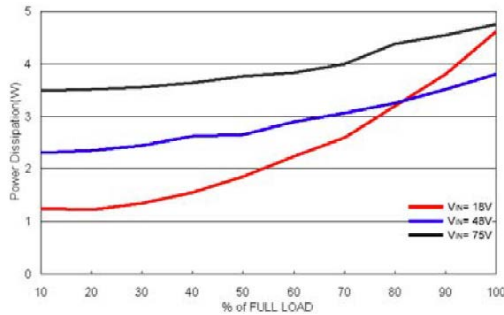
Efficiency vs. Output Load



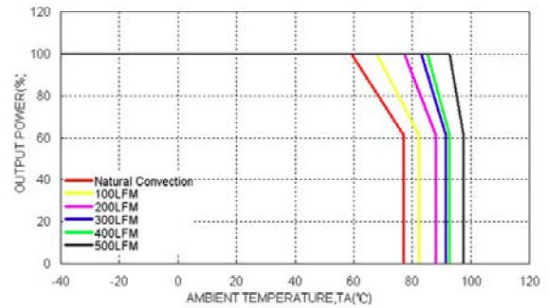
Efficiency vs. Input Voltage, Full Load



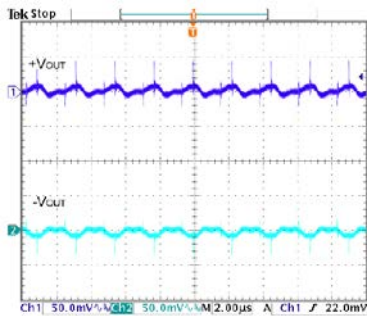
Power Dissipation vs. Output Load



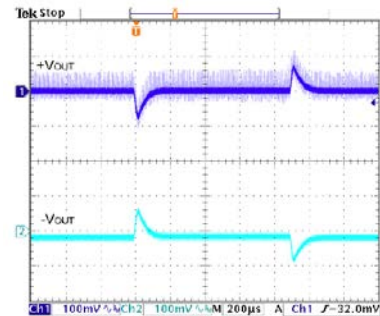
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



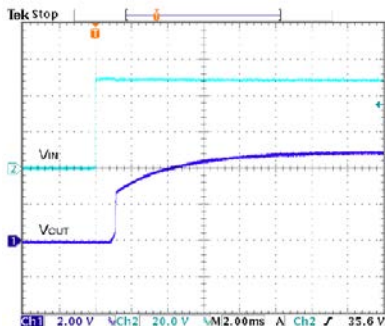
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



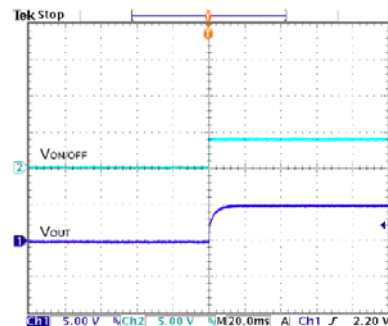
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



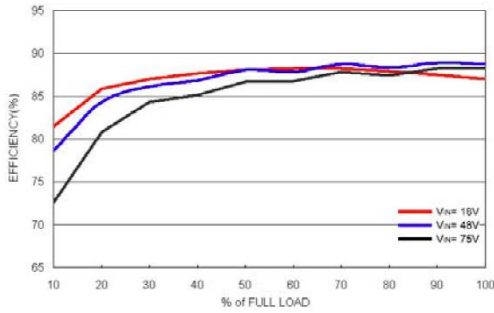
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



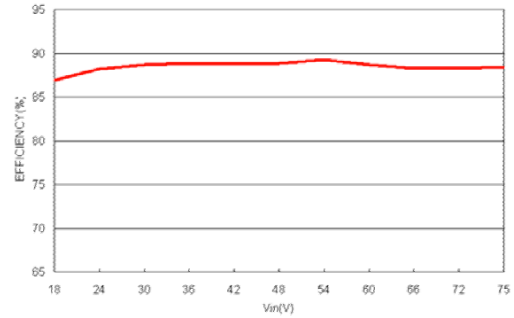
CHARACTERISTIC CURVES

\*Curves for CBW48D12-1250. All test conditions are at 25°C.

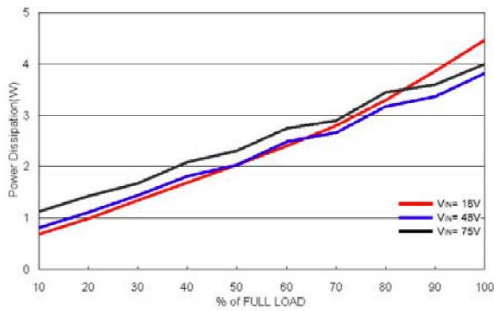
Efficiency vs. Output Load



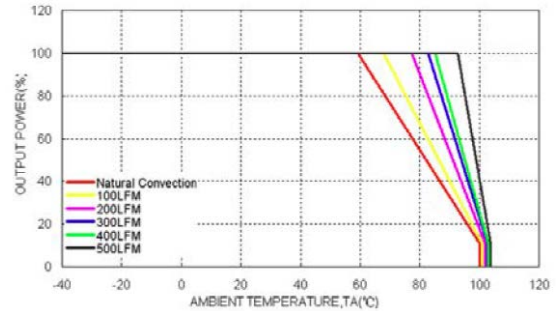
Efficiency vs. Input Voltage, Full Load



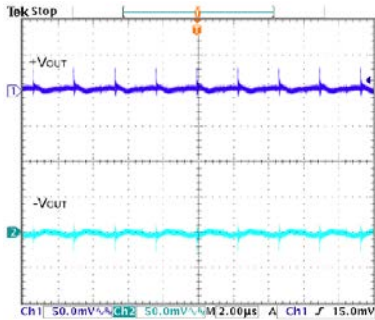
Power Dissipation vs. Output Load



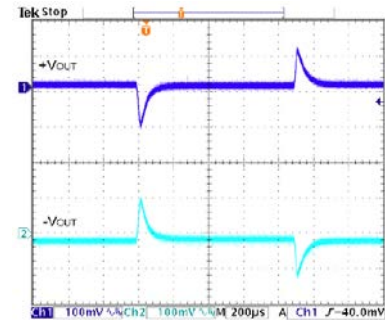
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



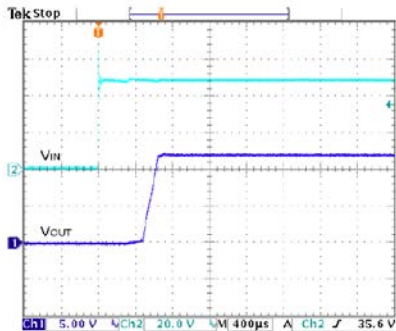
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



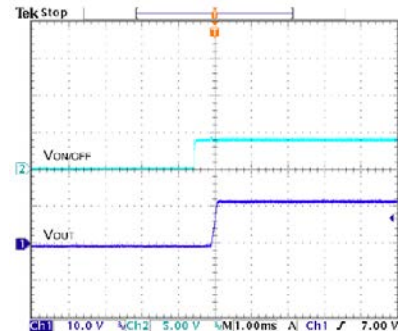
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



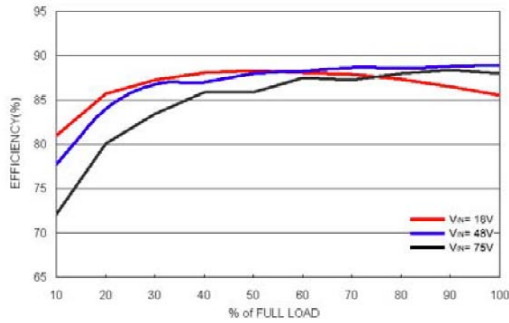
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



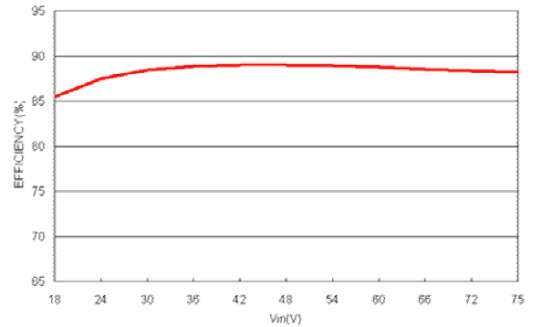
CHARACTERISTIC CURVES

\*Curves for CBW48D15-1000. All test conditions are at 25°C.

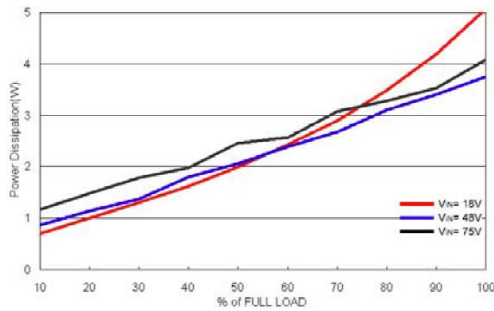
Efficiency vs. Output Load



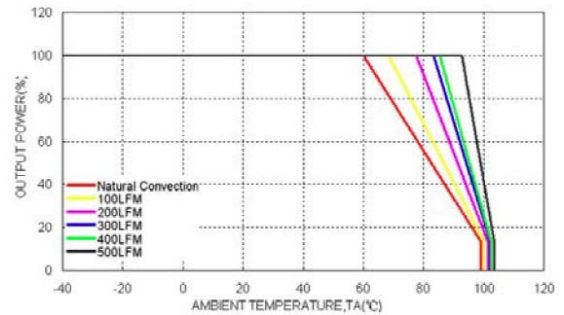
Efficiency vs. Input Voltage, Full Load



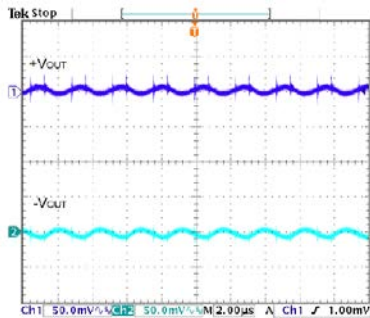
Power Dissipation vs. Output Load



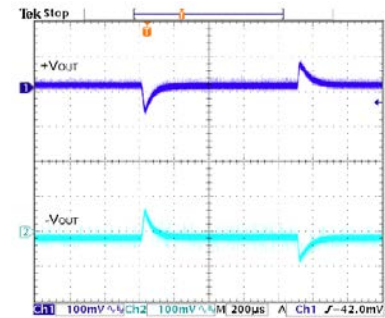
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



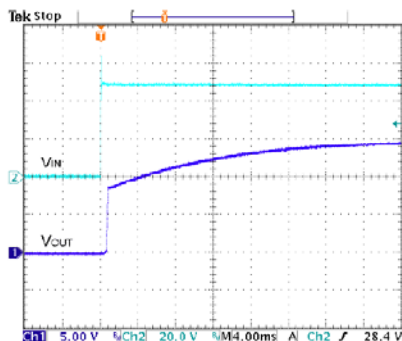
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



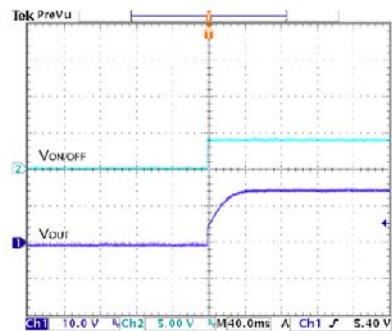
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



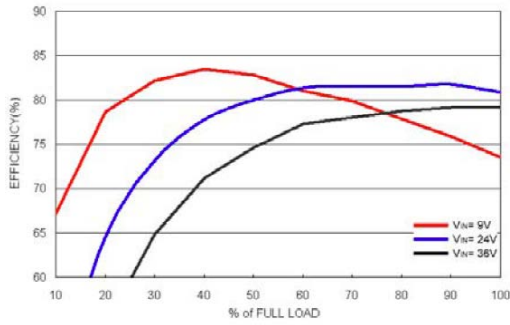
Using ON/OFF Voltage Start-Up and  $V_{out}$  Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



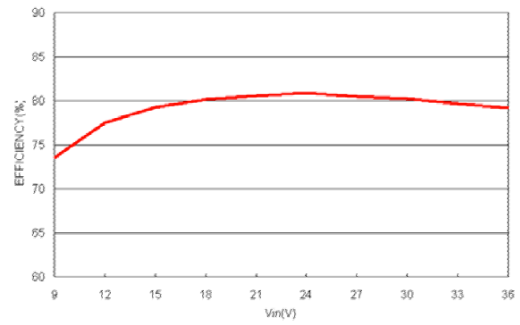
CHARACTERISTIC CURVES

\*Curves for CBW24S1.5-8500. All test conditions are at 25°C.

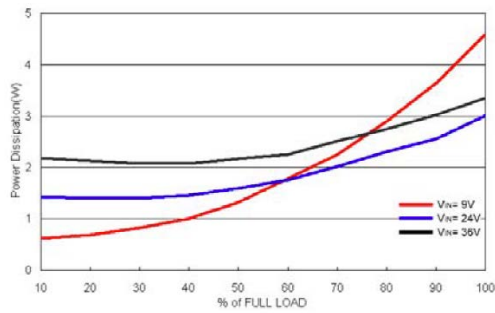
Efficiency vs. Output Load



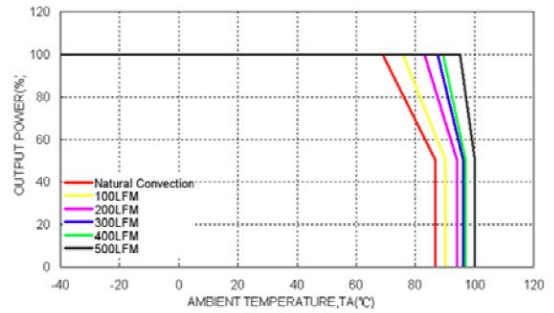
Efficiency vs. Input Voltage, Full Load



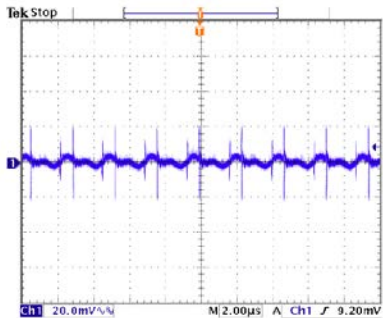
Power Dissipation vs. Output Load



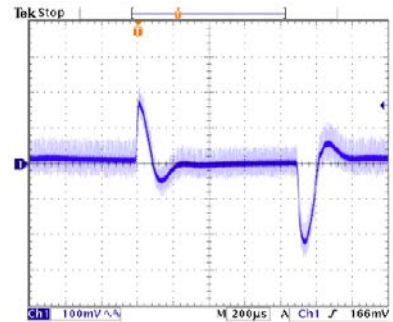
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



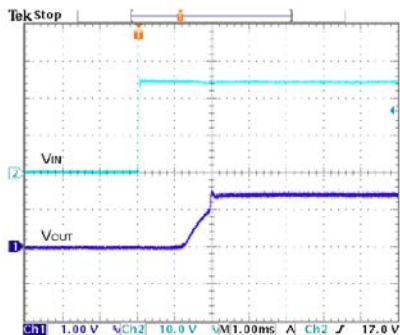
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



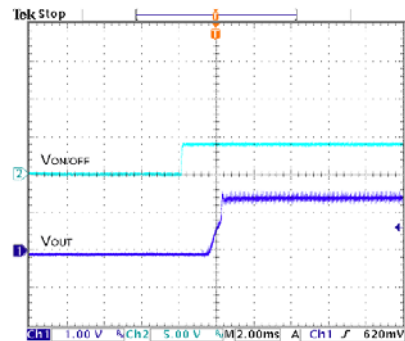
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



Using ON/OFF Voltage Start-Up and  $V_{out}$  Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load

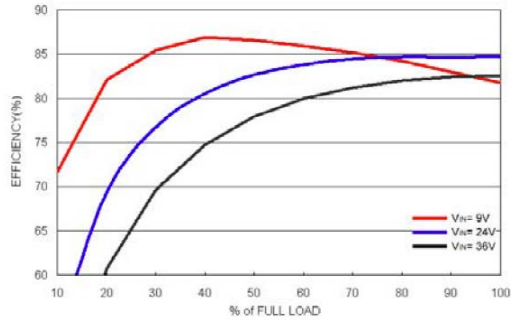




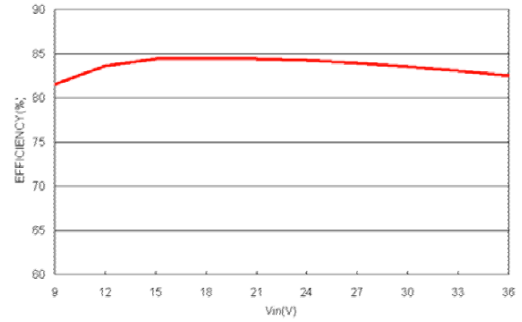
CHARACTERISTIC CURVES

\*Curves for CBW24S2.5-8000. All test conditions are at 25°C.

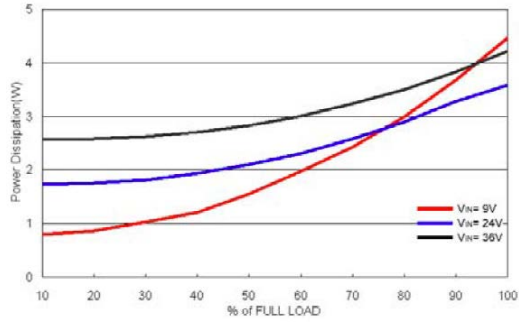
Efficiency vs. Output Load



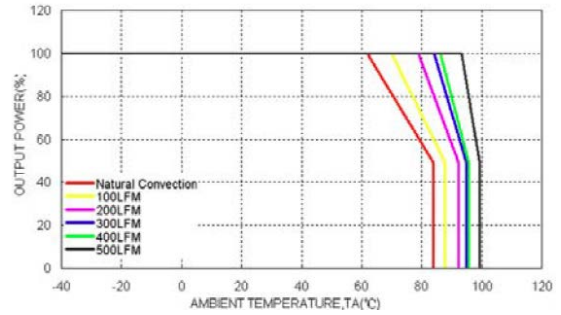
Efficiency vs. Input Voltage, Full Load



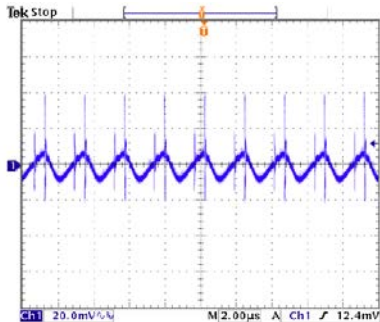
Power Dissipation vs. Output Load



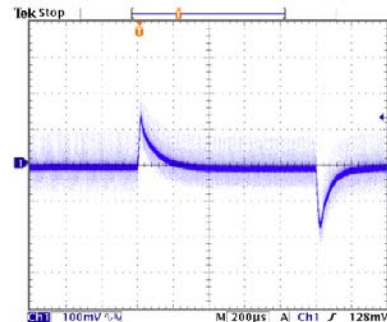
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



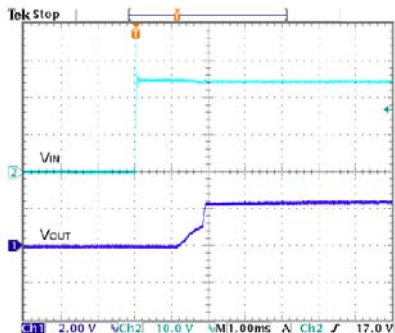
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



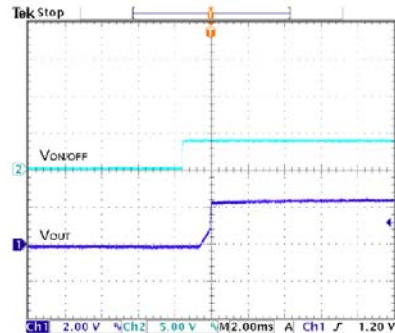
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load

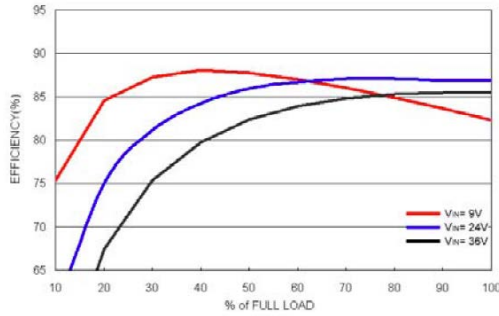




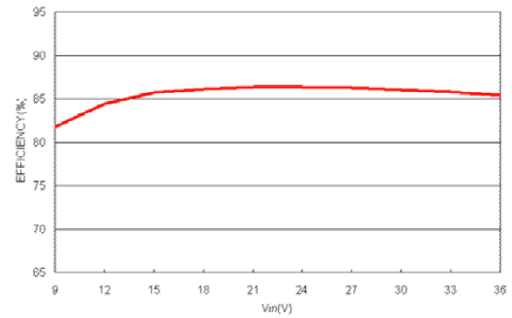
CHARACTERISTIC CURVES

\*Curves for CBW24S3.3-7500. All test conditions are at 25°C.

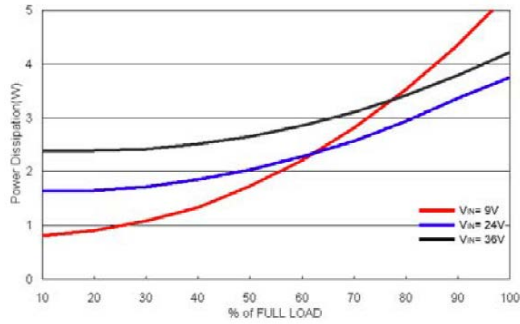
Efficiency vs. Output Load



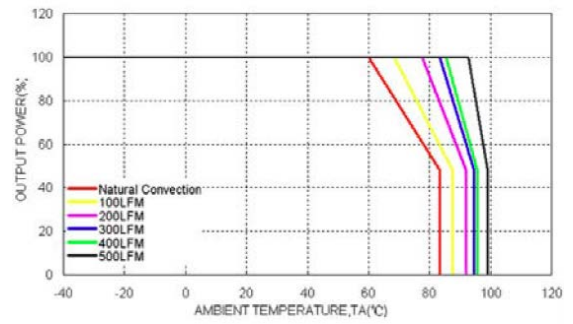
Efficiency vs. Input Voltage, Full Load



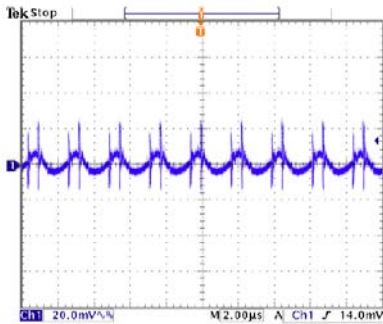
Power Dissipation vs. Output Load



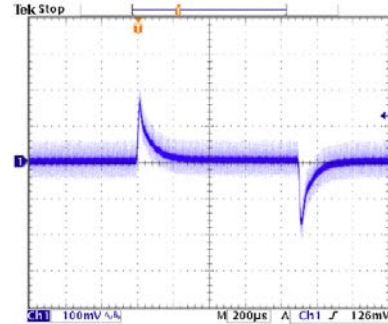
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



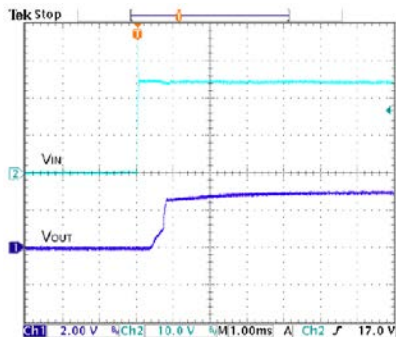
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



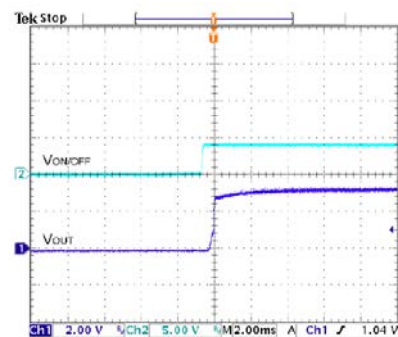
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



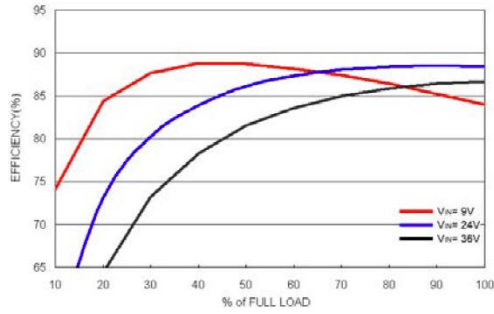
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



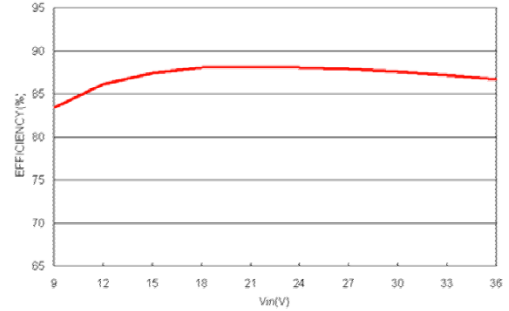
**CHARACTERISTIC CURVES**

\*Curves for CBW24S5-6000. All test conditions are at 25°C.

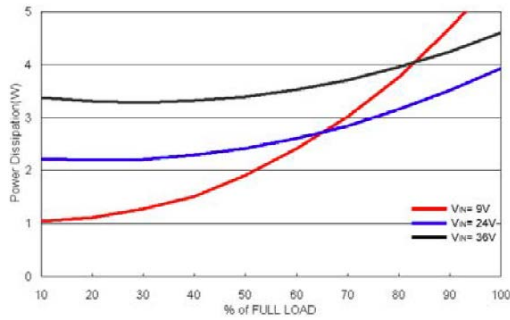
Efficiency vs. Output Load



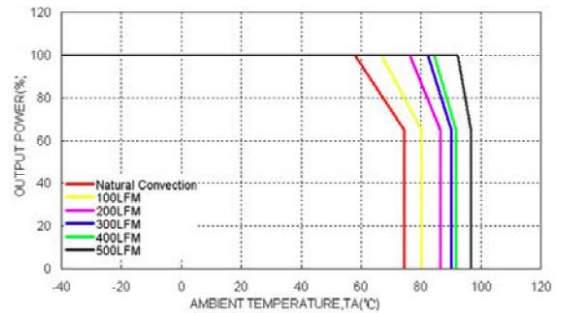
Efficiency vs. Input Voltage, Full Load



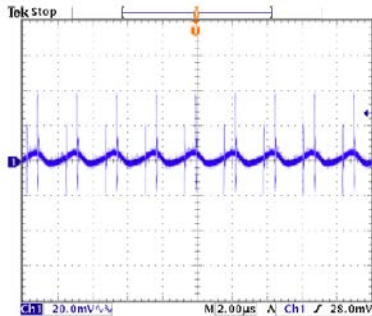
Power Dissipation vs. Output Load



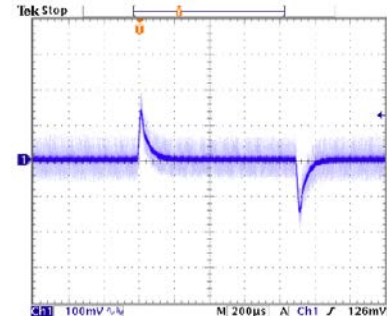
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



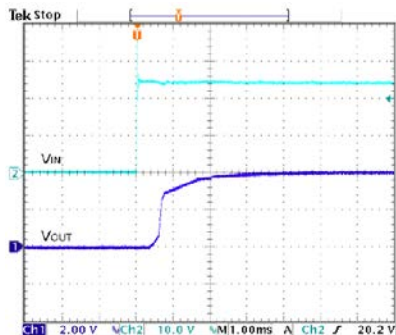
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



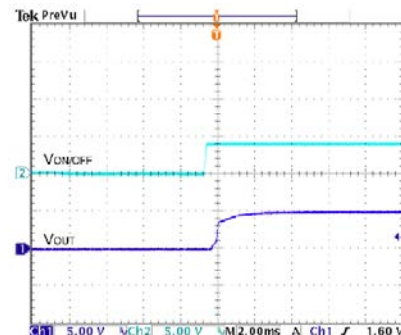
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



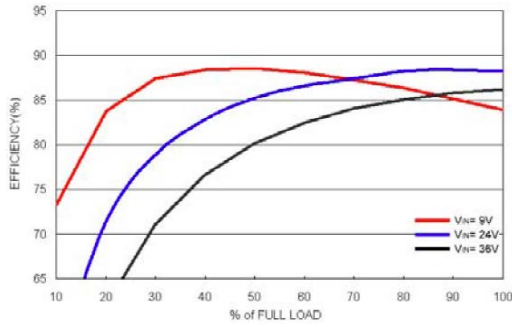
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



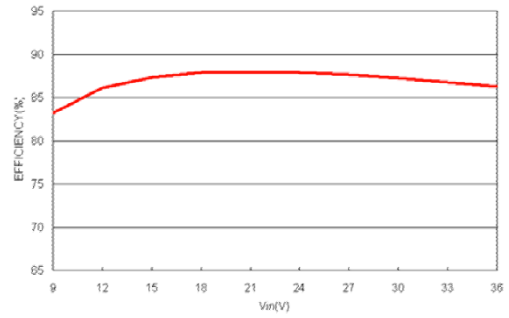
**CHARACTERISTIC CURVES**

\*Curves for CBW24S5.1-6000. All test conditions are at 25°C.

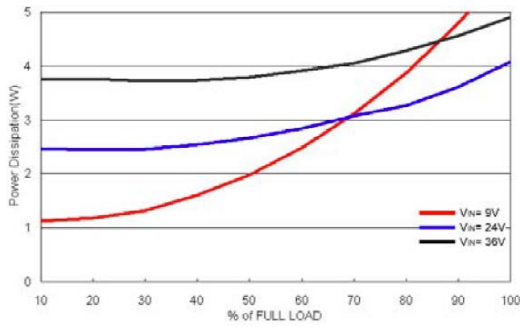
Efficiency vs. Output Load



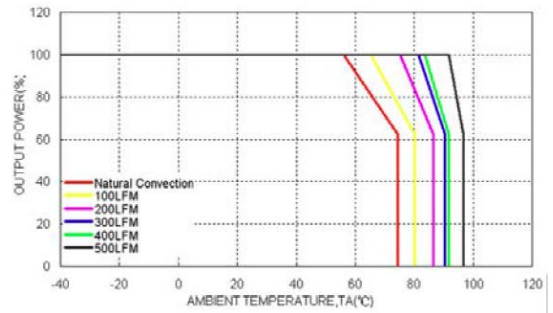
Efficiency vs. Input Voltage, Full Load



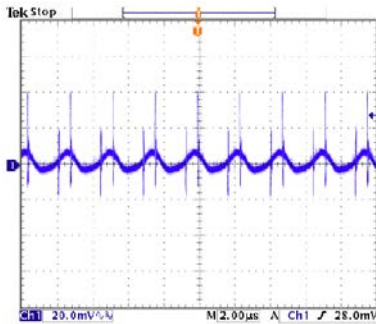
Power Dissipation vs. Output Load



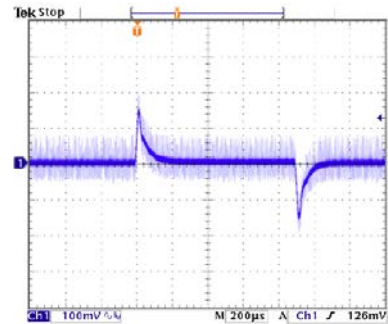
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



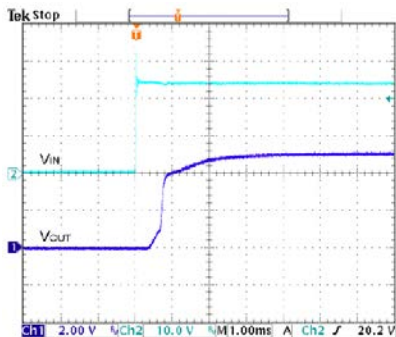
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



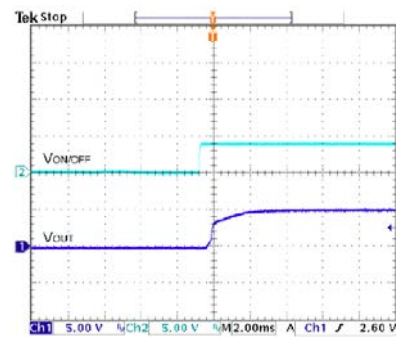
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



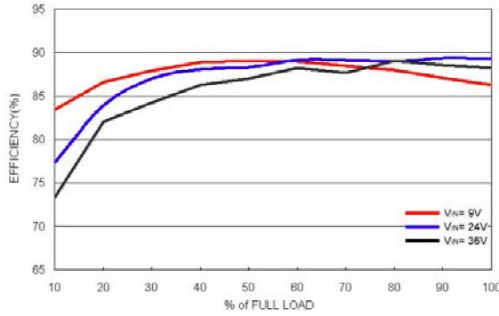
Using ON/OFF Voltage Start-Up and  $V_{out}$  Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



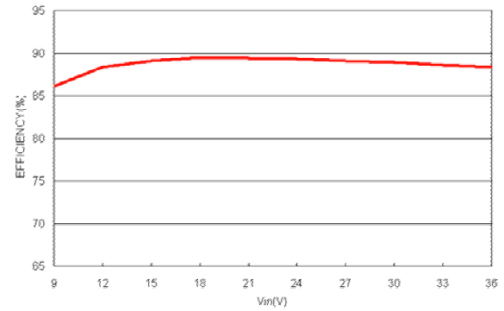
CHARACTERISTIC CURVES

\*Curves for CBW24S12-2500. All test conditions are at 25°C.

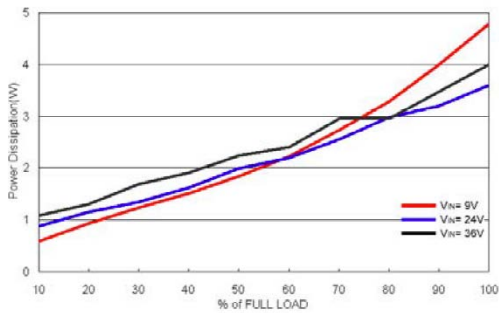
Efficiency vs. Output Load



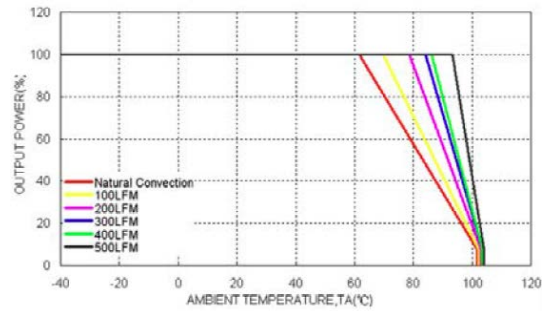
Efficiency vs. Input Voltage, Full Load



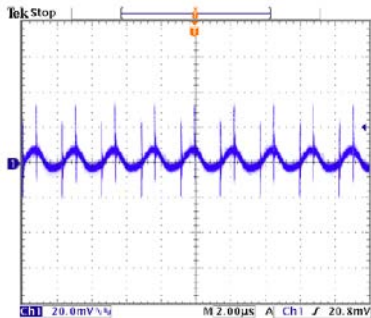
Power Dissipation vs. Output Load



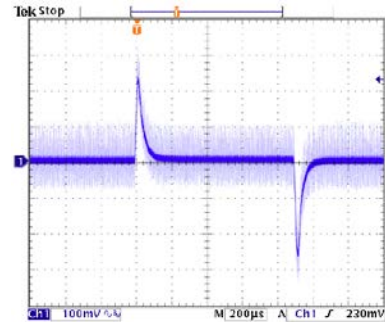
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



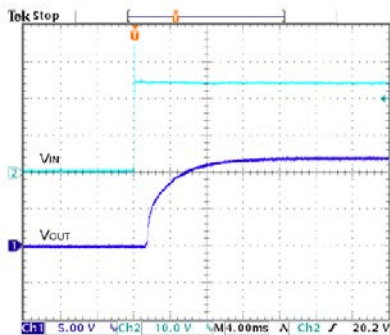
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



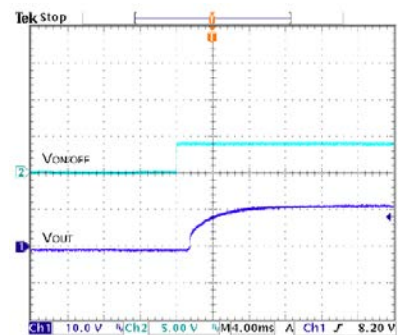
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load

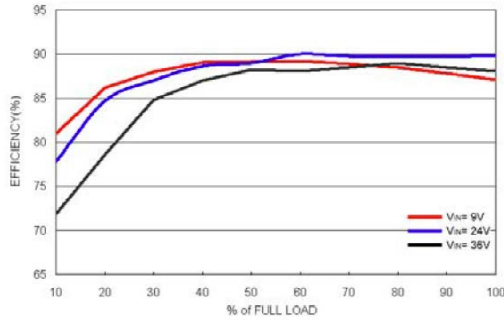




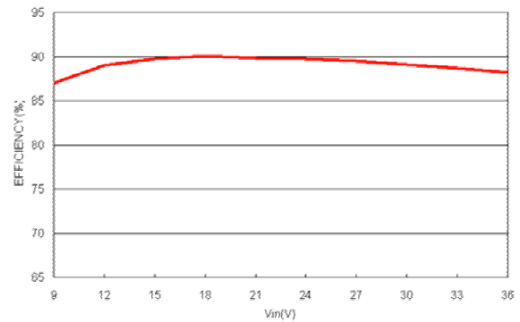
CHARACTERISTIC CURVES

\*Curves for CBW24S15-2000. All test conditions are at 25°C.

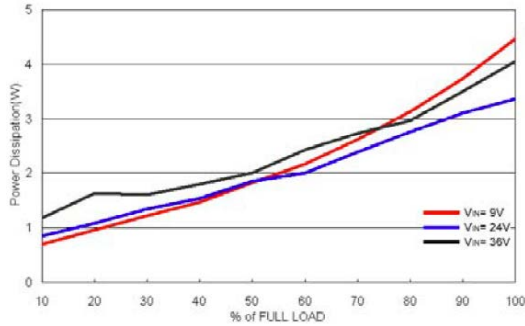
Efficiency vs. Output Load



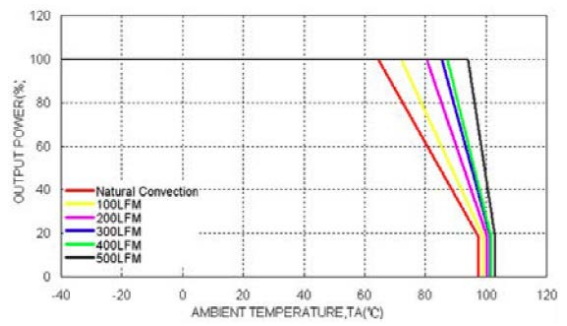
Efficiency vs. Input Voltage, Full Load



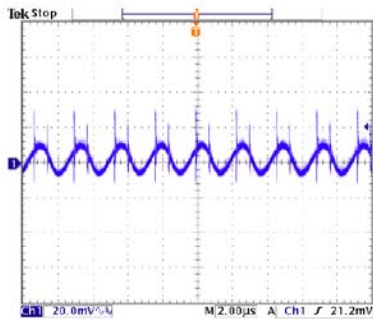
Power Dissipation vs. Output Load



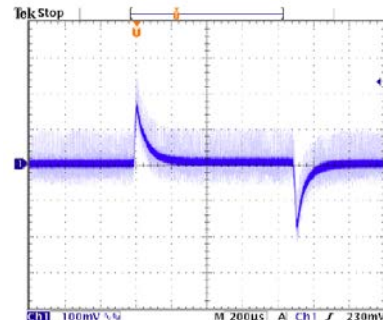
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



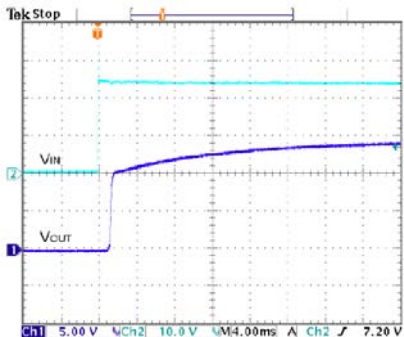
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



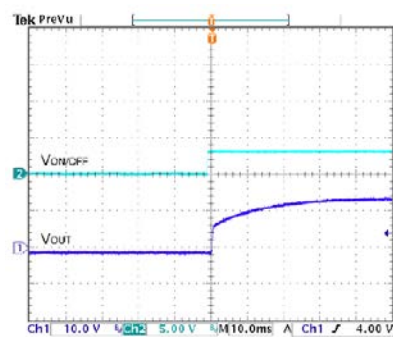
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load

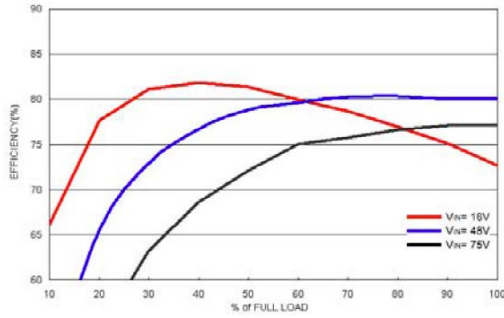




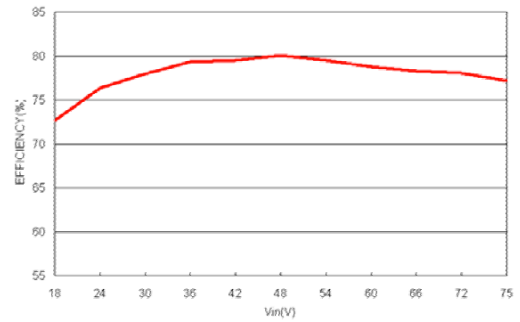
CHARACTERISTIC CURVES

\*Curves for CBW48S1.5-8500. All test conditions are at 25°C.

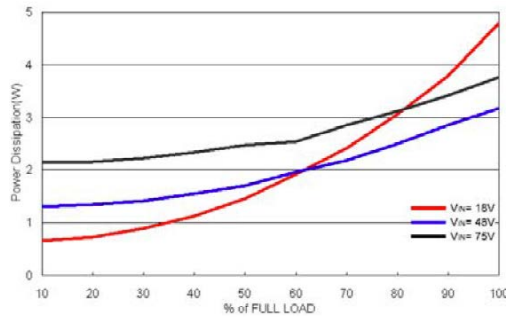
Efficiency vs. Output Load



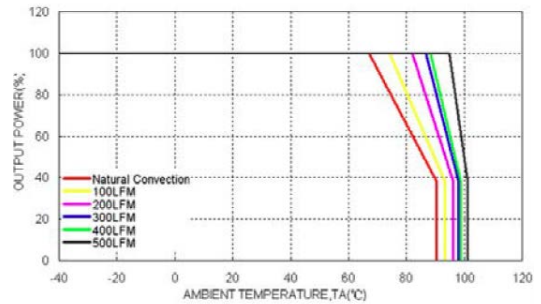
Efficiency vs. Input Voltage, Full Load



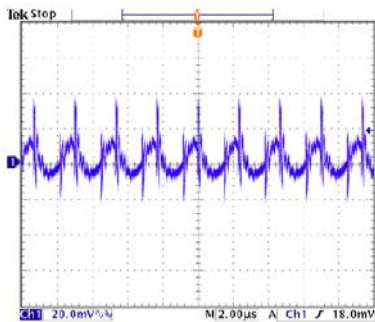
Power Dissipation vs. Output Load



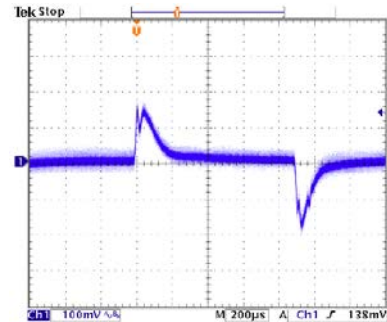
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



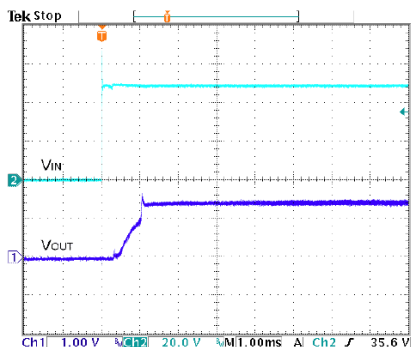
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



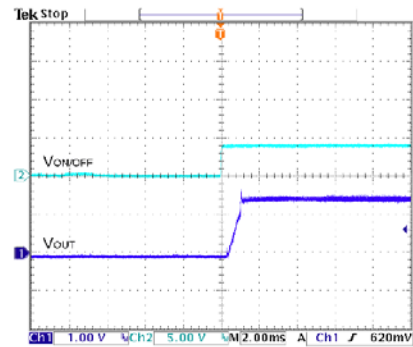
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



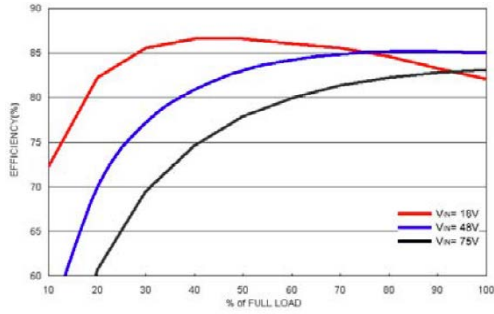
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



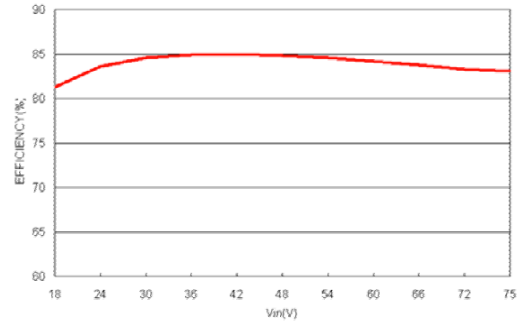
CHARACTERISTIC CURVES

\*Curves for CBW48S2.5-8000. All test conditions are at 25°C.

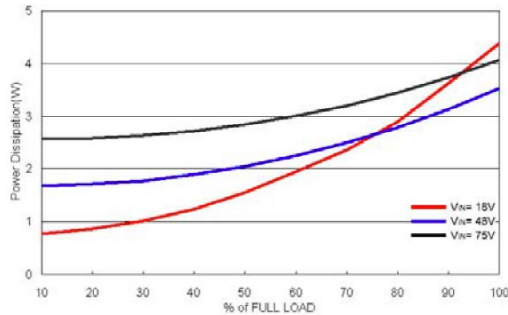
Efficiency vs. Output Load



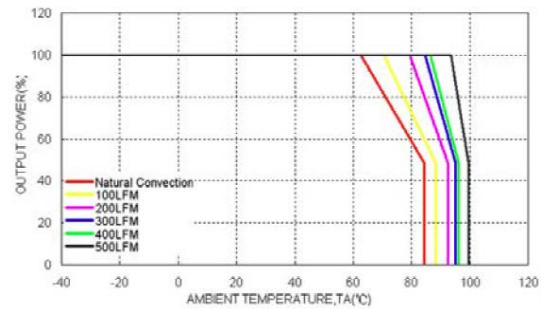
Efficiency vs. Input Voltage, Full Load



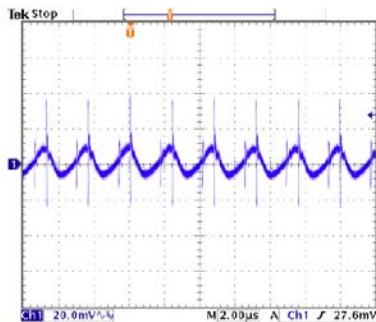
Power Dissipation vs. Output Load



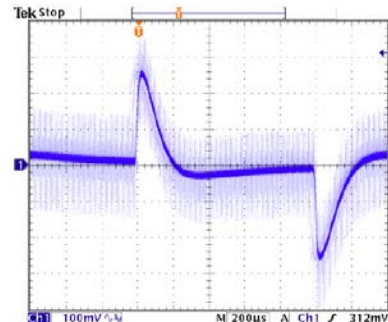
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



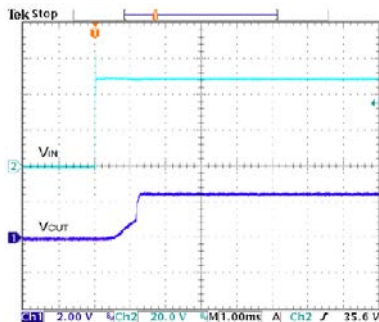
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



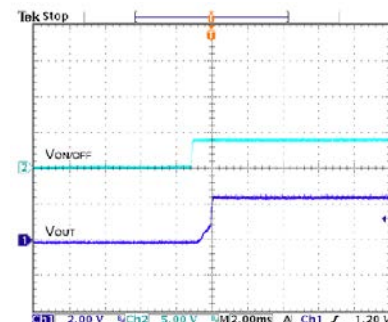
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



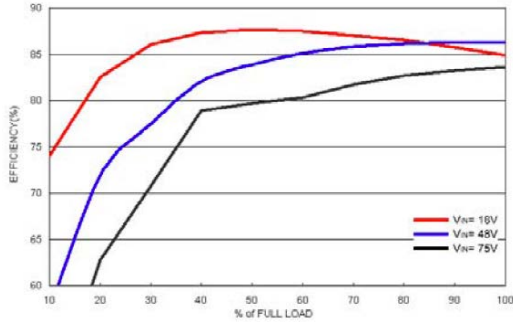
Using ON/OFF Voltage Start-Up and  $V_{out}$  Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



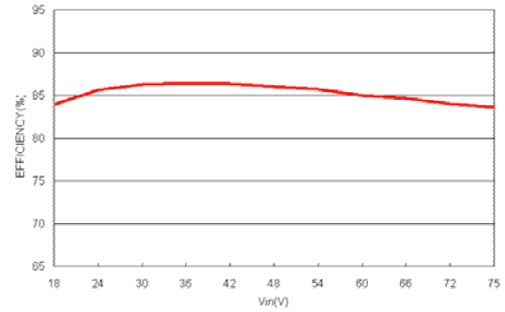
CHARACTERISTIC CURVES

\*Curves for CBW48S3.3-7500. All test conditions are at 25°C.

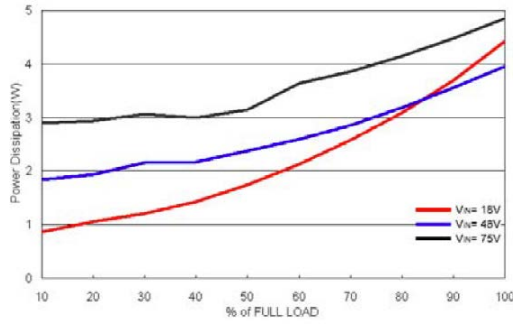
Efficiency vs. Output Load



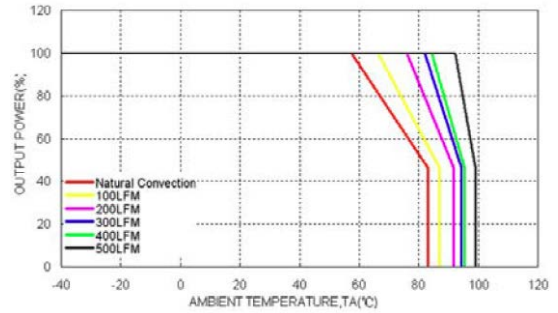
Efficiency vs. Input Voltage, Full Load



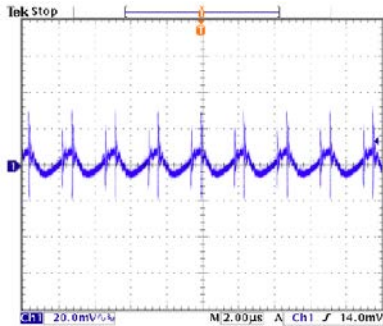
Power Dissipation vs. Output Load



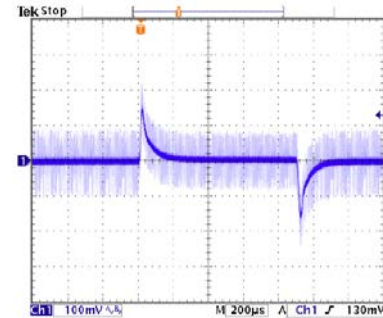
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



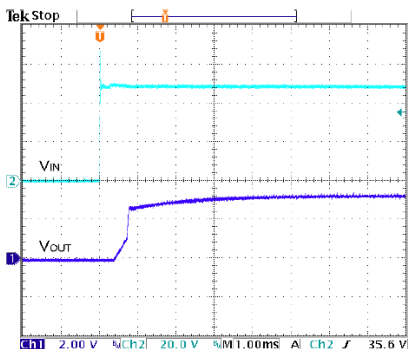
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



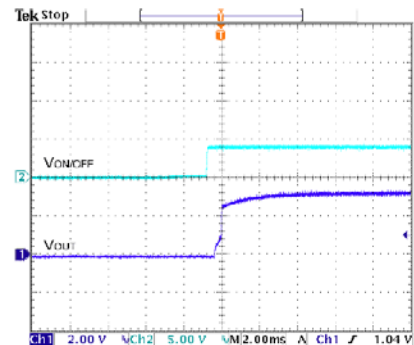
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



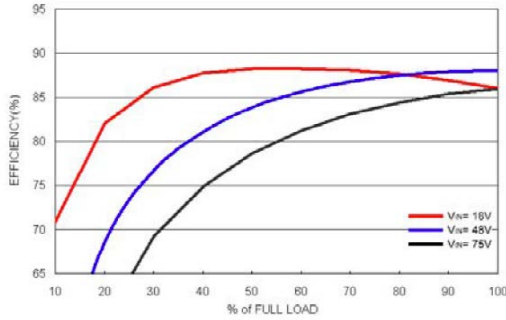
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



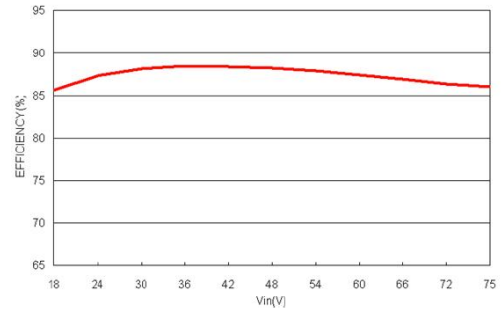
CHARACTERISTIC CURVES

\*Curves for CBW48S05-6000. All test conditions are at 25°C.

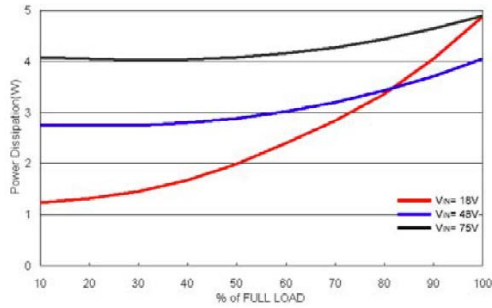
Efficiency vs. Output Load



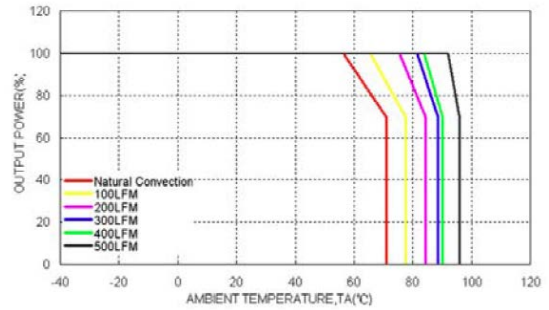
Efficiency vs. Input Voltage, Full Load



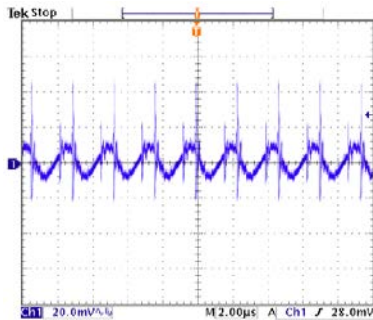
Power Dissipation vs. Output Load



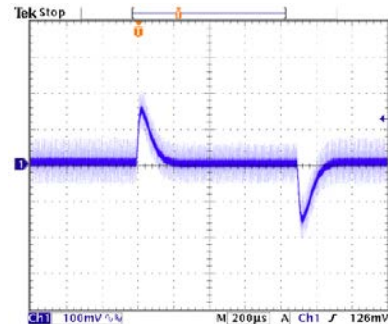
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



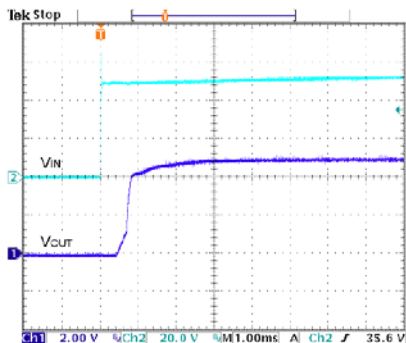
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



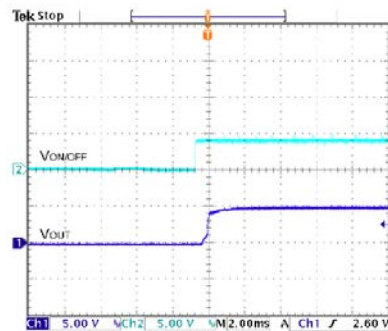
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load

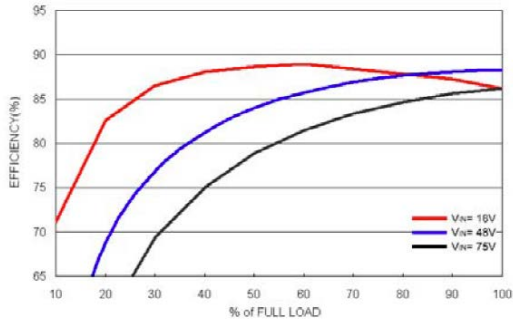




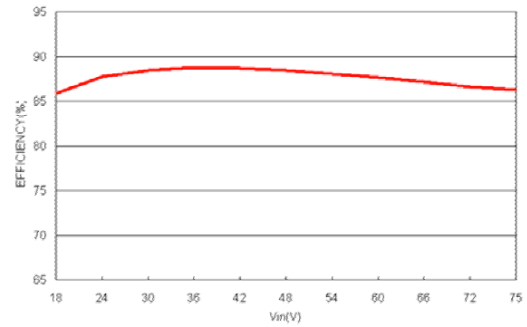
CHARACTERISTIC CURVES

\*Curves for CBW48S5.1-6000. All test conditions are at 25°C.

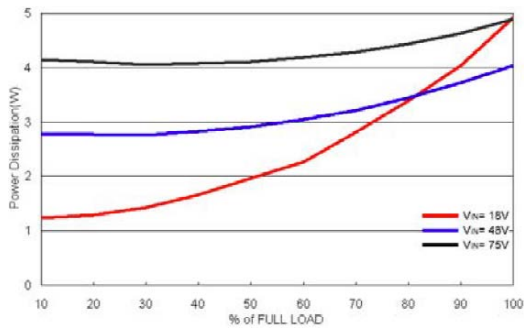
Efficiency vs. Output Load



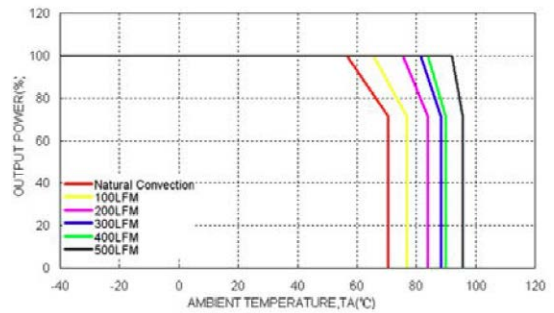
Efficiency vs. Input Voltage, Full Load



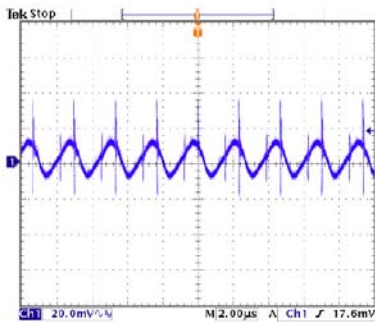
Power Dissipation vs. Output Load



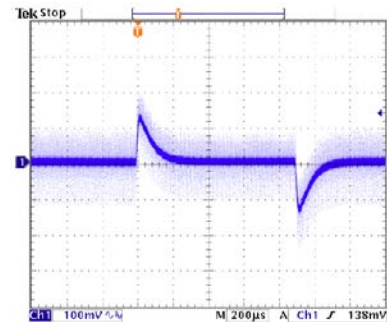
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



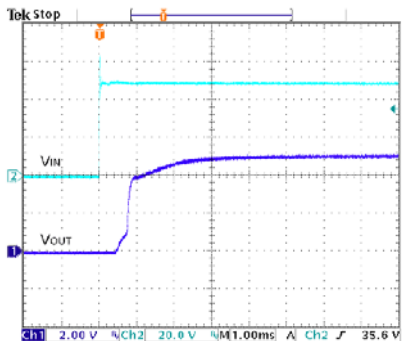
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



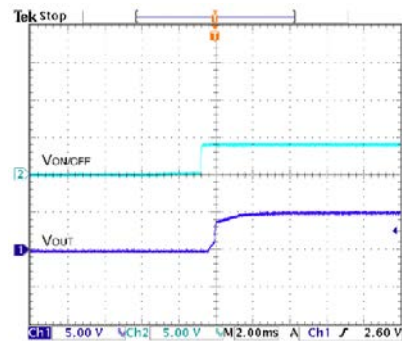
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load

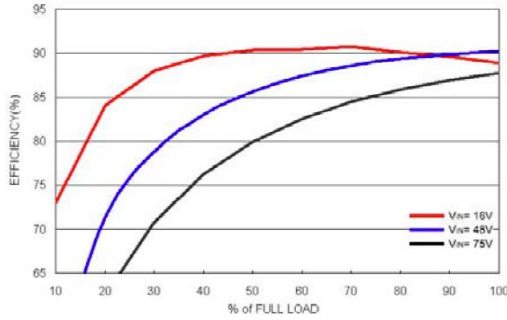




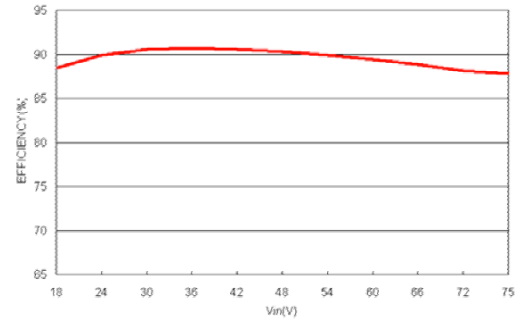
CHARACTERISTIC CURVES

\*Curves for CBW48S12-2500. All test conditions are at 25°C.

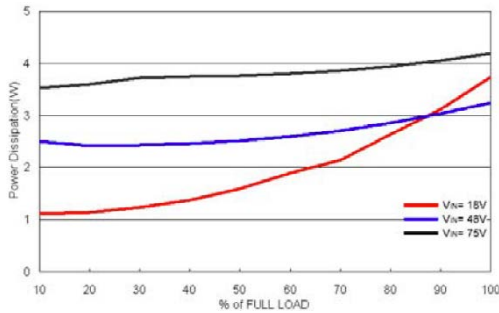
Efficiency vs. Output Load



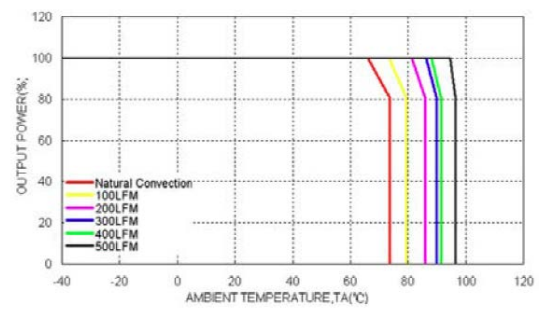
Efficiency vs. Input Voltage, Full Load



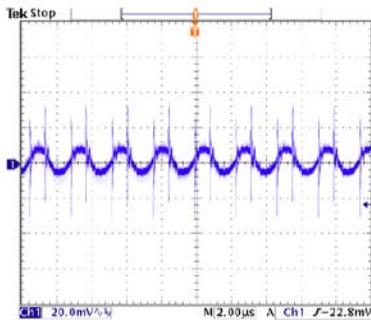
Power Dissipation vs. Output Load



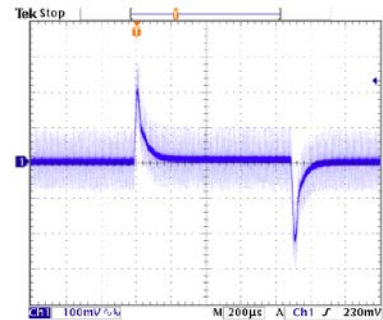
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



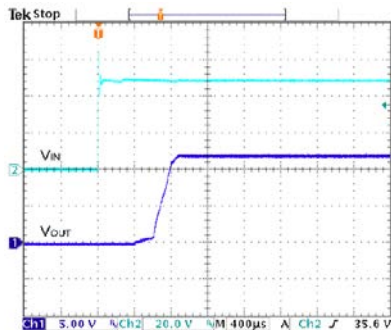
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



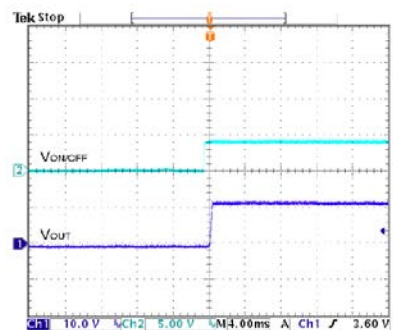
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic Vin=Vin(nom), Full Load



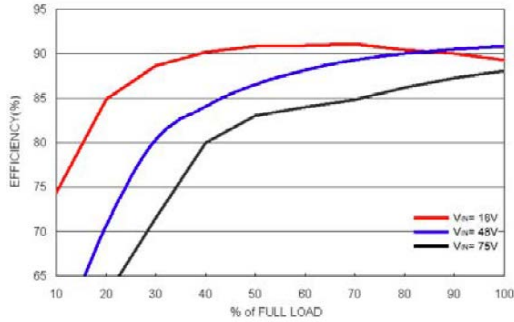
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic Vin=Vin(nom), Full Load



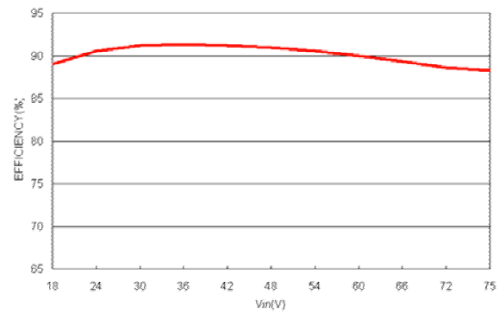
CHARACTERISTIC CURVES

\*Curves for CBW48S15-2000. All test conditions are at 25°C.

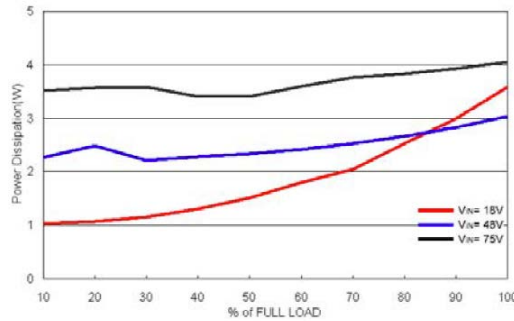
Efficiency vs. Output Load



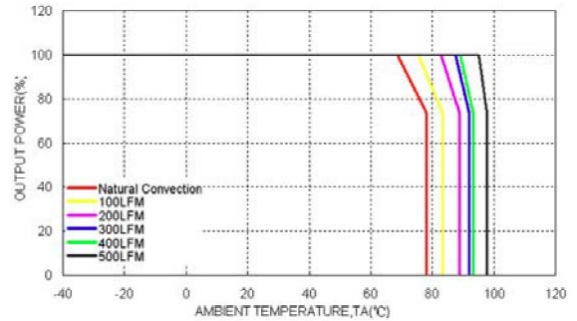
Efficiency vs. Input Voltage, Full Load



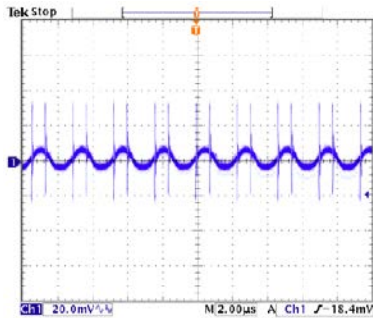
Power Dissipation vs. Output Load



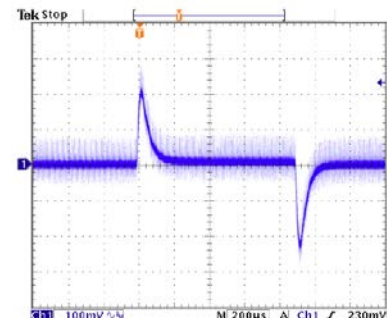
Derating Output Load vs. Ambient Temp. & Airflow  $V_{in}=V_{in}(nom)$



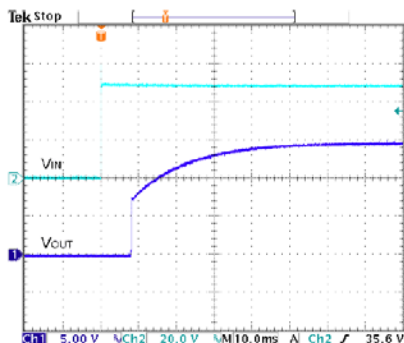
Typ. Output Ripple & Noise,  $V_{in}=V_{in}(nom)$ , Full Load



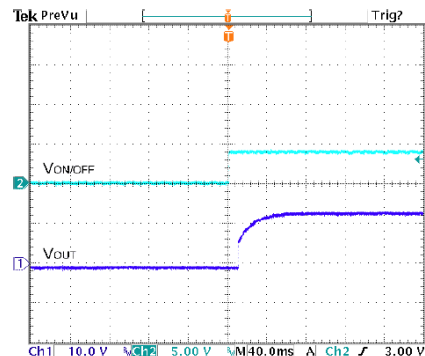
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load,  $V_{in}=V_{in}(nom)$



Typical Input Start-Up & Output Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



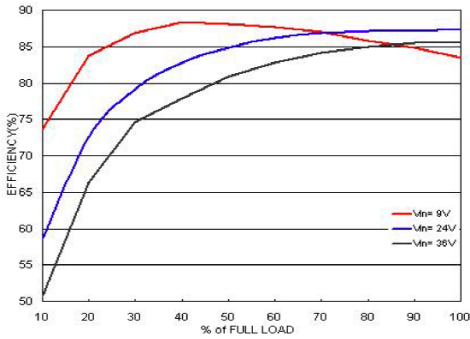
Using ON/OFF Voltage Start-Up and Vout Rise Characteristic  $V_{in}=V_{in}(nom)$ , Full Load



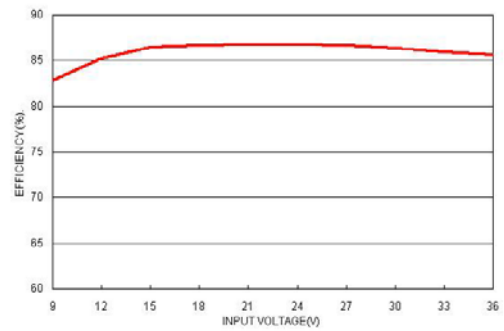
CHARACTERISTIC CURVES

\*Curves for CBW24T3.312-26. All test conditions are at 25°C.

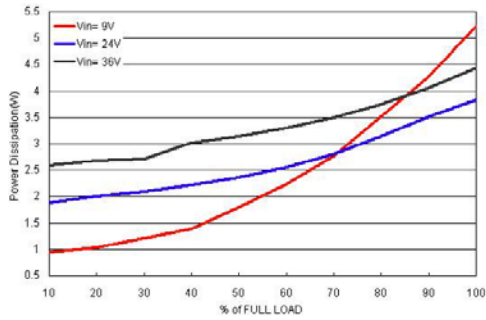
Efficiency vs. Output Load



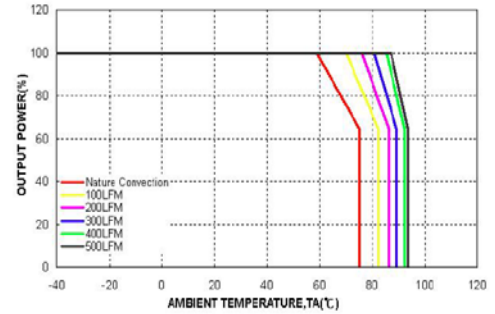
Efficiency vs. Input Voltage, Full Load



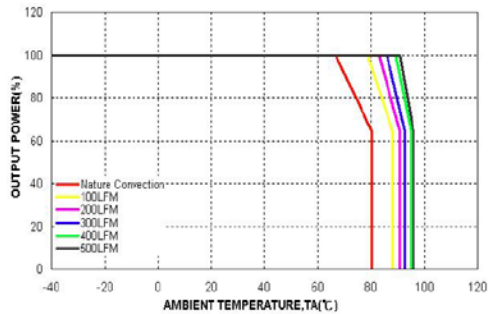
Power Dissipation vs. Output Load



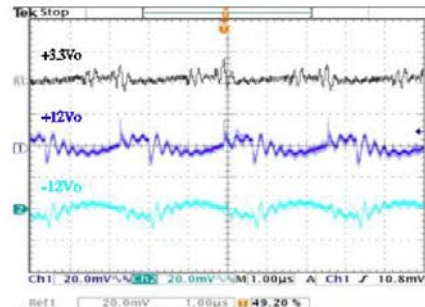
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



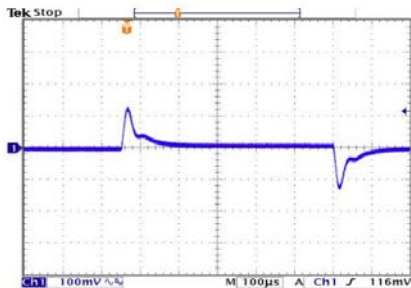
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



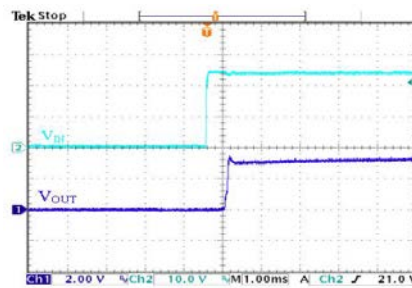
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



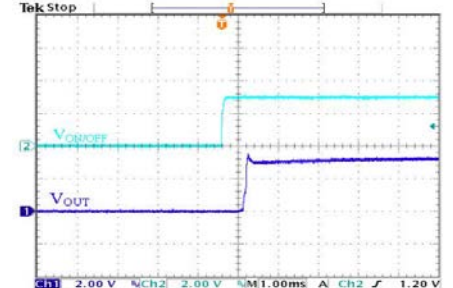
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



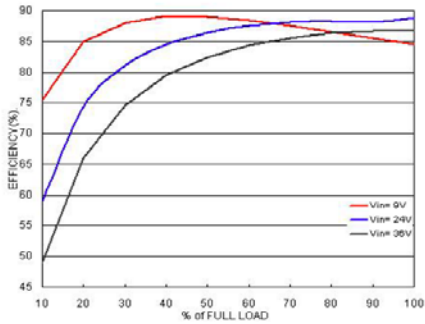
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load



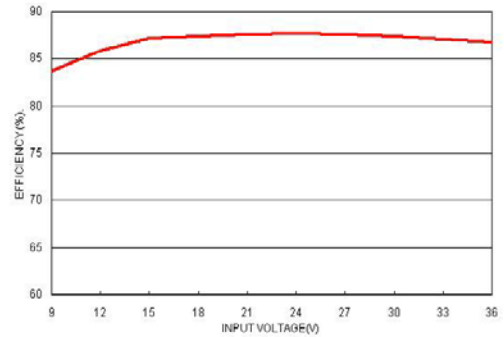
CHARACTERISTIC CURVES

\*Curves for CBW24T3.315-26. All test conditions are at 25°C.

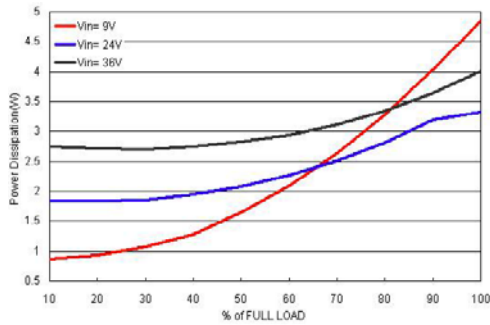
Efficiency vs. Output Load



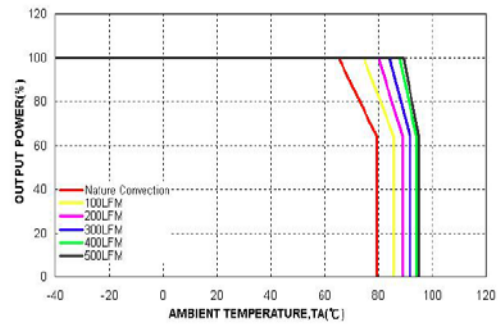
Efficiency vs. Input Voltage, Full Load



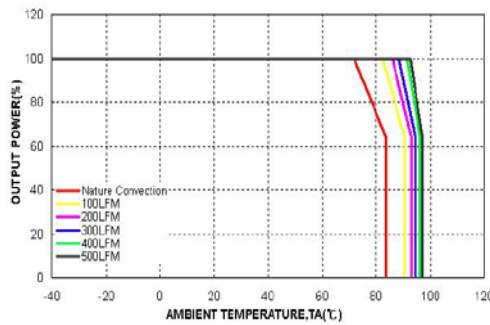
Power Dissipation vs. Output Load



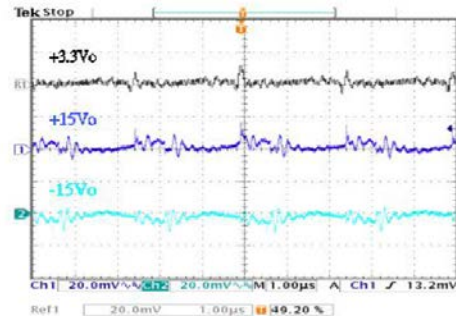
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



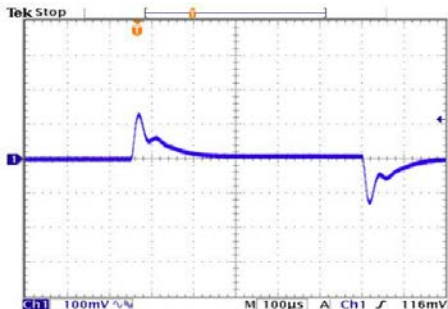
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



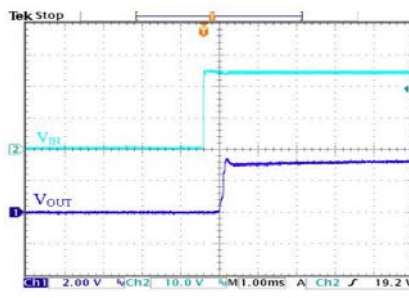
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



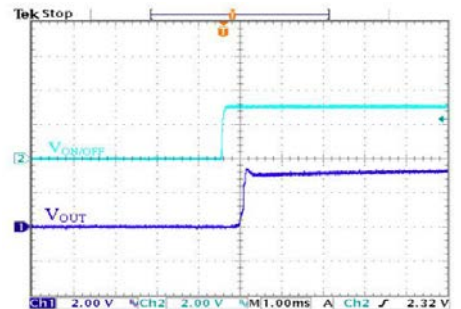
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load

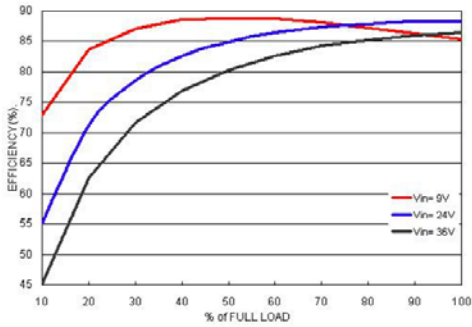




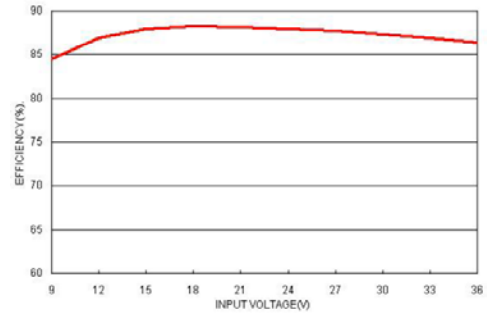
CHARACTERISTIC CURVES

\*Curves for CBW24T512-30. All test conditions are at 25°C.

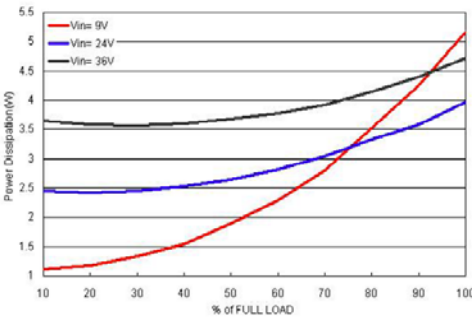
Efficiency vs. Output Load



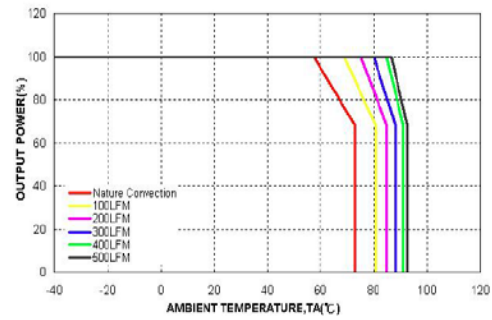
Efficiency vs. Input Voltage, Full Load



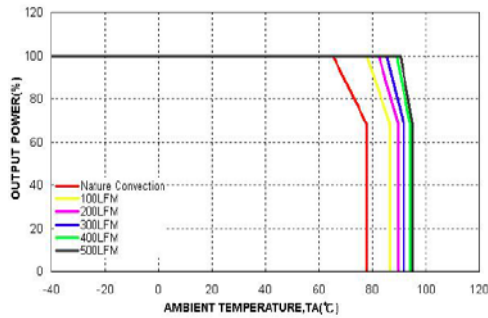
Power Dissipation vs. Output Load



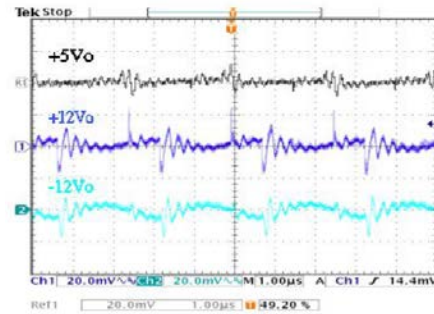
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



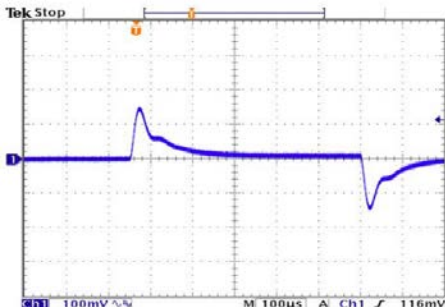
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



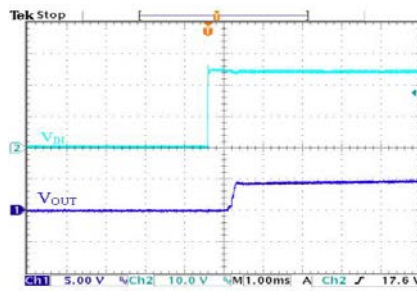
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



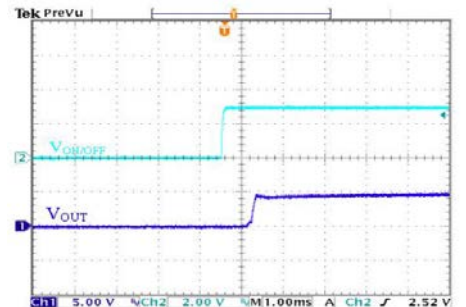
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



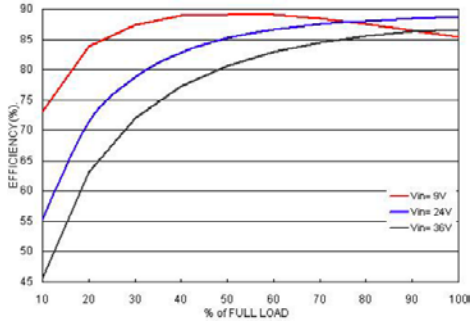
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load



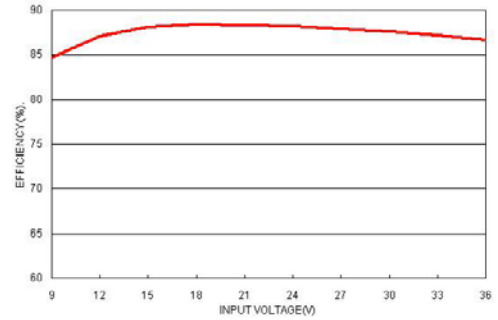
CHARACTERISTIC CURVES

\*Curves for CBW24T515-30. All test conditions are at 25°C.

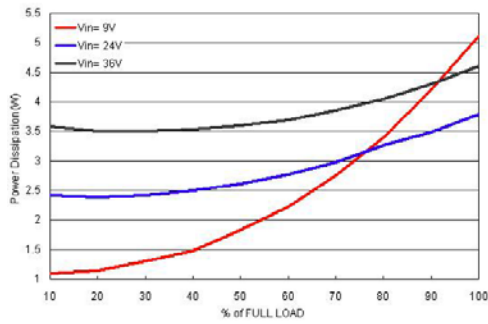
Efficiency vs. Output Load



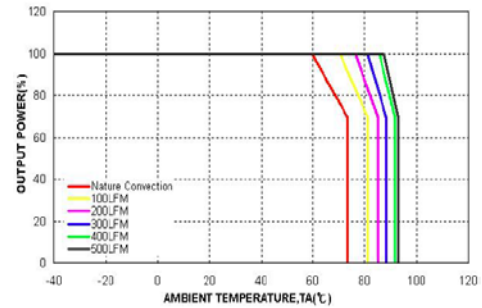
Efficiency vs. Input Voltage, Full Load



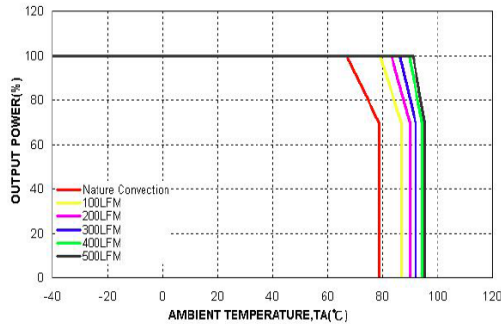
Power Dissipation vs. Output Load



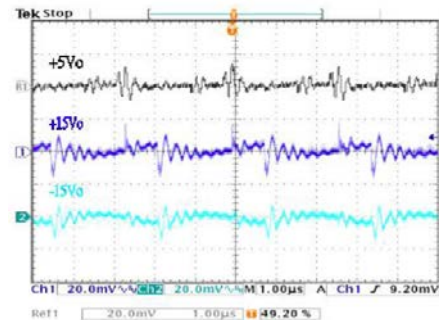
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



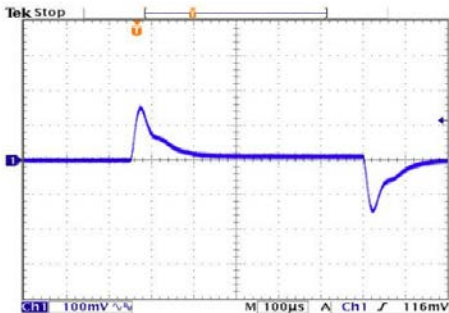
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



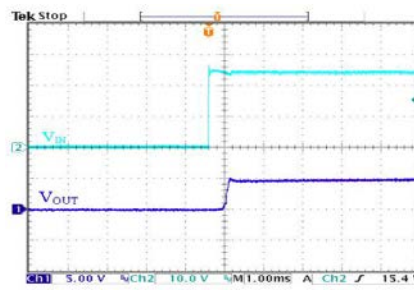
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



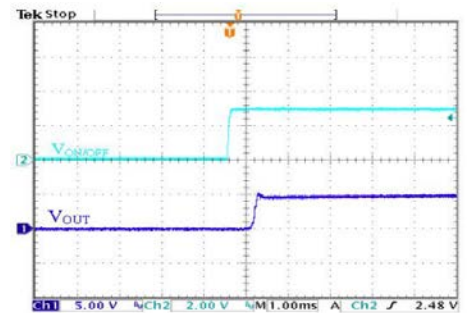
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



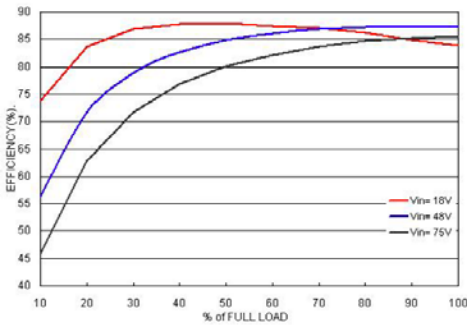
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load



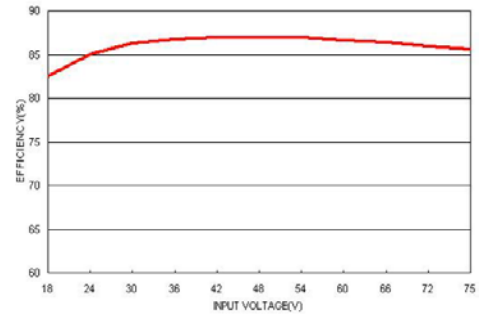
CHARACTERISTIC CURVES

\*Curves for CBW48T3.312-26. All test conditions are at 25°C.

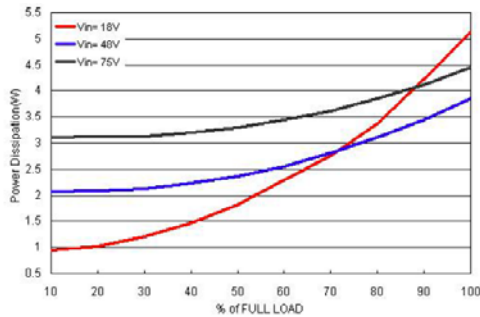
Efficiency vs. Output Load



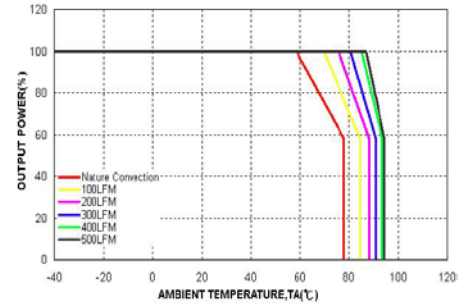
Efficiency vs. Input Voltage, Full Load



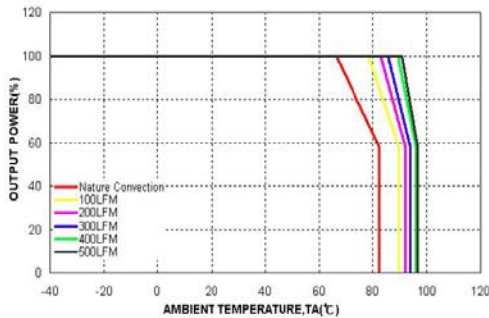
Power Dissipation vs. Output Load



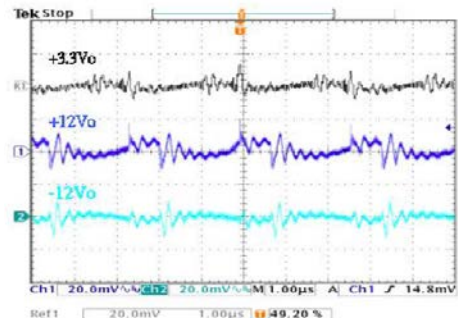
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



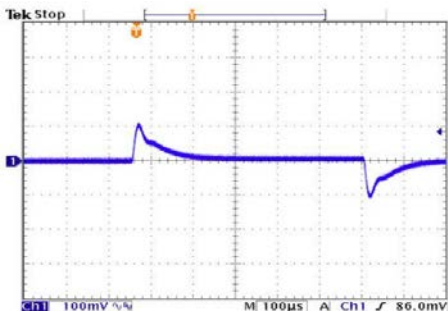
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



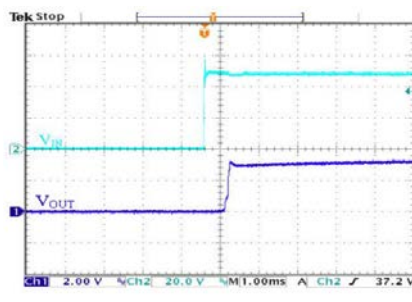
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



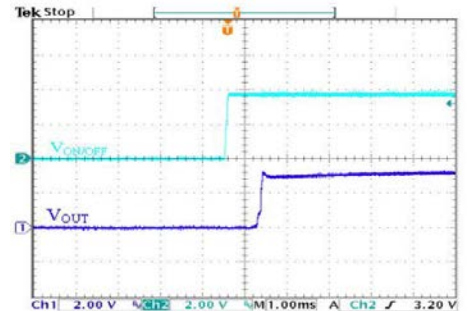
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load

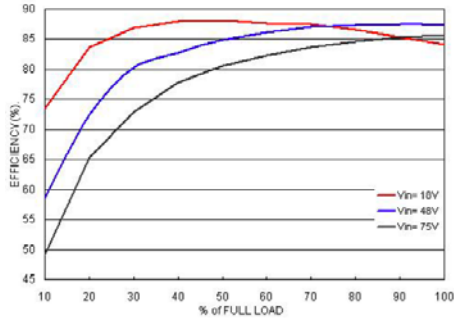




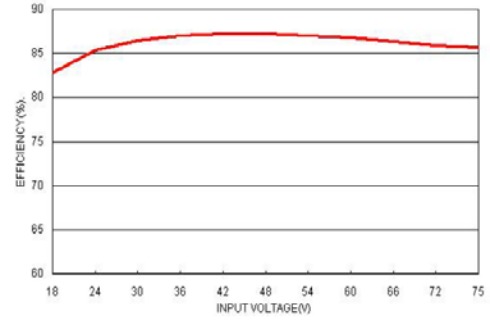
CHARACTERISTIC CURVES

\*Curves for CBW48T3.315-26. All test conditions are at 25°C.

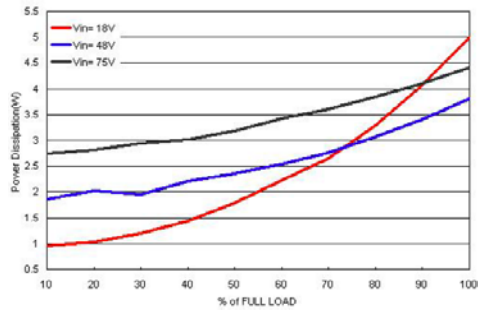
Efficiency vs. Output Load



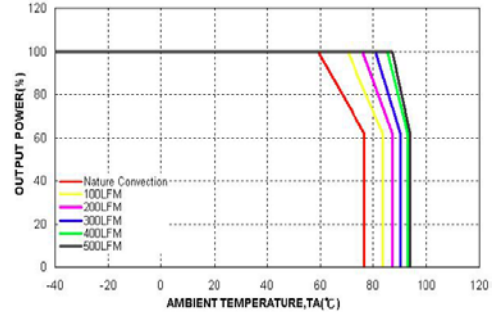
Efficiency vs. Input Voltage, Full Load



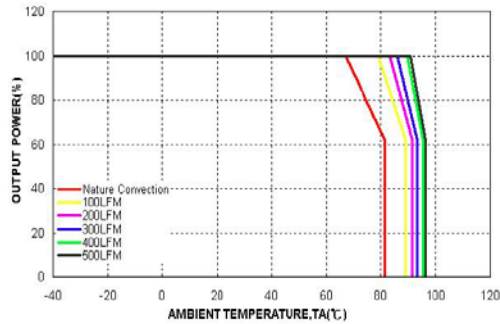
Power Dissipation vs. Output Load



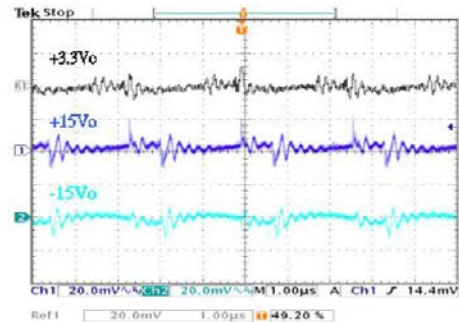
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



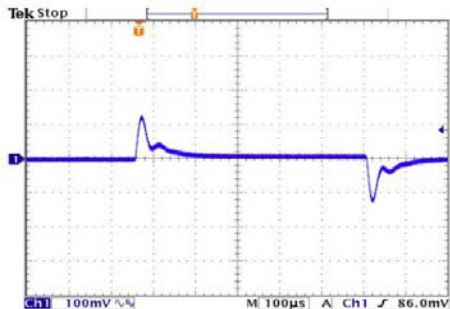
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



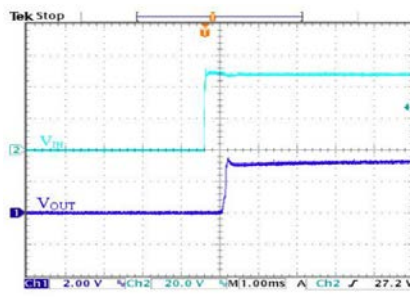
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



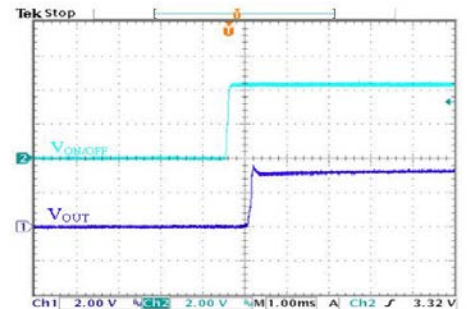
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load

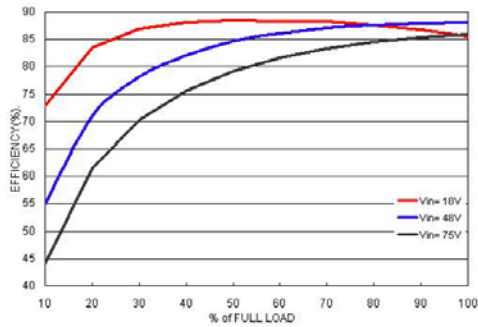




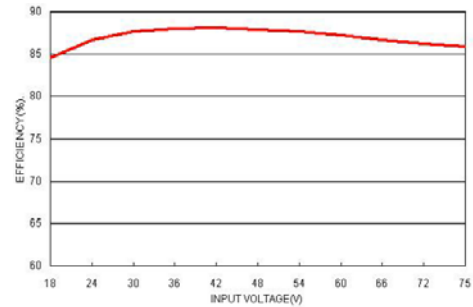
**CHARACTERISTIC CURVES**

\*Curves for CBW48T512-30. All test conditions are at 25°C.

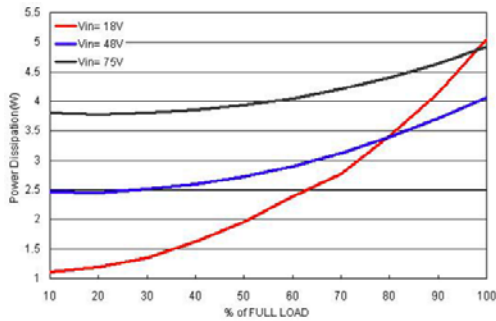
Efficiency vs. Output Load



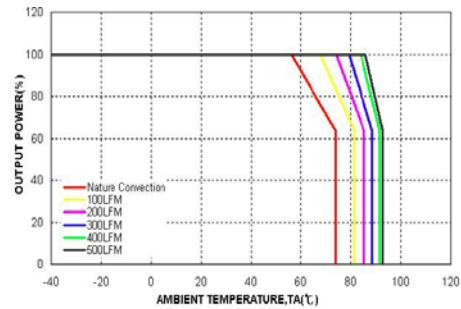
Efficiency vs. Input Voltage, Full Load



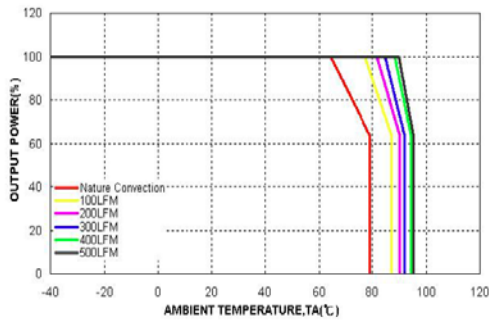
Power Dissipation vs. Output Load



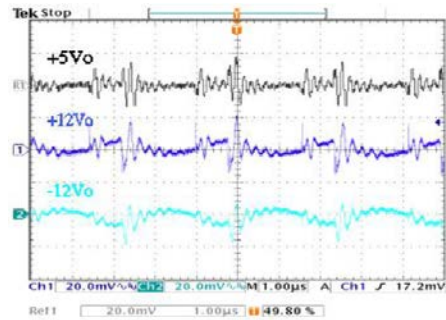
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



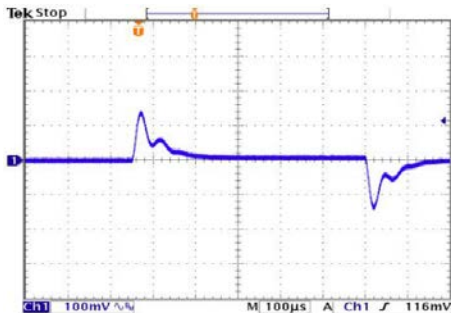
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



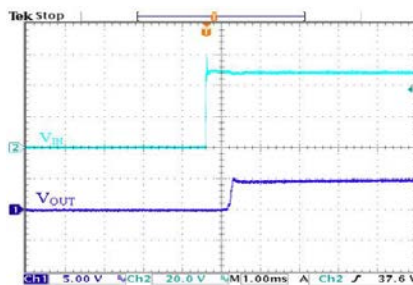
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



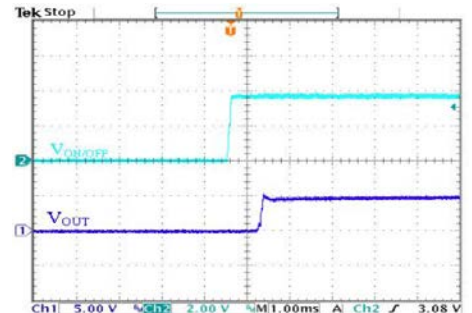
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



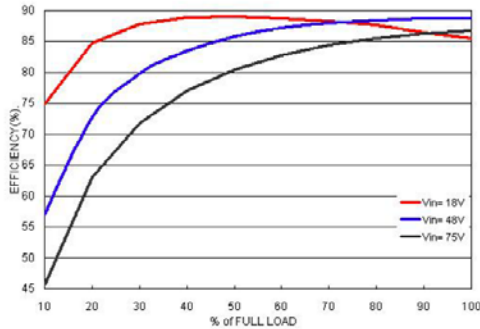
Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load



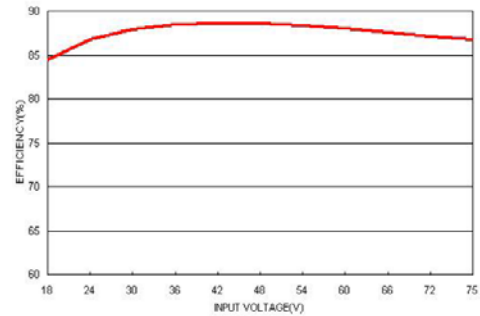
CHARACTERISTIC CURVES

\*Curves for CBW48T515-30. All test conditions are at 25°C.

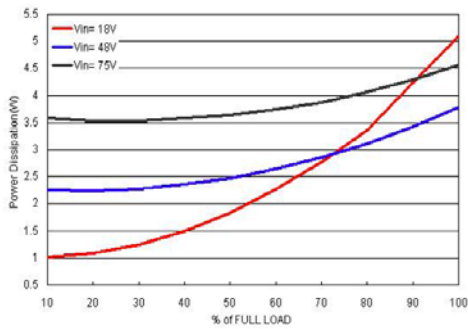
Efficiency vs. Output Load



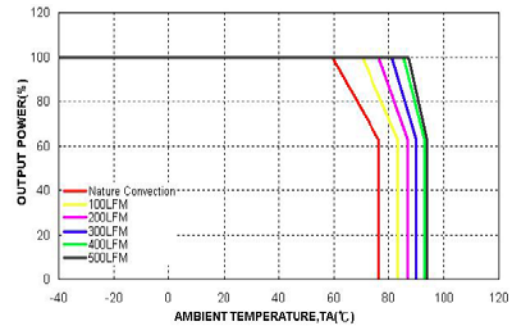
Efficiency vs. Input Voltage, Full Load



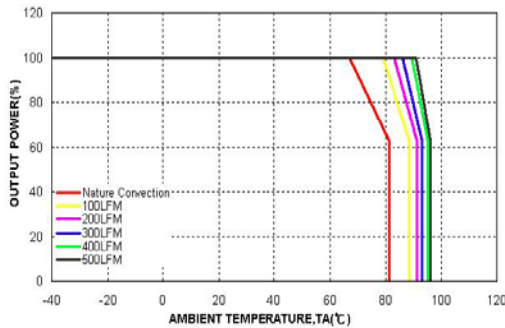
Power Dissipation vs. Output Load



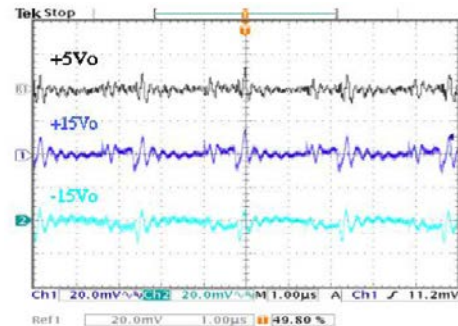
Derating Output Load vs. Ambient Temp. & Airflow Vin=Vin(nom)



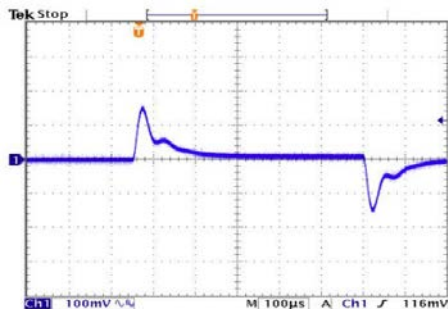
Derating Output Load vs. Ambient Temperature with Heatsink & Airflow, Vin=Vin(nom)



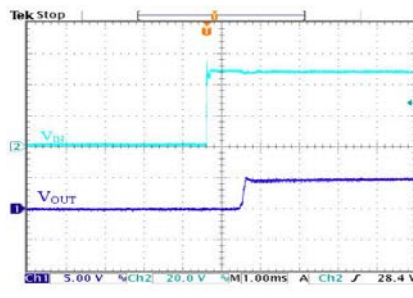
Typ. Output Ripple & Noise, Vin=Vin(nom), Full Load



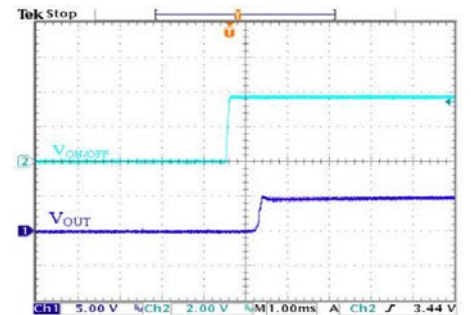
Transient Response to Dynamic Load Change from 100% to 75% to 100% of Full Load, Vin=Vin(nom)



Typical Input Start-Up & Output Rise Characteristic, Vin=Vin(nom), Full Load



Using ON/OFF Voltage Start-Up and Vo Rise Characteristic, Vin=Vin(nom), Full Load



**MODEL NUMBER SETUP**

## Single Output Models

| CBW         | 24                                              | S                       | 12                                                                                                                               | - | 2500                                                                                                                                   | R                                                       | HS                                                   |
|-------------|-------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------|
| Series Name | Input Voltage                                   | Output Quantity         | Ouptut Voltage                                                                                                                   |   | Output Current                                                                                                                         | Remote On/Off                                           | Heatsink                                             |
|             | <b>24:</b> 9 - 36 VDC<br><b>48:</b> 18 - 75 VDC | <b>S:</b> Single Output | <b>1.5:</b> 1.5V<br><b>2.5:</b> 2.5V<br><b>3.3:</b> 3.3V<br><b>5:</b> 5V<br><b>5.1:</b> 5.1V<br><b>12:</b> 12V<br><b>15:</b> 15V |   | <b>2000:</b> 2000mA<br><b>2500:</b> 2500mA<br><b>6000:</b> 6000mA<br><b>7500:</b> 7500mA<br><b>8000:</b> 8000mA<br><b>8500:</b> 8500mA | <b>None:</b> positive Logic<br><b>R:</b> negative Logic | <b>None:</b> No Heatsink<br><b>HS:</b> With Heatsink |

## Dual Output Models

| CBW         | 24                                              | D                     | 12                                                  | - | 1250                                                                 | R                                                       | HS                                                   |
|-------------|-------------------------------------------------|-----------------------|-----------------------------------------------------|---|----------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------|
| Series Name | Input Voltage                                   | Output Quantity       | Ouptut Voltage                                      |   | Output Current                                                       | Remote On/Off                                           | Heatsink                                             |
|             | <b>24:</b> 9 - 36 VDC<br><b>48:</b> 18 - 75 VDC | <b>D:</b> Dual Output | <b>5:</b> ±5V<br><b>12:</b> ±12V<br><b>15:</b> ±15V |   | <b>1000:</b> ±1000mA<br><b>1250:</b> ±1250mA<br><b>3000:</b> ±3000mA | <b>None:</b> positive Logic<br><b>R:</b> negative Logic | <b>None:</b> No Heatsink<br><b>HS:</b> With Heatsink |

## Triple Output Models

| CBW         | 24                                              | T                       | 512                                                                                                      | - | 30                                           | R                                                       | HS                                                   |
|-------------|-------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------|---|----------------------------------------------|---------------------------------------------------------|------------------------------------------------------|
| Series Name | Input Voltage                                   | Output Quantity         | Ouptut Voltage                                                                                           |   | Output Power                                 | Remote On/Off                                           | Heatsink                                             |
|             | <b>24:</b> 9 - 36 VDC<br><b>48:</b> 18 - 75 VDC | <b>T:</b> Triple Output | <b>3.312:</b> 3.3V / ±12V<br><b>3.315:</b> 3.3V / ±15V<br><b>512:</b> 5V / ±12V<br><b>515:</b> 5V / ±15V |   | <b>26:</b> 26.5 Watts<br><b>30:</b> 30 Watts | <b>None:</b> positive Logic<br><b>R:</b> negative Logic | <b>None:</b> No Heatsink<br><b>HS:</b> With Heatsink |

**COMPANY INFORMATION**

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

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